

 		<p align="center"><b>North American Growth Olefins Recovery Project</b></p>	
LE Project No:                3110A2J4			ExxonMobil Project No.: N/A
Linde Code:                BAYTOWN			ExxonMobil Project Name: North American Growth Olefins Recovery Project
Linde Doc No.:                &AA R-SS 1023		Item/Tag No.:                xx-xx-xxxx	Page 1 of 10

Special Piping Item

Gate Valves

X	4.0	20/01/2015	Singh	Dave / Friegseder	Schreiner	Changes marked
X	3.0	05/08/2014	Singh	Dave / Friegseder	Schreiner	
X	2.0	11/06/2014	Singh	Dave	Gläser	
X	1.0	06/05/2014	Bratu / Singh	Dave / Friegseder	Schreiner	
Status	Issue	Date	Prepared by	Checked by	Approved by	Remark

Linde Proj. No.: 3110A2J4	Doc. No.: &AA R-SS 1023	Issue: 04
Client Project No: N/A	Special Piping Item Gate Valves	

## 1 Gate Valves

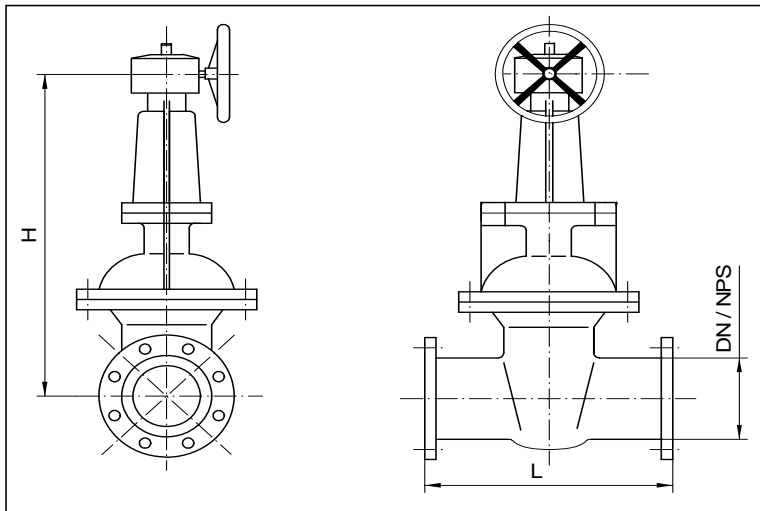
### 1.1 General specification

1. Scope: ASME B31.3
2. Quality Assurance: Seat leakage rates according to technical purchase specification.
3. Valves with bleeder connection shall be unidirectional and flow direction shall be marked on the valve body. The bleeder valve shall be supplied along with the Main Gate valve in assembled condition.
4. Nozzle from valve body for bleeder, purge connection shall be gusseted. Material of stiffener shall be similar to valve body.
5. Refer &AA R-SP 1032 for Special Requirements for Valves.
6. All parts contacting fluid free of non ferrous metals.
7. All specified data are minimum requirements.
8. All parts not specified are to be designed acc. to scope, service and fluids by manufacturer std.
9. All joints for bleeder connection, purge connection on valve body shall be full penetration butt welded joints.

### 1.2 Orientation of Purge and Bleeder Connection

1. For valves with purge connections, orientation of purge connections is specified under "**Orientation of Purge Connection**".
2. For valves with bleeder valve connection, orientation of bleeder is specified under "**Orientation of Bleeder Valve Connection**".

