

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
Α	29-May-18	Issued for Review	MN	AKG	RKK / AG	VA
REV.	DATE	DESCRIPTION	PRPD	CHKD	APPD	APPD
REV.	DATE	DESCRIPTION	FRPD	CHKD	LE/PEM	PD









BPCL Kochi Refinery- MS BLOCK PROJECT Contract No.: BM/B034-000-EP-TN-7210/1004

Petrofac Job No.: JI-2039

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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 "SS3 316" to "Stellited".
0	53916	Body construction changed from forged to cast.
	-	

### **List of Holds**

Page/Section	Description
	NIL



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#### Abbreviations:

VMS: Valve Material Specification



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Note-1: For Valve Material Specification General Notes refer contract document no. 6-44-0006-A1, Rev. 1.



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#### **Piston Valve**

64402 Rev. 0 64422 Rev. 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.
- All Rev. 0 datasheets (highlighted) are added/ modified from FEED VMS. For other datasheets refer contract VMS (Doc No. B034-6-44-0006-7200).



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Petrofac Job No.: JI-2039

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51301 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 51301 Sheet No	Tag No: 51301 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION	MANUF'S OFFER			
TAG NO.: 51301 RATING: 150	PIPING CLASS : A112	A, A1A, A32A, A9A <b>D</b> : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG:			
KATING: 130	SIANDAK	D: AFI 000/ 13O 10434	MITGRS CAT/FIG:			
SIZE RANGE : 2" TO	36" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH C.A.: 1.5 MM	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 / 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

- ${\bf 1} \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 4 5% 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.

SHEET REV. NO.	A	0		51301
DATE	29-May-18	20-Aug-18		0 - 0 - 0 -



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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51304 Sheet No. 1 of 1

Location : KOCHI, KE	<u> </u>		Tag No: 51304 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION		MANUF'S OFFE	R	
TAG NO.: 51304	PIPING CLASS: A5A	A		STANDARD:		
RATING: 150	STANDAI	<b>RD :</b> API 600/ ISO 10434		MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	32" <b>ENDS</b> : FI	.GD, B-16.5, RF/125AARH	<b>C.A.</b> : 1.5 MM	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 / 13% CR. STE	EL FACING			
BODY SEAT RING	RENEWABLE	STELLITED				
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE I GRAPHITE PACKING WITH B 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 FILI	LER/CORRUGATED SS 316			
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES F	OR PURCHASE OF VALVES.			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES F	OR PURCHASE OF VALVES.			
SPECIAL SERVICE CONDITIONS	HYDROGEN SERVICE	MAX TEMP. 285 DEG. C.; FUL	L 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.
- ${f 6}$  VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'.

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 51321 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	o. 1 of 1			
	GATE VALVE	SPECIFICATION	MANUF'S OFFEI	R	
TAG NO.: 51321	PIPING CLASS : A3A	STANDARD:			
RATING: 150	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	24" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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 / 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

- ${\bf 1} \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 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.

SHEET REV. NO.	A	0		51321
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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51361 Sheet No. 1 of 1

Project : MS-BLOCK	L, DS-VI						
Location: KOCHI, KE	ERALA		Tag No: 51361 Sheet No. 1 of 1				
	GATE VALVE	SPECIFICATION		MANUF'S OFFE	R		
TAG NO. : 51361	PIPING CLASS: A98	M		STANDARD:			
RATING: 150	STANDAR	<b>D</b> : API 600/ ISO 10434		MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	16" <b>ENDS</b> : FL	GD, B-16.5, RF/125AARH	<b>C.A.</b> : 1.5 MM	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	SOLID / FLEXIBLE	SS 316					
BODY SEAT RING	NONRENEWABLE/ RENEWABLE	STELLITED					
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE I GRAPHITE PACKING WITH B 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 FILI	LER				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES F	OR PURCHASE OF VALVES.				
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES F	OR 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					

#### NOTES

AIR

TEST PRESSURE WITH

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

80 PSIG

- ${\bf 3}$   $\,$   $\,$  10% Valve castings shall undergo radiographic examination.
- 4 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- ${\bf 5} \qquad {\bf WELD\ REPAIRS, IF\ ANY, SHALL\ BE\ CARRIED\ OUT\ BEFORE\ SOLUTION\ HEAT\ TREATMENT.}$
- **6** TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

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DATE				3 20 3 2



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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51393 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 51393 **PIPING CLASS: A59A** STANDARD: **RATING:** 150 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 12" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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 / 13% CR. STEEL FACING BODY SEAT RING RENEWABLE STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES. OPERATOR REOUIREMENT OF REFER TECHNICAL NOTES FOR PURCHASE OF VALVES RADIOGRAPHY

#### NOTES

SPECIAL SERVICE

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS

OTHERS

PRESSURE

AIR

THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

MAX TEMP. 375 DEG. C.

13% CR STEEL

SEAT: 325 PSIG

NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 450 PSIG.

HYDROGEN SERVICE

O.S & Y.

80 PSIG

- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION. 3
- FOR VALVE SIZE UPTO 24", TESTING SHALL BE AS PER API-598. 4
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'. 5

SIGNATURE

SHEET REV. NO.		ADVANCE COPY		51393
DATE				



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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51404 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 51404 **PIPING CLASS: B5A** STANDARD: **RATING:** 300 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 16" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM **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 / 13% CR. STEEL FACING BODY SEAT RING RENEWABLE STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS HAND WHEEL MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON NON RISING BONNET BOLTS ASTM A193 GR B7 BONNET NUTS ASTM A194 GR 2H BONNET GASKET SP WND SS316 WITH GRAFOIL FILLER REQUIREMENT OF GEAR

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

MAX TEMP. 345 DEG. C.; FULL VACUUM

#### NOTES

OPERATOR REQUIREMENT OF

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

13% CR. STEEL

SEAT: 825 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

HYDROGEN SERVICE

O.S & Y.

80 PSIG

- 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.	A	0		51404
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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: 51432 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 51432 Sheet No	Tag No: 51432 Sheet No. 1 of 1				
	GATE VALVE	SPECIFICATION	MANUF'S OFFEI	R			
TAG NO. : 51432	PIPING CLASS: B53	STANDARD:					
<b>RATING</b> : 300	STANDAR	D: API 600/ ISO 10434	MFGRS CAT/FIG:				
SIZE RANGE : 2" TO	16" <b>ENDS</b> : FL	GD, B-16.5, RF/125AARH <b>C.A.</b> : 6 MM	RATING:	ENDS:			
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'.
- 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		51432
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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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51493 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 51493 **PIPING CLASS: B59A** STANDARD: **RATING:** 300 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 10" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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 / 13% CR. STEEL FACING BODY SEAT RING RENEWABLE STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

#### NOTES

OPERATOR REOUIREMENT OF

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

MAX TEMP. 375 DEG. C.

13% CR STEEL

SEAT: 825 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

HYDROGEN SERVICE

O.S & Y.

80 PSIG

- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- ${\bf 5} \qquad {\tt VALVES~SHALL~MEET~THE~REQUIREMENTS~FOR~HYDROGEN~SERVICE~AS~SPECIFIED~IN~TECHNICAL~NOTES~FOR~VALVES'}.$

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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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51532 Sheet No. 1 of 1

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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

MAX TEMP. 550 DEG. C.; FULL VACUUM

#### NOTES

OPERATOR REQUIREMENT OF

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

13% CR. STEEL

SEAT: 1650 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY : 2250 PSIG.

HYDROGEN SERVICE

O.S & Y.

80 PSIG

- 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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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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51593 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 51593 **PIPING CLASS: D59A** STANDARD: **RATING** : 600 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 4" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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 / 13% CR. STEEL FACING BODY SEAT RING RENEWABLE STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES. OPERATOR REOUIREMENT OF REFER TECHNICAL NOTES FOR PURCHASE OF VALVES RADIOGRAPHY SPECIAL SERVICE HYDROGEN SERVICE MAX TEMP. 425 DEG. C.; FULL VACUUM CONDITIONS BACK SEAT & SHOULDER 13% CR STEEL

#### NOTES

HYDROSTATIC TEST

TEST PRESSURE WITH

OTHERS

PRESSURE

AIR

THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

SEAT: 1650 PSIG

NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 2225 PSIG.

- $100\%\,$  VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION. 3
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1. 4

O.S & Y.

80 PSIG

VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'. 5

SIGNATURE

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BPCL Kochi Refinery- MS BLOCK PROJECT

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MFGRS CAT/FIG:

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51902 Sheet No. 1 of 1

TAG NO.: 51902 PIPING CLASS: A91N

Tag No: 51902 Sheet No. 1 of 1

MANUF'S OFFER

STANDARD:

SIZE RANGE: 0.5" TO 1.5" ENDS: SCRF, 3000 TO B-1.20.1 C.A.: 0 MM RATING: ENDS:

**STANDARD**: API 602/ ISO 15761

CONSTRUCTION CONSTRUCTION DESCRIPTION **MATERIAL MATERIAL** BODY FORGED ASTM A 182 Gr. F316L BONNET BOLTED ASTM A 182 Gr. F316L RISING STEM SS 316L WEDGE DISC SOLID STELLITED RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 MAX TEMP. 65 DEG. C. CONDITIONS BACK SEAT & SHOULDER INTEGRAL OTHERS O.S & Y. HYDROSTATIC TEST BODY: 2400 PSIG. SEAT: 1775 PSIG PRESSURE TEST PRESSURE WITH 80 PSIG AIR

#### NOTES

**RATING:** 800

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

SHEET REV. NO.	0		51902
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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 51903 Sheet No. 1 of 1

 GATE VALVE SPECIFICATION
 MANUF'S OFFER

 TAG NO.: 51903
 PIPING CLASS: A61K
 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
 C.A.: 1.5 MM
 RATING:
 ENDS:

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	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.

SHEET REV. NO.	0		51903
DATE	20-Aug-18		



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51905 Sheet No. 1 of 1

GATE VALVE SPECIFICATION MANUF'S OFFER

**TAG NO.: 51905 PIPING CLASS:** A64A, B64A, D64A **STANDARD:** 

RATING: 800 STANDARD: API 602/ ISO 15761 MFGRS CAT/FIG:

SIZE RANGE: 0.5" TO 1.5" ENDS: SW, 6000 TO B-16.11 C.A.: 3 MM RATING: ENDS:

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

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- ${\bf 3} \qquad \text{VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN `TECHNICAL NOTES FOR VALVES'.}$
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 NACE REQUIREMENTS SHALL BE AS PER MR0103.

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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51907 Sheet No. 1 of 1

Location : KOCHI, KE	ERALA		Tag No: 51907 Sheet No. 1 of 1  MANUF'S OFFER			
	GATE VALVE	SPECIFICATION				
TAG NO. : 51907	PIPING CLASS: J3A			STANDARD:		
RATING: 150	STANDAR	<b>D</b> : MSS SP-80		MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	3" ENDS: SC	RF 3000 TO B-1.20.1	<b>C.A.</b> : 0 MM	RATING:	ENDS:	
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 F	OR PURCHASE OF VALVES.			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES F	OR 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	80 PSIG					

#### NOTES

AIR

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

SHEET REV. NO.		ADVANCE COPY		51907
DATE				



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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51908 Sheet No. 1 of 1

110ject . MS-BLOCK							
Location: KOCHI, KE	ERALA		Tag No: 51908 Sheet No. 1 of 1				
	GATE VALVE	SPECIFICATION		MANUF'S OFFEI	R		
TAG NO. : 51908	PIPING CLASS: J3A			STANDARD:			
RATING: 150	STANDAR	<b>D</b> : MSS SP-80		MFGRS CAT/FIG:			
SIZE RANGE : 4" TO	6" ENDS : FL	GD, B-16.24,FF/125AARH	<b>C.A.</b> : 0 MM	RATING:	ENDS:		
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/F	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 FO	OR PURCHASE OF VALVES.				
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FO	OR 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					

#### NOTES

AIR

TEST PRESSURE WITH

- 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.

80 PSIG

SHEET REV. NO.		ADVANCE COPY		51908
DATE				



BPCL Kochi Refinery- MS BLOCK PROJECT

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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: 51912 Sheet No. 1 of 1

GATE VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 51912 PIPING CLASS: D61M STANDARD:

RATING: 800 STANDARD: API 602/ ISO 15761 MFGRS CAT/FIG:

**SIZE RANGE**: 0.5" TO 1.5" **ENDS**: SW, 6000 TO B-16.11 **C.A.**: 1.5 MM **RATING**: **ENDS**:

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.
- ${\bf 2} \qquad \quad {\bf NO~CUTTING/~OVERWRITING~BY~BIDDER~IS~ALLOWED}.$
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

SHEET REV. NO.	A	0		51912
DATE	29-May-18	20-Aug-18		0.13.12



BPCL Kochi Refinery- MS BLOCK PROJECT

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51916 Sheet No. 1 of 1

GATE VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 51916 PIPING CLASS: A91P 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 C.A.: 1.5 MM RATING: ENDS:

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.
- ${\bf 2} \qquad \quad {\bf NO~CUTTING/~OVERWRITING~BY~BIDDER~IS~ALLOWED}.$
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 4 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SHEET REV. NO.	A	0		51916
DATE	29-May-18	20-Aug-18		01910



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 51923 Sheet No. 1 of 1

**GATE VALVE SPECIFICATION** MANUF'S OFFER TAG NO.: 51923 PIPING CLASS: A61K STANDARD: **RATING:** 150 **STANDARD**: API 602/ ISO 15761 MFGRS CAT/FIG: SIZE RANGE: 2" TO 6" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM **RATING: ENDS:** CONSTRUCTION DESCRIPTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY CAST ASTM A 351 GR. CF8M BONNET BOLTED ASTM A 351 GR. CF8M SS 316 (NO CASTING) STEM RISING WEDGE DISC SOLID / FLEXIBLE SS 316 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

#### NOTES

REOUIREMENT OF GEAR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

OPERATOR REQUIREMENT OF

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 325 PSIG

SS 316

MAX TEMP, 371 DEG, C.

- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- 3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

BODY: 425 PSIG.

O.S & Y.

80 PSIG

- 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.

SHEET REV. NO.	0		51923
DATE	20-Aug-18		0 19 10



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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51924 Sheet No. 1 of 1

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

#### NOTES

AIR

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

80 PSIG

- 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

SHEET REV. NO.		ADVANCE COPY		51924
DATE				



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51925 Sheet No. 1 of 1

MANUF'S OFFER **GATE VALVE SPECIFICATION** TAG NO.: 51925 **PIPING CLASS: A64A** STANDARD: **RATING:** 150 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 12" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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 WEDGE DISC SOLID / FLEXIBLE SS 316L FACING/SS 316L RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS HAND WHEEL MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON NON RISING BONNET BOLTS ASTM A193 GR B7M BONNET NUTS ASTM A194 GR 2HM

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

#### **NOTES**

BONNET GASKET

OPERATOR REQUIREMENT OF

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

REQUIREMENT OF GEAR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 325 PSIG

SS 316L

SP.WND SS316L+GRAFIL

MAX TEMP, 275 DEG, C.

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

NACE + H2 SERVICE +

PWHT

O.S & Y.

80 PSIG

3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

BODY: 450 PSIG.

- 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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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51926 Sheet No. 1 of 1

Troject . Mis-block	, DD- VI						
Location: KOCHI, KE	ERALA		Tag No: 51926 Sheet No. 1 of 1				
	GATE VALVE	SPECIFICATION		MANUF'S OFFE	R		
TAG NO. : 51926	PIPING CLASS : A9	1P		STANDARD:			
RATING: 150	STANDA	<b>RD</b> : API 600/ ISO 10434		MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	4" <b>ENDS</b> : FI	LGD, B-16.5, RF/125AARH	<b>C.A.</b> : 1.5 MM	RATING:	ENDS:		
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 + HARDFA0	CED SEATS				
BODY SEAT RING	RENEWABLE / NON RENEWABLE	Alloy UNS N04400 + HARDFA0	CED SEATS				
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE I GRAPHITE PACKING WITH B 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 + GRAFO	OIL				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES F	OR PURCHASE OF VALVES.				
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES F	OR 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					

#### NOTES

TEST PRESSURE WITH

PRESSURE

AIR

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

80 PSIG

SHEET REV. NO.	A	0		51926
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51940 Sheet No. 1 of 1

Project : MS-BLOCK	K, BS-VI					
Location: KOCHI, KE	ERALA		Tag No: 51940 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION		₹		
TAG NO. : 51940	PIPING CLASS: B714	A		STANDARD:		
<b>RATING</b> : 300	STANDAR	<b>D</b> : API 600/ ISO 10434		MFGRS CAT/FIG:		
SIZE RANGE : 14" TO	24" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH	<b>C.A.</b> : 1.5 MM	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 / 13% CR. STE	EL FACING			
BODY SEAT RING	RENEWABLE	STELLITED				
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE I GRAPHITE PACKING WITH B RINGS				
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/I	FAB.ST/DUCT. IRON			
BONNET BOLTS		ASTM A193 GR B7				
BONNET NUTS		ASTM A194 GR 2H				
BONNET GASKET		SP.WND SS316+GRAFIL+ I RIN	NG			
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FO	OR PURCHASE OF VALVES.			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FO	OR PURCHASE OF VALVES.			
SPECIAL SERVICE CONDITIONS		MAX TEMP. 427 DEG. C.; FUL	L VACUUM			
BACK SEAT & SHOULDER		13% CR. STEEL				
OTHERS	O.S & Y.					

