



इंजीनियर्स  
इंडिया लिमिटेड

ENGINEERS  
INDIA LIMITED  
(A Govt. of India Undertaking)



## VALVE MATERIAL SPECIFICATION

**BPCL Kochi Refinery- MS BLOCK PROJECT**

Contract No.: BM/B034-000-EP-TN-7210/1004

Petrofac Job No.: JI-2039

Doc No.: 2039-L-SPC-MX-0002-0001

Revision: 0

## VALVE MATERIAL SPECIFICATION

(EIL JOB SPECIFICATION NO. B034-6-44-0006-7200)

### BPCL Kochi Refinery- MS Block Project LSTK Package for NHT, PENEX and Balance of Units

**OWNER: Bharat Petroleum Corporation Limited (BPCL), India**

**PMC: Engineers India Limited (EIL), India**

0	20-Aug-18	Issued for Design	MN	AKG	RKK / AG	VA
A	29-May-18	Issued for Review	MN	AKG	RKK / AG	VA
REV.	DATE	DESCRIPTION	PRPD	CHKD	APPD LE / PEM	APPD PD




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(भारत पेट्रोक्लॉर के अधीन)



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INDIA LIMITED  
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 	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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### Record of Revisions

Rev. No.	VMS Sheet No.	Change Description
0	51902, 51903, 51923, 51965, 52902, 52903, 52965, 53901, 53903, 53923, 53965, 54902	VMS datasheets added.
0	51301, 51304, 51321, 51404, 51432, 51532, 51940, 51963, 52301, 52304, 52321, 52404, 52432, 52532, 52920, 52940, 52963	Trim material for disc and body seat ring changed from "13% Cr + Hardfaced Seats" to "13% Cr / 13% Cr Facing" and "Stellited" respectively.
0	51925, 51944, 51945, 51964, 51980, 52925, 52944, 52945, 52964, 52980, 53905, 53925, 53944, 53945, 53964, 53980	Trim material for disc and body seat ring changed from "SS 316L+Hardfaced Seats" to "SS 316L" and "Stellited" respectively.
0	51905, 52905	Trim material for disc and body seat ring changed from "SS 316L+Hardfaced Seats" to "Stellited".
0	51916, 53916	Trim material for disc changed from "Alloy UNS N04400 + Hardfaced Seats" to "Alloy UNS N04400".
0	51972, 52972, 53972	Trim material for disc and body seat ring changed from "SS 316+Hardfaced Seats" to "SS 316" and "Stellited" respectively.
0	53301, 53304, 53321, 53404, 53940, 53963	Trim material for disc and body seat ring changed from "13% Cr" and "13% Cr + Hardfaced Seats" to "13% Cr / 13% Cr Facing" and "Stellited" respectively.
0	53912	Body seat ring changed from "SS 316" to "Stellited".
0	51301, 51304, 51321, 51404, 51432, 51532, 51940, 51963, 52301, 52304, 52321, 52404, 52432, 52532, 52940, 52944, 52945, 52963, 52964, 52972	Body seat ring construction type modified to renewable type.
0	51905, 51912, 51916	Body seat ring construction type modified to renewable / non renewable type.
0	51304, 51532, 51905, 51925, 51926, 51940, 51944, 51945, 51963, 51964, 51972, 52304, 52532, 52944, 52945, 52963, 52964	Back seat shoulder construction type changed from integral to renewable.
0	51980, 52980, 53980	Bonnet construction type corrected from "Bolted" to "Welded / Thd and Seal weld"
0	52301, 52304, 52321, 52404, 52432, 52532, 52901, 52905, 52912, 52980	Disc construction corrected from "Solid" to "Loose plug type / Ball type".
0	53912	Body seat ring changed from "SS 316" to "Stellited".
0	53916	Body construction changed from forged to cast.

### List of Holds

Page/Section	Description
	NIL

	<p align="center"><b>VALVE MATERIAL SPECIFICATION</b></p>	<p><b>BPCL Kochi Refinery- MS BLOCK PROJECT</b>  <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004  <b>Petrofac Job No.:</b> JI-2039  <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001  <b>Revision:</b> 0</p>
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### Abbreviations :

VMS : Valve Material Specification

	<p align="center"><b>VALVE MATERIAL SPECIFICATION</b></p>	<p><b>BPCL Kochi Refinery- MS BLOCK PROJECT</b>  <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004  <b>Petrofac Job No.:</b> JI-2039  <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001  <b>Revision:</b> 0</p>
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Note-1 : For Valve Material Specification General Notes refer contract document no. 6-44-0006-A1, Rev. 1.

## VALVE MATERIAL SPECIFICATION

**BPCL Kochi Refinery- MS BLOCK PROJECT**  
**Contract No.:** BM/B034-000-EP-TN-7210/1004  
**Petrofac Job No.:** JI-2039  
**Doc No.:** 2039-L-SPC-MX-0002-0001  
**Revision:** 0

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64422 Rev. 0

	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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**Notes:**

- 1** For VMS General Notes, refer Annexure-I of this document.
- 2** For VMS Extracts, refer Annexure-II of this document.
- 3** All Rev. 0 datasheets (highlighted) are added/ modified from FEED VMS. For other datasheets refer contract VMS (Doc No. B034-6-44-0006-7200).

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51301 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51301</b> <b>PIPING CLASS :</b> A11A, A1A, A32A, A9A <b>RATING : 150</b> <b>STANDARD :</b> API 600/ ISO 10434 <b>SIZE RANGE : 2" TO 36"</b> <b>ENDS :</b> FLGD, B-16.5, RF/125AARH <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- GATE VALVES OF SIZE 26" AND ABOVE SHALL BE IN ACCORDANCE WITH BS-1414 / ANSI B-16.34 WITH TESTING AS PER BS EN 12266-1 / API 598 AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.
- 5% VALVE CASTINGS UPTO 24" AND 100% VALVE CASTINGS 26" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- FOR VALVE SIZE UPTO 24", TESTING SHALL BE AS PER API-598.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	A	0				<b>51301</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51304 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51304      PIPING CLASS : A5A</b> <b>RATING : 150                      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 32"              ENDS : FLGD, B-16.5, RF/125AARH   C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 285 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 GATE VALVES OF SIZE 26" AND ABOVE SHALL BE IN ACCORDANCE WITH BS-1414 / ANSI B-16.34 WITH TESTING AS PER BS EN 12266-1 / API 598 AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.
- 4 50% VALVE CASTINGS UPTO 24" AND 100% VALVE CASTINGS 26" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 FOR VALVE SIZE UPTO 24", TESTING SHALL BE AS PER API-598.
- 6 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	A	0				<b>51304</b>
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51321 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51321</b> <b>PIPING CLASS :</b> A3A, A91A, A92A <b>RATING :</b> 150 <b>STANDARD :</b> API 600/ ISO 10434 <b>SIZE RANGE :</b> 2" TO 24" <b>ENDS :</b> FLGD, B-16.5, RF/125AARH <b>C.A. :</b> 1.5 MM			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 186 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

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SHEET REV. NO.	A	0				51321
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51361 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51361      PIPING CLASS : A98M</b> <b>RATING : 150                      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 16"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF8M		
BONNET	BOLTED	ASTM A 351 GR.CF8M		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	SS 316		
BODY SEAT RING	NONRENEWABLE/ RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER		SS 316		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG.	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 5 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 6 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

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SHEET REV. NO.			ADVANCE COPY			<b>51361</b>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51393 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51393</b> <b>PIPING CLASS : A59A</b> <b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 375 DEG. C.		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 FOR VALVE SIZE UPTO 24", TESTING SHALL BE AS PER API-598.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			51393
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51404 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51404</b> <b>PIPING CLASS : B5A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 16"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 WITH GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 345 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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OF MANUFACTURER

SHEET REV. NO.	A	0				<b>51404</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51432 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51432      PIPING CLASS : B53D</b> <b>RATING : 300                      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 16"                      ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316+THERMICULITE835+IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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OF MANUFACTURER

SHEET REV. NO.	A	0				<b>51432</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51493 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51493      PIPING CLASS : B59A</b> <b>RATING : 300                      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 375 DEG. C.		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.			ADVANCE COPY			<div style="font-size: 2em; font-weight: bold;">51493</div>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51532 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51532 PIPING CLASS : D55D</b> <b>RATING : 600 STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 16" ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING: ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	FLEXIBLE	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316 + THERMICULITE835 +IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2250 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	A	0	ADVANCE COPY			51532
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51593 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51593</b>			<b>STANDARD:</b>	
<b>PIPING CLASS : D59A</b>			<b>MFGRS CAT/FIG:</b>	
<b>RATING : 600</b>			<b>RATING:</b>	
<b>STANDARD : API 600/ ISO 10434</b>			<b>ENDS:</b>	
<b>SIZE RANGE : 2" TO 4"</b>				
<b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			<b>51593</b>
DATE						



	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51902 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51902      PIPING CLASS : A91N</b> <b>RATING : 800                      STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SCRF, 3000 TO B-1.20.1      C.A. : 0 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. F316L		
BONNET	BOLTED	ASTM A 182 Gr. F316L		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 65 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG.	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				<b>51902</b>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51903 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51903</b> <b>PIPING CLASS : A61K</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW 3000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F304/304L DUAL CERT.		
BONNET	BOLTED	ASTM A 182 GR.F304/304L DUAL CERT.		
STEM	RISING	SS 304/SS 316 (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

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OF MANUFACTURER

SHEET REV. NO.		0				<b>51903</b>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51905 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51905</b> <b>PIPING CLASS :</b> A64A, B64A, D64A <b>RATING : 800</b> <b>STANDARD :</b> API 602/ ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS :</b> SW, 6000 TO B-16.11 <b>C.A. :</b> 3 MM			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			51905
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51907 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51907</b> <b>PIPING CLASS : J3A</b> <b>RATING : 150</b> <b>STANDARD : MSS SP-80</b> <b>SIZE RANGE : 2" TO 3"</b> <b>ENDS : SCRF 3000 TO B-1.20.1</b> <b>C.A. : 0 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM B62		
BONNET	BOLTED	ASTM B62		
STEM	RISING	ASTM B62 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ASTM B62		
BODY SEAT RING	RENEWABLE	ASTM B62		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	PTFE		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A307 GR.B(GALV)		
BONNET NUTS		ASTM A563 GR.B(GALV)		
BONNET GASKET		BUTYL RUBBER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 65 DEG. C.		
BACK SEAT & SHOULDER		BRONZE		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 350 PSIG.	SEAT : 250 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

<b>NOTES</b>		<div>SIGNATURE &amp; SEAL OF MANUFACTURER</div>
1	THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.	
2	NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.	
3	TESTING SHALL BE AS PER MSS SP-80.	

SHEET REV. NO.			ADVANCE COPY			<div>51907</div>
DATE						

	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51908 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51908      PIPING CLASS : J3A</b> <b>RATING : 150                      STANDARD : MSS SP-80</b> <b>SIZE RANGE : 4" TO 6"              ENDS : FLGD, B-16.24,FF/125AARH C.A. : 0 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM B62		
BONNET	BOLTED	ASTM B62		
STEM	RISING	ASTM B62 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ASTM B62		
BODY SEAT RING	RENEWABLE	ASTM B62		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	PTFE		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A307 GR.B(GALV)		
BONNET NUTS		ASTM A563 GR.B(GALV)		
BONNET GASKET		BUTYL RUBBER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 65 DEG. C.		
BACK SEAT & SHOULDER		BRONZE		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 350 PSIG.	SEAT : 250 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER MSS SP-80.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			<b>51908</b>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51912 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51912 PIPING CLASS : D61M</b> <b>RATING : 800 STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5" ENDS : SW, 6000 TO B-16.11 C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING: ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. F316/316L		
BONNET	BOLTED	ASTM A 182 Gr. F316/316L		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				51912
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51916 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51916</b> <b>PIPING CLASS : A91P</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 3000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 494 GR M35-1		
BONNET	BOLTED	ASTM A 494 GR M35-1		
STEM	RISING	Alloy UNS N04400		
WEDGE DISC	SOLID	Alloy UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	Alloy UNS N04400 + HARDFACED SEATS		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP. WND ALLOY 400 + GRAFOIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 315 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG.	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				51916
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51923 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51923      PIPING CLASS : A61K</b> <b>RATING : 150                      STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 2" TO 6"                      ENDS : FLGD, B-16.5, RF/125AARH   C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR. CF8M		
BONNET	BOLTED	ASTM A 351 GR. CF8M		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	SS 316		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.		
BACK SEAT & SHOULDER		SS 316		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 425 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 6 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				<b>51923</b>
DATE		20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51924 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51924</b> <b>PIPING CLASS : A61K</b> <b>RATING : 300</b> <b>STANDARD : API 600/ISO 10434</b> <b>SIZE RANGE : 2"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR. CF8M		
BONNET	BOLTED	ASTM A 351 GR. CF8M		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	SS 316		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.		
BACK SEAT & SHOULDER		SS 316		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG.	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 6 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			<b>51924</b>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51925 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51925</b> <b>PIPING CLASS : A64A</b> <b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID / FLEXIBLE	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 275 DEG. C.		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			51925
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51926 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51926</b> <b>PIPING CLASS : A91P</b> <b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 4"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 494 GR M35-1		
BONNET	BOLTED	ASTM A 494 GR M35-1		
STEM	RISING	Alloy UNS N04400		
WEDGE DISC	SOLID / FLEXIBLE	Alloy UNS N04400 + HARDFACED SEATS		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	Alloy UNS N04400 + HARDFACED SEATS		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP. WND ALLOY 400 + GRAFOIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 315 DEG. C.		
BACK SEAT & SHOULDER		Alloy UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 350 PSIG.	SEAT : 275 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>51926</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51940 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51940</b> <b>PIPING CLASS : B71A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 14" TO 24"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	13%CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL HAVE A MINIMUM OF FIVE (5) DIE-FORMED FLEXIBLE GRAPHITE PACKING RINGS.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>51940</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51942 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51942</b> <b>PIPING CLASS : B25D</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 8"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316 + THERMICULITE835 +IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

NOTES		SIGNATURE & SEAL OF MANUFACTURER
1	THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.	
2	NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.	
3	50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.	
4	TESTING SHALL BE AS PER API-598 / BS EN 12266-1.	
5	VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.	