### 1.3 Valve with Bevel Gear



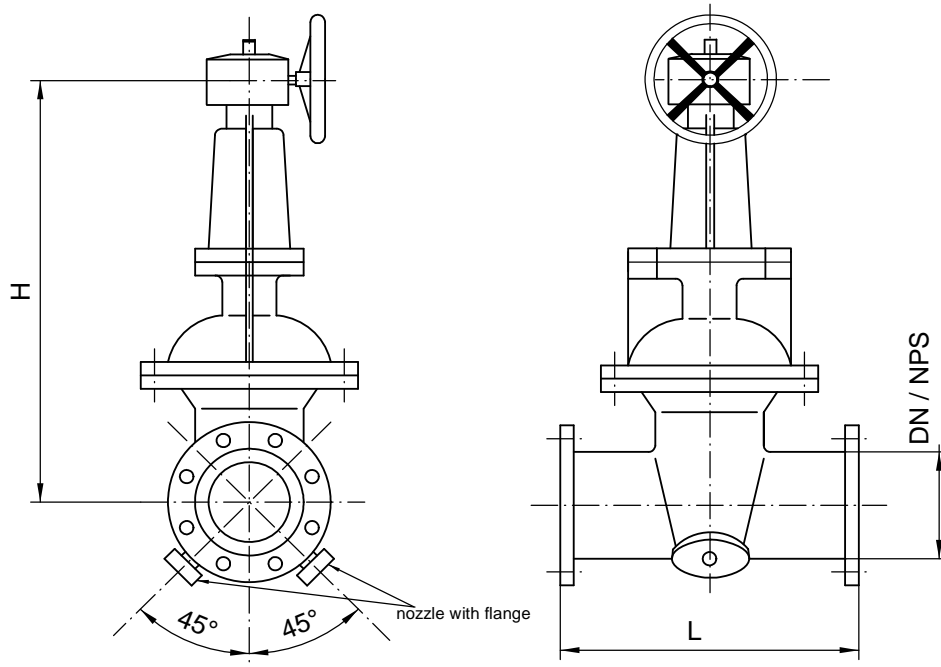
Special Part No.	Ident No.	NPS	L (mm)	H (mm)	Purge Connec.	Bleeder
XAS003	HE4299	48	2235	5373	Yes	Yes
XAS004	HE4300	28	610	2960	Yes	Yes
XAS005	HE4301	32	1524	4600	Yes	Yes
XAS032	HE4307	12	502	1450	-	Yes
XAS033	HE4308	16	406	1920	-	Yes
XAS034	HE4309	40	762	3980	-	Yes
XAS037	LQ5037	28	1346	3340	-	Yes
XAS038	HE4312	16	991	2150	-	Yes
XAS042	HE4314	14	381	1710	-	Yes
XAS045	HE4316	14	762	1690	-	Yes
XAS046	HE4317	24	1143	2600	-	Yes

Note: Valve supplier to confirm / specify the dimensions mentioned above.

Dimension "H" is for reference unless otherwise specified in respective data sheet.

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## 2 Orientation of Purge Connections



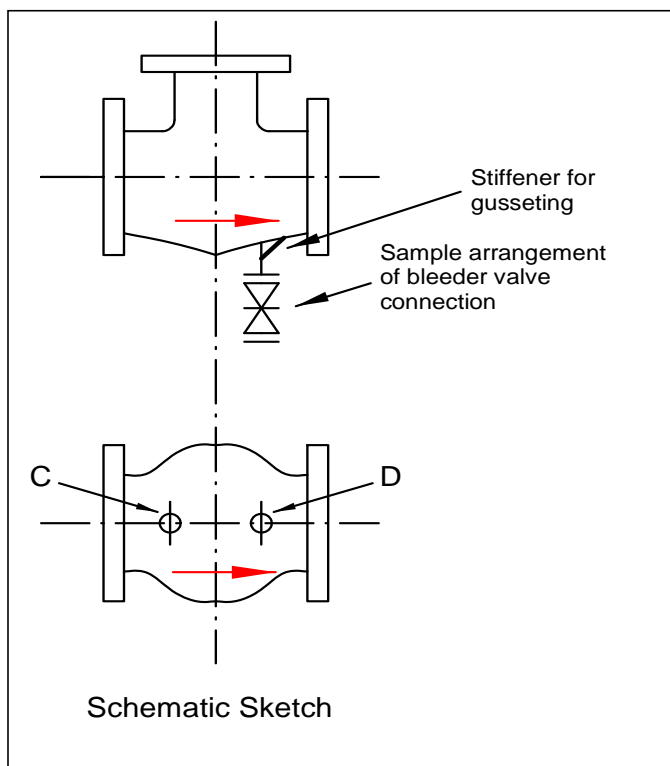
### Notes:

1. The purge connection flange shall be provided with a mating blind flange, gasket, nuts and bolts.
2. All Gaskets to be provided with outer and inner ring of SS316.