#### NOTES

PRESSURE

HYDROSTATIC TEST

TEST PRESSURE WITH

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 825 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

80 PSIG

- ${\bf 3} \qquad {\tt TESTING\ SHALL\ BE\ AS\ PER\ API-598\ /\ BS\ EN\ 12266-1}.$
- 4 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL HAVE A MINIMUM OF FIVE (5) DIE-FORMED FLEXIBLE GRAPHITE PACKING RINGS.

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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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51942 Sheet No. 1 of 1

MANUF'S OFFER **GATE VALVE SPECIFICATION** TAG NO.: 51942 **PIPING CLASS: B25D** STANDARD: **RATING:** 300 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 8" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM **RATING: ENDS:** 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 CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS HAND WHEEL MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON NON RISING BONNET BOLTS ASTM A193 GR B16 BONNET NUTS ASTM A194 GR.4 BONNET GASKET SPWND SS316 + THERMICULITE835 +IR REQUIREMENT OF GEAR REFER TECHNICAL NOTES FOR PURCHASE OF VALVES OPERATOR REQUIREMENT OF

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

MAX TEMP. 550 DEG. C.; FULL VACUUM

#### NOTES

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

13% CR. STEEL

SEAT: 825 PSIG

NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 1125 PSIG.

HYDROGEN SERVICE

O.S & Y.

80 PSIG

- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION. 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

SHEET REV. NO.		ADVANCE COPY		51942
DATE				



0PCL Kochi Refinery- MS 0LOCK 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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51944 Sheet No. 1 of 1

GATE VALVE SPECIFICATION MANUF'S OFFER TAG NO.: 51944 **PIPING CLASS: B63A** STANDARD: **RATING:** 300 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 14" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 6 MM **RATING:** ENDS: DESCRIPTION CONSTRUCTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY CAST ASTM A 216 Gr. WCB ASTM A 216 Gr. WCB BONNET BOLTED STEM RISING SS 316L WEDGE DISC SOLID / FLEXIBLE SS 316L FACING/SS 316L RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWARI E WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES OPERATOR

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

MAX TEMP. 375 DEG. C.; FULL VACUUM

NOTES

PRESSURE

AIR

REQUIREMENT OF

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 825 PSIG

SS 316L

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

NACE + H2 SERVICE

O.S & Y.

80 PSIG

- 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
- 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.

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



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51945 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 51945 **PIPING CLASS: B64A** STANDARD: **RATING:** 300 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 10" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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 WEDGE DISC SOLID / FLEXIBLE SS 316L FACING/SS 316L RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS NON RISING HAND WHEEL 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES OPERATOR REQUIREMENT OF REFER TECHNICAL NOTES FOR PURCHASE OF VALVES. RADIOGRAPHY SPECIAL SERVICE NACE + H2 SERVICE +

#### NOTES

CONDITIONS

OTHERS

PRESSURE

AIR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

SEAT: 825 PSIG

SS 316L

NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 1125 PSIG.

TESTING SHALL BE AS PER API-598 / BS EN 12266-1 3

PWHT

O.S & Y.

80 PSIG

- NACE REQUIREMENTS SHALL BE AS PER MR0103. 4
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'. 5

MAX TEMP. 300 DEG. C.; FULL VACUUM

50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION. 6

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



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 51963 Sheet No. 1 of 1

**GATE VALVE SPECIFICATION MANUF'S OFFER** TAG NO.: 51963 **PIPING CLASS: D95A** STANDARD: **RATING** : 600 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 6" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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 / 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	80 PSIG		

#### NOTES

AIR

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- ${\bf 3}$  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.

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



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51964 Sheet No. 1 of 1

Location: KOCHI, KE	RALA	1	Tag No: 51964 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION		MANUF'S OFFE	R	
TAG NO. : 51964	PIPING CLASS: D63	A		STANDARD:		
<b>RATING</b> : 600	STANDAR	<b>AD</b> : API 600/ ISO 10434		MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	3" <b>ENDS</b> : FL	GD, B-16.5, RF/125AARH	<b>C.A.</b> : 6 MM	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				
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 FO GRAPHITE PACKING WITH BR RINGS				
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FA	AB.ST/DUCT. IRON			
BONNET BOLTS		ASTM A193 GR B7M				
BONNET NUTS		ASTM A194 GR 2HM				
BONNET GASKET		SP.WND SS316L+GRAFIL+ I RII	NG			
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FO	R PURCHASE OF VALVES.			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FO	R 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

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- ${\bf 3} \qquad \text{TESTING SHALL BE AS PER API-598 / BS EN 12266-1}.$
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'.
- ${\bf 6}$   $\,$   $\,$  100% valve castings shall undergo radiographic examination.
- 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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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51965 Sheet No. 1 of 1

**GATE VALVE SPECIFICATION MANUF'S OFFER** TAG NO. : 51965 STANDARD: **PIPING CLASS: D64A RATING:** 600 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 10" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **RATING: ENDS:** CONSTRUCTION MATERIAL CONSTRUCTION DESCRIPTION MATERIAL

DESCRIPTION	CONSTRUCTION MATERIAL		CONSTRUCTION	WIATERIAL
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.

SHEET REV. NO.	0	ADVENCE COPY		51965
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51972 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 51972 Sheet I	Tag No: 51972 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION	MANUF'S OFFE	R		
TAG NO. : 51972	PIPING CLASS : D61	STANDARD:				
<b>RATING</b> : 600	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:			
<b>SIZE RANGE :</b> 2" TO 3" <b>ENDS :</b> FLGD, B-16.5, RF/125AARH <b>C.A. :</b> 1.5 MM			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	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	1			
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 VALVE	S.			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCHASE OF VALVE	S.			
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.

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 51980 Sheet No. 1 of 1

GATE VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 51980 PIPING CLASS: B63A, D63A

RATING: 1500 STANDARD: API 602/ ISO 15761

SIZE RANGE: 0.5" TO 1.5" ENDS: SW, 9000 TO B-16.11 C.A.: 6 MM

RATING: ENDS:

DESCRIPTION CONSTRUCTION MATERIAL

CONSTRUCTION MATERIAL

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

- ${\bf 1} \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- ${\bf 3} \qquad {\tt VALVES~SHALL~MEET~THE~REQUIREMENTS~FOR~HYDROGEN~SERVICE~AS~SPECIFIED~IN~TECHNICAL~NOTES~FOR~VALVES'}.$
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 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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Petrofac Job No.: JI-2039

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 52301 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 52301 Sheet No	Tag No: 52301 Sheet No. 1 of 1				
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFEI	R			
TAG NO. : 52301	PIPING CLASS: A11A	A, A1A, A9A	STANDARD:				
<b>RATING</b> : 150	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:				
SIZE RANGE : 2" TO	16" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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 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

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

SHEET REV. NO.	A	0		52301
DATE	29-May-18	20-Aug-18		0 = 0 0 =



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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52304 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER	1	
TAG NO. : 52304	PIPING CLASS : A5A	STANDARD:		
RATING: 150	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	16" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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 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**

- 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.
- ${\bf 4} \hspace{1.5cm} {\bf 50\%} \hspace{0.1cm} {\bf VALVE} \hspace{0.1cm} {\bf CASTINGS} \hspace{0.1cm} {\bf SHALL} \hspace{0.1cm} {\bf UNDERGO} \hspace{0.1cm} {\bf RADIOGRAPHIC} \hspace{0.1cm} {\bf EXAMINATION}.$
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'.

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



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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: 52321 Sheet No. 1 of 1

Location : ROCIII, RE	ACT ILL I	1 ag 110. 32321 blicet 110	0. 1 01 1	
	GLOBE VALVE	MANUF'S OFFER		
TAG NO. : 52321	PIPING CLASS : A3A	STANDARD:		
<b>RATING</b> : 150	STANDAR	MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	10" ENDS : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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 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.
- ${\bf 2} \qquad \quad {\bf NO~CUTTING/~OVERWRITING~BY~BIDDER~IS~ALLOWED}.$
- ${f 3}$  RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.

SHEET REV. NO.	A	0		52321
DATE	29-May-18	20-Aug-18		0_0



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52404 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	o. 1 of 1		
	GLOBE VALVE	MANUF'S OFFE	R	
TAG NO. : 52404	PIPING CLASS: B5A	STANDARD:		
<b>RATING</b> : 300	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	12" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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 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

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ${\bf 2} \hspace{1cm} \hbox{NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED.}$
- 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'.

SHEET REV. NO.	A	0		52404
DATE	29-May-18	20-Aug-18		



0PCL Kochi Refinery- MS 0LOCK 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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52432 Sheet No. 1 of 1

Location: KOCHI, KI	ERALA	Tag No: 52432 Sheet No	Tag No: 52432 Sheet No. 1 of 1				
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER	R			
TAG NO. : 52432	PIPING CLASS: B531	)	STANDARD:				
<b>RATING</b> : 300	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:				
SIZE RANGE : 2" TO	12" ENDS: FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 6 MM	RATING:	ENDS:			
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.
- ${\bf 2} \qquad \quad {\bf NO~CUTTING/~OVERWRITING~BY~BIDDER~IS~ALLOWED}.$
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ${\bf 5} \qquad {\tt VALVES~SHALL~MEET~THE~REQUIREMENTS~FOR~HYDROGEN~SERVICE~AS~SPECIFIED~IN~TECHNICAL~NOTES~FOR~VALVES'}.$
- 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.

SHEET REV. NO.	A	0		52432
DATE	29-May-18	20-Aug-18		



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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 52493 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER			
TAG NO. : 52493	PIPING CLASS: B5A		STANDARD:		
<b>RATING</b> : 300	STANDAR	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	8 ENDS: FLO	GD, 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 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

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

SHEET REV. NO.		ADVANCE COPY		52493
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52532 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
TAG NO.: 52532	PIPING CLASS : D55I	STANDARD:		
<b>RATING</b> : 600	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	12" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 3 MM	RATING:	ENDS:
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	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

- 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'.

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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52901 Sheet No. 1 of 1

Location: KOCHI, KERALA			Tag No: 52901 Sheet No. 1 of 1			
	GLOBE VALVE		MANUF'S OFFE	R		
TAG NO. : 52901	PIPING CLASS : A71	A, B71A		STANDARD:		
<b>RATING</b> : 800	STANDAR	<b>RD</b> : BS EN ISO 15761		MFGRS CAT/FIG:		
SIZE RANGE : 0.5" TO	1.5" <b>ENDS</b> : SV	V, 6000 TO B-16.11	<b>C.A.</b> : 1.5 MM	RATING:	ENDS:	
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 GRAPHITE PACKING WITH B 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.; FUL	L 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

- ${\bf 1} \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 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.

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BPCL Kochi Refinery- MS BLOCK PROJECT

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52902 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 52902 PIPING CLASS: A91N STANDARD:

RATING: 800 STANDARD: BS EN ISO 15761 MFGRS CAT/FIG:

SIZE RANGE: 0.5" TO 1.5" ENDS: SCRF, 2000 TO B-1.20.1 C.A.: 0 MM RATING: ENDS:

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			

### 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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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52903 Sheet No. 1 of 1

**GLOBE VALVE SPECIFICATION MANUF'S OFFER** TAG NO.: 52903 **PIPING CLASS: A61K** 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: C.A.**: 1.5 MM **ENDS:** CONSTRUCTION DESCRIPTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY FORGED ASTM A 182 GR.F304/304L DUAL CERT. BONNET ASTM A 182 GR.F304/304L DUAL CERT. BOLTED RISING SS 316 (NO CASTING) STEM WEDGE DISC SOLID STELLITED RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

#### NOTES

HYDROSTATIC TEST

TEST PRESSURE WITH

BONNET GASKET

OPERATOR REQUIREMENT OF

RADIOGRAPHY SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

REOUIREMENT OF GEAR

BACK SEAT & SHOULDER INTEGRAL

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2125 PSIG

SP.WND SS316L+GRAFIL

MAX TEMP, 371 DEG, C

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2900 PSIG.

3 TESTING SHALL BE AS PER BS EN 12266-1.

80 PSIG

O.S & Y.

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52905 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION MANUF'S OFFER TAG NO.: 52905 PIPING CLASS: A64A, B64A, D64A STANDARD: **RATING:** 800 STANDARD: BS EN ISO 15761 MFGRS CAT/FIG: **SIZE RANGE:** 0.5" TO 1.5" ENDS: SW, 6000 TO B-16.11 **RATING: ENDS:** C.A.: 3 MMDESCRIPTION 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 CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS RISING HAND WHEEL MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON BONNET BOLTS ASTM A193 GR B7M BONNET NUTS ASTM A194 GR 2HM

### NOTES

BONNET GASKET

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

BACK SEAT & SHOULDER INTEGRAL

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2175 PSIG

SP.WND SS316L+GRAFIL

MAX TEMP. 335 DEG. C.; FULL VACUUM

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2975 PSIG.

NACE + H2 SERVICE +

3 TESTING SHALL BE AS PER BS EN 12266-1.

O.S & Y.

80 PSIG

- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'.

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 52912 Sheet No. 1 of 1

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

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

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BPCL Kochi Refinery- MS BLOCK PROJECT

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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: 52920 Sheet No. 1 of 1

Location: KOCHI, KI	ERALA	Tag No: 52920 Sheet No	ag No: 52920 Sheet No. 1 of 1			
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER	L		
TAG NO. : 52920	PIPING CLASS : A71	STANDARD:				
RATING: 150	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	12" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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 / 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

- ${\bf 1} \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 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.
- ${\bf 5} \qquad {\tt VALVES~SHALL~HAVE~A~MINIMUM~OF~FIVE~(5)~DIE-FORMED~FLEXIBLE~GRAPHITE~PACKING~RINGS}.$

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DATE	29-May-18	20-Aug-18		0-2-0



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52925 Sheet No. 1 of 1

Location : KOCHI, KE	ERALA		Tag No: 52925 Sheet No. 1 of 1			
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER			
TAG NO. : 52925	PIPING CLASS: A64	A		STANDARD:		
<b>RATING</b> : 150	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	12" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH	<b>C.A.</b> : 3 MM	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	RENEWABLE / NON RENEWABLE	STELLITED				
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE F GRAPHITE PACKING WITH BI RINGS				
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/F	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 FO	OR PURCHASE OF VALVES.			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FO	OR 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				

### NOTES

AIR

TEST PRESSURE WITH

- 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.

80 PSIG

- 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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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52940 Sheet No. 1 of 1

**GLOBE VALVE SPECIFICATION MANUF'S OFFER** TAG NO.: 52940 PIPING CLASS: B71A STANDARD: **RATING:** 300 STANDARD: BS-1873 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 216 Gr. WCB BONNET BOLTED ASTM A 216 Gr. WCB STEM RISING 13% CR.STEEL (NO CASTING) LOOSE PLUG TYPE/BALL DISC 13% CR. STEEL / 13% CR. STEEL FACING BODY SEAT RING RENEWABLE STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS RISING HAND WHEEL 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES OPERATOR

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

MAX TEMP. 427 DEG. C.; FULL VACUUM

#### NOTES

PRESSURE

AIR

REQUIREMENT OF

SPECIAL SERVICE

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS

RADIOGRAPHY OTHERS

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

13% CR STEEL

SEAT: 825 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

3 TESTING SHALL BE AS PER BS EN 12266-1.

80 PSIG

O.S & Y.

- ${\bf 5}$   $\,$  10% Valve castings shall undergo radiographic examination.
- ${f 6}$  Valves shall have a minimum of five (5) die-formed flexible graphite packing rings.