SHEET REV. NO.			ADVANCE COPY			<div>51942</div>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 51944 Sheet No. 1 of 1</b>	
GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51944 PIPING CLASS : B63A</b>			<b>STANDARD:</b>	
<b>RATING : 300 STANDARD : API 600/ ISO 10434</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 14" ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID / FLEXIBLE	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			<b>51944</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51945 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51945</b> <b>PIPING CLASS : B64A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID / FLEXIBLE	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 300 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			51945
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51963 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51963</b> <b>PIPING CLASS : D95A</b> <b>RATING : 600</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	13%CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 5 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				51963
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51964 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51964 PIPING CLASS : D63A</b> <b>RATING : 600 STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 3" ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING: ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID / FLEXIBLE	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 300 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			51964
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51965 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51965      PIPING CLASS : D64A</b> <b>RATING : 600                      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID / FLEXIBLE	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0	ADVANCE COPY			<b>51965</b>
DATE		20-Aug-18				

	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51972 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51972      PIPING CLASS : D61M</b> <b>RATING : 600                      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 3"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR. CF8M		
BONNET	BOLTED	ASTM A 351 GR. CF8M		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	SS 316		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2200 PSIG.	SEAT : 1600 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 6 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>51972</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 51980 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 51980</b> <b>PIPING CLASS : B63A, D63A</b> <b>RATING : 1500</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 9000 TO B-16.11</b> <b>C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105N		
STEM	RISING	SS 316L		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG.	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			<b>51980</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52301 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52301</b> <b>PIPING CLASS :</b> A11A, A1A, A9A <b>RATING :</b> 150 <b>STANDARD :</b> BS-1873 <b>SIZE RANGE :</b> 2" TO 16" <b>ENDS :</b> FLGD, B-16.5, RF/125AARH <b>C.A. :</b> 1.5 MM			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52301</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52304 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52304</b> <b>PIPING CLASS : A5A</b> <b>RATING : 150</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 16"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 285 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				52304
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52321 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52321</b> <b>PIPING CLASS :</b> A3A, A91A, A92A <b>RATING : 150</b> <b>STANDARD :</b> BS-1873 <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS :</b> FLGD, B-16.5, RF/125AARH <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS		MAX TEMP. 186 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				52321
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52404 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52404</b> <b>PIPING CLASS : B5A</b> <b>RATING : 300</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 WITH GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 345 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER BS EN 12266-1.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52404</b>
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b> <b>Doc No.: 2039-L-SPC-MX-0002-0001</b> <b>Revision: 0</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52432 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52432      PIPING CLASS : B53D</b> <b>RATING : 300                      STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 12"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316+THERMICULITE835+IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52432</b>
DATE	29-May-18	20-Aug-18				

 	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52493 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52493</b> <b>PIPING CLASS : B5A</b> <b>RATING : 300</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 8"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 375 DEG. C.		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			<b>52493</b>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52532 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52532</b>			<b>STANDARD:</b>	
<b>PIPING CLASS : D55D</b>			<b>MFGRS CAT/FIG:</b>	
<b>RATING : 600</b>			<b>RATING:</b>	
<b>STANDARD : BS-1873</b>			<b>ENDS:</b>	
<b>SIZE RANGE : 2" TO 12"</b>				
<b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316 + THERMICULITE835 +IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 2250 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52532</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 52901 Sheet No. 1 of 1</b>	
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52901      PIPING CLASS : A71A, B71A</b>			<b>STANDARD:</b>	
<b>RATING : 800      STANDARD : BS EN ISO 15761</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SW, 6000 TO B-16.11      C.A. : 1.5 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13%CR. STEEL		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 VALVES SHALL HAVE A MINIMUM OF FIVE (5) DIE-FORMED FLEXIBLE GRAPHITE PACKING RINGS.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52901</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 52902 Sheet No. 1 of 1</b>	
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52902      PIPING CLASS : A91N</b>			<b>STANDARD:</b>	
<b>RATING : 800      STANDARD : BS EN ISO 15761</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SCRF, 2000 TO B-1.20.1      C.A. : 0 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. F316L		
BONNET	BOLTED	ASTM A 182 Gr. F316L		
STEM	RISING	SS 316L		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 65 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG.	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

<b>NOTES</b>		<div>SIGNATURE &amp; SEAL OF MANUFACTURER</div>
<b>1</b>	THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.	
<b>2</b>	NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.	
<b>3</b>	TESTING SHALL BE AS PER BS EN 12266-1.	

SHEET REV. NO.		0				<b>52902</b>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52903 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52903</b> <b>PIPING CLASS : A61K</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW 3000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F304/304L DUAL CERT.		
BONNET	BOLTED	ASTM A 182 GR.F304/304L DUAL CERT.		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				52903
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 52905 Sheet No. 1 of 1</b>	
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52905</b>			<b>STANDARD:</b>	
<b>PIPING CLASS : A64A, B64A, D64A</b>			<b>MFGRS CAT/FIG:</b>	
<b>RATING : 800</b>			<b>RATING:</b>	
<b>STANDARD : BS EN ISO 15761</b>			<b>ENDS:</b>	
<b>SIZE RANGE : 0.5" TO 1.5"</b>			<b>ENDS : SW, 6000 TO B-16.11</b>	
<b>C.A. : 3 MM</b>				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	SS 316L		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52905</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52912 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52912      PIPING CLASS : D61M</b> <b>RATING : 800                      STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SW, 6000 TO B-16.11      C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. F316/316L		
BONNET	BOLTED	ASTM A 182 Gr. F316/316L		
STEM	RISING	SS 316		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52912</b>
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52920 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52920      PIPING CLASS : A71A</b> <b>RATING : 150                      STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 12"              ENDS : FLGD, B-16.5, RF/125AARH   C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL / CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS		MAX TEMP. 315 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR.STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL HAVE A MINIMUM OF FIVE (5) DIE-FORMED FLEXIBLE GRAPHITE PACKING RINGS.

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SHEET REV. NO.	A	0				<b>52920</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52925 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52925</b> <b>PIPING CLASS : A64A</b> <b>RATING : 150</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 275 DEG. C.		
BACK SEAT & SHOULDER		SS 316		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
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SHEET REV. NO.	A	0	ADVANCE COPY			<b>52925</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52940 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52940</b> <b>PIPING CLASS : B71A</b> <b>RATING : 300</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL / CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR.STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVES SHALL HAVE A MINIMUM OF FIVE (5) DIE-FORMED FLEXIBLE GRAPHITE PACKING RINGS.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	A	0				52940
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52942 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52942</b> <b>PIPING CLASS : B25D</b> <b>RATING : 300</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 8"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE / BALL TYPE	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316 + THERMICULITE835 +IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			52942
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52944 <b>Sheet No.</b> 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52944</b> <b>PIPING CLASS : B63A</b> <b>RATING : 300</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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SHEET REV. NO.	A	0	ADVANCE COPY			52944
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52945 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52945</b> <b>PIPING CLASS : B64A</b> <b>RATING : 300</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 300 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			<b>52945</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52963 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52963</b> <b>PIPING CLASS : D95A</b> <b>RATING : 600</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	13%CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR. STEEL / 13% CR. STEEL FACING		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		13% CR. STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				52963
DATE	29-May-18	20-Aug-18				

	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 52964 Sheet No. 1 of 1</b>	
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52964      PIPING CLASS : D63A</b>			<b>STANDARD:</b>	
<b>RATING : 600      STANDARD : BS-1873</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 3"      ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 7 THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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SHEET REV. NO.	A	0	ADVANCE COPY			<b>52964</b>
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52965 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52965</b> <b>PIPING CLASS : D64A</b> <b>RATING : 600</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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OF MANUFACTURER

SHEET REV. NO.		0	ADVANCE COPY			<b>52965</b>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52972 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52972      PIPING CLASS : D61M</b> <b>RATING : 600                      STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 3"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR. CF8M		
BONNET	BOLTED	ASTM A 351 GR. CF8M		
STEM	RISING	SS 316 (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316		
HYDROSTATIC TEST PRESSURE	BODY : 2200 PSIG.	SEAT : 1600 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 6 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.

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SHEET REV. NO.	A	0				<b>52972</b>
DATE	29-May-18	20-Aug-18				

	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 52980 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52980</b> <b>PIPING CLASS : B63A, D63A</b> <b>RATING : 1500</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 6000 TO B-16.11</b> <b>C.A. : 6 MM</b>			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105N		
STEM	RISING	SS 316L		
DISC	LOOSE PLUG TYPE	SS 316L		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG.	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	A	0				<b>52980</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53301 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53301</b> <b>PIPING CLASS :</b> A11A, A1A, A32A, A9A, A71A <b>RATING : 150</b> <b>STANDARD :</b> BS 1868 <b>SIZE RANGE : 2" TO 24"</b> <b>ENDS :</b> FLGD, B-16.5, RF/125AARH <b>C.A. :</b> 1.5 MM			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53301</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53304 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53304      PIPING CLASS : A5A</b> <b>RATING : 150                      STANDARD : BS 1868</b> <b>SIZE RANGE : 2" TO 24"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 285 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53304</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 53321 Sheet No. 1 of 1</b>	
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53321 PIPING CLASS : A3A, A91A, A92A</b>			<b>STANDARD:</b>	
<b>RATING : 150 STANDARD : BS 1868</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 10" ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 186 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53321</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53404 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53404</b> <b>PIPING CLASS : B5A</b> <b>RATING : 300</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 16"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 345 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53404</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53493 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53493</b> <b>PIPING CLASS : B59A</b> <b>RATING : 300</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 375 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			53493
DATE						



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> ADVANCE COPY
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53593 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53593</b> <b>PIPING CLASS : D59A</b> <b>RATING : 600</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 3"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 375 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.			ADVANCE COPY			53593
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53901 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53901</b> <b>PIPING CLASS : A71A, B71A</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 3000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
COVER	BOLTED	ASTM A 105N		
DISC/PISTON		13% CR.STEEL		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP.WND SS316+GRAFIL		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				<b>53901</b>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53903 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53903</b> <b>PIPING CLASS : A61K</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW 3000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F304/304L DUAL CERT.		
COVER	BOLTED	ASTM A 182 GR.F304/304L DUAL CERT.		
DISC/PISTON		SS 304/SS 316		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP.WND SS316L+GRAFIL		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				<b>53903</b>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53905 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53905</b> <b>PIPING CLASS :</b> A64A, B64A, D64A <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS :</b> SW, 6000 TO B-16.11 <b>C.A. :</b> 3 MM			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
COVER	BOLTED	ASTM A 105N		
DISC/PISTON		SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53905</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53912 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53912</b> <b>PIPING CLASS : D61M</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 6000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. F316/316L		
COVER	BOLTED	ASTM A 182 Gr. F316/316L		
DISC/PISTON		SS 316		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP.WND SS316L+GRAFIL		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53912</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53916 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53916</b> <b>PIPING CLASS : A91P</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 3000 TO B-16.11</b> <b>C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 494 GR M35-1		
COVER	BOLTED	ASTM A 494 GR M35-1		
DISC/PISTON		Alloy UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	Alloy UNS N04400 + HARDFACED SEATS		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP. WND ALLOY 400 + GRAFOIL		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 315 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				53916
DATE	29-May-18	20-Aug-18				



इंजीनियर्स  
इंडिया लिमिटेड  
(A Govt of India Undertaking)

ENGINEERS  
INDIA LIMITED  
(A Govt of India Undertaking)



## VALVE MATERIAL SPECIFICATION

Contract No.: BM/B034-000-EP-TN-7210/1004

Petrofac Job No.: JI-2039

Doc No.: 2039-L-SPC-MX-0002-0001

Revision: 0

Client : BPCL			Dept. : PIPING	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53923 Sheet No. 1 of 1	
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53923 PIPING CLASS : A61K			STANDARD:	
RATING : 150 STANDARD : BS-1868			MFGRS CAT/FIG:	
SIZE RANGE : 2" TO 12" ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR. CF8M		
COVER	BOLTED	ASTM A 351 GR. CF8M		
DISC		SS 316		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316		
HINGE PIN		SS 316		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP.WND SS316L+GRAFIL		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 425 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				53923
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53925 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53925      PIPING CLASS : A64A</b> <b>RATING : 150                      STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 12"              ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:                      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316L / A 216 Gr. WCB		
HINGE PIN		SS 316L		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 275 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 7 IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			<b>53925</b>
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53926 Sheet No. 1 of 1




CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53926</b> <b>PIPING CLASS : A91P</b> <b>RATING : 150</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 4"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 494 GR M35-1		
COVER	BOLTED	ASTM A 494 GR M35-1		
DISC		Alloy UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		Alloy UNS N04400 / ASTM A 494 GR M35-1		
HINGE PIN		Alloy UNS N04400		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP. WND ALLOY 400 + GRAFOIL		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 315 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 350 PSIG.	SEAT : 275 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53926</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53940 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION	MANUF'S OFFER
<b>TAG NO. : 53940</b> <b>PIPING CLASS : B71A</b> <b>RATING : 300</b> <b>STANDARD : BS 1868</b> <b>SIZE RANGE : 2" TO 16"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>	<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>

DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / ASTM A 216 Gr. WCB		
HINGE PIN		13% CR.STEEL (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

NOTES		SIGNATURE & SEAL OF MANUFACTURER
1	THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.	
2	NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.	
3	TESTING SHALL BE AS PER BS EN 12266-1.	
4	10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.	