Special Part No.	XAS003	XAS004	XAS005
Nozzle	As per Manf Std, ASTM A105 or equivalent	As per Manf Std, ASTM A105 or equivalent	As per Manf Std, ASTM A105 or equivalent
Flange	SW Flange, RF, CL300, 2", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 2", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 2", XS, ASTM A105N, ASME B16.5
Blind Flange	Blind Flange, RF, CL300, 2", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 2", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 2", ASTM A105N, ASME B16.5
Gasket/Nut/Bolt	Spiral Wound, 2", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 2", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 2", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5

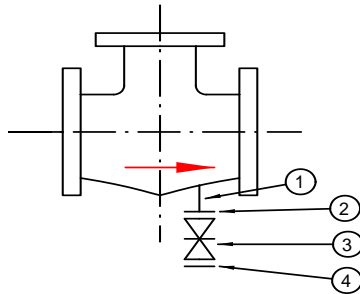
Linde Proj. No.: 3110A2J4	Doc. No.: &AA R-SS 1023	Issue: 04
Client Project No: N/A	Special Piping Item Gate Valves	

### 3 Orientation of Bleeder Valve Connection



Special Part No.	Ident No.	NPS	Tap position
XAS003	HE4299	48	D
XAS004	HE4300	28	D
XAS005	HE4301	32	D
XAS031	HE4306	12	D
XAS032	HE4307	12	D
XAS033	HE4308	16	D
XAS034	HE4309	40	C
XAS035	HE4310	8	C
XAS036	HE4311	8	D
XAS037	LQ5037	28	C
XAS038	HE4312	16	D
XAS041	HE4313	8	D
XAS042	HE4314	14	D
XAS045	HE4316	14	D
XAS046	HE4317	24	D
XAS076	BP0464	14	D

#### 4 List of Bleeder Valve Assembly Parts



Special Part No.	XAS003	XAS004	XAS005	XAS031
Pipe (Pos 1)	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long
Flange (Pos 2)	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5
Valve (Pos 3)	As per Valve datasheet ASP 3AR31/ASME	As per Valve datasheet ASP 3AR31/ASME	As per Valve datasheet ASP 3AR31/ASME	As per Valve datasheet ASP 3FR106/ASME
Blind Flange (Pos 4)	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5
Gasket/Nut/Bolt	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5

Special Part No.	XAS032	XAS033	XAS034	XAS035
Pipe (Pos 1)	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long
Flange (Pos 2)	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5
Valve (Pos 3)	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 3FR106/ASME
Blind Flange (Pos 4)	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5
Gasket/Nut/Bolt	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5

Special Part No.	XAS036	XAS038	XAS041	XAS042
Pipe (Pos 1)	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", SCH40S, ASTM A312 Gr. TP304L, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", SCH40S, ASTM A312 Gr. TP321, 100 mm long
Flange (Pos 2)	WN Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	WN Flange, RF, CL600, 1", SCH40S, ASTM A182 Gr. F304L, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105, ASME B16.5	SW Flange, RF, CL300, 1", SCH40S, ASTM A182 Gr. F321, ASME B16.5
Valve (Pos 3)	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 6FR49/ASME	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 3FR22/ASME
Blind Flange (Pos 4)	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL600, 1", ASTM A182 Gr. F304L, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A182 Gr. F321, ASME B16.5
Gasket/Nut/Bolt	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.8A, ASME B16.5/ ASTM A193 Gr. B8 CL.2, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5