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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52942 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
TAG NO. : 52942	PIPING CLASS: B251	STANDARD:		
<b>RATING</b> : 300	STANDAR	MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	8" ENDS: FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	RATING:	ENDS:
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	GEN 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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.
- ${\bf 3}$   $\,$  50% Valve castings shall undergo radiographic examination.
- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- ${\bf 5} \qquad {\tt VALVES~SHALL~MEET~THE~REQUIREMENTS~FOR~HYDROGEN~SERVICE~AS~SPECIFIED~IN~TECHNICAL~NOTES~FOR~VALVES'}.$

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52944 Sheet No. 1 of 1

, ,					
	GLOBE VALVE	MANUF'S OFFER	MANUF'S OFFER		
TAG NO. : 52944	PIPING CLASS: B63A	STANDARD:			
<b>RATING</b> : 300	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	6" ENDS: FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 6 MM	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	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

- 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.
- ${\bf 5} \qquad {\bf NACE\ REQUIREMENTS\ SHALL\ BE\ AS\ PER\ MR0103}.$
- 6 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'.
- 7 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

SHEET REV. NO.	A	0	ADVENCE COPY		52944
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52945 Sheet No. 1 of 1

**GLOBE VALVE SPECIFICATION** MANUF'S OFFER TAG NO.: 52945 **PIPING CLASS: B64A** STANDARD: **RATING:** 300 STANDARD: BS-1873 MFGRS CAT/FIG: SIZE RANGE: 2" TO 6" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 3 MM **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) LOOSE PLUG TYPE/BALL DISC SS 316L FACING/SS 316L RENEWABLE STELLITED

BODY SEAT RING CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES OPERATOR REQUIREMENT OF REFER TECHNICAL NOTES FOR PURCHASE OF VALVES RADIOGRAPHY OTHERS O.S & Y. SPECIAL SERVICE NACE + H2 SERVICE + MAX TEMP. 300 DEG. C.; FULL VACUUM CONDITIONS PWHT

TEST PRESSURE WITH AIR 80 PSIG

BACK SEAT & SHOULDER

HYDROSTATIC TEST

PRESSURE

NOTES

1

SIG

THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 825 PSIG

SS 316L

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

- 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.

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BPCL Kochi Refinery- MS BLOCK PROJECT

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 52963 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 52963 Sheet No	Tag No: 52963 Sheet No. 1 of 1			
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFEI	2		
TAG NO. : 52963	PIPING CLASS: D95	STANDARD:				
<b>RATING</b> : 600	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	6" ENDS : FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 3 MM	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 / 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.
- ${f 4}$  100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52964 Sheet No. 1 of 1

Location: KOCHI, KI	ERALA	Tag No: 52964 Sheet No	Tag No: 52964 Sheet No. 1 of 1			
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER	₹		
TAG NO. : 52964	PIPING CLASS: D63.	A	STANDARD:			
<b>RATING</b> : 600	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	3" ENDS: FL	GD, B-16.5, RF/125AARH <b>C.A.</b> : 6 MM	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	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.
- ${\bf 2} \qquad \quad {\bf NO~CUTTING/~OVERWRITING~BY~BIDDER~IS~ALLOWED.}$
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- ${\bf 4} \qquad \text{NACE REQUIREMENTS SHALL BE AS PER MR0103}.$
- ${\bf 5}$   $\,$   $\,$  100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- ${\bf 6} \qquad {\tt VALVES~SHALL~MEET~THE~REQUIREMENTS~FOR~HYDROGEN~SERVICE~AS~SPECIFIED~IN~TECHNICAL~NOTES~FOR~VALVES'}.$
- 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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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52965 Sheet No. 1 of 1

Location: KOCHI, KERALA

GLOBE VALVE SPECIFICATION

TAG NO.: 52965 PIPING CLASS: D64A

RATING: 600

STANDARD: BS-1873

SIZE RANGE: 2" TO 10"

ENDS: FLGD, B-16.5, RF/125AARH C.A.: 3 MM

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	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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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 52972 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 52972 Sheet N	Tag No: 52972 Sheet No. 1 of 1				
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFE	R			
TAG NO. : 52972	PIPING CLASS : D611	STANDARD:					
<b>RATING</b> : 600	STANDAR	MFGRS CAT/FIG:					
SIZE RANGE : 2" TO	3" ENDS: FLO	GD, B-16.5, RF/125AARH <b>C.A.</b> : 1.5 MM	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	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.
- ${f 4}$  100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- ${\bf 6}$  Weld Repairs, if any, shall be carried out before solution heat treatment.

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 52980 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION MANUF'S OFFER

**TAG NO.: 52980 PIPING CLASS:** B63A, D63A **STANDARD:** 

RATING: 1500 STANDARD: BS EN ISO 15761 MFGRS CAT/FIG:

SIZE RANGE: 0.5" TO 1.5" ENDS: SW, 6000 TO B-16.11 C.A.: 6 MM RATING: ENDS:

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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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'.
- 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		52980
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SIZE RANGE: 2" TO 24"

## VALVE MATERIAL SPECIFICATION

BPCL Kochi Refinery- MS BLOCK PROJECT

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

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Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 53301 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53301 PIPING CLASS: A11A, A1A, A32A, A9A, A71A

STANDARD:

**ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM

RATING: 150 STANDARD: BS 1868

RATING: ENDS:

MFGRS CAT/FIG:

CONSTRUCTION CONSTRUCTION DESCRIPTION **MATERIAL MATERIAL** BODY CAST ASTM A 216 Gr. WCB COVER BOLTED ASTM A 216 Gr. WCB DISC 13% CR.STEEL / 13% CR.STEEL FACING RENEWABLE/NON-BODY SEAT RING STELLITED RENEWABLE 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 SWING CHECK TYPE TYPE REQUIREMENT OF REFER TECHNICAL NOTES FOR PURCHASE OF VALVES RADIOGRAPHY OTHERS SPECIAL SERVICE MAX TEMP. 371 DEG. C.; FULL VACUUM CONDITIONS WASHER,NUT,PIN HYDROSTATIC TEST BODY: 450 PSIG. SEAT: 325 PSIG PRESSURE 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 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53304 Sheet No. 1 of 1

**CHECK VALVE SPECIFICATION MANUF'S OFFER** TAG NO.: 53304 **PIPING CLASS: A5A** STANDARD: **RATING:** 150 STANDARD: BS 1868 MFGRS CAT/FIG: SIZE RANGE: 2" TO 24" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM **RATING: ENDS:** CONSTRUCTION DESCRIPTION **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 RENEWABLE/NON-BODY SEAT RING STELLITED RENEWABLE 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

MAX TEMP. 285 DEG. C.; FULL VACUUM

### NOTES

PRESSURE

AIR

REQUIREMENT OF

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS WASHER,NUT,PIN

RADIOGRAPHY OTHERS

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 325 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

HYDROGEN SERVICE

BODY: 450 PSIG.

- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53321 Sheet No. 1 of 1

Location: KOCHI, KERALA

Tag No: 53321 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53321

PIPING CLASS: A3A, A91A, A92A

STANDARD:

RATING: 150

STANDARD: BS 1868

MFGRS CAT/FIG:

SIZE RANGE: 2" TO 10"

ENDS: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM

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 / 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.

SHEET REV. NO.	A	0		53321
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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: 53404 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER TAG NO.: 53404 **PIPING CLASS: B5A** STANDARD: **RATING:** 300 STANDARD: BS-1868 MFGRS CAT/FIG: SIZE RANGE: 2" TO 16" **ENDS**: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM **RATING: ENDS:** CONSTRUCTION CONSTRUCTION DESCRIPTION **MATERIAL MATERIAL** BODY CAST ASTM A 216 Gr. WCB COVER BOLTED ASTM A 216 Gr. WCB DISC 13% CR.STEEL / 13% CR.STEEL FACING RENEWABLE/NON-BODY SEAT RING STELLITED RENEWABLE 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

MAX TEMP. 345 DEG. C.; FULL VACUUM

### WASHER,NUT,PIN HYDROSTATIC TEST

TEST PRESSURE WITH AIR

BODY: 450 PSIG.

HYDROGEN SERVICE

#### THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION. 3
- TESTING SHALL BE AS PER BS EN 12266-1. 4

REQUIREMENT OF

SPECIAL SERVICE

CONDITIONS

PRESSURE

**NOTES** 

2

RADIOGRAPHY OTHERS

> VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'. 5

SEAT: 325 PSIG

SIGNATURE

SHEET REV. NO.	A	0		53404
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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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53493 Sheet No. 1 of 1

CHCIIC . DI CE			Dept. Thinks			
Project : MS-BLO	CK, BS-VI					
Location : KOCHI,	KERALA	Ta	Tag No: 53493 Sheet No. 1 of 1			
	CHECK VALV	E SPECIFICATION		R		
TAG NO. : 53493	PIPING CLASS: B5	59A		STANDARD:		
<b>RATING</b> : 300	STANDA	<b>RD</b> : BS-1868		MFGRS CAT/FIG:		
SIZE RANGE : 2" T	O 10" <b>ENDS</b> : F	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 / 13% CR.STEEL FA	CING			
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/0	CORRUGATED SS 316			
BY PASSES						
ТҮРЕ	SWING CHECK TYPE					
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR P	URCHASE OF VALVES.			

### **NOTES**

PRESSURE

AIR

OTHERS

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS WASHER,NUT,PIN

> THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

SEAT: 825 PSIG

MAX TEMP. 375 DEG. C.

NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED. 2

HYDROGEN SERVICE

BODY: 1125 PSIG.

- 3 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1. 4
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

SHEET REV. NO.		ADVANCE COPY		53493
DATE				



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: ADVANCE COPY

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53593 Sheet No. 1 of 1

Project : MS-BLO	CK, BS-VI						
Location : KOCHI,	KERALA	Tag No: 53593	Tag No: 53593 Sheet No. 1 of 1				
	CHECK VALV	E SPECIFICATION	MANUF'S OFFER				
TAG NO. : 53593	PIPING CLASS : D5	9A	STANDARD:				
<b>RATING</b> : 600	STANDA	<b>RD</b> : BS-1868	MFGRS CAT/FIG:				
SIZE RANGE : 2" T	O 3" ENDS: F	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/CORRUGATED	SS 316				
BY PASSES							
ТҮРЕ	SWING CHECK TYPE						
REQUIREMENT OF		REFER TECHNICAL NOTES FOR PURCHASE OF	VAI VES				

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES.

### **NOTES**

PRESSURE

AIR

RADIOGRAPHY OTHERS

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS WASHER,NUT,PIN

> THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

MAX TEMP. 375 DEG. C.

SEAT: 1650 PSIG

NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 2225 PSIG.

HYDROGEN SERVICE

- 3  $100\%\,$  VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 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

SHEET REV. NO.		ADVANCE COPY		53593
DATE				



BPCL Kochi Refinery- MS BLOCK PROJECT

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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: 53901 Sheet No. 1 of 1

Location: KOCHI, KERALA			Tag No: 53901 Sheet No. 1 of 1			
	CHECK VALV	E SPECIFICATION		MANUF'S OFFEI	R	
TAG NO.: 53901	PIPING CLASS : A7	1A, B71A		STANDARD:		
<b>RATING</b> : 800	STANDA	<b>RD</b> : BS EN ISO 15761		MFGRS CAT/FIG:		
SIZE RANGE: 0.5" T	O 1.5" ENDS : S'	W, 3000 TO B-16.11	<b>C.A.</b> : 1.5 MM	RATING:	ENDS:	
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.; FUL	LL VACUUM			
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.
- ${\bf 2} \qquad \ \ \, \text{NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 3 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 4 TESTING SHALL BE AS PER BS EN 12266-1.

SHEET REV. NO.	0		53901
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53903 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 53903 PIPING CLASS: A61K 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 C.A.: 1.5 MM RATING: ENDS:

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		
ТҮРЕ	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

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

SHEET REV. NO.	0		53903
DATE	20-Aug-18		



0PCL Kochi Refinery- MS 0LOCK 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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53905 Sheet No. 1 of 1

Project : MS-BLOC	CK, BS-VI						
Location: KOCHI, K	ERALA		Tag No: 53905 Shee	Tag No: 53905 Sheet No. 1 of 1			
	CHECK VALV	E SPECIFICATION	1	MANUF'S OFFEI	R		
TAG NO. : 53905	PIPING CLASS : A	64A, B64A, D64A		STANDARD:			
<b>RATING</b> : 800	STANDA	<b>ARD</b> : BS EN ISO 15761		MFGRS CAT/FIG:			
SIZE RANGE : 0.5" T	O 1.5" ENDS: S	SW, 6000 TO B-16.11	<b>C.A.</b> : 3 MM	RATING:	ENDS:		
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					
ТҮРЕ	LIFT CHECK TYPE						
OTHERS							
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE + PWHT	MAX TEMP. 335 DEG. C.; F	FULL VACUUM				
WASHER,NUT,PIN							
HYDROSTATIC TEST PRESSURE	BODY : 2975 PSIG.	SEAT : 2175 PSIG					
i					•		

### NOTES

AIR

TEST PRESSURE WITH

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

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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: 53912 Sheet No. 1 of 1

Project : MS-BLOC	K, BS-VI				
Location: KOCHI, K	ERALA		Tag No: 53912 Shee	et No. 1 of 1	
	CHECK VALV	E SPECIFICATION		MANUF'S OFFEI	R
TAG NO. : 53912	PIPING CLASS : D6	1M		STANDARD:	
<b>RATING</b> : 800	STANDA	<b>RD</b> : BS EN ISO 15761		MFGRS CAT/FIG:	
SIZE RANGE : 0.5" T	O 1.5" ENDS: S	W, 6000 TO B-16.11	<b>C.A.</b> : 1.5 MM	RATING:	ENDS:
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			
ТҮРЕ	LIFT CHECK TYPE				
OTHERS					
SPECIAL SERVICE CONDITIONS		MAX TEMP. 425 DEG. C.; FU	JLL 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.

SHEET REV. NO.	A	0		53912
DATE	29-May-18	20-Aug-18		



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53916 Sheet No. 1 of 1

 CHECK VALVE SPECIFICATION
 MANUF'S OFFER

 TAG NO.: 53916
 PIPING CLASS: A91P
 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
 C.A.: 1.5 MM
 RATING: ENDS:

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

- 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 BS EN 12266-1.

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



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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					
ТҮРЕ	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

- 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.
- ${\bf 5}$  ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- ${\bf 6}$  Weld Repairs, if any, shall be carried out before solution heat treatment.

SHEET REV. NO.	0		53923
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BPCL Kochi Refinery- MS BLOCK PROJECT

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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: 53925 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 53925 PIPING CLASS: A64A STANDARD:

RATING: 150 STANDARD: BS-1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 12" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 3 MM RATING: ENDS:

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					
ТҮРЕ	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.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 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'.
- ${f 6}$  50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 7 IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.

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MFGRS CAT/FIG:

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Revision: 0

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53926 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

TAG NO.: 53926

PIPING CLASS: A91P

STANDARD:

SIZE RANGE: 2" TO 4" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM RATING: ENDS:

STANDARD: BS-1868

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

**RATING** : 150

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

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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53940 Sheet No. 1 of 1
CHECK VALVE SPECIFICATION	MANUE'S OFFER

TAG NO.: 53940 PIPING CLASS: B71A STANDARD:

RATING: 300 STANDARD: BS 1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 16" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 1.5 MM 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 / 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				
ТҮРЕ	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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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		53940
DATE	29-May-18	20-Aug-18		



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53944 Sheet No. 1 of 1

Location: KOCHI, KERALA

Tag No: 53944 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53944

PIPING CLASS: B63A

STANDARD:

RATING: 300

STANDARD: BS-1868

MFGRS CAT/FIG:

SIZE RANGE: 2" TO 6"

ENDS: FLGD, B-16.5, RF/125AARH C.A.: 6 MM

RATING: ENDS:

DESCRIPTION CONSTRUCTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY ASTM A 216 Gr. WCB COVER BOLTED ASTM A 216 Gr. WCB DISC SS 316L FACING/SS 316L RENEWABLE/NON-BODY SEAT RING STELLITED RENEWABLE 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 REFER TECHNICAL NOTES FOR PURCHASE OF VALVES RADIOGRAPHY OTHERS SPECIAL SERVICE NACE + H2 SERVICE MAX TEMP. 375 DEG. C.; FULL VACUUM CONDITIONS WASHER,NUT,PIN HYDROSTATIC TEST BODY: 1125 PSIG. SEAT: 825 PSIG PRESSURE TEST PRESSURE WITH

#### 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.
- $\boldsymbol{7}$  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.

SHEET REV. NO.	A	0	ADVENCE COPY		53944
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53945 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 53945 PIPING CLASS: B64A STANDARD:

RATING: 300 STANDARD: BS-1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 6" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 3 MM RATING: ENDS:

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

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 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.

SHEET REV. NO.	A	0	ADVENCE COPY		53945
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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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53963 Sheet No. 1 of 1

Location: KOCHI, KERALA

Tag No: 53963 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53963 PIPING CLASS: D95A STANDARD:

RATING: 600 STANDARD: BS-1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 6" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 3 MM 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 / 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					
ТҮРЕ	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

- 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'.