SHEET REV. NO.	A	0				<b>53940</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53944 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53944</b> <b>PIPING CLASS : B63A</b> <b>RATING : 300</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316L / ASTM A 216 Gr. WCB		
HINGE PIN		SS 316L		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			<b>53944</b>
DATE	29-May-18	20-Aug-18				

	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53945 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53945</b> <b>PIPING CLASS : B64A</b> <b>RATING : 300</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316L / ASTM A 216 Gr. WCB		
HINGE PIN		SS 316		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 300 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0	ADVANCE COPY			<b>53945</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53963 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53963</b> <b>PIPING CLASS : D95A</b> <b>RATING : 600</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		13% CR.STEEL / 13% CR.STEEL FACING		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR. STEEL / ASTM A 216 Gr. WCB		
HINGE PIN		13% CR STEEL(NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP.WND SS316+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 425 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN		13% CR STEEL (NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				53963
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53964 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53964</b> <b>PIPING CLASS : D63A</b> <b>RATING : 600</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 3"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316L / ASTM A 216 Gr. WCB		
HINGE PIN		SS 316L		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 300 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

NOTES		SIGNATURE & SEAL OF MANUFACTURER
1	THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.	
2	NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.	
3	TESTING SHALL BE AS PER BS EN 12266-1.	
4	NACE REQUIREMENTS SHALL BE AS PER MR0103.	
5	100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.	
6	VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.	
7	IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.	
8	THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.	

SHEET REV. NO.	A	0	ADVANCE COPY			<b>53964</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53965 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53965</b> <b>PIPING CLASS : D64A</b> <b>RATING : 600</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 3 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		SS 316L FACING/SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316L / ASTM A 216 Gr. WCB		
HINGE PIN		SS 316		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 335 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

<b>NOTES</b>	
1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.	<div>SIGNATURE &amp; SEAL OF MANUFACTURER</div>
2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.	
3 TESTING SHALL BE AS PER BS EN 12266-1.	
4 NACE REQUIREMENTS SHALL BE AS PER MR0103.	
5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.	
6 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.	

SHEET REV. NO.		0	ADVANCE COPY			<div>53965</div>
DATE		20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53972 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53972</b> <b>PIPING CLASS : D61M</b> <b>RATING : 600</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 3"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 1.5 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR. CF8M		
COVER	BOLTED	ASTM A 351 GR. CF8M		
DISC		SS 316		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316		
HINGE PIN		SS 316		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2200 PSIG.	SEAT : 1600 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53972</b>
DATE	29-May-18	20-Aug-18				



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 53980 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 53980</b> <b>PIPING CLASS : B63A, D63A</b> <b>RATING : 1500</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 9000 TO B-16.11</b> <b>C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
COVER	WELDED/THD & SEAL WELDED	ASTM A 105N		
DISC/PISTON		SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG.	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	A	0				<b>53980</b>
DATE	29-May-18	20-Aug-18				

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 54902 Sheet No. 1 of 1

BALL VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 54902</b> <b>PIPING CLASS : A91N</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 17292</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SCRF, 3000 TO B-1.20.1</b> <b>C.A. : 0 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. 316L		
STEM	ANTI BLOWOUT	SS 316L (NO CASTING)		
BALL	SOLID	SS 316L		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	SS 316L		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS+GRAFOIL		
BODY SEAL	NON RISING	GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	O.S & Y.	MAX TEMP. 65 DEG. C.		
SPRING		INCONEL X-750		
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG.	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.		0				<b>54902</b>
DATE		20-Aug-18				

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51001	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51001</b> <b>PIPING CLASS :</b> A11A, A1A, A32A, A3A, A91A, A92A, A9A, B1A, B9A, D1A, D9A, <b>RATING</b> : 800 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE</b> : 0.25" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316- GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**51001**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51002	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51002</b> <b>PIPING CLASS :</b> A2A, B2A, D2A, <b>RATING</b> : 800 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 - GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER IBR ALSO.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVES AS PER API-602 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**51002**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51004	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51004</b> <b>PIPING CLASS :</b> A52A, A5A, B5A, B95A, D5A, D95A, <b>RATING : 800</b> <b>STANDARD :</b> API 602/ ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 - GRAFOIL FILLER.		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 260 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG.		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 5 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
DATE	14/12/2000	28/05/2001	30/06/2009

**51004**

<b>Client : BPCL</b>			<b>Dept./Sect. : 16/43</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 51011</b>	<b>Sheet No. 1 of 1</b>
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51011</b> <b>PIPING CLASS : A16A,</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW 3000 TO B-16.11</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	SS 316L (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP WND SS316L -GRAFOIL FILLER.		
SPECIAL SERVICE CONDITIONS	NACE	SOUR SERVICE (MAX TEMP 427 DEG.C.)		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	31/12/2001	30/06/2009

**51011**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51013	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51013</b> <b>PIPING CLASS :</b> A19A, B19A, D19A, <b>RATING</b> : 800 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 - GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		CAUSTIC(MAX.TEMP.110 DEG.C) AND AMINE		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	23/06/2003	30/06/2009

**51013**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51024	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51024</b> <b>PIPING CLASS : J3A,</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SCRF 3000 TO B-1.20.1</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	13% CR.STEEL FACING/13% CR.STEEL/STELLITED		
BODY SEAT RING	RENEWABLE	13% CR.STEEL FACING/13% CR.STEEL/STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 - GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		MAX TEMP 75 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**51024**



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51032	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51032 PIPING CLASS : B53D, D52D, D55D,			STANDARD:	
RATING : 800 STANDARD : API 602/ ISO 15761			MFGRS CAT/FIG:	
SIZE RANGE : 0.5" TO 1.5" ENDS : SW 3000 TO B-16.11			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F11 CL.2 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 182 GR.F11 CL.2 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4/GR7		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 538 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 3000 PSIG	SEAT : 2200 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	06/08/2002	30/06/2009

51032

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51045	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51045</b> <b>PIPING CLASS :</b> A1K, A3K, <b>RATING</b> : 800 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304		
BONNET	BOLTED	ASTM A 182 GR.F304		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR.2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		MAX TEMP 454 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**51045**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51048	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51048</b> <b>PIPING CLASS :</b> B4K, <b>RATING : 800</b> <b>STANDARD :</b> API 602/ ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304H		
BONNET	BOLTED	ASTM A 182 GR.F304H		
STEM	RISING	SS 304H/ SS 316H; (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		A453 GR.660 Cl.A		
BONNET NUTS		A453 GR.660 Cl.A		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		MAX TEMP 704 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	06/08/2002	30/06/2009

**51048**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51050	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51050</b> <b>PIPING CLASS :</b> B11K, <b>RATING</b> : 800 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304L		
BONNET	BOLTED	ASTM A 182 GR.F304L		
STEM	RISING	SS 316L (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316L-GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SIGNATURE  
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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

**51050**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51061	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51061</b> <b>PIPING CLASS :</b> A98M, B98M, <b>RATING</b> : 800 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F316		
BONNET	BOLTED	ASTM A 182 GR.F316		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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**51061**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51062	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51062 PIPING CLASS : B98K, RATING : 800 STANDARD : API 602/ ISO 15761 SIZE RANGE : 0.5" TO 1.5" ENDS : SW 3000 TO B-16.11			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F316H		
BONNET	BOLTED	ASTM A 182 GR.F316H		
STEM	RISING	SS 316H (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A453GR660CLA		
BONNET NUTS		ASTM A453GR660CLA		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
SPECIAL SERVICE CONDITIONS	H2	MAX. TEMP. 538 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	06/08/2002	30/06/2009

51062

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51080	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51080</b> <b>PIPING CLASS :</b> A33Y, J2A, <b>RATING</b> : CL.2 <b>STANDARD</b> : IS:778 CL.2 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SCRF 3000 TO B-1.20.1			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	IS 318 GR.LTB2 (LEADED TIN BRONZE)		
BONNET	BOLTED/SCREWED	IS 318 GR.LTB2		
STEM	RISING	IS 320 ALLOY HT2 HIGH TENSILE BRASS		
WEDGE DISC	SOLID	IS 318 GR LTB2		
BODY SEAT RING	RENEWABLE	IS 318 GR LTB2		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	PTFE		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		IS 1367 CLAUSE 4.6 & 4 / ASTM A193 GR B7		
BONNET NUTS		IS 1367 CLAUSE 4.6 & 4 / ASTM A194 GR 2H		
BONNET GASKET		RUBBER		
SPECIAL SERVICE CONDITIONS		MAX TEMP 75 DEG.C.		
BACK SEAT & SHOULDER		IS 320 ALLOY HT2		
OTHERS				
HYDROSTATIC TEST PRESSURE	BODY : 348 PSIG	SEAT : 232 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER IS:778 CL.2

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SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	06/08/2002	30/06/2009

**51080**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51101	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51101</b> <b>PIPING CLASS :</b> E1A, F1A, <b>RATING</b> : 1500 <b>STANDARD</b> : API 602/ ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.CENT.		
BACK SEAT & SHOULDER		13%CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH 160
- 5 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
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**51101**



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51104	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51104 PIPING CLASS : E5A, F5A,			STANDARD:	
RATING : 1500 STANDARD : API 602/ ISO 15761			MFGRS CAT/FIG:	
SIZE RANGE : 0.5" TO 1.5" ENDS : BW TO B-16.25			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG.CENT.		
BACK SEAT & SHOULDER		13%CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH 160
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1
DATE	28/05/2001	30/06/2009

51104

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51113	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51113 PIPING CLASS : E19A, RATING : 1500 STANDARD : API 602/ ISO 15761 SIZE RANGE : 0.5" TO 1.5" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
WEDGE DISC	SOLID	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
SPECIAL SERVICE CONDITIONS		CAUSTIC (MAX. TEMP. 110 DEG.C) AND AMINE		
BACK SEAT & SHOULDER	INTEGRAL	STELLITED		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH XXS
- 5 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0
DATE	30/01/2010

51113

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51302	Sheet No. 1 of 2
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51302 PIPING CLASS : A2A, RATING : 150 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 36.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX. TEMP. 371 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER IBR ALSO.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 5% VALVE CASTINGS UPTO 24" AND 100% VALVE CASTINGS 26" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GATE VALVES OF SIZE 26" AND ABOVE SHALL BE IN ACCORDANCE WITH ANSI B-16.34 WITH TESTING AS PER API-598 RESPECTIVELY & IBR AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.

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51302

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 10 FOR VALVE SIZE UPTO 24", VALVES AS PER API-600 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.
- 11 GATE VALVES OF SIZE 26" & ABOVE AS PER BS-1414 ARE ALSO ACCEPTABLE WITH TESTING AS PER BS 6755 (PART-I) & IBR AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.

SHEET REV. NO.	2	3	4	5
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**51302**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51311	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51311</b> <b>PIPING CLASS : A16A,</b> <b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2.0" TO 30.0"</b> <b>ENDS : FLGD TO B-16.5 RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 316L (NO CASTING)		
WEDGE DISC	FLEXIBLE	FACED WITH SS 316L/SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	FACED WITH SS 316L/SS 316L		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP WND SS316L-GRAFOIL FILLER/CORRUGATED SS316L		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	NACE	SOUR SERVICE/MAX TEMP 371 DEG.C.		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- GATE VALVES OF SIZE 26" AND ABOVE SHALL BE IN ACCORDANCE WITH ANSI B-16.34 WITH TESTING AS PER API-598 AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.
- 50% VALVE CASTINGS UPTO 24" AND 100% VALVE CASTINGS 26" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- FOR VALVE SIZE UPTO 24", VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.
- GATE VALVES OF SIZE 26" & ABOVE AS PER BS-1414 ARE ALSO ACCEPTABLE WITH TESTING AS PER BS 6755 (PART-I) AND FLANGE ENDS SHALL BE IN ACCORDANCE WITH ASME B16.47 SERIES B.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.

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OF MANUFACTURER

SHEET REV. NO.	2	3	4	5	6	7
DATE	02/01/1995	14/12/2000	28/05/2001	01/12/2004	09/12/2005	30/06/2009

**51311**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51313	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51313 PIPING CLASS : A19A, RATING : 150 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	SS 304		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	SS 304		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR.B7		
BONNET NUTS		ASTM A194 GR.2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE (MAX.TEMP.110 DEG.C) & AMINE		
BACK SEAT & SHOULDER		SS 304		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

51313

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51345	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51345			STANDARD:	
PIPING CLASS : A1K, A3K,			MFGRS CAT/FIG:	
RATING : 150			STANDARD : API 600/ ISO 10434	
SIZE RANGE : 2.0" TO 24.0"			RATING: ENDS:	
ENDS : FLGD TO B-16.5 RF/125AARH				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR CF8		
BONNET	BOLTED	ASTM A 351 GR.CF8		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	SS 304		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	SS 304		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 371 DEG.C.		
BACK SEAT & SHOULDER		SS 304		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 425 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 10 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

51345

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51380	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51380 PIPING CLASS : J2A, RATING : PN1.6 STANDARD : IS:14846 SIZE RANGE : 2.0" TO 6.0" ENDS : FLGD TO B-16.1 FF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	IS 210 GR.FG 200		
BONNET	BOLTED	IS 210 GR.FG 200		
STEM	NON RISING	HIGH TENSILE BRASS IS:320 GR HT2/ IS-6912 GR. FHTB2		
WEDGE DISC	SOLID/FLEXIBLE	IS 210 GR. FG 200		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	LEADED TIN BRONZE IS:318 GR.LTB2		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	PTFE/ RUBBER IS: 638 TYPE B		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		IS 1363 PT-1 CL. 4.6		
BONNET NUTS		IS 1363 PT-3 CL. 4.0		
BONNET GASKET		BUTYL RUBBER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		POTABLE WATER		
BACK SEAT & SHOULDER		IS:320 GR HT2		
OTHERS				
WEDGE FACING RINGS & NUT		LEADED TIN BRONZE IS 318 GR. LTB2/ IS: 320 GR. HT2		
HYDROSTATIC TEST PRESSURE	BODY : 348 PSIG	SEAT : 232 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER IS:14846
- 5 FLANGE END SHALL BE FLAT FACE DRILLED TO ANSI B16.1, 125 #.
- 6 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.