Special Part No.	XAS045	XAS046	XAS037	XAS076
Pipe (Pos 1)	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A106 Gr. B, 100 mm long	Seamless, 1", XS, ASTM A333 GR.6, 100 mm long	Seamless, 1", Sch40S, ASTM A312 GR.TP304L, 100 mm long
Flange (Pos 2)	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	SW Flange, RF, CL300, 1", XS, ASTM A105N, ASME B16.5	WN Flange, RF, CL300, 1", XS, ASTM A350 GR.LF2 CL.1, ASME B16.5	WN Flange, RF, CL300, 1", Sch40S, ASTM A182 GR.F304L, ASME B16.5
Valve (Pos 3)	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 3FR106/ASME	As per Valve datasheet ASP 3AR35/ASME	As per Valve datasheet ASP 3FR70R/ASME
Blind Flange (Pos 4)	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A105N, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A350 GR.LF2 CL.1, ASME B16.5	Blind Flange, RF, CL300, 1", ASTM A182 GR.F304L, ASME B16.5
Gasket/Nut/Bolt	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.4, ASME B16.5/ ASTM A193 Gr. B7, ASME B16.5	Spiral Wound, 1", SS316-Graphite, ASME B16.20/ ASTM A194 GR.8A, ASME B16.5/ ASTM A193 GR.B8 CL.2, ASME B16.5