SHEET REV. NO.	A	0		53963
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SIZE RANGE: 2" TO 3"

### VALVE MATERIAL SPECIFICATION

BPCL Kochi Refinery- MS BLOCK PROJECT

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

**ENDS:** 

Petrofac Job No.: JI-2039

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

Revision: 0

**RATING:** 

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53964 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53964 PIPING CLASS: D63A STANDARD:

RATING: 600 STANDARD: BS-1868 MFGRS CAT/FIG:

ENDS: FLGD, B-16.5, RF/125AARH C.A.: 6 MM

DESCRIPTION CONSTRUCTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY CAST ASTM A 216 Gr. WCB BOLTED COVER ASTM A 216 Gr. WCB DISC SS 316L FACING/SS 316L RENEWABLE/NON-BODY SEAT RING STELLITED RENEWABLE 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 REOUIREMENT OF REFER TECHNICAL NOTES FOR PURCHASE OF VALVES RADIOGRAPHY OTHERS SPECIAL SERVICE NACE + H2 SERVICE MAX TEMP. 300 DEG. C.; FULL VACUUM CONDITIONS WASHER.NUT.PIN HYDROSTATIC TEST BODY: 2225 PSIG. SEAT: 1650 PSIG PRESSURE 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.
- 5 100% 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.
- 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 ADVENCE COPY 53964

DATE 29-May-18 20-Aug-18



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53965 Sheet No. 1 of 1

Location: KOCHI, KERALA

Tag No: 53965 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53965 PIPING CLASS: D64A STANDARD:

RATING: 600 STANDARD: BS-1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 10" ENDS: FLGD, B-16.5, RF/125AARH C.A.: 3 MM RATING: ENDS:

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				

#### NOTES

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 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	ADVENCE COPY		53965
DATE	20-Aug-18			



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53972 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 53972 PIPING CLASS: D61M

STANDARD:

RATING: 600 STANDARD: BS-1868

SIZE RANGE: 2" TO 3" 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 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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 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.
- ${\bf 6}$  Weld Repairs, if any, shall be carried out before solution heat treatment.

SHEET REV. NO.	A	0		53972
DATE	29-May-18	20-Aug-18		



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53980 Sheet No. 1 of 1

Project : MS-BLOC	K, BS-VI						
Location : KOCHI, K	Location: KOCHI, KERALA			Tag No: 53980 Sheet No. 1 of 1			
	CHECK VALV	E SPECIFICATION		MANUF'S OFFE	R		
TAG NO. : 53980	PIPING CLASS: B6	3A, D63A		STANDARD:			
<b>RATING</b> : 1500	STANDA	<b>RD</b> : BS EN ISO 15761		MFGRS CAT/FIG:			
SIZE RANGE : 0.5" T	O 1.5" ENDS: S	W, 9000 TO B-16.11	<b>C.A.</b> : 6 MM	RATING:	ENDS:		
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					
ТҮРЕ	LIFT CHECK TYPE						
OTHERS							
SPECIAL SERVICE	NACE + H2 SERVICE	MAX TEMP. 375 DEG. C.; FU	JLL VACUUM				

#### **NOTES**

PRESSURE

AIR

CONDITIONS WASHER,NUT,PIN

HYDROSTATIC TEST

TEST PRESSURE WITH

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 4100 PSIG

NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 5575 PSIG.

VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'. 3

- TESTING SHALL BE AS PER BS EN 12266-1. 4
- 5 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION 6 ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SHEET REV. NO.	A	0		53980
DATE	29-May-18	20-Aug-18		



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 54902 Sheet No. 1 of 1

Eccation : ROCIII, RERALA			1 ag 110: 54702 Sheet 110: 1 of 1			
	BALL VALVE	SPECIFICATION		MANUF'S OFFER		
TAG NO. : 54902	PIPING CLASS : A91	N		STANDARD:		
RATING: 800 STANDA		D: BS EN ISO 17292		MFGRS CAT/FIG:		
SIZE RANGE : 0.5" T	TO 1.5" <b>ENDS</b> : SC	RF, 3000 TO B-1.20.1	C.A.: 0 MM	RATING:	ENDS:	
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 ME	TAL TO METAL			
GLAND	BOLTED/ RETAINED BY NUT & WASHER	SS 316L				
STEM SEAL	RENEWABLE WITH VALVE OPEN ON STREAM	GRAFOIL/PTFE V-RINGS+GRA	FOIL			
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 FO VALVES.	R PURCHASE OF			
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FO VALVES.	R PURCHASE OF			
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

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

SHEET REV. NO.	0		54902
DATE	20-Aug-18		<b>5</b> 15 <b>5</b>



JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 5 of 158

Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 51001	Sheet No. 1 of 1

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51001         PIPING CLASS: A11A, A1A, A32A, A3A, A91A, A92A, A9A, B1A, B9A, D1A, D9A, D1A, D9A, B1A, B9A, D1A, D9A, B1A, B1A, B1A, B1A, B1A, B1A, B1A, B1		STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105		
BONNET	BOLTED	ASTM A 105		

DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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**

- 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.

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



JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 6 of 158

Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51002 Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 51002 RATING: 800 SIZE RANGE: 0.5	STA	ASS: A2A, B2A, D2A, NDARD: API 602/ ISO 15761 S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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**

- 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 API-602 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.



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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 51004	Sheet No. 1 of 1

Location: KOCHI, KERALA		1ag No: 51004	Sheet No. 1 of 1	
GATE VALVE S		SPECIFICATION	MANUF'S OFFER  STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
2100.		ASS: A52A, A5A, B5A, B95A, D5A, D95A,  NDARD: API 602/ ISO 15761  S: SW 3000 TO B-16.11		
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.



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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51011 Sheet No. 1 of 1

Location : ROCIII, RERALA				Sheet No. 1 of 1	
GATE VALVE SPECIFICATION				MANUF'S OFFER	
TAG NO.: 51011 RATING: 800 SIZE RANGE: 0.5	5 - 1 - 1	NDARD : API 602/ ISO 1576		STANDARD: MFGRS CAT/FIG: RATING: EN	NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL		CONSTRUCTION	MATERIAL
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 FO GRAPHITE WITH BRAIDED AN RINGS			
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FA	AB.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7M			
BONNET NUTS		ASTM A194 GR 2HM			
BONNET GASKET		SP WND SS316L -GRAFOIL FILI	LER.		
SPECIAL SERVICE CONDITIONS	NACE	SOUR SERVICE (MAX TEMP 42	7 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.
- $4\,$   $\,$  NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5	6
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51013 Sheet No. 1 of 1

	GATE VALVE SPECIFICATION MANUF'S OFFER							
TAG NO.: 51013 PIPING CLA		ASS: A19A, B19A, D19A, NDARD: API 602/ ISO 15761 S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG: RATING: ENDS:					
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL				
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.

SHEET REV. NO.	2	3	4	5	6
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Client: BPCL

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA

Tag No: 51024

Sheet No. 1 of 1

	GATE VALVE	MANUF'S OFFER		
TAG NO.: 51024 RATING : 800 SIZE RANGE : 0.3	STA	NDARD : API 602/ ISO 15761	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51032 Sheet No. 1 of 1

Location: KOCHI, KERALA 1ag No: 51052			Sheet N	0. 1 01 1
	GATE VALVE	MANUF'S	MANUF'S OFFER	
TAG NO.: 51032 RATING : 800 SIZE RANGE : 0.5	STA	ASS: B53D, D52D, D55D,  NDARD: API 602/ ISO 15761  S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG RATING:	: NDS:
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**

- 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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51045 Sheet No. 1 of 1

	GATE VALVE	MANUF'S OFFER		
TAG NO.: 51045 RATING: 800 SIZE RANGE: 0.5	STA	ASS: A1K, A3K, NDARD: API 602/ ISO 15761 S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Legation: FOCHL FEBALA Sheet No. 1, of 1

Location: KOCHI, KERALA			Tag No: 51048	Sheet N	o. 1 of 1
	GATE VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 51048 RATING : 800 SIZE RANGE: 0.3	STA	NDARD : API 602/ ISC		STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATER	RIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F304H			
BONNET	BOLTED	ASTM A 182 GR.F304H			
STEM	RISING	SS 304H/ SS 316H; (NO CA	STING)		
WEDGE DISC	SOLID	STELLITED			
BODY SEAT RING	RENEWABLE	STELLITED			
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED I GRAPHITE WITH BRAIDE 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	L 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	80 PSIG				

## 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 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 API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.



SHEET REV. NO.	2	3	4	5	6
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51050 Sheet No. 1 of 1

Location : ROCIII, RENALA				Sheet 1	0. 1 UI I	
	GATE VALVE SPECIFICATION				MANUF'S OFFER	
TAG NO.: 51050 RATING: 800 SIZE RANGE: 0.5	~	NDARD : API 602/ ISO 1		STANDARD: MFGRS CAT/FIG: RATING: ENDS:		
DESCRIPTION	CONSTRUCTION	MATERI	AL	CONSTRUCTION	MATERIAL	
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 DII GRAPHITE WITH BRAIDED RINGS				
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST	Г/FAB.ST/DUCT. IRON			
BONNET BOLTS		ASTM A193 GR B7				
BONNET NUTS		ASTM A194 GR 2H				
BONNET GASKET		SP WND SS316L-GRAFOIL F	ILLER			
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.

SHEET REV. NO.	2	3	4	5	6
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51061 Sheet No. 1 of 1

	CAME WALKE OPPOUND A MICH.						
		SPECIFICATION	MANUF'S	OFFER			
TAG NO.: 51061		ASS: A98M, B98M,	STANDARD:				
RATING : 800	~	NDARD : API 602/ ISO 15761	MFGRS CAT/FIG				
SIZE RANGE: 0.5	5" TO 1.5" <b>END</b>	S : SW 3000 TO B-16.11	RATING: EI	NDS:			
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)					
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.

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



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Client: BPCL

Project: MS-BLOCK, BS-VI

Legation: KOCHI KERALA

Tag No: 51062

Sheet No. 1, of 1

Location : KOCH	I, KERALA	Tag No: 51062	Sheet N	o. 1 of 1
	GATE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 51062 RATING : 800 SIZE RANGE : 0.5	STAI	NDARD : API 602/ ISO 15761	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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**

- 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 API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.



SHEET REV. NO.	2	3	4	5	6	
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51080 Sheet No. 1 of 1

	GATE VALVE	MANUF'S OFFER		
TAG NO. : 51080 RATING : CL. SIZE RANGE : 0.5	2 STAI	ASS: A33Y, J2A, NDARD: IS:778 CL.2 S: 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 GRLTB2		
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

SHEET REV. NO.	3	4	5	6
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Legation: MOCHI MERALA Sheet No. 1, of 1

Location . VOCII	I VEDALA	Too	g No: 51101	Shoot N	o. 1 of 1
Location: KOCHI, KERALA			31101		
	GATE VALVE	SPECIFICATION		MANUF'S	OFFER
TAG NO.: 51101 RATING : 150 SIZE RANGE : 0.5	OO STA	ASS: E1A, F1A,  NDARD: API 602/ ISO 1576.  S: BW TO B-16.25	I	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)			
WEDGE DISC	SOLID	STELLITED			
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED			
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FO GRAPHITE WITH BRAIDED ANT RINGS			
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FA	B.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			
	1	l			

# WITH AIR NOTES

TEST PRESSURE

- 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.

80 PSIG

- 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.

SHEET REV. NO.	2 3		4	5
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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location • VOCUL VEDALA	Tog No: 51104	Sheet No. 1 of 1

Location: KOCHI, KERALA			<b>Tag No: 51104</b>	Sheet N	o. 1 of 1
	GATE VALVE	SPECIFICATION		MANUF'S	OFFER
		(211112	NDARD : API 602/ ISO 15761		: NDS:
DESCRIPTION	CONSTRUCTION	MATER	IAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105			
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105			
STEM	RISING	13% CR.STEEL (NO CASTI	NG)		
WEDGE DISC	SOLID	STELLITED			
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED			
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED D GRAPHITE WITH BRAIDE 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	Γ.		
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 SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SHEET REV. NO.	0	1
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI KERALA Sheet No. 1, of 1

Location : KOCH	I, KERALA		Tag No: 51113	Sheet N	o. 1 of 1
	GATE VALVE	SPECIFICATION		MANUF'S	OFFER
TAG NO.: 51113  RATING : 156  SIZE RANGE: 0		NDARD : API 602/ ISO		STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
DESCRIPTION	CONSTRUCTION	MATER	IAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 105			
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105			
STEM	RISING	SS 304/ SS 316; (NO CASTII	NG)		
WEDGE DISC	SOLID	STELLITED			
BODY SEAT RING	RENEWABLE/NON RENEWABLE	STELLITED			
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED D GRAPHITE WITH BRAIDE 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. 11	0 DEG.C) AND AMINE		
BACK SEAT & SHOULDER	INTEGRAL	STELLITED			
OTHERS	O.S & Y.				
HYDROSTATIC TEST PRESSURE	BODY : 5575 PSIG	SEAT: 4100 PSIG			
TEST PRESSURE	80 PSIG				

# 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 XXS
- 5 VALVES AS PER API-602 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 51302	Sheet No. 1 of 2

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51302 RATING : 150 SIZE RANGE : 2.0		NDARD : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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**

- 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 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.
- 9 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.

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

51302

OF MANUFACTURER



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

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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51311 Sheet No. 1 of 1

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51311	PIPING CLA	ASS : A16A,	STANDARD:	
RATING : 150	2111	NDARD : API 600/ ISO 10434	MFGRS CAT/FIG	:
SIZE RANGE : 2.0	)" TO 30.0" <b>END</b>	S : FLGD TO B-16.5 RF/125AARH	RATING: E	NDS:
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)		
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

- $1 \quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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 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.
- 5 50% VALVE CASTINGS UPTO 24" AND 100% VALVE CASTINGS 26" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 FOR VALVE SIZE UPTO 24", VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.
- 7 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.

SHEET REV. NO.	2	3	4	5	6	7
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51313 Sheet No. 1 of 1

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51313 RATING : 150 SIZE RANGE : 2.0	5212	NDARD : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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**

- $1 \quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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.

SHEET REV. NO.	2	3	4	5
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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		ASS: A1K, A3K,	STANDARD:		
RATING : 150		NDARD : API 600/ ISO 10434	MFGRS CAT/FIG		
SIZE RANGE : 2.0	0" TO 24.0" <b>END</b>	S : FLGD TO B-16.5 RF/125AARH	RATING: EI	NDS:	
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**

- $1 \quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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 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.
- 7 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHL KERALA Tag No: 51380 Sheet No. 1 of 1

Location: KOCHI, KERALA		Tag No: 51380	Sheet N	o. 1 of 1
	GATE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 51380 RATING: PN SIZE RANGE: 2.0	2111	NDARD : IS:14846	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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51384 Sheet No. 1 of 1

	GATE VALVE	MANUF'S OFFER		
TAG NO.: 51384       PIPING CLASS: A33Y,         RATING       : 150       STANDARD       : API 600/ ISO 10434         SIZE RANGE: 2.0" TO 24.0"       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)		
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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 51401	Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S OFFER		
TAG NO.: 51401 RATING : 300 SIZE RANGE : 2.0	STA	ASS: B1A, B9A, NDARD: API 600/ ISO 10434 S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EX	: NDS:	
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**

- 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".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 10% 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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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51402 Sheet No. 1 of 1

Location : ROCHI	, KEKALA		1 ag 110. 31402	Sheet iv	0. 1 01 1
	GATE VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 51402 RATING : 300 SIZE RANGE : 2.0		NDARD : API 600/ ISO	10434 -16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
DESCRIPTION	CONSTRUCTION	MATER	IAL	CONSTRUCTION	MATERIAL
BODY	CAST	ASTM A 216 GR.WCB			
BONNET	BOLTED	ASTM A 216 GR.WCB			
STEM	RISING	13% CR.STEEL (NO CASTI	NG)		
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 D GRAPHITE WITH BRAIDE 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 F	FILLER		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTE VALVES.	S FOR PURCHASE OF		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTE VALVES.	S FOR PURCHASE OF		
SPECIAL SERVICE CONDITIONS	I.B.R	STEAM/CONDENSATE/BO MAX. TEMP. 427 DEG.C.	ILER FEED WATER;		
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 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 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 9 VALVES AS PER API-600 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location • VOCUL VEDALA	Τοσ Νο: 51/13	Sheet No. 1 of 1

Location : KOCH	, KEKALA	1ag No: 51413	Sheet in	0. 1 01 1
	GATE VALVE	MANUF'S OFFER		
TAG NO. : 51413       PIPING CLA         RATING       : 300       STAN         SIZE RANGE : 2.0" TO 24.0"       ENDS		NDARD : API 600/ ISO 10434	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.