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DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

51380



<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 51384	<b>Sheet No.</b> 1 of 1
<b>GATE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 51384</b> <b>PIPING CLASS :</b> A33Y, <b>RATING</b> : 150 <b>STANDARD</b> : API 600/ ISO 10434 <b>SIZE RANGE :</b> 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 FF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	BRONZE (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	BRONZE		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	BRONZE		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT.IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		SEA WATER; MAX TEMP 70 DEG.C. MAX.PR. 15.4 KG/CM2G		
BACK SEAT & SHOULDER		BRONZE		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 5 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	06/08/2002	30/06/2009

**51384**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51401	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51401 PIPING CLASS : B1A, B9A,			STANDARD:	
RATING : 300 STANDARD : API 600/ ISO 10434			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	FLEXIBLE/SOLID	13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

51401

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51402	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51402 PIPING CLASS : B2A, RATING : 300 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX. TEMP. 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER IBR ALSO.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVES AS PER API-600 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.

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51402

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51413	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51413 PIPING CLASS : B19A, RATING : 300 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	SS 304		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	SS 304		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE;		
BACK SEAT & SHOULDER		SS 304		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 50% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

51413

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51448	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51448 PIPING CLASS : B4K, RATING : 300 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF10		
BONNET	BOLTED	ASTM A 351 GR.CF10		
STEM	RISING	SS 304H/ SS316H; (NO CASTING)		
WEDGE DISC	FLEXIBLE	STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		A453 GR.660CLA		
BONNET NUTS		A453 GR.660CLA		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 704 DEG.C.		
BACK SEAT & SHOULDER		SS 304H		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 100% OF VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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51448

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51461	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51461 PIPING CLASS : B98M,			STANDARD:	
RATING : 300 STANDARD : API 600/ ISO 10434			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF8M		
BONNET	BOLTED	ASTM A 351 GR.CF8M		
STEM	RISING	SS 316 (NO CASTING)		
WEDGE DISC	FLEXIBLE	SS 316		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	SS 316		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		SS316		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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OF MANUFACTURER

SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

51461

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51462	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51462 PIPING CLASS : B98K, RATING : 300 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR CF10M		
BONNET	BOLTED	ASTM A 351 GR CF10M		
STEM	RISING	SS 316H (NO CASTING)		
WEDGE DISC	FLEXIBLE	STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON-RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT.IRON		
BONNET BOLTS		A453 GR.660CL.A		
BONNET NUTS		A453 GR.660CL.A		
BONNET GASKET		SP WND SS16H-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES		
REQUIREMENT OF GEAR RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES		
SPECIAL SERVICE CONDITIONS		MAX. TEMP. 538 DEG.C		
BACK SEAT & SHOULDER		SS316H		
OTHERS	O.S&Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	0	1	2	3
DATE	28/05/2001	16/04/2002	06/08/2002	30/06/2009

51462

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51501	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51501 PIPING CLASS : D1A, D9A,			STANDARD:	
RATING : 600 STANDARD : API 600/ ISO 10434			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	FLEXIBLE/SOLID	STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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OF MANUFACTURER

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

51501



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51502	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51502 PIPING CLASS : D2A, RATING : 600 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	SOLID/FLEXIBLE	STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX. TEMP. 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER IBR ALSO.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVES AS PER API-600 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

51502

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51504	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51504 PIPING CLASS : D5A,			STANDARD:	
RATING : 600 STANDARD : API 600/ ISO 10434			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
WEDGE DISC	FLEXIBLE/SOLID	STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
DATE	14/12/2000	28/05/2001	30/06/2009

51504

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51513	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51513 PIPING CLASS : D19A, RATING : 600 STANDARD : API 600/ ISO 10434 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 304/ SS 316 (NO CASTING)		
WEDGE DISC	FLEXIBLE/SOLID	STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE;		
BACK SEAT & SHOULDER		SS 304		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0
DATE	30/06/2009

51513

Client : BPCL	Dept./Sect. : 16/43
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 51601 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51601 PIPING CLASS : E1A, RATING : 900 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 8.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/ASTM A 105		
STEM	RISING	13% CR.STEEL/17-4 PH SS; (NO CASTING), 32 RMS FINISH		
WEDGE DISC	FLEXIBLE/PARALLEL SLIDE	STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON, MAX 90 BHN / GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL/STELLITED		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH XS & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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SHEET REV. NO.	3	4	5	6	7
DATE	14/12/2000	28/05/2001	10/05/2002	31/01/2009	30/06/2009

51601

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51604	Sheet No. 1 of 2
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51604 PIPING CLASS : E5A, RATING : 900 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 8.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/ASTM A 105		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING), 32 RMS FINISH		
WEDGE DISC	FLEXIBLE/PARALLEL SLIDE	STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON, MAX 90 BHN / GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL/STELLITED		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH XS & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

51604

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 9 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

**51604**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51613	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51613 PIPING CLASS : E19A, RATING : 900 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 8.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST/FORGED	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/ASTM A 105		
STEM	RISING	SS 304/ SS 316; (NO CASTING), 32 RMS FINISH		
WEDGE DISC	FLEXIBLE/PARALLEL SLIDE	STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON (MAX 90 BHN)/ GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE (MAX. TEMP. 110 DEG. C) & AMINE		
BACK SEAT & SHOULDER		SS 304		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH S160 & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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OF MANUFACTURER

SHEET REV. NO.	0
DATE	30/01/2010

51613

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51701	Sheet No. 1 of 1
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51701 PIPING CLASS : F1A, RATING : 1500 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 4.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/ASTM A 105		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING), 32 RMS FINISH		
WEDGE DISC	FLEXIBLE/PARALLEL SLIDE	STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON, MAX 90 BHN / GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL/STELLITED		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" - SCH 160
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	10/05/2002	30/06/2009

51701



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 51704	Sheet No. 1 of 2
GATE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 51704 PIPING CLASS : F5A, RATING : 1500 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 4.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/ASTM A 105		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING), 32 RMS FINISH		
WEDGE DISC	FLEXIBLE/PARALLEL SLIDE	STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON, MAX 90 BHN / GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL/STELLITED		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" - SCH 160
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

51704

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No. 2 of 2</b>

## NOTES

- 9 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

**51704**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52001	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52001</b> <b>PIPING CLASS :</b> A11A, A1A, A32A, A3A, A91A, A92A, A9A, B1A, B9A, D1A, D9A, <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE : 0.25" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**52001**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52002	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52002</b> <b>PIPING CLASS :</b> A2A, B2A, D2A, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 WITH GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP. 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER IBR ALSO.
- 5 ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- 6 ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 7 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 8 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) & IBR ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**52002**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52004	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52004</b> <b>PIPING CLASS :</b> A52A, A5A, B5A, B95A, D5A, D95A, <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 WITH GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 260 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
DATE	14/12/2000	28/05/2001	30/06/2009

**52004**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52011	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52011</b> <b>PIPING CLASS : A16A,</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW 3000 TO B-16.11</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP WND SS316L WITH GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	NACE	SOUR SERVICE; MAX. TEMP. 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	31/12/2001	30/06/2009

**52011**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52013	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52013			STANDARD:	
PIPING CLASS : A19A, B19A, D19A,			MFGRS CAT/FIG:	
RATING : 800			STANDARD : BS EN ISO 15761	
SIZE RANGE : 0.25" TO 1.5"			RATING: ENDS:	
ENDS : SW 3000 TO B-16.11				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SPIRAL WOUND SS316 WITH GRAFOIL FILLER		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITION		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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52013

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52024	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52024 PIPING CLASS : J3A, RATING : 800 STANDARD : BS EN ISO 15761 SIZE RANGE : 0.5" TO 1.5" ENDS : SCRF 3000 TO B-1.20.1			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE	13% CR STEEL FACING/13% CR STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 75 DEG C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

52024



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52032	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52032			STANDARD:	
PIPING CLASS : B53D, D52D, D55D,			MFGRS CAT/FIG:	
RATING : 800			STANDARD : BS EN ISO 15761	
SIZE RANGE : 0.5" TO 1.5"			RATING: ENDS:	
ENDS : SW 3000 TO B-16.11				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F11 CL.2 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 182 GR.F11 CL.2 (NORM. & TEMP.)		
STEM	RISING	13% CR.STEEL (NO CASTING);32 RMS FINISH		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4 / GR.7		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 538 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 3000 PSIG	SEAT : 2200 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	06/08/2002	30/06/2009

52032

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52045	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52045</b> <b>PIPING CLASS :</b> A1K, A3K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304		
BONNET	BOLTED	ASTM A 182 GR.F304		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR.2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 454 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

SIGNATURE  
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SEAL  
OF MANUFACTURER

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**52045**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52048	<b>Sheet No.</b> 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 52048</b> <b>PIPING CLASS :</b> B4K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F304H		
BONNET	BOLTED	ASTM A 182 GR.F304H		
STEM	RISING	SS 304H/ SS 316H; (NO CASTING) 32 RMS FINISH		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		A453 GR.660 Cl.A		
BONNET NUTS		A453 GR.660 Cl.A		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 704 DEG CENT.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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**52048**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52050	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52050</b> <b>PIPING CLASS :</b> B11K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304L		
BONNET	BOLTED	ASTM A 182 GR.F304L		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316L-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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**52050**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52061	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52061 PIPING CLASS : A98M, B98M,			STANDARD:	
RATING : 800 STANDARD : BS EN ISO 15761			MFGRS CAT/FIG:	
SIZE RANGE : 0.5" TO 1.5" ENDS : SW 3000 TO B-16.11			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F316		
BONNET	BOLTED	ASTM A 182 GR.F316		
STEM	RISING	SS 316 (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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52061

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52062	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52062</b> <b>PIPING CLASS :</b> B98K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F316H		
BONNET	BOLTED	ASTM A 182 GR.F316H		
STEM	RISING	SS 316H (NO CASTING) 32 RMS FINISH		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A453 GR 660 CL A		
BONNET NUTS		ASTM A453 GR 660 CL A		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 538 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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**52062**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52080	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52080 PIPING CLASS : A33Y, J2A, RATING : CL.2 STANDARD : IS:778 CL.2 SIZE RANGE : 0.5" TO 1.5" ENDS : SCRF 3000 TO B-1.20.1			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	IS 318 GR.LTB2 (LEADED TIN BRONZE)		
BONNET	BOLTED/SCREWED	IS 318 GR.LTB2		
STEM	RISING	IS 320 ALLOY HT2 HIGH TENSILE BRASS		
DISC	LOOSE PLUG TYPE	IS 318 GR.LTB2		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	IS 318 GR.LTB2		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	PTFE		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		IS 1367 CLAUSE 4.6 & 4 / ASTM A 193 GR B7		
BONNET NUTS		IS 1367 CLAUSE 4.6 & 4 / ASTM A 194 GR 2H		
BONNET GASKET		RUBBER		
OTHERS				
SPECIAL SERVICE CONDITION		MAX TEMP 75 DEG CENT.		
BACK SEAT & SHOULDER		IS 320 GR HT2		
HYDROSTATIC TEST PRESSURE	BODY : 348 PSIG	SEAT : 232 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1/ IS STD.
- SCREWED ENDS OF VALVES SHALL BE FEMALE TYPE AS PER ANSI B 1.20.1
- VALVE TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
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52080

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52101	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52101 PIPING CLASS : E1A, F1A, RATING : 1500 STANDARD : BS EN ISO 15761 SIZE RANGE : 0.5" TO 1.5" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH 160
- VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

52101



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52104	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52104 PIPING CLASS : E5A, F5A,			STANDARD:	
RATING : 1500 STANDARD : BS EN ISO 15761			MFGRS CAT/FIG:	
SIZE RANGE : 0.5" TO 1.5" ENDS : BW TO B-16.25			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 230 DEG.C.		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH 160
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1
DATE	28/05/2001	30/06/2009

52104

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52113	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52113</b> <b>PIPING CLASS :</b> E19A, <b>RATING</b> : 1500 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		CAUSTIC (MAX. TEMP. 110 DEG. C) AND AMINE		
BACK SEAT & SHOULDER	INTEGRAL			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs, BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH XXS.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0
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**52113**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52301	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52301 PIPING CLASS : A11A, A1A, A9A, RATING : 150 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR STEEL FACING/13% CR STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/ CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 371 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52301

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52302	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52302 PIPING CLASS : A2A, RATING : 150 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/ CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP. 371 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1 & IBR.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVE TESTING AS PER BS 6755 (PART-I) & IBR IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
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52302