**Notes:**

1. All Gaskets to be provided with outer and inner ring of SS316.

Project No: 3110A2J4				Doc No: &AA-R-SS 1023																				Issue: 04	Code: Baytown
Client Project No.				Special Piping Item Gate Valves																					
Special Part ID	Ident No.	Size (NPS)	P&ID Name	Line ID	Fluid	Pipe Class	Pressure Class	Design Press [psig] Max / Min	Design Press [barg] Max / Min	Design Temp [°F] Max / Min	Design Temp [°C] Max / Min	Density (Kg/m3)	Operating Press [psig]	Operating Press [barg]	Operating Temp [°F]	Operating Temp [°C]	Viscosity (x 10E-6 Pas)	Min. / Norm. / Max. Flow Rate (Kg/hr)	End Connection	Body/ Bonnet	Bonnet Gasket	Trim	Fasteners	Face to Face Dimension	Design
XAS003	HE4299	48	&AA-P-FP 2805.01	28-41111, 28-51111	LIGHT GASOLINE	BBBR65	CL300	435/ 79/ -7	30/ 5.45/ -0.5	239/ 329/ 212	115/ 165/ 100	977.59	5.61	0.39	164.13	73.41	409.76	1805403.91/ 3950041.35/ 4400040.88	Flanged, RF, ASME B16.47 Series A	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	Analogus to API 600 Trim 5	ASTM A193 Gr.B7/ ASTM A194 Gr.4	Manuf. Std	1. Analogous to API 600. 2. Closure Part: Flexible or Split wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Spring loaded stuffing box. 6. 2 nos. purge connection, NPS 2, Flanged, CL300, RF (See 'Specification' sheet). 7. Flow direction shall be marked on the body (unidirectional valve). 8. Bleed valve, NPS 1, on the downstream of closure part. 9. Bleed Valve datasheet: ASP 3AR31/ASME. 10. Bleed valve tap: Position D (See 'Specification' sheet). 11. Technical Purchase Specs.: 031-6XX B01
XAS004	HE4300	28	&AA-P-FP 2809.01	28-41212, 28-41213	LIGHT GASOLINE	BABR65	CL150	217/ 79/ -7	14.96/ 5.45/ -0.5	239/ 329/ 212	115/ 165/ 100	973.85	7.78	0.54	176.39	80.22	342.56	1257776.11/ 1257776.11/ 1550537.32	Flanged, RF, ASME B16.47 Series A	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	API 600 Trim 5	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. Analogous to API 600. 2. Closure Part: Flexible or Split wedge. 3. Body/Bonnet connection flanged. 4. Gear Req: Acc. to RSP 1032 5. Spring loaded stuffing box. 6. 2 nos. purge connection, NPS 2, Flanged, CL300, RF (See 'Specification' sheet). 7. Flow direction shall be marked on the body (unidirectional valve). 8. Bleed valve, NPS 1, on the downstream of closure part. 9. Bleed Valve datasheet: ASP 3AR31/ASME. 10. Bleed valve tap: Position D (See 'Specification' sheet). 11. Technical Purchase Specs.: 031-6XX B01
XAS005	HE4301	32	&AA-P-FP 2802.01	28-41011, 28-51011	LIGHT GASOLINE	BBBR65	CL300	304/ 79/ -7	20.96/ 5.45/ -0.5	239/ 329/ 212	115/ 165/ 100	987.9	4.3	0.29	124.64	51.47	655.77	811747.54/ 1620016.67/ 2040018.94	Flanged, RF, ASME B16.47 Series A	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	API 600 Trim 5	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. Analogous to API 600. 2. Closure Part: Flexible or Split wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Spring loaded stuffing box. 6. 2 nos. purge connection, NPS 2, Flanged, CL300, RF (See 'Specification' sheet). 7. Flow direction shall be marked on the body (unidirectional valve). 8. Bleed valve, NPS 1, on the downstream of closure part. 9. Bleed Valve datasheet: ASP 3AR31/ASME. 10. Bleed valve tap: Position D (See 'Specification' sheet). 11. Valve with spindle extension: H = 4600 mm (from centerline of valve). 12. Technical Purchase Specs.: 031-6XX B01
XAS007	HE4302	10	&AA-P-FP 3905.01	39-43030	C2- FRACTION	BBJR69	CL300	551/ -7/ 551/ 551	38/ -0.5/ 38/ 38	158/ 284/ 284/ -112	70/ 140/ 140/ -80	34.42	490.48	33.82	-1	-18.33	9.84	332839.02/ 332839.02/ 353430	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2.Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Extended bonnet: L=300 6. Spring loaded stuffing box. 7. Valve in Hydrogen Service. 8. Technical Purchase Specs.: 031-6XX B01
XAS008	HE4303	24	&AA-P-FP 3905.01	39-43030	C2- FRACTION	BBJR69	CL300	551/ -7/ 551/ 551	38/ -0.5/ 38/ 38	158/ 284/ 284/ -112	70/ 140/ 140/ -80	3.24	33.73	2.32	-48.58	-44.77	8.15	332839.02/ 332839.02/ 353430	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2.Closure Part: Flexible or Split wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Extended bonnet: L=300 6. Spring loaded stuffing box. 7. Valve in Hydrogen Service. 8. Technical Purchase Specs.: 031-6XX B01
XAS009	HE4304	12	&AA-P-FP 3905.01	39-43031	C2- FRACTION	BBJR69	CL300	551/ 551/ 551	38/ 38/ 38	158/ -112/ 284	70/ -80/ 140	30.63	415.34	28.64	-10.31	-23.5	9.54	66396.85/ 152714.12/ 152714.12	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2.Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Extended bonnet: L=300 6. Spring loaded stuffing box. 7. Valve in Hydrogen Service. 8. Technical Purchase Specs.: 031-6XX B01
XAS010	HE4305	20	&AA-P-FP 3905.01	39-43031	C2- FRACTION	BBJR69	CL300	551/ 551/ 551	38/ 38/ 38	158/ -112/ 284	70/ -80/ 140	9.6	122.18	8.42	-42.68	-41.49	8.38	66396.85/ 152714.12/ 152714.12	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2.Closure Part: Flexible or Split wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Extended bonnet: L=300 6. Spring loaded stuffing box. 7. Valve in Hydrogen Service. 8. Technical Purchase Specs.: 031-6XX B01
XAS011	NM4975	4	&AA-P-FP 9202.01	92-41131	COOLING WATER	BASR95	CL150	145	10	149	65	-	-	-	-	-	-	-	Flanged, RF ASME B16.5	ASME B16.34, Material Group 1.1	CrNi- Graphite	API 600 No.1 or 5	ASTM A193 Gr.B7, ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: flexible wedge 3. Handgear: acc. to RSP 1032 4. Body/Bonnet connection flanged 5. All parts contacting fluid free of nonferrous metals 6. Technical Purchase Specs.: 031-6XX B01