SHEET REV. NO.	2	3	4	5
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51448 Sheet No. 1 of 1

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51448 RATING: 300	PIPING CLA	ASS : B4K, NDARD : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG	
SIZE RANGE : 2.0	5212	(BIIII)		NDS:
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/RENE WABLE	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**

- 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% OF 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.
- 7 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 8 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5	6
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Client : BPCL	<b>Dept./Sect.:</b> 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 RATING : 300 SIZE RANGE : 2.0	PIPING CLA STAI	ASS: B98M, NDARD: API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG: 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/RENE WABLE	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**

- 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 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 5 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- $6 \quad \text{ WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.}$
- 7 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5	6
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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 51462	Sheet No. 1 of 1

	GATE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO.: 51462 RATING: 300 SIZE RANGE: 2.0		NDARD : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION MATER	RIAL
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**

- 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 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE 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.
- 7 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 8 VALVES AS PER API-600 AND TESTING AS PER API-598 ARE ALSO ACCEPTABLE.

SHEET REV. NO.	0	1	2	3
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51501 Sheet No. 1 of 1

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51501 RATING : 600 SIZE RANGE : 2.0	STA	ASS: D1A, D9A,  NDARD: API 600/ ISO 10434  S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EX	: NDS:
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.

SHEET REV. NO.	2	3	4	5
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 51502 Sheet No. 1 of 1

Location : KOCH	I, KERALA	Tag No: 51502	Sheet No. 1 of 1
	GATE VALVE	SPECIFICATION	MANUF'S OFFER
TAG NO.: 51502 RATING : 600 SIZE RANGE : 2.0		NDARD : API 600/ ISO 10434	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**

- 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.
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 9 VALVES AS PER API-600 AND TESTING AS PER API-598 & IBR ARE ALSO ACCEPTABLE.

SHEET REV. NO.	2	3	4	5
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Client : BPCL	<b>Dept./Sect.:</b> 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 RATING: 600		NDARD : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG	
SIZE RANGE : 2.0				NDS:
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".
- 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 51513	Sheet No. 1 of 1

GATE VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 51513 RATING : 600 SIZE RANGE : 2.0		NDARD : API 600/ ISO 10434	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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".
- 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.

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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location - MOCHI MEDALA	Tog No. 51601	Chast No. 1 of 1

Location: KOCHI, KERALA		Tag No: 51601	Sheet N	o. 1 of 1
	GATE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 51601 RATING : 900 SIZE RANGE : 2.0	D = 1 = 1	NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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/PARALLE L SLIDE	STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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**

- 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 API 598.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH XS & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location - MOCHI MEDALA	Tog No. 51604	Chast No. 1 of 2

Location: KOCHI, KERALA		Tag No: 5	1604	Sheet N	o. 1 of 2
GATE VALVE		SPECIFICATION	ECIFICATION		OFFER
TAG NO.: 51604 RATING : 900 SIZE RANGE : 2.0	O STA	NDARD : ANSI-B-16.34		STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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 CASTIN RMS FINISH	G), 32		
WEDGE DISC	FLEXIBLE/PARALLE L SLIDE	STELLITED			
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	STELLITED			
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FORMED F GRAPHITE WITH BRAIDED ANTI EXTR RING			
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FAB.ST/DU	JCT. IRON		
BOLTS		ASTM A193 GR B7			
NUTS		ASTM A194 GR 2H			
BONNET GASKET		SOFT IRON, MAX 90 BHN / GRAPHITE V BRAIDED ANTI EXTRUSION RINGS	VITH		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR PURCH VALVES.	IASE OF		
REQUIREMENT OF RADIOGRAPHY		REFER TECHNICAL NOTES FOR PURCH VALVES.	IASE OF		
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**

- 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 API 598.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH XS & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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

SIGNATURE & SEAL OF MANUFACTURER

51604



# JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 46 of 158

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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 51613	Sheet No. 1 of 1

	GATE VALVE	MANUF'S	OFFER	
TAG NO.: 51613 PIPING CLA  RATING : 900 STAI  SIZE RANGE : 2.0" TO 8.0" END		NDARD : ANSI-B-16.34	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/PARALLE L SLIDE	STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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**

- 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 API 598.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH S160 & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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

SIGNATURE & SEAL OF MANUFACTURER

51613



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHI KERALA	Tag No: 51701	Sheet No. 1 of 1

Location: KOCHI, KERALA		Tag No: 51701	Sheet No. 1 of 1	
	GATE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO. : 51701       PIPING CLAS         RATING       : 1500       STANI         SIZE RANGE : 2.0" TO 4.0"       ENDS		NDARD : ANSI-B-16.34	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/PARALLE L SLIDE	STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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**

- 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 API 598.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS: 2" TO 4" SCH 160
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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

SIGNATURE & SEAL OF MANUFACTURER

51701



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
I Alama - MOCHI MEDALA	Tog No. 51704	Chaot No. 1 of 2

Location: KOCHI, KERALA		Tag No: 51704	Sheet N	o. 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.			STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:	
DESCRIPTION	CONSTRUCTION	MATER	RIAL	CONSTRUCTION	MATERIAL
BODY	FORGED/CAST	ASTM A 105 / A 216GR.WC	СВ		
BONNET	PRESSURE SEAL TYPE	ASTM A 216 GR.WCB/AST	M A 105		
STEM	RISING	13% CR.STEEL/ 17-4 PH SS RMS FINISH	s; (NO CASTING), 32		
WEDGE DISC	FLEXIBLE/PARALLE L SLIDE	STELLITED			
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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**

- 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 API 598.
- VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ (API 600/ISO10434).
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS: 2" TO 4" SCH 160
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR

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

SEAL OF MANUFACTURER

SIGNATURE



# JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 50 of 158

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



JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 51 of 158

Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52001 Sheet No. 1 of 1

**GLOBE VALVE SPECIFICATION** MANUF'S OFFER **PIPING CLASS:** A11A, A1A, A32A, A3A, A91A, A92A, A9A, STANDARD: TAG NO.: 52001 B1A, B9A, D1A, D9A, MFGRS CAT/FIG: : BS EN ISO 15761 **RATING** : 800 STANDARD **RATING: ENDS:** : SW 3000 TO B-16.11 **SIZE RANGE:** 0.25" TO 1.5" **ENDS** 

BIEB RUINGET BIND		•			
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	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.

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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 52002	Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION		MANUF'S OFFER		
TAG NO.: 52002       PIPING CLASS: A2A, B2A, D2A,         RATING: 800       STANDARD: BS EN 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 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 52004	Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION		MANUF'S OFFER		
TAG NO.: 52004       PIPING CLASS: A52A, A5A, B5A, B95A, D5A, D95A,         RATING: 800       STANDARD: BS EN 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 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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52011 Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 52011       PIPING CLASS : A16A,         RATING : 800       STANDARD         SIZE RANGE : 0.5" TO 1.5"       ENDS		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 52013	Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
TAG NO. : 52013 RATING : 800 SIZE RANGE : 0.2	STA	ASS: A19A, B19A, D19A, NDARD: BS EN ISO 15761 S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52024 Sheet No. 1 of 1

Location: KOCHI, KERALA		1 ag No: 52024	Sneet No. 1 of 1	
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO.: 52024 PIPING CLA RATING : 800 STA SIZE RANGE : 0.5" TO 1.5" END		NDARD: BS EN ISO 15761	DARD: BS EN ISO 15761 MFGRS CAT/FIG:	
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**

- 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 52032	Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER			
	RATING: 800       STANDARD: BS EN 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.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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52045 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
22012		ASS: A1K, A3K,  NDARD: BS EN ISO 15761  S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52048 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
TAG NO. : 52048       PIPING CLA         RATING : 800       STAI         SIZE RANGE : 0.5" TO 1.5"       END		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52050 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
TAG NO.: 52050       PIPING CLA         RATING: 800       STA         SIZE RANGE: 0.5" TO 1.5"       END		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 52061	Sheet No. 1 of 1

GLOBE VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 52061       PIPING CLASS: A98M, B98M,         RATING       : 800       STANDARD       : BS EN ISO 15761         SIZE RANGE: 0.5" TO 1.5"       ENDS       : SW 3000 TO B-16.11		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG RATING:	: NDS:
DESCRIPTION	CONSTRUCTION		CONSTRUCTION	
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.

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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHI KERALA	Tag No: 52062	Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S	OFFER	
TAG NO.: 52062       PIPING CLA         RATING: 800       STAI         SIZE RANGE: 0.5" TO 1.5"       END		NDARD: BS EN ISO 15761	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) 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.



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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 52080	Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S	OFFER	
TAG NO. : 52080 RATING : CL SIZE RANGE : 0.5	.2 STAI	G CLASS : A33Y, J2A, STANDARD : IS:778 CL.2 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**

- 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 STD.
- 5 SCREWED ENDS OF VALVES SHALL BE FEMALE TYPE AS PER ANSI B 1.20.1
- 6 VALVE TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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



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Client: BPCL

Project: MS-BLOCK, BS-VI

Legation: KOCHI KERALA

Tag No: 52101

Sheet No. 1, of 1

Location: KOCHI, KERALA		Tag No: 52	2101	Sheet No. 1 of 1	
	GLOBE VALVE	SPECIFICATION		MANUF'S	OFFER
TAG NO.: 52101 RATING : 156 SIZE RANGE: 0	00 STA	ASS: E1A, F1A, NDARD: BS EN ISO 15761 S: BW TO B-16.25		STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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 F GRAPHITE WITH BRAIDED ANTI EXTRU RINGS			
HAND WHEEL	RISING	MALLEABLE IRON/CAST ST/FAB.ST/DU	CT. 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	80 PSIG				

## 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 AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 52104	Sheet No. 1 of 1

Location : KOCHI, KERALA		Tag No: 52104	Sheet No. 1 of 1	
	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO. : 52104       PIPING CLASS         RATING       : 1500       STAND         SIZE RANGE : 0.5" TO 1.5"       ENDS		NDARD: BS EN ISO 15761	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	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**

- 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 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.

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52113 Sheet No. 1 of 1

Location: KOCHI, KERALA		Tag No: 52113	Sheet N	o. 1 of 1
GLOBE VALVE SPECIFICATION		E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 52113 RATING : 156 SIZE RANGE: 0	OO STA	NDARD: BS EN ISO 15761	Wil Glas Cili, 110.	
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)		
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	80 PSIG			

## 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 XXS.
- 5 VALVES AS PER BS-5352 AND TESTING AS PER BS 6755(PART-I) ARE ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 52301	Sheet No. 1 of 1

Location: ROCHI, RERALA 1ag No. 5250			Direct 14	0. 1 01 1
GLOBE VALVI		SPECIFICATION	MANUF'S	OFFER
0 2 3 3 2		ASS: A11A, A1A, A9A,  NDARD: BS-1873  S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 52302	Sheet No. 1 of 1

Location : KOCH	I, KEKALA	Sheet No. 1 of 1		
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO.: 52302 PIPING CLA  RATING : 150 STAN  SIZE RANGE : 2.0" TO 16.0" END		<b>NDARD</b> : BS-1873	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**

- 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 5% 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.

SIGNATURE & SEAL OF MANUFACTURER

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

52302



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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 CLA  RATING : 150 STAN  SIZE RANGE : 2.0" TO 16.0" ENDS		<b>NDARD</b> : BS-1873	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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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Legation: KOCHI KERALA Tag No: 52313 Sheet No. 1, of 1

<b>Location</b> : KOCH	I, KERALA	Tag No: 52313	Sheet No. 1	
GLOBE VALVE SPECIFICATION           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			MANUF'S OFFER  STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
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.

SHEET REV. NO.	2	3	4	5
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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52345 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
C20 10		ASS: A1K, A3K,  NDARD: BS-1873  S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
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**

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 52384 Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S OFFER		
TAG NO. : 52384       PIPING CLA         RATING       : 150       STAN         SIZE RANGE : 2.0" TO 16.0"       ENDS		<b>NDARD</b> : BS-1873	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 52401	Sheet No. 1 of 1

	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 52401 RATING : 300 SIZE RANGE : 2.0	STA	ASS: B1A, B9A, NDARD: BS-1873 S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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.

SHEET REV. NO.	2	3	4	5
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Client: BPCL

Project: MS-BLOCK, BS-VI

Legation: KOCHI KERALA

Tag No: 52402

Sheet No. 1, of 1

Location : KOCHI	I, KERALA	Tag No: 52402	Sheet N	o. 1 of 1
	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 52402 RATING : 300 SIZE RANGE : 2.0	~	NDARD : BS-1873	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 52413	Sheet No. 1 of 1

LOCATION: NOCHI, NERALA 1ag 100. 32413			Sheet IV	0. 1 01 1
	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 52413 RATING: 300 SIZE RANGE: 2.0		<b>NDARD</b> : BS-1873	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**

- $1\quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 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.

SHEET REV. NO.	2	3	4	5
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Client : BPCL	<b>Dept./Sect.:</b> 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: B4 RATING: 300 STANDARI SIZE RANGE: 2.0" TO 12.0" ENDS		NDARD : BS-1873	STANDARD: MFGRS CAT/FIGERATING:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	NDS:  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**

DATE

- $1 \quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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.

02/01/1995

- 5~100~% OF 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.
- 3 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.

06/08/2002

30/06/2009

28/05/2001

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

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14/12/2000

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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			OFFER
TAG NO.: 52461	PIPING CLA	<b>ASS</b> : B98M,	STANDARD:	
RATING :300	5111	NDARD : BS-1873	MFGRS CAT/FIG:	
SIZE RANGE : 2.0	)" TO 12.0" <b>END</b>	S : FLGD TO B-16.5 RF/125AARH	RATING: EI	NDS:
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**

- $1 \quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 3 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.</b> : 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 52462	Sheet No. 1 of 1

	GLOBE VALVE	MANUF'S	OFFER	
TAG NO.: 52462 PIPING CLA RATING : 300 STAN SIZE RANGE : 2.0" TO 12.0" END		<b>NDARD</b> : BS-1873	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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**

- 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 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

SHEET REV. NO.	0	1	2	3	4
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52462

SIGNATURE

OF MANUFACTURER



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 52501	Sheet No. 1 of 1

	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 52501 RATING : 600 SIZE RANGE : 2.0	STA	ASS: D1A, D9A, NDARD: BS-1873 S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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.

SHEET REV. NO.	2	3	4	5
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Client : BPCL	<b>Dept./Sect.:</b> 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**

- 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.
- 7 100% 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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Client : BPCL	<b>Dept./Sect.:</b> 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 RATING : 600 SIZE RANGE : 2.0	~	<b>NDARD</b> : BS-1873	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 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.

SIGNATURE & SEAL OF MANUFACTURER

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location - VOCUL VEDALA	Tag No: 52601	Sheet No. 1 of 1

Location : KOCH	I, KERALA	Tag No: 52601	Sheet N	o. 1 of 1
	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
RATING: 900 STANDARD: ANSI-B-16.34		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)		
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**

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- 6~ VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH XS & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Leasting - MOCHI MEDALA	Tog No. 52604	Shoot No. 1 of 2

Location : KOCH	I, KERALA	Tag No: 52604	Sheet N	o. 1 of 2
	GLOBE VALVE SPECIFICATION		MANUF'S OFFER	
RATING: 900 STANDARD: ANSI-B-16.34		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**

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH XS & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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

### **NOTES**

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

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location - VOCIII VEDALA	Tog No. 52613	Shoot No. 1 of 1

Location : KOCH	I, KERALA	Tag No: 52613	Sheet N	o. 1 of 1
	GLOBE VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 52613 RATING : 900 SIZE RANGE : 2.0		NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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**

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH S160 & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI, KERALA	Tag No: 52701	Sheet No. 1 of 1

Location : KOCH	I, KEKALA	1ag No: 52/01	Sneet N	0. 1 01 1
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO.: 52701 RATING : 150 SIZE RANGE : 2.0	5111	NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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**

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- 6 'VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" SCH 160
- 7 100% 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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DATE	02/01/1995	14/12/2000	28/05/2001	10/05/2002	30/06/2009	

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location - VOCUL VEDALA	Tag No: 52704	Sheet No. 1 of 2

Location : KOCH	I, KERALA	Tag No: 52704	4 Sheet No. 1 of		
	GLOBE VALVE	VALVE SPECIFICATION		MANUF'S OFFER	
TAG NO.: 52704 RATING: 150 SIZE RANGE: 2.0		NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:	
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**

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1873.
- 6 VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" SCH 160
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.