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52311	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52311 PIPING CLASS : A16A, RATING : 150 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316L FACING/SS 316L		
BODY SEAT RING	NON RENEWABLE	SS 316L FACING/SS 316L		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP WND SS316L-GRAFOIL FILLER/CORRUGATED SS316L		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	NACE	SOUR SERVICE; MAX TEMP 371 DEG.C.		
BACK SEAT & SHOULDER		SS316L		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 50% OF VALVE CASTING SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 7 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52311

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52313	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52313 PIPING CLASS : A19A, RATING : 150 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 304		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	SS 304		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE;		
BACK SEAT & SHOULDER		SS 304		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 50% OF VALVE CASTING SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52313

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52345	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52345			STANDARD:	
PIPING CLASS : A1K, A3K,			MFGRS CAT/FIG:	
RATING : 150			RATING: ENDS:	
SIZE RANGE : 2.0" TO 16.0"				
STANDARD : BS-1873				
ENDS : FLGD TO B-16.5 RF/125AARH				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR CF8		
BONNET	BOLTED	ASTM A 351 GR.CF8		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 304		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	SS 304		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316 WITH GRAFOIL FILLER/CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 371 DEG. C.		
BACK SEAT & SHOULDER		SS 304		
HYDROSTATIC TEST PRESSURE	BODY : 425 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52345

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52384	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52384 PIPING CLASS : A33Y, RATING : 150 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 16.0" ENDS : FLGD TO B-16.5 FF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	BRONZE (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	BRONZE		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	BRONZE		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/ CORRUGATED SS316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		SEA WATER; MAX TEMP 70 DEG. C.; MAX.PR. 15.4 KG/CM2G		
BACK SEAT & SHOULDER		BRONZE		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52384



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52401	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52401 PIPING CLASS : B1A, B9A,			STANDARD:	
RATING : 300 STANDARD : BS-1873			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR STEEL FACING/13% CR STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52401

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52402	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52402 PIPING CLASS : B2A, RATING : 300 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX. TEMP. 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1 & IBR.
- 5 ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- 6 ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 7 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 9 VALVE TESTING AS PER BS 6755 (PART-I) & IBR IS ALSO ACCEPTABLE.

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52402

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52413	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52413 PIPING CLASS : B19A, RATING : 300 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS304		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	SS304		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
BACK SEAT & SHOULDER		SS304		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52413

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52448	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52448 PIPING CLASS : B4K, RATING : 300 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF10		
BONNET	BOLTED	ASTM A 351 GR.CF10		
STEM	RISING	SS 304H/ SS 316H; (NO CASTING) 32 RMS FINISH		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		A453 GR.660CLA		
BONNET NUTS		A453 GR.660CLA		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITION		MAX TEMP 704 DEG CENT.		
BACK SEAT & SHOULDER		SS 304H		
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100 % OF VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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52448

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52461	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52461 PIPING CLASS : B98M,			STANDARD:	
RATING : 300 STANDARD : BS-1873			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF8M		
BONNET	BOLTED	ASTM A 351 GR.CF8M		
STEM	RISING	SS 316 (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	SS 316		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	SS 316		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG.C.		
BACK SEAT & SHOULDER		SS316		
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRS., BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 10% VALVE CASTING SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 7 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 8 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

52461

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52462	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52462 PIPING CLASS : B98K, RATING : 300 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR CF10M		
BONNET	BOLTED	ASTM A 351 GR CF10M		
STEM	RISING	SS 316H (NO CASTING) 32 RMS FINISH		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON-RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		A453 GR.660CLA		
BONNET NUTS		A453 GR.660CLA		
BONNET GASKET		SP WND SS316H-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITION		MAX TEMP 538 DEG. C.		
BACK SEAT & SHOULDER		SS 316H		
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1	2	3	4
DATE	28/05/2001	16/04/2002	06/08/2002	25/01/2007	30/06/2009

52462

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52501	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52501 PIPING CLASS : D1A, D9A,			STANDARD:	
RATING : 600 STANDARD : BS-1873			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

52501

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52502	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52502 PIPING CLASS : D2A, RATING : 600 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON- RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP. 427 DEG.C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1 & IBR.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVE TESTING AS PER BS 6755 (PART-I) & IBR IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

52502



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52504	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52504 PIPING CLASS : D5A, RATING : 600 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	13% CR.STEEL (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 230 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 7 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
DATE	14/12/2000	28/05/2001	30/06/2009

52504

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52513	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52513 PIPING CLASS : D19A, RATING : 600 STANDARD : BS-1873 SIZE RANGE : 2.0" TO 12.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	SS 304/ SS 316; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE;		
BACK SEAT & SHOULDER		SS 304		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0
DATE	30/06/2009

52513

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 52601	<b>Sheet No.</b> 1 of 1
<b>GLOBE VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 52601</b> <b>PIPING CLASS :</b> E1A, <b>RATING</b> : 900 <b>STANDARD</b> : ANSI-B-16.34 <b>SIZE RANGE</b> : 2.0" TO 4.0" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/ASTM A 105		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON (MAX 90 BHN)/ GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL/ STELLITED		
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH XS & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	10/05/2002	30/06/2009

**52601**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52604	Sheet No. 1 of 2
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52604 PIPING CLASS : E5A, RATING : 900 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 8.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON (MAX 90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 230 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL/ STELLITED		
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH XS & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

52604

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

10 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

**52604**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52613	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52613 PIPING CLASS : E19A, RATING : 900 STANDARD : ANSI-B-16.34 SIZE RANGE : 2.0" TO 4.0" ENDS : BW TO B-16.25			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
STEM	RISING	SS 304/ SS316; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON (MAX 90 BHN)/ GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		CAUSTIC (MAX. TEMP. 110 DEG. C) & AMINE		
BACK SEAT & SHOULDER		SS 304		
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH S160 & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0
DATE	30/01/2010

52613

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52701	Sheet No. 1 of 1
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52701 PIPING CLASS : F1A,			STANDARD:	
RATING : 1500 STANDARD : ANSI-B-16.34			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 4.0" ENDS : BW TO B-16.25			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON (MAX 90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION		MAX TEMP 427 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL/ STELLITED		
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" - SCH 160
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	10/05/2002	30/06/2009

52701

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 52704	Sheet No. 1 of 2
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 52704 PIPING CLASS : F5A,			STANDARD:	
RATING : 1500 STANDARD : ANSI-B-16.34			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 4.0" ENDS : BW TO B-16.25			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
BONNET	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS; (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BOLTS		ASTM A193 GR B7		
NUTS		ASTM A194 GR 2H		
BONNET GASKET		SOFT IRON (MAX 90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS	O S & Y			
SPECIAL SERVICE CONDITION	H2	MAX TEMP 230 DEG. C.		
BACK SEAT & SHOULDER		13% CR STEEL/ STELLITED		
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" - SCH 160
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

52704



<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No. 2 of 2</b>

## NOTES

10 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

**52704**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53001	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53001</b> <b>PIPING CLASS :</b> A11A, A1A, A32A, A3A, A91A, A92A, A9A, B1A, B9A, D1A, D9A, <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE : 0.25" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**53001**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53002	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53002</b> <b>PIPING CLASS :</b> A2A, B2A, D2A, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX. TEMP. 427 DEG.C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER IBR ALSO.
- 5 ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- 6 ALL VALVES SHALL BE PAINTED RED ON BODY-COVER JOINT.
- 7 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 8 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 9 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) & IBR IS ALSO ACCEPTABLE .

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**53002**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53004	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53004</b> <b>PIPING CLASS :</b> A52A, A5A, B5A, B95A, D5A, D95A, <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 260 DEG.C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

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SHEET REV. NO.	3	4	5
DATE	14/12/2000	28/05/2001	30/06/2009

**53004**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53011	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53011</b> <b>PIPING CLASS :</b> A16A, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP WND SS316L-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE	SOUR SERVICE; MAX TEMP 427 DEG.C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

## NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 6 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	31/12/2001	30/06/2009

**53011**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53013	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53013</b> <b>PIPING CLASS :</b> A19A, B19A, D19A, <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	23/10/2003	30/06/2009

**53013**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53024	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53024</b> <b>PIPING CLASS : J3A,</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SCRF 3000 TO B-1.20.1</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC/PISTON		13% CR.STEEL FACING / 13% CR.STEEL		
BODY SEAT RING	RENEWABLE	13%CR FACING/13%CR/13%CR+STEL		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS				
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

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SEAL  
OF MANUFACTURER

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**53024**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53032	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53032</b> <b>PIPING CLASS :</b> B53D, D52D, D55D, <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F11 CL.2 (NORM. & TEMP.)		
COVER	BOLTED	ASTM A 182 GR.F11 CL.2 (NORM. & TEMP.)		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B16		
COVER NUT		ASTM A194 GR 4/GR 7		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 538 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 3000 PSIG	SEAT : 2200 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
&  
SEAL  
OF MANUFACTURER

SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	27/09/2001	30/06/2009

**53032**



<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53045	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53045</b> <b>PIPING CLASS :</b> A1K, A3K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304		
COVER	BOLTED	ASTM A 182 GR.F304		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 454 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
&  
SEAL  
OF MANUFACTURER

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**53045**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53048	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53048</b> <b>PIPING CLASS :</b> B4K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304H		
COVER	BOLTED	ASTM A 182 GR.F304H		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		A453 GR.660 Cl.A		
COVER NUT		A453 GR.660 Cl.A		
COVER GASKET		SP WND SS316H-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 704 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES SHALL BE OF STANDARD BORE DESIGN.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
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SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

**53048**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53050	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53050</b> <b>PIPING CLASS :</b> B11K, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F304L		
COVER	BOLTED	ASTM A 182 GR.F304L		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316L-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2400 PSIG	SEAT : 1775 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
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SEAL  
OF MANUFACTURER

SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

**53050**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53061	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53061</b> <b>PIPING CLASS</b> : A98M, B98M, <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F316		
COVER	BOLTED	ASTM A 182 GR.F316		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
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SEAL  
OF MANUFACTURER

SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

**53061**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53062	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53062</b> <b>PIPING CLASS :</b> <b>RATING</b> : 800 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SW 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 182 GR.F316H		
COVER	BOLTED	ASTM A 182 GR.F316H		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON-RENEWABLE/RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A453 GR 660 CL A		
COVER NUT		ASTM A453 GR 660 CL A		
COVER GASKET		SP WND SS316H-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 538 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES SHALL BE OF STANDARD BORE DESIGN.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	16/04/2002	30/06/2009

**53062**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53080	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53080</b> <b>PIPING CLASS :</b> A33Y, J2A, <b>RATING</b> : CL.2 <b>STANDARD</b> : IS:778 CL.2 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : SCRF 3000 TO B-1.20.1			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	IS 318 GR.LTB2 (LEADED TIN BRONZE)		
COVER	BOLTED	IS 318 GR.LTB2		
DISC/PISTON		IS 318 GR LTB2		
BODY SEAT RING	RENEWABLE	IS 318 GR LTB2		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		IS 1367 CLAUSE 4.6 & 4 / ASTM A 193 GR B7		
COVER NUT		IS 1367 CLAUSE 4.6 & 4 / ASTM A 194 GR 2H		
COVER GASKET		RUBBER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 75 DEG CENT.		
WASHER,NUT,PIN		IS 320 ALLOY HT2		
HYDROSTATIC TEST PRESSURE	BODY : 348 PSIG	SEAT : 232 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1 / IS 778 CL2.
- 5 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

SIGNATURE  
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SEAL  
OF MANUFACTURER

SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	06/08/2002	30/06/2009

**53080**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53101	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53101</b> <b>PIPING CLASS :</b> E1A, F1A, <b>RATING</b> : 1500 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	WELDED/THD. & SEAL WELDED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT				
COVER NUT				
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH 160
- 5 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 6 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
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SEAL  
OF MANUFACTURER

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**53101**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53104	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53104</b> <b>PIPING CLASS :</b> E5A, F5A, <b>RATING</b> : 1500 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	WELDED/THD. & SEAL WELDED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT				
COVER NUT				
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5" - SCH 160
- 5 VALVES SHALL BE OF STANDARD BORE DESIGN.
- 6 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 7 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	0	1
DATE	28/05/2001	30/06/2009

**53104**



<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53113	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53113</b> <b>PIPING CLASS :</b> E19A, <b>RATING</b> : 1500 <b>STANDARD</b> : BS EN ISO 15761 <b>SIZE RANGE</b> : 0.5" TO 1.5" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED	ASTM A 105		
COVER	WELDED/THD. & SEAL WELDED	ASTM A 105		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT				
COVER NUT				
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		CAUSTIC (MAX. TEMP. 110 DEG. C) AND AMINE		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 0.5" TO 1.5"- SCH XXS
- VALVES SHALL BE OF STANDARD BORE DESIGN.
- VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) IS ALSO ACCEPTABLE .

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OF MANUFACTURER

SHEET REV. NO.	0
DATE	30/01/2010

**53113**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53302	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53302</b> <b>PIPING CLASS : A2A,</b> <b>RATING : 150</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2.0" TO 24.0"</b> <b>ENDS : FLGD TO B-16.5 RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR. STEEL/A216 GR WCB/A515 GR 70		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP 371 DEG.C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)/SS410/SS304		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1 & IBR
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVE TESTING AS PER BS 6755 (PART-I) & IBR IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	28/05/2001	30/06/2009

**53302**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53311	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53311</b> <b>PIPING CLASS : A16A,</b> <b>RATING : 150</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2.0" TO 24.0"</b> <b>ENDS : FLGD TO B-16.5 RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		FACED WITH SS 316L/SS 316L		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	FACED WITH SS316L/SS 316L		
HINGE PIN		SS316L (NO CASTING)		
DISC HINGE		SS 316L/A 216 GR.WCB		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP WND SS316L-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE	SOUR SERVICE; MAX TEMP 371 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 7 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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**53311**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53313	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53313</b> <b>PIPING CLASS : A19A,</b> <b>RATING : 150</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2.0" TO 24.0"</b> <b>ENDS : FLGD TO B-16.5 RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		FACED WITH SS 304/ SS304		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	SS 304 FACING/ SS304		
HINGE PIN		SS 304/ SS316 (NO CASTING)		
DISC HINGE		SS 304/A216 GR WCB/A515 GR 70		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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**53313**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53321	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53321</b> <b>PIPING CLASS :</b> A3A, A91A, A92A, <b>RATING</b> : 150 <b>STANDARD</b> : BS 1868 <b>SIZE RANGE :</b> 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 RF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		FACED WITH 13% CR.STEEL/13% CR.STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR STEEL		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A216 GR WCB/A515 GR 70		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
BY PASSES				
TYPE	SWING CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS				
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)/SS410/SS304		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
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**53321**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53345	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53345</b> <b>PIPING CLASS :</b> A1K, A3K, <b>RATING</b> : 150 <b>STANDARD</b> : BS-1868 <b>SIZE RANGE :</b> 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 RF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 351 GR CF8		
COVER	BOLTED	ASTM A 351 GR.CF8		
DISC		SS 304		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	SS 304		
DISC HINGE		SS 304		
HINGE PIN		SS304/ SS316 (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 371 DEG. C.		
WASHER,NUT,PIN		SS 304 (NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 425 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 7 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 8 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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**53345**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53380	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53380</b> <b>PIPING CLASS : J2A,</b> <b>RATING : PN1.6</b> <b>STANDARD : IS:5312 (PT-1)</b> <b>SIZE RANGE : 2.0" TO 6.0"</b> <b>ENDS : FLGD TO B-16.1 FF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	IS 210 GR.FG 200		
COVER	BOLTED	IS 210 GR.FG 200		
DISC/PISTON		IS 210 GR.FG 200		
BODY SEAT RING	RENEWABLE	LEADED TIN BRONZE IS 318 GR LTB2		
DISC HINGE		IS:210 GR.FG 200		
HINGE PIN		HIGH TENSILE BRASS IS 320 GR. HTB2		
COVER STUD BOLT		IS 1363 PT-1 CL. 4.6		
COVER NUT		IS 1363 PT-3 CL.4.0		
COVER GASKET		RUBBER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS				
DOOR FACES		NATURAL OR SYNTHENIC MOULDED RUBBER		
HYDROSTATIC TEST PRESSURE	BODY : 350 PSIG	SEAT : 250 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 FLANGE END SHALL BE FLAT FACE DRILLED TO ANSI B16.1, 125#
- 6 FOR 6" SIZE VALVE RATING SHALL BE PN 1.0
- 7 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 8 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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**53380**

Client : BPCL	Dept./Sect. : 16/43
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 53382 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53382 PIPING CLASS :			STANDARD:	
RATING : 150 STANDARD : API-594			MFGRS CAT/FIG:	
SIZE RANGE : 26.0" TO 48.0" ENDS : FLGD TO B-16.47 B FF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		BRONZE		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	BRONZE		
HINGE PIN		BRONZE(NO CASTING)		
DISC HINGE		BRONZE;		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-CA FILLER/CORRUGATED SOFT IRON		
BY PASSES				
TYPE	SWING CHECK TYPE			
		THIS VALVE SHEET IS PRESENTLY UNDER HOLD.		
OTHERS				
SPECIAL SERVICE CONDITIONS		SEA WATER; MAX TEMP 70 DEG. C.; MAX.PR. 15.4 KG/CM2G		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 348 PSIG	SEAT : 232 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS 6755 (PART-I).
- RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.

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53382



<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53384	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53384</b> <b>PIPING CLASS :</b> A33Y, <b>RATING</b> : 150 <b>STANDARD</b> : BS 1868 <b>SIZE RANGE :</b> 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 FF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		BRONZE		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	BRONZE		
HINGE PIN		BRONZE(NO CASTING)		
DISC HINGE		BRONZE		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS316		
BY PASSES				
TYPE	SWING CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		SEA WATER; MAX TEMP 70 DEG. C.; MAX.PR. 15.4 KG/CM2G		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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**53384**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53401	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53401</b> <b>PIPING CLASS :</b> B1A, B9A, <b>RATING</b> : 300 <b>STANDARD</b> : BS-1868 <b>SIZE RANGE :</b> 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 RF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		FACED WITH 13% CR.STEEL/13% CR.STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR STEEL		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A216 GR WCB/A515 GR. 70		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)/ SS 410/SS 304		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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**53401**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53402	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53402 PIPING CLASS : B2A, RATING : 300 STANDARD : BS-1868 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		13% CR STEEL FACING/13% CR. STEEL		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	13% CR STEEL FACING/13% CR. STEEL		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR. STEEL/A216 GR WCB/A515 GR 70		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP. 427 DEG.C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)/SS 410/SS 304		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1 & IBR
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-COVER JOINT.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVE TESTING AS PER BS 6755 (PART-I) & IBR IS ALSO ACCEPTABLE.

SIGNATURE  
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53402

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53413	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53413</b> <b>PIPING CLASS :</b> B19A, <b>RATING</b> : 300 <b>STANDARD</b> : BS-1868 <b>SIZE RANGE</b> : 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 RF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		SS 304		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	SS304		
DISC HINGE		SS304/A 216 WCB/A515 GR 70		
HINGE PIN		SS304/ SS316 (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 50% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

SIGNATURE  
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SHEET REV. NO.	2	3	4	5
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**53413**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53432	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53432 PIPING CLASS : B53D, RATING : 300 STANDARD : BS-1868 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
COVER	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A217 GR WC6(NORM & TEMP)		
COVER STUD BOLT		ASTM A193 GR B16		
COVER NUT		ASTM A194 GR 4/GR 7		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 538 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 50% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
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53432

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53448	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53448 PIPING CLASS : B4K, RATING : 300 STANDARD : BS-1868 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF10		
COVER	BOLTED	ASTM A 351 GR.CF10		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		SS 304H/ SS 316H (NO CASTING)		
DISC HINGE		SS 304H		
COVER STUD BOLT		A453 GR.660CLA		
COVER NUT		A453 GR.660CLA		
COVER GASKET		SP WND SS316H-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 704 DEG CENT.		
WASHER,NUT,PIN		SS 304H(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG.		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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53448

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53461	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53461 PIPING CLASS : B98M,			STANDARD:	
RATING : 300 STANDARD : BS-1868			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR.CF8M		
COVER	BOLTED	ASTM A 351 GR.CF8M		
DISC		SS 316		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	SS 316		
HINGE PIN		SS 316 (NO CASTING)		
DISC HINGE		SS 316		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.		
WASHER,NUT,PIN		SS 316 (NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG		
TEST PRESSURE WITH AIR				

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED
- WELD REPAIR, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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53461

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53462	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53462 PIPING CLASS : B98K, RATING : 300 STANDARD : BS-1868 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 351 GR CF10M		
COVER	BOLTED	ASTM A 351 GR CF10M		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		SS 316H(NO CASTING)		
DISC HINGE		SS 316H		
COVER STUD BOLT		A453 GR.660CLA		
COVER NUT		A453 GR.660CLA		
COVER GASKET		SP WND SS316H-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 538 DEG C.		
WASHER,NUT,PIN		SS 316H(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 1100 PSIG	SEAT : 800 PSIG.		
TEST PRESSURE WITH AIR				

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRS,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1	2
DATE	28/05/2001	16/04/2002	30/06/2009

53462



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53501	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53501 PIPING CLASS : D1A, D9A,			STANDARD:	
RATING : 600 STANDARD : BS-1868			MFGRS CAT/FIG:	
SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR STEEL/A 216 GR WCB		
HINGE PIN		13% CR STEEL(NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
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53501

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 53502	Sheet No. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53502 PIPING CLASS : D2A, RATING : 600 STANDARD : BS-1868 SIZE RANGE : 2.0" TO 24.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR STEEL/A216 GR WCB		
HINGE PIN		13% CR STEEL(NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BOILER FEED WATER; MAX TEMP 427 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1 & IBR
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-COVER JOINT.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- VALVE TESTING AS PER BS 6755 (PART-I) & IBR IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5
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53502

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53504	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53504</b> <b>PIPING CLASS : D5A,</b> <b>RATING : 600</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2.0" TO 24.0"</b> <b>ENDS : FLGD TO B-16.5 RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		13% CR STEEL/A 216 GR WCB		
HINGE PIN		13% CR STEEL(NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5
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**53504**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53513	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53513</b> <b>PIPING CLASS :</b> D19A, <b>RATING</b> : 600 <b>STANDARD</b> : BS-1868 <b>SIZE RANGE</b> : 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 RF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 216 GR.WCB		
COVER	BOLTED	ASTM A 216 GR.WCB		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 304/A 216 GR WCB/A515 GR.70		
HINGE PIN		SS 304/ SS 316 (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
WASHER,NUT,PIN		SS 304(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- 3 NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.
- 5 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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OF MANUFACTURER

SHEET REV. NO.	0
DATE	30/06/2009

**53513**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53532	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53532</b> <b>PIPING CLASS :</b> D52D, D55D, <b>RATING</b> : 600 <b>STANDARD</b> : BS-1868 <b>SIZE RANGE :</b> 2.0" TO 24.0" <b>ENDS</b> : FLGD TO B-16.5 RF/125AARH			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
COVER	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
DISC		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A217 GR WC6(NORM & TEMP)		
COVER STUD BOLT		ASTM A193 GR B16		
COVER NUT		ASTM A194 GR 4/GR 7		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 538 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 2250 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1
DATE	28/05/2001	30/06/2009

**53532**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53601	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53601</b> <b>PIPING CLASS :</b> E1A, <b>RATING</b> : 900 <b>STANDARD</b> : ANSI-B-16.34 <b>SIZE RANGE</b> : 2.0" TO 8.0" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
COVER	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A 216 GR WCB		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SOFT IRON ( MAX.90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
BY PASSES				
TYPE	LIFT/SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH XS & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	28/05/2001	10/05/2002	30/06/2009

**53601**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53604	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53604</b> <b>PIPING CLASS :</b> E5A, <b>RATING</b> : 900 <b>STANDARD</b> : ANSI-B-16.34 <b>SIZE RANGE</b> : 2.0" TO 8.0" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
COVER	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A 216 GR WCB		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SOFT IRON (MAX.90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
BY PASSES				
TYPE	LIFT/SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH XS & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1	2
DATE	28/05/2001	10/05/2002	30/06/2009

**53604**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53613	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53613</b> <b>PIPING CLASS :</b> E19A, <b>RATING</b> : 900 <b>STANDARD</b> : ANSI-B-16.34 <b>SIZE RANGE</b> : 2.0" TO 8.0" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
COVER	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		SS 304/ SS 316; (NO CASTING)		
DISC HINGE		SS 304/A 216 GR WCB		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SOFT IRON (MAX 90 BHN)/ GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
BY PASSES				
TYPE	LIFT/SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		CAUSTIC (MAX. TEMP. 110 DEG. C) & AMINE		
WASHER,NUT,PIN		SS 304 (NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 3350 PSIG	SEAT : 2450 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" - SCH S160 & 4" TO 8" SCH 120
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0
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**53613**



<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53701	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53701</b> <b>PIPING CLASS :</b> F1A, <b>RATING</b> : 1500 <b>STANDARD</b> : ANSI-B-16.34 <b>SIZE RANGE</b> : 2.0" TO 4.0" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
COVER	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A 216 GR WCB		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SOFT IRON (MAX.90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
BY PASSES				
TYPE	LIFT/SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" - SCH 160
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	2	3	4	5	6
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**53701**

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 53704	<b>Sheet No.</b> 1 of 1
<b>CHECK VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 53704</b> <b>PIPING CLASS :</b> F5A, <b>RATING</b> : 1500 <b>STANDARD</b> : ANSI-B-16.34 <b>SIZE RANGE</b> : 2.0" TO 4.0" <b>ENDS</b> : BW TO B-16.25			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
COVER	PRESSURE SEAL TYPE	ASTM A 105 / A 216GR.WCB		
DISC/PISTON		STELLITED		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
HINGE PIN		13% CR STEEL(NO CASTING)		
DISC HINGE		13% CR STEEL/A 216 GR WCB		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SOFT IRON (MAX.90 BHN)/GRAPHITE WITH BRAIDED ANTI EXTRUSION RING		
BY PASSES				
TYPE	LIFT/SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
OTHERS				
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 230 DEG. C.		
WASHER,NUT,PIN		13% CR STEEL(NO CASTING)		
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" - SCH 160
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1	2
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**53704**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54301	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54301 PIPING CLASS : A11A, A1A, A9A, RATING : 150 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS+GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 204 DEG C.		
SPRING		INCONEL X-750		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497))/ (BS 6755(PART II)/ BS EN ISO 10497)/API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 5 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	2	3	4	5	6
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54301

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 10 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 11 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 12 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5	6	<b>54301</b>
DATE	02/01/1995	14/12/2000	16/10/2001	24/10/2001	30/06/2009	

<b>Client</b> : BPCL			<b>Dept./Sect.</b> : 16/43	
<b>Project</b> : MS-BLOCK, BS-VI				
<b>Location</b> : KOCHI, KERALA			<b>Tag No:</b> 54302	<b>Sheet No.</b> 1 of 2
<b>BALL VALVE SPECIFICATION</b>			<b>MANUF'S OFFER</b>	
<b>TAG NO. : 54302</b> <b>PIPING CLASS : A2A,</b> <b>RATING : 150</b> <b>STANDARD : BS EN ISO 17292</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : FLGD TO B-16.5 RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
<b>DESCRIPTION</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>	<b>CONSTRUCTION</b>	<b>MATERIAL</b>
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		PEEK WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL		
BODY SEAL		GRAFOIL		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	I.B.R.	STEAM/CONDENSATE/BOILER FEED WATER;MAX TEMP 260 DEG C.		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D & IBR.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL VALVES TO BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.