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SIGNATURE & SEAL OF MANUFACTURER



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

### **NOTES**

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

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location + VOCHI VEDALA	Tag No: 53001	Sheet No. 1 of 1

Project : MS-BL	OCK, BS-VI				
Location : KOCH	I, KERALA		Tag No: 53001	Sheet N	o. 1 of 1
CHECK VALVE SPECIFICATION			MANUF'S OFFER		
TAG NO.: 53001  RATING : 800  SIZE RANGE: 0.2	STA	ASS: A11A, A1A, A32A, A3 B1A, B9A, D1A, D9 NDARD: BS EN ISO 1 S: SW 3000 TO	A, 5761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATER	IAL	CONSTRUCTION	MATERIAL
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 F	TILLER		
ТҮРЕ	LIFT CHECK TYPE				
OTHERS					
SPECIAL SERVICE CONDITIONS		MAX TEMP 427 DEG.C.			
WASHER,NUT,PIN					
HYDROSTATIC TEST	BODY : 2975 PSIG	SEAT : 2175 PSIG			

# WITH AIR NOTES

PRESSURE TEST PRESSURE

- 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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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 53002	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 53002 RATING: 800 SIZE RANGE: 0.5	STA	ASS: A2A, B2A, D2A,  NDARD: BS EN ISO 15761  S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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		
ТҮРЕ	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.
- 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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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53004	Sheet No. 1 of 1

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53004 RATING: 800 SIZE RANGE: 0.5	STA	ASS: A52A, A5A, B5A, B95A, D5A, D95A,  NDARD: BS EN ISO 15761  S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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.
- 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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**MANUF'S OFFER** 

Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53011	Sheet No. 1 of 1

**CHECK VALVE SPECIFICATION** 

20011			STANDARD: MFGRS CAT/FIG	
SIZE RANGE: 0.5				NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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		
ТҮРЕ	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 .

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53013	Sheet No. 1 of 1

	CHECK VALVE	MANUF'S	OFFER	
25015		ASS: A19A, B19A, D19A, NDARD: BS EN ISO 15761 S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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		
ТҮРЕ	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 .

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53024	Sheet No. 1 of 1

	CHECK VALVE	MANUF'S	OFFER	
TAG NO. : 53024       PIPING CLA         RATING : 800       STAI         SIZE RANGE : 0.5" TO 1.5"       END		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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		
ТҮРЕ	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 .

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 53032 Sheet No. 1 of 1

	CHECK VALVE SPECIFICATION MANUF'S OFFER					
20002		ASS: B53D, D52D, D55D,  NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:			
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL		
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/RENE WABLE	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 .

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



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MANUE'S OFFER

Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53045	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION

CHECK VALVE SPECIFICATION			MANUFS	OFFER
		ASS: A1K, A3K, NDARD: BS EN ISO 15761 S: SW 3000 TO B-16.11	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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		
ТҮРЕ	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 .

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53048	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
			STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F304H		
COVER	BOLTED	ASTM A 182 GR.F304H		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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		
ТҮРЕ	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**

- 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 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 6~ Valves as Per BS-5352 and Testing as Per BS 6755(Part-I) is also acceptable .

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



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Client: BPCL Dept./Sect.: 16/43

Project: MS-BLOCK, BS-VI

Location: KOCHI, KERALA Tag No: 53050 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO.: 53050       PIPING CLA         RATING       : 800       STAN         SIZE RANGE: 0.5" TO 1.5"       END		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION MATERIAL	
BODY	FORGED	ASTM A 182 GR.F304L		
COVER	BOLTED	ASTM A 182 GR.F304L		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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 .

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



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53061	Sheet No. 1 of 1

20000001 1110012	200 Line Colli, Indiana Collin, Indiana Collin Coll			
	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG RATING: E	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F316		
COVER	BOLTED	ASTM A 182 GR.F316		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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		
ТҮРЕ	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 .

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53062	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 53062 PIPING CLA  RATING: 800 STAN  SIZE RANGE: 0.5" TO 1.5" END		NDARD: BS EN ISO 15761	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
BODY	FORGED	ASTM A 182 GR.F316H		
COVER	BOLTED	ASTM A 182 GR.F316H		
DISC/PISTON		STELLITED		
BODY SEAT RING	NON- RENEWABLE/RENE WABLE	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		
ТҮРЕ	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				

- 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 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 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 .



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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53080	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO. : 53080         PIPING CLASS           RATING         : CL.2         STAND           SIZE RANGE : 0.5" TO 1.5"         ENDS		NDARD : 1S:778 CL.2	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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		
ТҮРЕ	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53101	Sheet No. 1 of 1

Location: ROCIII, RERALA Ing 100, 35101 Sheet 100, 1 of 1					
	CHECK VALVE	MANUF'S OFFER			
TAG NO. : 53101       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	MATER	IAL	CONSTRUCTION	MATERIAL
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					
ТҮРЕ	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					

- 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.
- $\,$  Valves as Per BS-5352 and Testing as Per BS 6755(Part-I) is also acceptable .



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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53104	Sheet No. 1 of 1

Location - Roch, RERALA 1ag No. 33104				Silectiv	0. 1 01 1
	CHECK VALVE	MANUF'S OFFER			
TAG NO.: 53104       PIPING CLASS: E5A, F5A,         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	MATER	IAL	CONSTRUCTION	MATERIAL
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					
ТҮРЕ	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					

- 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 .



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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location • KOCHI KEDALA	Tag No. 53113	Sheet No. 1 of 1

Location: KOCHI, KERALA		Tag No: 53113	Sheet N	o. 1 of 1	
CHECK VALVE SPECIFICATION			MANUF'S OFFER		
iuiiiiii .	RATING : 1500 STANDARD : BS EN ISO 15761 MFGRS CAT/FI		MFGRS CAT/FIG	G: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL	
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					
ТҮРЕ	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					

- 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 SHALL BE OF STANDARD BORE DESIGN.
- $\,$  Valves as Per BS-5352 and testing as Per BS 6755(Part-I) is also acceptable .



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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 53302 Sheet No. 1 of 1

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53302       PIPING CLASS: A2A.         RATING       : 150       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/CORRUGATED SS316		
BY PASSES				
ТҮРЕ	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**

- 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 5% 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53311	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO.: 53311 RATING : 150 SIZE RANGE : 2.0	PIPING CLASS : A16A,           STANDARD         : BS-1868           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		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				
ТҮРЕ	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.

SHEET REV. NO.	2	3	4	5	6
DATE	02/01/1995	14/12/2000	28/05/2001	22/03/2002	30/06/2009



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 53313	Sheet No. 1 of 1

	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53313 PIPING CLASS: A19A,  RATING: 150 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		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				
ТҮРЕ	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 53321	Sheet No. 1 of 1

	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53321       PIPING CLASS: A3A, A91A, A92A,         RATING       : 150       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		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				
ТҮРЕ	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43		
Project : MS-BLOCK, BS-VI			
Location : KOCHI KERALA	Tag No: 53345	Sheet No. 1 of 1	

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53345         PIPING CLASS: A1K, A3K,           RATING         : 150         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 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				
ТҮРЕ	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.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 8 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 53380	Sheet No. 1 of 1

	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53380       PIPING CLASS: J2A,         RATING       PN1.6       STANDARD       : IS:5312 (PT-1)         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		
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				
ТҮРЕ	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.

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



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

	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
RATING: 150 STANDARD: API-594		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		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**

- 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 6755 (PART-I).
- 5 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.

SIGNATURE & SEAL OF MANUFACTURER

SHEET REV. NO.
DATE

53382



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53384	Sheet No. 1 of 1

	CHECK VALVE	MANUF'S	OFFER	
RATING: 150 STANDARD: BS 1868			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		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				
ТҮРЕ	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 53401	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 53401       PIPING CLASS : B1A         RATING       : 300       STANDARD         SIZE RANGE : 2.0" TO 24.0"       ENDS		NDARD : BS-1868	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		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				
ТҮРЕ	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL 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				
ТҮРЕ	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**

- 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-COVER JOINT.
- 7 10% VALVE CASTINGS UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE 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.

SHEET REV. NO.	2	3	4	5
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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53413	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
RATING: 300 STANDARD: BS-1868			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		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				
ТҮРЕ	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**

- 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 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.

SHEET REV. NO.	2	3	4	5
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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53432	Sheet No. 1 of 1

	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
RATING: 300 STANDARD: BS-1868		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				
ТҮРЕ	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**

- 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 UPTO 16" AND 100% VALVE CASTINGS 18" AND ABOVE 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53448	Sheet No. 1 of 1

	CHECK VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53448 RATING : 300 SIZE RANGE : 2.0	~	NDARD : BS-1868	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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				
ТҮРЕ	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**

- 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 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 8 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53461	Sheet No. 1 of 1

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53461       PIPING CLASS: B98M,         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.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				
ТҮРЕ	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**

- 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 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED
- WELD REPAIR, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 3 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53462	Sheet No. 1 of 1

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53462 RATING : 300 SIZE RANGE : 2.0		NDARD : BS-1868	STANDARD: MFGRS CAT/FIG RATING: EI	: NDS:
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				
ТҮРЕ	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**

- 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 ALL CASTINGS SHALL BE SOLUTION HEAT TREATED.
- 7 WELD REPAIRS, IF ANY, SHALL BE CARRIED OUT BEFORE SOLUTION HEAT TREATMENT.
- 8 STRESS RUPTURE TEST AS DETAILED IN ASTM A453 SHALL BE CARRIED OUT FOR ALL ASTM A453 BOLTING MATERIAL IRRESPECTIVE OF TEMPERATURE.
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 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,         RATING: 600       STANDARD: BS-1868         SIZE RANGE: 2.0" TO 24.0"       ENDS: FLGD TO B-16.5 RF/125AARH		NDARD : BS-1868	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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				
ТҮРЕ	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**

- 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 53502	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S OFFER	
TAG NO. : 53502       PIPING CLA         RATING : 600       STAI         SIZE RANGE : 2.0" TO 24.0"       END		NDARD: BS-1868	STANDARD: MFGRS CAT/FIG RATING:	: NDS:
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				
ТҮРЕ	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**

- 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-COVER JOINT.
- 7 100% 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 53504	Sheet No. 1 of 1

	CHECK VALVE SPECIFICATION MANUF'S OFFER				
TAG NO. : 53504         PIPING CLA           RATING : 600         STAN           SIZE RANGE : 2.0" TO 24.0"         ENDS		<b>NDARD</b> : BS-1868	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/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					
ТҮРЕ	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**

- 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 53513	Sheet No. 1 of 1

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO.: 53513       PIPING CLASS: D19A,         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		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				
ТҮРЕ	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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 53532	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER				
20002		ASS: D52D, D55D,  NDARD: BS-1868 S: 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				
ТҮРЕ	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**

- 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.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53601	Sheet No. 1 of 1

	CHECK VALVE	E SPECIFICATION	MANUF'S	OFFER
TAG NO. : 53601       PIPING CLA         RATING       :900       STAN         SIZE RANGE : 2.0" TO 8.0"       ENDS		NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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				
ТҮРЕ	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				

- $1\quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- 6~ VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH XS & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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OF MANUFACTURER

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53604	Sheet No. 1 of 1

	CHECK VALVE	MANUF'S	OFFER	
TAG NO.: 53604 PIPING CLA  RATING : 900 STAN  SIZE RANGE : 2.0" TO 8.0" ENDS		NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION		CONSTRUCTION	MATERIAL
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				
ТҮРЕ	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				

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- 6~ VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH XS & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 10 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location · KOCHL KERALA	Tag No: 53613	Sheet No. 1 of 1

Location . Roch	I, IIII III I	1		
	CHECK VALVE	MANUF'S	OFFER	
TAG NO.: 53613 RATING : 900 SIZE RANGE : 2.0	O STA	NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG RATING: E	: NDS:
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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				
ТҮРЕ	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**

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- 6  $\,$  VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 3" SCH S160 & 4" TO 8" SCH 120
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 53701	Sheet No. 1 of 1

Location: ROCIII, RERUEN			SHOULT 51 1	
	CHECK VALVE	MANUF'S	OFFER	
TAG NO.: 53701 RATING : 150 SIZE RANGE : 2.0	~	NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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				
ТҮРЕ	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				

- 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 API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- 6  $\,$  VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" SCH 160
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 53704	Sheet No. 1 of 1

CHECK VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO.: 53704 RATING : 150 SIZE RANGE : 2.0	0111	NDARD : ANSI-B-16.34	STANDARD: MFGRS CAT/FIG: RATING: ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL	CONSTRUCTION	MATERIAL
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				
ТҮРЕ	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				

- $1\quad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}.$
- 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".
- NO CUTTING/ OVERWRITING BY BIDDER ON EIL'S SPEC IS ALLOWED.
- 4 TESTING SHALL BE AS PER API 598/ BS EN 12266-1.
- 5 VALVE WALL THICKNESS SHALL BE AS PER ANSI B16.34/ BS 1868.
- 6  $\,$  VALVE ENDS SHALL MATCH THICKNESSES OF CONNECTING PIPES WHICH ARE AS FOLLOWS : 2" TO 4" SCH  $\,$  160  $\,$
- 7 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 GASKET MATERIAL GRAPHITE SHALL BE PROVIDED WITH CORROSION INHIBITOR
- 9 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 10 VALVE TESTING AS PER BS 6755 (PART-I) IS ALSO ACCEPTABLE.

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Client : BPCL	<b>Dept./Sect.:</b> 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 RATING : 150 SIZE RANGE : 0.5	STAI	ASS: A11A, A1A, A9A, NDARD: BS EN ISO 17292 S: FLGD TO B-16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
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			

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 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.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 5 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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

- 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.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 54302	Sheet No. 1 of 2

	BALL VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 54302 RATING : 150 SIZE RANGE : 0.5		NDARD: BS EN ISO 17292	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	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**

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 6 TESTING SHALL BE AS PER BS EN 12266-1/API 6D & IBR.
- 7 ALL VALVES SHALL BE BIDIRECTIONAL.
- 8 5% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 9 ALL VALVES TO BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- 10 ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.

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

- 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.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 54304	Sheet No. 1 of 2

	BALL VALVE	SPECIFICATION	MANUF'S	OFFER
TAG NO.: 54304 RATING : 150 SIZE RANGE : 0.5	STA!	ASS: A52A, A5A, NDARD: BS EN ISO 17292 S: 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			

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API-6D VALVES, MIN BODY WALL THICKNESS SHALL BE AS PER ASME B16.34.
- 5 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.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 50% OF VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMNATION.

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

- 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.

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Client : BPCL	<b>Dept./Sect.</b> : 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			

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 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.
- 7 FOR TRUNNION MOUNTED BALL, BODY SEAT SHALL BE SPRING LOADED.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 50 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SIGNATURE
&
SEAL
OF MANUFACTURER

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



# JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 146 of 158

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

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 54321	Sheet No. 1 of 1

Location - Rocin, RERVEN		148110101021	SHEELTIGHT OF T		
BALL VALVE SPECIFICATION		MANUF'S OFFER			
TAG NO.: 54321 RATING : 150 SIZE RANGE : 0.5	STA	ASS: A3A, A91A, A92A,  NDARD: BS EN ISO 17:  S: FLGD TO B-1	292 16.5 RF/125AARH	STANDARD: MFGRS CAT/FIG RATING: EN	: NDS:
DESCRIPTION	CONSTRUCTION	MATERI	AL	CONSTRUCTION	MATERIAL
BODY	FORGD/CAST	ASTM A 105 / A 216GR.WCB	3		
STEM	ANTI BLOWOUT	13% CR.STEEL/SS316; (NO C	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 VALVES.	FOR PURCHASE OF		
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**

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- 6 FOR TRUNNION MOUNTED BALL, BODY SEAT SHALL BE SPRING LOADED.
- 7 ALL VALVES SHALL BE BIDIRECTIONAL.
- 8 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.
- 9 RADIOGRAPHY OF VALVE CASTINGS NOT REQUIRED.
- 10 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 11 VALVES AS PER BS-5351 AND TESTING AS PER BS 6755 (PART-1) IS ALSO ACCEPTABLE.

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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 54322	Sheet No. 1 of 1

	BALL VALVE	MANUF'S	OFFER	
TAG NO.: 54322 PIPING CLA RATING : 150 STAI SIZE RANGE : 0.5" TO 3.0" END		NDARD: BS EN ISO 17292	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**

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- 6 ALL VALVES SHALL BE BIDIRECTIONAL.
- 7 5 % VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 8 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.
- 9 STEM SEAL/BODY SEAL MATERIALS SHALL BE PROVIDED WITH CORROSION INHIBITOR.
- 10 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	



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 54401	Sheet No. 1 of 2

	BALL VALVE	MANUF'S	OFFER	
21.01		ASS: B1A, B9A,  NDARD: BS EN ISO 17292  S: 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: 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 VALVES CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 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.
- 6 TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL, BODY SEAT SHALL BE SPRING LOADED.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 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.