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SHEET REV. NO.	0	1
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**54302**

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 11 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 12 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 13 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) & IBR IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1
DATE	24/10/2001	30/06/2009

**54302**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54304	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54304 PIPING CLASS : A52A, A5A, RATING : 150 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS+GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 204 DEG CENT.		
SPRING		INCONEL X750		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API-6D VALVES, MIN BODY WALL THICKNESS SHALL BE AS PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497)/(BS 6755(PART II)/ BE EN ISO 10497) /API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 50% OF VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	24/10/2001	30/06/2009

54304

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 10 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 11 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 12 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 13 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	24/10/2001	30/06/2009

**54304**



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54313	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54313 PIPING CLASS : A19A, RATING : 150 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	SS 304/SS 316; (NO CASTING)		
BALL	SOLID	SS 304/SS 316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS+GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		AMINE; MAX TEMP 204 DEG.C		
SPRING		INCONEL X750		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497)) / (BS 6755(PART II)/ BS EN ISO 10497) /API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 50 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	0	1	2
DATE	16/10/2001	24/10/2001	30/06/2009

54313

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 10 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 11 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 12 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1	2
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**54313**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54321	Sheet No. 1 of 1
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54321 PIPING CLASS : A3A, A91A, A92A, RATING : 150 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX. TEMP 186 DEG.C.		
SPRING		INCONEL X750		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

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54321

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54322	Sheet No. 1 of 1
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54322 PIPING CLASS : A32A, RATING : 150 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 3.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		PEEK WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL		
BODY SEAL		GRAFOIL		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		STEAM TRACING; MAX TEMP 260 DEG C.		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 5 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

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SHEET REV. NO.	0	1
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54322

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54401	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54401			STANDARD:	
PIPING CLASS : B1A, B9A,			MFGRS CAT/FIG:	
RATING : 300			STANDARD : BS EN ISO 17292	
SIZE RANGE : 0.5" TO 16.0"			RATING: ENDS:	
ENDS : FLGD TO B-16.5 RF/125AARH				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS + GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 204 DEG C.		
SPRING		INCONEL X-750		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497)/(BS 6755(PART II)/ BS EN ISO 10497) /API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.

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SHEET REV. NO.	3	4	5	6
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54401

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 10 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 11 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 12 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	3	4	5	6
DATE	14/12/2000	16/10/2001	24/10/2001	30/06/2009

**54401**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54404	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54404			STANDARD:	
PIPING CLASS : B5A, B95A,			MFGRS CAT/FIG:	
RATING : 300			RATING: ENDS:	
SIZE RANGE : 0.5" TO 16.0"				
STANDARD : BS EN ISO 17292				
ENDS : FLGD TO B-16.5 RF/125AARH				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL.		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105 /13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS + GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS	H2	MAX TEMP 204 DEG. C.		
SPRING		INCONEL X-750		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API-6D VALVES, MIN BODY WALL THICKNESS SHALL BE AS PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497)/(BS 6755(PART II)/ BS EN ISO 10497) /API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 10% VALVES SHALL UNDERGO HYDROSTATIC TEST OF SEAT . SOFT SEAT SHALL BE REPLACED AFTER HYDROSTATIC TEST. AFTER THIS ALL VALVES (INCLUDING BALANCE 90%) SHALL BE AIR TESTED.
- 50% OF VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	24/10/2001	30/06/2009

54404

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 11 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 12 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 13 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 14 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5
DATE	02/01/1995	14/12/2000	24/10/2001	30/06/2009

**54404**



Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54413	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54413 PIPING CLASS : B19A, RATING : 300 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	SS 304/SS 316; (NO CASTING)		
BALL	SOLID	SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS + GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		AMINE; MAX TEMP. 204 DEG.C		
SPRING		INCONEL X-750		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497)/(BS 6755(PART II)/ BS EN ISO 10497) /API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 10% VALVES IN EACH SIZE SHALL UNDERGO HYDROSTATIC TEST OF SEAT. SOFT SEAT SHALL BE REPLACED AFTER HYDROSTATIC TEST. AFTER THIS ALL VALVES (INCLUDING BALANCE 90%) SHALL BE AIR TESTED.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	0	1	2
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54413

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 11 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 12 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 13 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1	2
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**54413**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 54501	Sheet No. 1 of 2
BALL VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 54501 PIPING CLASS : D1A, RATING : 600 STANDARD : BS EN ISO 17292 SIZE RANGE : 0.5" TO 16.0" ENDS : FLGD TO B-16.5 RF/125AARH			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO CASTING)		
BALL	SOLID	13% CR.STEEL/SS304/SS316		
BODY SEAT		RPTFE WITH SECONDARY METAL TO METAL		
GLAND	BOLTED/ RETAINED BY NUT & WASHER	ASTM A105/13% CR STEEL/SS 316/SS 304		
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS + GRAFOIL		
BODY SEAL		GRAFOIL/PTFE		
BODY STUD		ASTM A193 GR.B7		
BODY NUT		ASTM A194 GR 2H		
OTHERS				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
SPECIAL SERVICE CONDITIONS		MAX TEMP 204 DEG C.		
SPRING		INCONEL X-750		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- ALL VALVES SHALL BE FIRE SAFE DESIGN.FIRE SAFE TEST SHALL BE AS PER (API 607 IV EDITION/ (API 607/ ISO 10497)/(BS 6755(PART II)/ BS EN ISO 10497) /API RP 6FA.
- TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL,BODY SEAT SHALL BE SPRING LOADED.
- ALL VALVES SHALL BE BIDIRECTIONAL.
- 10% VALVES IN EACH SIZE SHALL UNDERGO HYDROSTATIC TEST OF SEAT. SOFT SEAT SHALL BE REPLACED AFTER HYDROSTATIC TEST. AFTER THIS ALL VALVES (INCLUDING BALANCE 90%) SHALL BE AIR TESTED.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	0	1
DATE	24/10/2001	30/06/2009

54501

<b>Client</b> : BPCL	<b>Dept./Sect.</b> : 16/43
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Sheet No.</b> 2 of 2

## NOTES

- 11 BIDDER'S STAMPING ON THE VALVE SPECIFICATION SHEET SHALL BE CONSTRUED TO MEAN BIDDER'S ACCEPTANCE OF SUITABILITY OF VALVE AND VALVE SHEETS FOR SERVICE AND 'SPECIAL SERVICE CONDITIONS' MENTIONED IN THE VALVE SPECIFICATION SHEETS.
- 12 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 13 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1
DATE	24/10/2001	30/06/2009

**54501**

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 64402	Sheet No. 1 of 1
PISTON VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 64402			STANDARD:	
PIPING CLASS : A2A, B2A,			MFGRS CAT/FIG:	
RATING : 300			RATING: ENDS:	
STANDARD : MNFSTD				
SIZE RANGE : 0.5" TO 1.0"				
ENDS : SW 3000 TO B-16.11				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ASTM A 276 TP 410		
PISTON		13% CR STEEL/17% CR STEEL/SS304/SS316		
LANTERN BUSH/SPACER		ASTM A 276 TP 410		
UPPER AND LOWER SEALING RINGS	RENEWABLE	SEE NOTE-5 BELOW		
BELLEVILLE WASHER		50 CR V4/ASTM A 240 GR.302		
HAND WHEEL		MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES		
OTHERS	NON-REGULATING PISTON VALVE			
SPECIAL SERVICE CONDITION	I.B.R.	STEAM/CONDENSATE; MAX. TEMP. 325 DEG.C.(AT 300# CLASS PRESSURE AS PER ASME B16.5)		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

## NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER IBR & BS 6755 (PART-1) AND LEAKAGE RATE SHALL BE CATEGORY 'A'.
- VENDOR SHALL SPECIFY THE MATERIAL AND CERTIFY THE SUITABILITY OF MATERIAL SELECTED FOR SEALING RINGS AND THE PARTS NOT MENTIONED IN THE SPECIFICATION SHEET FOR (a) THE SERVICE AND PRESSURE-TEMP. CONDITIONS SPECIFIED (b) HIGH TEMP. EXPERIENCED DURING WELDING OF SOCKET WELDED ENDS TO PIPE.
- 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- FORGED VALVES WITH BODY/BONNET MATERIAL AS PER ASTM A 105 ARE ALSO ACCEPTABLE.
- PN64 RATING VALVES ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0
DATE	31/12/2001

64402

Client : BPCL			Dept./Sect. : 16/43	
Project : MS-BLOCK, BS-VI				
Location : KOCHI, KERALA			Tag No: 64422	Sheet No. 1 of 1
PISTON VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 64422 PIPING CLASS : A32A, RATING : 300 STANDARD : MNFSTD SIZE RANGE : 0.5" TO 1.0" ENDS : SW 3000 TO B-16.11			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ASTM A 276 TP 410		
PISTON		13% CR STEEL/17% CR STEEL/SS304/SS316		
LANTERN BUSH/SPACER		ASTM A 276 TP 410		
UPPER AND LOWER SEALING RINGS	RENEWABLE	SEE NOTE-5 BELOW		
BELLEVILLE WASHER		50 CR V4/ASTM A 240 GR.302		
HAND WHEEL		MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES		
OTHERS	NON-REGULATING PISTON VALVE			
SPECIAL SERVICE CONDITION		STEAM/CONDENSATE; MAX. TEMP. 325 DEG.C.(AT 300# CLASS PRESSURE AS PER ASME B16.5)		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			




#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ONLY IN THE CASE OF CATEGORY - II MRs,BIDDER SHALL CLEARLY WRITE ALL/ ANY DEVIATION AGAINST EACH PART/ MATERIAL OF VALVE IN THE SPACE PROVIDED FOR AND WHEREVER BIDDER AGREES WITH EIL'S SPEC BIDDER SHALL INDICATE "AGREED".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- TESTING SHALL BE AS PER BS 6755 (PART-1) AND LEAKAGE RATE SHALL BE CATEGORY 'A'.
- VENDOR SHALL SPECIFY THE MATERIAL AND CERTIFY THE SUITABILITY OF MATERIAL SELECTED FOR SEALING RINGS AND THE PARTS NOT MENTIONED IN THE SPECIFICATION SHEET FOR (a) THE SERVICE AND PRESSURE-TEMP. CONDITIONS SPECIFIED (b) HIGH TEMP. EXPERIENCED DURING WELDING OF SOCKET WELDED ENDS TO PIPE.
- 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- FORGED VALVES WITH BODY/BONNET MATERIAL AS PER ASTM A 105 ARE ALSO ACCEPTABLE.
- PN64 RATING VALVES ARE ALSO ACCEPTABLE.

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SHEET REV. NO.	0
DATE	31/12/2001

64422

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0005 Sheet No. 1 of 1</b>




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0005</b> <b>PIPING CLASS : A11A</b> <b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 371 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.

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SHEET REV. NO.	ADVANCE COPY					<b>0005</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0006 Sheet No. 1 of 1</b>

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0006</b> <b>PIPING CLASS : A5A, A59A</b> <b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 375 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			




#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	ADVANCE COPY					0006
DATE						



  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0007 Sheet No. 1 of 1</b>




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0007</b> <b>PIPING CLASS : B1A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.

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SHEET REV. NO.	ADVANCE COPY					<b>0007</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0008 Sheet No. 1 of 1</b>




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0008</b> <b>PIPING CLASS : B5A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 345 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER API-598/BS EN 12266-1.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	ADVANCE COPY					0008
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0009 Sheet No. 1 of 1</b>




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0009</b> <b>PIPING CLASS : D1A</b> <b>RATING : 600</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.

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SHEET REV. NO.	ADVANCE COPY					<b>0009</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0010 Sheet No. 1 of 1




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0010      PIPING CLASS : D55D</b>			<b>STANDARD:</b>	
<b>RATING : 600      STANDARD : API 600/ ISO 10434</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 8"      ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
BONNET	BOLTED	ASTM A 217 GR.WC6 (NORM. & TEMP.)		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B16		
BONNET NUTS		ASTM A194 GR.4		
BONNET GASKET		SPWND SS316 + THERMICULITE835 +IR		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 550 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2250 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0010</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0011 Sheet No. 1 of 1</b>




GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0011</b> <b>PIPING CLASS : B1A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 10"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0011</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0012 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION	MANUF'S OFFER
<b>TAG NO. : 0012</b> <b>PIPING CLASS : B1A</b>	<b>STANDARD:</b>
<b>RATING : 300</b> <b>STANDARD : BS 1868</b>	<b>MFGRS CAT/FIG:</b>
<b>SIZE RANGE : 2" TO 16"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>	<b>RATING:</b> <b>ENDS:</b>




DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		ALLOY UNS N04400 / ASTM A 216 Gr. WCB		
HINGE PIN		ALLOY UNS N04400 (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY				
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0012</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0013 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION		MANUF'S OFFER
<b>TAG NO. : 0013</b>	<b>PIPING CLASS : D1A</b>	<b>STANDARD:</b>
<b>RATING : 600</b>	<b>STANDARD : BS 1868</b>	<b>MFGRS CAT/FIG:</b>
<b>SIZE RANGE : 2" TO 8"</b>	<b>ENDS : FLGD, B-16.5, RF/125AARH</b>	<b>RATING:                      ENDS:</b>




DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		ALLOY UNS N04400 / ASTM A 216 Gr. WCB		
HINGE PIN		ALLOY UNS N04400 (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY				
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					<b>0013</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0015 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0015</b> <b>PIPING CLASS : A64A</b>			<b>STANDARD:</b>	
<b>RATING : 150</b> <b>STANDARD : API 600/ ISO 10434</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 275 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			




#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					<b>0015</b>
DATE						



  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0016 Sheet No. 1 of 1</b>




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0016</b> <b>PIPING CLASS : B1A</b> <b>RATING : 300</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB		
BONNET	BOLTED	ASTM A 216 GR.WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		SP WND SS316-GRAFOIL FILLER/CORRUGATED SS 316		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	NACE	MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.
- 5 NACE REQUIREMENTS SHALL BE AS PER MR0103.