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

SIGNATURE & SEAL OF MANUFACTURER

54401



# JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 150 of 158

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

- 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



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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location: KOCHI, KERALA	Tag No: 54404 S	Sheet No. 1 of 2

	BALL VALVE	MANUF'S OFFER  STANDARD: MFGRS CAT/FIG: RATING: ENDS:		
2.101				ASS: B5A, B95A,  NDARD: BS EN ISO 17292  S: 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**

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API-6D VALVES, MIN BODY WALL THICKNESS SHALL BE AS PER ASME B16.34.
- 5 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.
- 6 TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- FOR TRUNNION MOUNTED BALL, BODY SEAT SHALL BE SPRING LOADED.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 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.
- 10 50% OF VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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

54404



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

- 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



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Client : BPCL	<b>Dept./Sect.:</b> 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 CLA  RATING : 300 STAN  SIZE RANGE : 0.5" TO 16.0" END		NDARD: BS EN ISO 17292	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**

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 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.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 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.
- 10 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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

54413



# JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 154 of 158

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

- 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.

SHEE	HEET REV. NO.	0 1	2
DATI	ATE	16/10/2001 24/10/2001	30/06/2009



JOB SPECIFICATION NO.

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Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 54501	Sheet No. 1 of 2

BALL VALVE SPECIFICATION			MANUF'S	OFFER
TAG NO. : 54501 RATING : 600 SIZE RANGE : 0.5	~	NDARD: BS EN ISO 17292	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**

- 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 CAN ALSO BE SUPPLIED IN ACCORDANCE WITH API-6D. FOR API 6D VALVES,MIN BODY WALL THICKNESS SHALL BE PER ASME B16.34.
- 5 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.
- 6 TESTING SHALL BE AS PER BS EN 12266-1/API 6D.
- 7 FOR TRUNNION MOUNTED BALL, BODY SEAT SHALL BE SPRING LOADED.
- 8 ALL VALVES SHALL BE BIDIRECTIONAL.
- 9 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.
- 10 100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

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

54501



# JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 156 of 158

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

- 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	



JOB SPECIFICATION NO. **B034-6-44-0006 Rev. A**Page 157 of 158

Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHI KERALA	Tag No: 64402	Sheet No. 1 of 1

	PISTON VALVE	MANUF'S	OFFER	
01102		ASS: A2A, B2A, NDARD: MNF'STD S: 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	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			

- 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 & BS 6755 (PART-1) AND LEAKAGE RATE SHALL BE CATEGORY 'A'.
- 5 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.
- 5 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 7 ALL VALVES SHALL BE SUPPLIED WITH IBR CERTIFICATE IN FORM-III C.
- 8 ALL VALVES SHALL BE PAINTED RED ON BODY-BONNET JOINT.
- 9 VALVES TO COMPLY WITH DESIGN REQUIREMENTS OF IBR ALSO.
- 10 FORGED VALVES WITH BODY/BONNET MATERIAL AS PER ASTM A 105 ARE ALSO ACCEPTABLE.
- 11 PN64 RATING VALVES ARE ALSO ACCEPTABLE.

	SIGNATURE
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	SEAL
OF	MANUFACTURER

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



JOB SPECIFICATION NO.

B034-6-44-0006 Rev. A

Page 158 of 158

Client : BPCL	<b>Dept./Sect.:</b> 16/43	
Project : MS-BLOCK, BS-VI		
Location : KOCHL KERALA	Tag No: 64422	Sheet No. 1 of 1

	PISTON VALVE	MANUF'S	OFFER	
TAG NO.: 64422 RATING : 300 SIZE RANGE: 0.5	STA	NDARD : MNF'STD	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			

- 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 6755 (PART-1) AND LEAKAGE RATE SHALL BE CATEGORY 'A'.
- 5 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.
- 5 10% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 7 FORGED VALVES WITH BODY/BONNET MATERIAL AS PER ASTM A 105 ARE ALSO ACCEPTABLE.
- 8 PN64 RATING VALVES ARE ALSO ACCEPTABLE.

	SIGNATURE
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	SEAL
OF	MANUFACTURE

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



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0005 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Γ	Tag No: 0005 Sheet No.	1 of 1	
	GATE VALVE	SPECIFICATION		MANUF'S OFFER	1
TAG NO.: 0005	PIPING CLASS : A11		STANDARD:		
RATING: 150	STANDAR	<b>API</b> 600/ ISO 10434		MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	6" ENDS : FL	GD, 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	ALLOY UNS N04400 (NO CASTI	NG)		
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400			
BODY SEAT RING	RENEWABLE	STELLITED			
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE FO GRAPHITE PACKING WITH BRA RINGS			
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/FA	B.ST/DUCT. IRON		
BONNET BOLTS		ASTM A193 GR B7			
BONNET NUTS		ASTM A194 GR 2H			
BONNET GASKET		SP WND SS316-GRAFOIL FILLE	R/CORRUGATED SS 316		
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FOR	R 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.

SHEET REV. NO.	ADVANCE COPY			0005
DATE				



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0006 Sheet No. 1 of 1

Location: KOCHI, KERALA Tag No: 0006 Sheet No. 1 of 1				
	GATE VALVE	MANUF'S OFFER		
TAG NO.: 0006	PIPING CLASS : A5A	, A59A	STANDARD:	
<b>RATING</b> : 150	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	12" <b>ENDS</b> : FLO	GD, 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	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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- $3\,$   $\,$  50% Valve castings shall undergo radiographic examination.
- 4 TESTING SHALL BE AS PER API-598/BS EN 12266-1.
- ${\bf 5} \qquad {\tt VALVES~SHALL~MEET~THE~REQUIREMENTS~FOR~HYDROGEN~SERVICE~AS~SPECIFIED~IN~TECHNICAL~NOTES~FOR~VALVES'}.$

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DATE				



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0007 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 0007 Sheet No.	1 01 1	
	GATE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO.: 0007	PIPING CLASS: B1A	STANDARD:		
<b>RATING</b> : 300	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	10" <b>ENDS</b> : FL	GD, 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	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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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0008 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 0008 Sheet No	Tag No: 0008 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION	MANUF'S OFFER	2		
TAG NO.: 0008	PIPING CLASS: B5A		STANDARD:			
<b>RATING</b> : 300	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	10" <b>ENDS</b> : FL	GD, 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	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

- 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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DATE				0000



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0009 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 0009 Sheet No.	. 1 of 1	
	GATE VALVE	SPECIFICATION	MANUF'S OFFER	
TAG NO.: 0009	PIPING CLASS: D1A	STANDARD:		
RATING: 600	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:	
SIZE RANGE : 2" TO	10" <b>ENDS</b> : FL	GD, 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	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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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0010 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 0010 Sheet No	Tag No: 0010 Sheet No. 1 of 1				
	GATE VALVE	SPECIFICATION	MANUF'S OFF				
TAG NO.: 0010	PIPING CLASS: D551	D	STANDARD:				
<b>RATING</b> : 600	STANDAR	MFGRS CAT/FIG:					
SIZE RANGE : 2" TO	8" ENDS: FLO	GD, B-16.5, RF/125AARH	RATING:	ENDS:			
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.
- ${\bf 3}$   $\,$   $\,$  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'.

SHEET REV. NO.	ADVANCE COPY			0010
DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0011 Sheet No. 1 of 1

Location: KOCHI, KERALA Tag No: 0011 Sheet No. 1 of 1					
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER		
TAG NO. : 0011	PIPING CLASS: B1A	STANDARD:			
<b>RATING</b> : 300	STANDAR	<b>D</b> : API 600/ ISO 10434	MFGRS CAT/FIG:		
SIZE RANGE : 2" TO	10" <b>ENDS</b> : FL	GD, 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	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.

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DATE				0022



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0012 Sheet No. 1 of 1
CHECK VALVE SPECIFICATION	MANUE'S OFFER

TAG NO.: 0012 PIPING CLASS: B1A STANDARD:

RATING: 300 STANDARD: BS 1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 16" ENDS: FLGD, 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		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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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.

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DATE				0012



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0013 Sheet No. 1 of 1
CHECK VALVE SPECIFICATION	MANUE'S OFFER

TAG NO.: 0013 PIPING CLASS: D1A STANDARD:

RATING: 600 STANDARD: BS 1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 8" ENDS: FLGD, 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		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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- 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.

SHEET REV. NO.	ADVANCE COPY			0013
DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	20pm ( 12 1 1 0
Location : KOCHI, KERALA	Tag No: 0015 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 0015 **PIPING CLASS: A64A** STANDARD: **RATING**: 150 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 12" **ENDS:** FLGD, 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 ALLOY UNS N04400 WEDGE DISC SOLID / FLEXIBLE ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

#### NOTES

REQUIREMENT OF GEAR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

OPERATOR
REQUIREMENT OF
RADIOGRAPHY
SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

MAX TEMP, 275 DEG, C.

ALLOY UNS N04400

SEAT: 325 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

NACE + H2 SERVICE +

PWHT

O.S & Y.

80 PSIG

3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

BODY: 450 PSIG.

- 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.

SHEET REV. NO.	ADVENCE COPY			0015
DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0016 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA		Tag No: 0016 Sheet No. 1 of 1			
	GATE VALVE	SPECIFICATION		MANUF'S OFFEI	₹	
TAG NO.: 0016	PIPING CLASS : B1A		STANDARD:			
<b>RATING</b> : 300	STANDAR	<b>D</b> : API 600/ ISO 10434		MFGRS CAT/FIG:		
SIZE RANGE : 2"	ENDS: FLO	GD, 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	ALLOY UNS N04400 (NO CAST	TNG)			
WEDGE DISC	SOLID / FLEXIBLE	ALLOY UNS N04400				
BODY SEAT RING	RENEWABLE	STELLITED				
STEM PACKING	RENEWABLE WITH VALVE OPEN ON STREAM	CORROSION INHIBITED DIE F GRAPHITE PACKING WITH BI RINGS				
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/F	AB.ST/DUCT. IRON			
BONNET BOLTS		ASTM A193 GR B7M				
BONNET NUTS		ASTM A194 GR 2HM				
BONNET GASKET		SP WND SS316-GRAFOIL FILL	ER/CORRUGATED SS 316			
REQUIREMENT OF GEAR OPERATOR		SP WND SS316-GRAFOIL FILL	ER/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.

SHEET REV. NO.	ADVANCE COPY			0016
DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0017 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 0017 **PIPING CLASS: B64A** STANDARD: **RATING:** 300 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 10" **ENDS:** FLGD, 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 ALLOY UNS N04400 (NO CASTING) WEDGE DISC SOLID / FLEXIBLE ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

MAX TEMP, 300 DEG, C.: FULL VACUUM

#### NOTES

REQUIREMENT OF GEAR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

OPERATOR
REQUIREMENT OF
RADIOGRAPHY
SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

ALLOY UNS N04400

SEAT: 825 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 1125 PSIG.

NACE + H2 SERVICE +

PWHT

O.S & Y.

80 PSIG

- 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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DATE				002:



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	20pm 1 1 1 1 1 (C)
,	T N 0010 Cl 4 N 1 C . 1
Location: KOCHI, KERALA	Tag No: 0018 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 0018 **PIPING CLASS: D64A** STANDARD: **RATING:** 600 **STANDARD**: API 600/ ISO 10434 MFGRS CAT/FIG: SIZE RANGE: 2" TO 8" **ENDS:** FLGD, 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 ALLOY UNS N04400 WEDGE DISC SOLID / FLEXIBLE ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

MAX TEMP. 335 DEG. C.; FULL VACUUM

#### NOTES

REQUIREMENT OF GEAR

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

OPERATOR
REQUIREMENT OF
RADIOGRAPHY
SPECIAL SERVICE

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

ALLOY UNS N04400

SEAT: 1650 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2225 PSIG.

NACE + H2 SERVICE

O.S & Y.

80 PSIG

- 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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BPCL Kochi Refinery- MS BLOCK PROJECT Contract No.: BM/B034-000-EP-TN-7210/1004

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0024 Sheet No. 1 of 1

**GLOBE VALVE SPECIFICATION MANUF'S OFFER** TAG NO.: 0024 **PIPING CLASS: A64A** STANDARD: **RATING:** 150 STANDARD: BS-1873 MFGRS CAT/FIG: SIZE RANGE: 2" TO 12" **ENDS:** FLGD, 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 ALLOY UNS N04400 (NO CASTING) LOOSE PLUG TYPE/BALL DISC ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

REFER TECHNICAL NOTES FOR PURCHASE OF VALVES

#### NOTES

PRESSURE

AIR

OPERATOR REQUIREMENT OF RADIOGRAPHY OTHERS

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

BACK SEAT & SHOULDER

CONDITIONS

THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1

MAX TEMP. 275 DEG. C.

ALLOY UNS N04400

SEAT: 325 PSIG

NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED. 2

BODY: 450 PSIG.

TESTING SHALL BE AS PER BS EN 12266-1 3

80 PSIG

O.S & Y.

PWHT

NACE + H2 SERVICE +

- NACE REQUIREMENTS SHALL BE AS PER MR0103. 4
- VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'. 5
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION. 6

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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0025 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 00	Tag No: 0025 Sheet No. 1 of 1				
	GLOBE VALVE	SPECIFICATION		MANUF'S OFFE	R		
TAG NO.: 0025	PIPING CLASS: B64	A	STANDARD:				
<b>RATING</b> : 300	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:				
SIZE RANGE : 2" TO	6" ENDS : FLO	GD, 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	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 FLEZ GRAPHITE PACKING WITH BRAIDED ANTI 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 PURCHASI	E 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.

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DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location · KOCHI KERALA	Tag No: 0026 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 0026 Sheet No.	Tag No: 0026 Sheet No. 1 of 1			
	GLOBE VALVE	SPECIFICATION	MANUF'S OFFER			
TAG NO. : 0026	PIPING CLASS: D64	STANDARD:				
RATING: 600	STANDAR	<b>D</b> : BS-1873	MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	10" <b>ENDS</b> : FLO	GD, 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	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	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'.
- ${\bf 6}$   $\,$   $\,$  100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.

SHEET REV. NO.	ADVENCE COPY			0026
DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

	D DIDDIG
Client : BPCL	<b>Dept.:</b> PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0027 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION **MANUF'S OFFER** TAG NO.: 0027 **PIPING CLASS:** A64A STANDARD: **RATING**: 150 STANDARD: BS-1868 MFGRS CAT/FIG: SIZE RANGE: 2" TO 12" **ENDS:** FLGD, B-16.5, RF/125AARH **RATING: ENDS:** CONSTRUCTION DESCRIPTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY CAST ASTM A 216 Gr. WCB COVER BOLTED ASTM A 216 Gr. WCB DISC ALLOY UNS N04400 RENEWABLE/NON-STELLITED RENEWABLE ALLOY UNS N04400 / A 216 Gr. WCB

BODY SEAT RING DISC HINGE 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 REOUIREMENT OF RADIOGRAPHY OTHERS SPECIAL SERVICE NACE + H2 SERVICE + MAX TEMP, 275 DEG, C. CONDITIONS PWHT WASHER.NUT.PIN HYDROSTATIC TEST BODY: 450 PSIG. SEAT: 325 PSIG PRESSURE

#### NOTES

AIR

TEST PRESSURE WITH

- 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.

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BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0028 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 0028 PIPING CLASS: B64A STANDARD:

RATING: 300 STANDARD: BS-1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 6" ENDS: FLGD, 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		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				
ТҮРЕ	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

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 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.

SHEET REV. NO.	ADVENCE COPY			0028
DATE				0020



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0029 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION MANUF'S OFFER

TAG NO.: 0029 PIPING CLASS: A19A STANDARD:

RATING: 150 STANDARD: BS-1868 MFGRS CAT/FIG:

SIZE RANGE: 2" TO 12" ENDS: FLGD, 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		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				
ТҮРЕ	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

- 1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 6 IF EXTERNAL HINGE PIN IS PROVIDED, THAT SHALL BE SEAL WELDED.

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DATE				



0PCL Kochi Refinery- MS 0LOCK 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

Dept.: PIPING			
Tag No: 0032 Sheet No. 1 of 1			

- THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES. 1
- NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED. 2
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1. 3
- NACE REQUIREMENTS SHALL BE AS PER MR0103. 4
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN 'TECHNICAL NOTES FOR VALVES'.
- 6 50% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION ALLOWANCE OVER 7 THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SHEET REV. NO.	ADVENCE COPY			0032
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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

Client : BPCL			Dept.: PIPING				
Project : MS-BLOCK	K, BS-VI						
Location: KOCHI, KE	ERALA		Tag No: 0035 Sheet No.	. 1 of 1			
	GATE VALVE	SPECIFICATION	MANUF'S OFFER				
TAG NO.: 0035	PIPING CLASS: D63	A		STANDARD:			
<b>RATING</b> : 600	STANDAR	<b>D</b> : API 600/ ISO 10434		MFGRS CAT/FIG:			
SIZE RANGE : 2" TO	3" <b>ENDS</b> : FLO	GD, B-16.5, RF/125AARH	<b>C.A.</b> : 6 MM	RATING:	ENDS:		
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 CAS'	TING)				
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 I GRAPHITE PACKING WITH B RINGS					
HAND WHEEL	NON RISING	MALLEABLE IRON/CAST ST/I	FAB.ST/DUCT. IRON				
BONNET BOLTS		ASTM A193 GR B7M					
BONNET NUTS		ASTM A194 GR 2HM					
BONNET GASKET		SP.WND SS316L+GRAFIL+ I R	ING				
REQUIREMENT OF GEAR OPERATOR		REFER TECHNICAL NOTES FO	OR PURCHASE OF VALVES.				
REQUIREMENT OF RADIOGRAPHY							
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 300 DEG. C.; FUL	L VACUUM				
BACK SEAT & SHOULDER		SS 316L					
OTHERS	O.S & Y.						
HYDROSTATIC TEST PRESSURE	BODY : 2225 PSIG.	SEAT : 1650 PSIG					

#### NOTES

TEST PRESSURE WITH

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

80 PSIG

- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- 5 VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'.
- ${\bf 6}$   $\,$   $\,$  100% VALVE CASTINGS SHALL UNDERGO RADIOGRAPHIC EXAMINATION.
- 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.

SIGNATURE & SEAL

SHEET REV. NO.	ADVENCE COPY			0035
DATE				



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

Client : BPCL			Dept.: PIPING					
Project : MS-BLOC	K, BS-VI							
Location: KOCHI, K	ERALA		Tag No: 0036 Sheet N	No. 1 of 1				
	CHECK VALV	E SPECIFICATION	MANUF'S OFFER					
TAG NO.: 0036	PIPING CLASS : D6	3A		STANDARD:	STANDARD:			
<b>RATING</b> : 600	STANDA	<b>RD</b> : BS-1868		MFGRS CAT/FIG:				
SIZE RANGE : 2" TO	<b>ENDS</b> : F	LGD, B-16.5, RF/125AARH	<b>C.A.</b> : 6 MM	RATING:	ENDS:			
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	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 R	ING					
BY PASSES								
TYPE	SWING CHECK TYPE							
REQUIREMENT OF RADIOGRAPHY								
OTHERS								
SPECIAL SERVICE CONDITIONS	NACE + H2 SERVICE	MAX TEMP. 300 DEG. C.; FUL	L VACUUM					
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.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 3 TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.
- ${\bf 5}$   $\,$   $\,$  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.
- 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.	ADVENCE COPY			0036
DATE				

SIGNATURE & SEAL



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0001 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 0001 PIPING CLASS: A11A, B1A, B9A, D1A 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:** CONSTRUCTION CONSTRUCTION DESCRIPTION **MATERIAL MATERIAL** BODY FORGED ASTM A 105N BONNET BOLTED ASTM A 105N ALLOY UNS N04400 (NO CASTING) RISING STEM WEDGE DISC SOLID ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

#### NOTES

PRESSURE

AIR

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

BACK SEAT & SHOULDER INTEGRAL

CONDITIONS

OTHERS

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2175 PSIG

MAX TEMP. 427 DEG. C.

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2975 PSIG.

3 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.

O.S & Y.

80 PSIG

SHEET REV. NO.	ADVANCE COPY			0001
DATE				0001



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0002 Sheet No. 1 of 1

GATE VALVE SPECIFICATION

MANUF'S OFFER

TAG NO.: 0002 PIPING CLASS: A59A, A5A, B59A

RATING: 800 STANDARD: API 602/ ISO 15761

SIZE RANGE: 0.5" TO 1.5" ENDS: SW, 3000 TO B-16.11

DESCRIPTION CONSTRUCTION MATERIAL.

CONSTRUCTION MATERIAL.

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'.

SHEET REV. NO.	ADVANCE COPY			0002
DATE				0002



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0003 Sheet No. 1 of 1

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.

SHEET REV. NO.	ADVANCE COPY			0003
DATE				



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-0004-0001

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0004 Sheet No. 1 of 1

**GLOBE VALVE SPECIFICATION MANUF'S OFFER** TAG NO.: 0004 **PIPING CLASS: B5A** 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 105N BONNET BOLTED ASTM A 105N ALLOY UNS N04400 (NO CASTING) STEM RISING DISC LOOSE PLUG TYPE ALLOY UNS N04400 BODY SEAT RING RENEWABLE STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM RINGS HAND WHEEL RISING MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON BONNET BOLTS ASTM A193 GR B7

#### NOTES

BONNET NUTS

CONDITIONS

OTHERS

PRESSURE

AIR

BONNET GASKET

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

BACK SEAT & SHOULDER INTEGRAL

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2175 PSIG

ASTM A194 GR 2H

SP.WND SS316+GRAFIL

MAX TEMP. 427 DEG. C.

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2975 PSIG.

HYDROGEN SERVICE

O.S & Y.

80 PSIG

- 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'.

SHEET REV. NO.	ADVANCE COPY			0004
DATE				



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0019 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 0019 PIPING CLASS: A64A, B64A, D64A STANDARD: **RATING:** 800 **STANDARD**: API 602/ ISO 15761 MFGRS CAT/FIG: **SIZE RANGE :** 0.5" TO 1.5" ENDS: SW, 6000 TO B-16.11 **RATING: ENDS:** DESCRIPTION CONSTRUCTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY FORGED ASTM A 105N BONNET BOLTED ASTM A 105N RISING ALLOY UNS N04400 (NO CASTING) STEM WEDGE DISC SOLID ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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

#### NOTES

BONNET GASKET

SPECIAL SERVICE

HYDROSTATIC TEST

TEST PRESSURE WITH

BACK SEAT & SHOULDER INTEGRAL

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2175 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2975 PSIG.

NACE + H2 SERVICE +

PWHT

O.S & Y.

80 PSIG

 ${\bf 3} \qquad \text{VALVES SHALL MEET THE REQUIREMENTS FOR HYDROGEN SERVICE AS SPECIFIED IN TECHNICAL NOTES FOR VALVES'}.$ 

SP.WND SS316L+GRAFIL

MAX TEMP. 335 DEG. C.; FULL VACUUM

- 4 TESTING SHALL BE AS PER API-598 / BS EN 12266-1.
- 5 NACE REQUIREMENTS SHALL BE AS PER MR0103.

SHEET REV. NO.	ADVENCE COPY			0019
DATE				0029



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0020 Sheet No. 1 of 1

DESCRIPTION CONSTRUCTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY FORGED ASTM A 105N BONNET BOLTED ASTM A 105N ALLOY UNS N04400 (NO CASTING) RISING STEM WEDGE DISC SOLID ALLOY UNS N04400 RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 NACE MAX TEMP. 427 DEG. C. CONDITIONS BACK SEAT & SHOULDER INTEGRAL OTHERS O.S & Y. HYDROSTATIC TEST BODY: 2975 PSIG. SEAT: 2175 PSIG PRESSURE TEST PRESSURE WITH 80 PSIG 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.
- ${\bf 3} \qquad \text{TESTING SHALL BE AS PER API-598 / BS EN 12266-1}.$
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.

SHEET REV. NO.	ADVANCE COPY			0020
DATE				0 0 <b>2</b> 0



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0021 Sheet No. 1 of 1

**MANUF'S OFFER** GLOBE VALVE SPECIFICATION TAG NO.: 0021 PIPING CLASS: A64A, B64A, D64A STANDARD: **RATING:** 800 STANDARD: BS EN ISO 15761 MFGRS CAT/FIG: **SIZE RANGE :** 0.5" TO 1.5" ENDS: SW, 6000 TO B-16.11 **RATING: ENDS:** DESCRIPTION CONSTRUCTION **MATERIAL** CONSTRUCTION **MATERIAL** BODY FORGED ASTM A 105N BONNET BOLTED ASTM A 105N ALLOY UNS N04400 (NO CASTING) STEM RISING DISC LOOSE PLUG TYPE ALLOY UNS N04400 RENEWABLE BODY SEAT RING STELLITED CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION STEM PACKING VALVE OPEN ON STREAM RINGS RISING HAND WHEEL MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON BONNET BOLTS ASTM A193 GR B7M BONNET NUTS ASTM A194 GR 2HM

#### NOTES

BONNET GASKET

SPECIAL SERVICE

BACK SEAT & SHOULDER

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS

OTHERS

PRESSURE

AIR

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2175 PSIG

SP.WND SS316L+GRAFIL

MAX TEMP. 335 DEG. C.; FULL VACUUM

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2975 PSIG.

NACE + H2 SERVICE +

INTEGRAL

O.S & Y.

80 PSIG

- 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'.

SHEET REV. NO.	ADVANCE COPY			0021
DATE				



0PCL Kochi Refinery- MS 0LOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0022 Sheet No. 1 of 1

CHECK VALVE SPECIFICATION **MANUF'S OFFER** TAG NO.: 0022 PIPING CLASS: A64A, B64A STANDARD: **RATING:** 800 STANDARD: BS EN ISO 15761 MFGRS CAT/FIG: **SIZE RANGE:** 0.5" TO 1.5" **ENDS:** SW, 6000 TO B-16.11 **RATING: ENDS:** CONSTRUCTION DESCRIPTION CONSTRUCTION **MATERIAL MATERIAL** BODY FORGED ASTM A 105N COVER BOLTED ASTM A 105N DISC/PISTON ALLOY UNS N04400 RENEWABLE/NON-BODY SEAT RING STELLITED RENEWABLE DISC HINGE/HINGE PIN COVER STUD BOLT ASTM A193 GR B7M COVER NUT ASTM A194 GR 2HM COVER GASKET SP.WND SS316L+GRAFIL

#### NOTES

PRESSURE

AIR

TYPE

OTHERS

SPECIAL SERVICE

WASHER,NUT,PIN

HYDROSTATIC TEST

TEST PRESSURE WITH

CONDITIONS

1 THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 2175 PSIG

2 NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.

BODY: 2975 PSIG

LIFT CHECK TYPE

NACE + H2 SERVICE +

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

MAX TEMP. 335 DEG. C.; FULL VACUUM

4 TESTING SHALL BE AS PER BS EN 12266-1.

PWHT

5 NACE REQUIREMENTS SHALL BE AS PER MR0103.

SHEET REV. NO.	ADVANCE COPY			0022
DATE				0 0



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHL KERALA	Tag No: 0023 Sheet No. 1 of 1

Troject : Mis-BEGGI			T N 0000 (N 4 N 4 0 4				
Location: KOCHI, KI	ERALA		Tag No: 0023 Sheet No. 1 of 1				
	CHECK VALVI	E SPECIFICATION		MANUF'S OFFER			
TAG NO.: 0023	PIPING CLASS: A11	A		STANDARD:			
RATING: 800	STANDAF	<b>RD</b> : BS EN ISO 15761		MFGRS CAT/FIG:			
SIZE RANGE : 0.5" TO	D 1.5" <b>ENDS</b> : SV	V 3000 TO B-16.11		RATING: ENDS:			
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 FILI	LER				
ТҮРЕ	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.
- ${\bf 2} \qquad \text{ NO CUTTING/ OVERWRITING BY BIDDER IS ALLOWED.}$
- 3 TESTING SHALL BE AS PER BS EN 12266-1.

SHEET REV. NO.	ADVANCE COPY			0023
DATE				0 0 20



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0030 Sheet No. 1 of 1

**MANUF'S OFFER GATE VALVE SPECIFICATION** TAG NO.: 0030 **PIPING CLASS: B1A** 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 105N BOLTED ASTM A 105N RISING SS 316L (NO CASTING) SOLID SS 316L FACING / SS 316L+STELLITED

BONNET STEM WEDGE DISC RENEWABLE / NON BODY SEAT RING STELLITED RENEWABLE CORROSION INHIBITED DIE FORMED FLEXIBLE RENEWABLE WITH STEM PACKING GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION VALVE OPEN ON STREAM 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 NACE MAX TEMP. 427 DEG. C. CONDITIONS BACK SEAT & SHOULDER INTEGRAL OTHERS O.S & Y. HYDROSTATIC TEST BODY: 2975 PSIG. SEAT: 2175 PSIG PRESSURE TEST PRESSURE WITH 80 PSIG

#### NOTES

AIR

- 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.

SHEET REV. NO.	ADVANCE COPY			0030
DATE				



BPCL Kochi Refinery- MS BLOCK PROJECT

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

Petrofac Job No.: JI-2039

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location : KOCHI, KERALA	Tag No: 0031 Sheet No. 1 of 1

Location: KOCHI, KE	ERALA	Tag No: 00	Tag No: 0031 Sheet No. 1 of 1				
	GLOBE VALVE	SPECIFICATION		MANUF'S OFFE	R		
TAG NO.: 0031	PIPING CLASS: D61	M	STANDARD:				
<b>RATING</b> : 800	STANDAR	<b>D</b> : BS EN ISO 15761		MFGRS CAT/FIG:			
SIZE RANGE : 0.5" TO	7, 6000 TO B-16.11		RATING:	ENDS:			
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.
- ${\bf 2} \qquad \quad {\bf NO} \ {\bf CUTTING/} \ {\bf OVERWRITING} \ {\bf BY} \ {\bf BIDDER} \ {\bf IS} \ {\bf ALLOWED}.$
- ${f 3}$  TESTING SHALL BE AS PER BS EN 12266-1.
- 4 NACE REQUIREMENTS SHALL BE AS PER MR0103.

SHEET REV. NO.	ADVENCE COPY			0031
DATE				0001



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

Client : BPCL			Dept.: PIPING			
Project : MS-BLOCE	K, BS-VI					
Location: KOCHI, KI	ERALA		Tag No: 0033 Sheet No	. 1 of 1		
	GATE VALVE	SPECIFICATION		MANUF'S OFFER		
TAG NO.: 0033	PIPING CLASS: B63.	A, D63A		STANDARD:		
<b>RATING</b> : 1500	STANDAR	<b>D</b> : API 602/ ISO 15761		MFGRS CAT/FIG:		
SIZE RANGE : 0.5" TO	D 1.5" <b>ENDS</b> : SW	7, 9000 TO B-16.11	<b>C.A.</b> : 6 MM	RATING:	ENDS:	
DESCRIPTION	CONSTRUCTION	MATERIAL		CONSTRUCTION	MATERIAL	
BODY	FORGED	ASTM A 105N				
BONNET	WELDED/THD & SEAL WELDED	ASTM A 105N				
STEM	M RISING ALLOY UNS N04400 (NO CA					
WEDGE DISC	SOLID	ALLOY UNS N04400				
BODY SEAT RING	RENEWABLE / NON RENEWABLE	STELLITED				

CORROSION INHIBITED DIE FORMED FLEXIBLE

MALLEABLE IRON/CAST ST/FAB.ST/DUCT. IRON

MAX TEMP. 375 DEG. C.; FULL VACUUM

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

GRAPHITE PACKING WITH BRAIDED ANTI EXTRUSION

### HYDROSTATIC TEST

STEM PACKING

HAND WHEEL

BONNET BOLTS

BONNET NUTS

CONDITIONS

OTHERS

PRESSURE

1

3

AIR

SPECIAL SERVICE

BACK SEAT & SHOULDER

TEST PRESSURE WITH

**NOTES** THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES.

SEAT: 4100 PSIG

RINGS

ASTM A193 GR B7M

ASTM A194 GR 2HM

- 2 NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED.
- TESTING SHALL BE AS PER API-598 / BS EN 12266-1. 4

RENEWABLE WITH

NACE + H2 SERVICE

BODY: 5575 PSIG.

NON RISING

INTEGRAL

O.S & Y.

80 PSIG

VALVE OPEN ON STREAM

- NACE REQUIREMENTS SHALL BE AS PER MR0103. 5
- THE WALL THICKNESS OF VALVE BODY AND OTHER PRESSURE CONTAINING PARTS SHALL INCLUDE CORROSION 6 ALLOWANCE OVER THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SIGNATURE

SHEET REV. NO.	ADVENCE COPY			0033
DATE				



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

Client : BPCL	Dept.: PIPING
Project : MS-BLOCK, BS-VI	
Location: KOCHI, KERALA	Tag No: 0034 Sheet No. 1 of 1

# Location: KOCHI, KERALA Tag No: 0034 Sheet No. 1 of 1 GLOBE VALVE SPECIFICATION MANUF'S OFFER TAG NO.: 0034 PIPING CLASS: B63A STANDARD:

RATING: 1500 STANDARD: BS EN ISO 15761 MFGRS CAT/FIG:

SIZE RANGE: 0.5" TO 1.5" ENDS: SW, 6000 TO B-16.11 C.A.: 6 MM RATING: ENDS:

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

- $1 \qquad \text{THIS VALVE SPEC SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES}. \\$
- ${\bf 2} \hspace{1cm} \hbox{NO CUTTING/OVERWRITING BY BIDDER IS ALLOWED.} \\$
- 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 O THE MINIMUM CALCULATED PRESSURE WALL THICKNESS AS PER ASME B16.34.

SHEET REV. NO.	ADVENCE COPY			0034
DATE				