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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					0016
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0017 Sheet No. 1 of 1





GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0017</b>			<b>STANDARD:</b>	
<b>PIPING CLASS : B64A</b>			<b>MFGRS CAT/FIG:</b>	
<b>RATING : 300</b>			<b>RATING:</b>	
<b>STANDARD : API 600/ ISO 10434</b>			<b>ENDS:</b>	
<b>SIZE RANGE : 2" TO 10"</b>				
<b>ENDS : FLGD, B-16.5, RF/125AARH</b>				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 300 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					<b>0017</b>
DATE						

   	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0018 Sheet No. 1 of 1



GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0018</b> <b>PIPING CLASS : D64A</b> <b>RATING : 600</b> <b>STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 8"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					0018
DATE						

 	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0024 Sheet No. 1 of 1




GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0024</b> <b>PIPING CLASS : A64A</b> <b>RATING : 150</b> <b>STANDARD : BS-1873</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 275 DEG. C.		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					0024
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0025 <b>Sheet No.</b> 1 of 1



GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0025</b>			<b>STANDARD:</b>	
<b>PIPING CLASS : B64A</b>			<b>MFGRS CAT/FIG:</b>	
<b>RATING : 300</b>			<b>RATING:</b>	
<b>STANDARD : BS-1873</b>			<b>ENDS:</b>	
<b>SIZE RANGE : 2" TO 6"</b>				
<b>ENDS : FLGD, B-16.5, RF/125AARH</b>				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 300 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE  
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SHEET REV. NO.	ADVANCE COPY					<b>0025</b>
DATE						

 	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0026 Sheet No. 1 of 1




GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0026</b>			<b>STANDARD:</b>	
<b>PIPING CLASS : D64A</b>			<b>MFGRS CAT/FIG:</b>	
<b>RATING : 600</b>			<b>RATING:</b>	
<b>STANDARD : BS-1873</b>			<b>ENDS:</b>	
<b>SIZE RANGE : 2" TO 10"</b>				
<b>ENDS : FLGD, B-16.5, RF/125AARH</b>				
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE/BALL TYP	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
OTHERS	O.S & Y.			
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					<b>0026</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0027 Sheet No. 1 of 1</b>




CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0027</b> <b>PIPING CLASS : A64A</b> <b>RATING : 150</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		ALLOY UNS N04400 / A 216 Gr. WCB		
HINGE PIN		ALLOY UNS N04400		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY				
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 275 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.

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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0027</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0028 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0028</b> <b>PIPING CLASS : B64A</b>			<b>STANDARD:</b>	
<b>RATING : 300</b> <b>STANDARD : BS-1868</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 6"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		ALLOY UNS N04400 / ASTM A 216 Gr. WCB		
HINGE PIN		SS 316		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY				
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 300 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR				



#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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SHEET REV. NO.	ADVANCE COPY					<b>0028</b>
DATE						



 	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0029 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0029</b> <b>PIPING CLASS : A19A</b> <b>RATING : 150</b> <b>STANDARD : BS-1868</b> <b>SIZE RANGE : 2" TO 12"</b> <b>ENDS : FLGD, B-16.5, RF/125AARH</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		SS 316L FACING / SS 316L		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		SS 316L / A 216 Gr. WCB		
HINGE PIN		SS 316L (NO CASTING)		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY				
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + PWHT	CAUSTIC SERVICE(MAX.TEMP.110 DEG.C) & AMINE		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 450 PSIG.	SEAT : 325 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.

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SHEET REV. NO.	ADVANCE COPY					0029
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 0032 Sheet No. 1 of 1</b>	
GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0032      PIPING CLASS : B63A</b>			<b>STANDARD:</b>	
<b>RATING : 300      STANDARD : API 600/ ISO 10434</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 14"      ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		ALLOY UNS N04400		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 1125 PSIG.	SEAT : 825 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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SHEET REV. NO.	ADVANCE COPY					<b>0032</b>
DATE						

 	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0035 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0035      PIPING CLASS : D63A</b> <b>RATING : 600      STANDARD : API 600/ ISO 10434</b> <b>SIZE RANGE : 2" TO 3"      ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
BONNET	BOLTED	ASTM A 216 Gr. WCB		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RING		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.		
REQUIREMENT OF RADIOGRAPHY				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 300 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER		SS 316L		
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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SHEET REV. NO.	ADVANCE COPY					<b>0035</b>
DATE						

 	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0036 Sheet No. 1 of 1




CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0036</b>	<b>PIPING CLASS : D63A</b>		<b>STANDARD:</b>	
<b>RATING : 600</b>	<b>STANDARD : BS-1868</b>		<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 2" TO 3"</b>	<b>ENDS : FLGD, B-16.5, RF/125AARH C.A. : 6 MM</b>		<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 Gr. WCB		
COVER	BOLTED	ASTM A 216 Gr. WCB		
DISC		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE		ALLOY UNS N04400 / ASTM A 216 Gr. WCB		
HINGE PIN		ALLOY UNS N04400		
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL+ I RING		
BY PASSES				
TYPE	SWING CHECK TYPE			
REQUIREMENT OF RADIOGRAPHY				
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 300 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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SHEET REV. NO.	ADVANCE COPY					<div>0036</div>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0001 Sheet No. 1 of 1




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0001</b> <b>PIPING CLASS :</b> A11A, B1A, B9A, D1A			<b>STANDARD:</b>	
<b>RATING :</b> 800 <b>STANDARD :</b> API 602/ ISO 15761			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS :</b> SW, 3000 TO B-16.11			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0001</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0002 Sheet No. 1 of 1




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0002</b> <b>PIPING CLASS :</b> A59A, A5A, B59A <b>RATING : 800</b> <b>STANDARD :</b> API 602/ ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS :</b> SW, 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					0002
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0003 Sheet No. 1 of 1




GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0003</b> <b>PIPING CLASS :</b> B1A, B9A, D1A <b>RATING : 800</b> <b>STANDARD :</b> API 602/ ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW, 3000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					0003
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0004-0001
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0004 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0004</b> <b>PIPING CLASS : B5A</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 3000 TO B-16.11</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7		
BONNET NUTS		ASTM A194 GR 2H		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			




#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0004</b>
DATE						



  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0019 Sheet No. 1 of 1




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0019</b> <b>PIPING CLASS :</b> A64A, B64A, D64A <b>RATING : 800</b> <b>STANDARD :</b> API 602/ ISO 15761 <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS :</b> SW, 6000 TO B-16.11			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.

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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0019</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0020 Sheet No. 1 of 1




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0020</b> <b>PIPING CLASS : B1A</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 3000 TO B-16.11</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE	MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.

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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0020</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0021 Sheet No. 1 of 1




GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0021</b> <b>PIPING CLASS :</b> A64A, B64A, D64A <b>RATING : 800</b> <b>STANDARD :</b> BS EN ISO 15761 <b>SIZE RANGE :</b> 0.5" TO 1.5" <b>ENDS :</b> SW, 6000 TO B-16.11			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SHEET REV. NO.	ADVANCE COPY					0021
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0022 Sheet No. 1 of 1</b>



CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0022</b> <b>PIPING CLASS : A64A, B64A</b> <b>RATING : 800</b> <b>STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 6000 TO B-16.11</b>			<b>STANDARD:</b>  <b>MFGRS CAT/FIG:</b>  <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
COVER	BOLTED	ASTM A 105N		
DISC/PISTON		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7M		
COVER NUT		ASTM A194 GR 2HM		
COVER GASKET		SP.WND SS316L+GRAFIL		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; FULL VACUUM		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0022</b>
DATE						

 	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No: 0023 Sheet No. 1 of 1</b>




CHECK VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0023      PIPING CLASS : A11A</b> <b>RATING : 800      STANDARD : BS EN ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SW 3000 TO B-16.11</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:      ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
COVER	BOLTED	ASTM A 105		
DISC		ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE/NON-RENEWABLE	STELLITED		
DISC HINGE/HINGE PIN				
COVER STUD BOLT		ASTM A193 GR B7		
COVER NUT		ASTM A194 GR 2H		
COVER GASKET		SP WND SS316-GRAFOIL FILLER		
TYPE	LIFT CHECK TYPE			
OTHERS				
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.		
WASHER,NUT,PIN				
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0023</b>
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0030 Sheet No. 1 of 1




GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0030</b> <b>PIPING CLASS : B1A</b> <b>RATING : 800</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 3000 TO B-16.11</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	BOLTED	ASTM A 105N		
STEM	RISING	SS 316L (NO CASTING)		
WEDGE DISC	SOLID	SS 316L FACING / SS 316L+STELLITED		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE	MAX TEMP. 427 DEG. C.		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.

SIGNATURE  
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OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					0030
DATE						

  	<b>DATASHEET FOR VALVE SPECIAL</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.: BM/B034-000-EP-TN-7210/1004</b> <b>Petrofac Job No.: JI-2039</b>
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 0031 Sheet No. 1 of 1</b>	
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0031      PIPING CLASS : D61M</b>			<b>STANDARD:</b>	
<b>RATING : 800      STANDARD : BS EN ISO 15761</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SW, 6000 TO B-16.11</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 Gr. F316/316L		
BONNET	BOLTED	ASTM A 182 Gr. F316/316L		
STEM	RISING	SS 316L (NO CASTING)		
DISC	LOOSE PLUG TYPE	STELLITED		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
BONNET GASKET		SP.WND SS316L+GRAFIL		
SPECIAL SERVICE CONDITIONS	NACE	MAX TEMP. 425 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 2900 PSIG.	SEAT : 2125 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.

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SHEET REV. NO.	ADVANCE COPY					<b>0031</b>
DATE						

  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> Contract No.: BM/B034-000-EP-TN-7210/1004 Petrofac Job No.: JI-2039 Doc No.: 2039-L-SPC-MX-0002-0001 Revision: 0
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<b>Client</b> : BPCL	<b>Dept.</b> : PIPING
<b>Project</b> : MS-BLOCK, BS-VI	
<b>Location</b> : KOCHI, KERALA	<b>Tag No:</b> 0033 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0033</b> <b>PIPING CLASS : B63A, D63A</b> <b>RATING : 1500</b> <b>STANDARD : API 602/ ISO 15761</b> <b>SIZE RANGE : 0.5" TO 1.5"</b> <b>ENDS : SW, 9000 TO B-16.11</b> <b>C.A. : 6 MM</b>			<b>STANDARD:</b> <b>MFGRS CAT/FIG:</b> <b>RATING:</b> <b>ENDS:</b>	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
WEDGE DISC	SOLID	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG.	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

#### NOTES

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- NACE REQUIREMENTS SHALL BE AS PER MR0103.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

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SHEET REV. NO.	ADVANCE COPY					<b>0033</b>
DATE						



  	<b>VALVE MATERIAL SPECIFICATION</b>	<b>BPCL Kochi Refinery- MS BLOCK PROJECT</b> <b>Contract No.:</b> BM/B034-000-EP-TN-7210/1004 <b>Petrofac Job No.:</b> JI-2039 <b>Doc No.:</b> 2039-L-SPC-MX-0002-0001 <b>Revision:</b> 0
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<b>Client : BPCL</b>			<b>Dept. : PIPING</b>	
<b>Project : MS-BLOCK, BS-VI</b>				
<b>Location : KOCHI, KERALA</b>			<b>Tag No: 0034 Sheet No. 1 of 1</b>	
GLOBE VALVE SPECIFICATION			MANUF'S OFFER	
<b>TAG NO. : 0034      PIPING CLASS : B63A</b>			<b>STANDARD:</b>	
<b>RATING : 1500      STANDARD : BS EN ISO 15761</b>			<b>MFGRS CAT/FIG:</b>	
<b>SIZE RANGE : 0.5" TO 1.5"      ENDS : SW, 6000 TO B-16.11      C.A. : 6 MM</b>			<b>RATING:</b>	<b>ENDS:</b>
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105N		
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105N		
STEM	RISING	ALLOY UNS N04400 (NO CASTING)		
DISC	LOOSE PLUG TYPE	ALLOY UNS N04400		
BODY SEAT RING	RENEWABLE	STELLITED		
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED FLEXIBLE GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION RINGS		
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M		
BONNET NUTS		ASTM A194 GR 2HM		
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FULL VACUUM		
BACK SEAT & SHOULDER	INTEGRAL			
OTHERS	O.S & Y.			
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG.	SEAT : 4100 PSIG		
TEST PRESSURE WITH AIR	80 PSIG			

**NOTES**

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OF THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE  
& SEAL  
OF MANUFACTURER

SHEET REV. NO.	ADVANCE COPY					<b>0034</b>
DATE						