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Client Project No.				Special Piping Item Gate Valves																					
Special Part ID	Ident No.	Size (NPS)	P&ID Name	Line ID	Fluid	Pipe Class	Pressure Class	Design Press [psig] Max / Min	Design Press [barg] Max / Min	Design Temp [°F] Max / Min	Design Temp [°C] Max / Min	Density (Kg/m3)	Operating Press [psig]	Operating Press [barg]	Operating Temp [°F]	Operating Temp [°C]	Viscosity (x 10E-6 Pas)	Min. / Norm. / Max. Flow Rate (Kg/hr)	End Connection	Body/ Bonnet	Bonnet Gasket	Trim	Fasteners	Face to Face Dimension	Design
XAS031	HE4306	12	&AA-P-FP 2816.01	28-31270	CONTAMINATED PROCESS WATER	BABR61	CL150	246/ 79/ -7	17/ 5.45/ -0.5	239/ 329/ 212	115/ 165/ 100	982.6	4.3	0.3	145.42	63.01	438.04	109070.95/ 181784.92/ 263146.34	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316-Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged. 4. Hand wheel operated (acc. to RSP 1032). 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS032	HE4307	12	&AA-P-FP 3002.01	30-52002, 30-62002	PROCESS WATER	BBBR61	CL300	391/ -14	27/ -1.00	329/ 329	165/ 165	948.59	12.86	0.886	245.7	118.72	226.85	99606.48/ 153240.74/ 242574.66	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316-Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS033	HE4308	16	&AA-P-FP 3003.01	30-32021, 30-32022, 30-32023, 30-32024	PROCESS WATER	BABR61	CL150	145/ -14	10/ -1.00	374/ 374	190/ 190	-	-	-	-	-	-	-	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316-Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged. 4. Gear Req: Acc. to RSP 1032 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS034	HE4309	40	&AA-P-FP 3003.01	30-32031, 30-32032, 30-32033, 30-32034	PROCESS STEAM	BABR70	CL150	145/ -14	10/ -1.00	374/ 374	190/ 190	-	-	-	-	-	-	-	Flanged, RF, ASME B16.47 Series A	ASTM A216 Gr. WCB	Spiral Wound (SS316-Graphite)	Analogous to API 600 Trim 5 or 8	ASTM A193 Gr.B7/ ASTM A194 Gr.4	Manuf. Std	1. Analogous to API 600 2. Closure Part: Flexible or Split wedge. 3. Body/Bonnet connection flanged 4. Gear Req: Acc. to RSP 1032 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the upstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position C (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS035	HE4310	8	&AA-P-FP 3007.01	30-32062	CONTAMINATED PROCESS WATER	BBBR61	CL300	391	27	374	190	990.32	98.43	6.78	113	45	597.33	11978.57/ 33137.18/ 177122.04	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316-Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible Wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Hand wheel operated (acc. to RSP 1032). 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the upstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position C (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS036	HE4311	8	&AA-P-FP 3403.01	34-54002, 34-74002	CAUSTIC SODA	BBBR62	CL300	580/ 79	40/ 5.45	212/ 329	100/ 165	1067.94	236.94	16.34	98.85	37.14	1131.94	72900.7/ 97200.93/ 109837.05	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316-Graphite)	API 600 Trim 5	ASTM A193 Gr.B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible Wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Hand wheel operated (acc. to RSP 1032). 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See drawing in 'Specification' sheet). 6. Technical Purchase Specs.: 031-6KA, 031-6XX B01
XAS037	LQ5037	28	&AA-P-FP 3803.01	38-42019, 38-42020	C3+ FRACTION	BBBR65	CL300	377/ 79/ 377	26/ 5.45/ 26	248/ 329/ -49	120/ 165/ -45	202.07	271.03	18.69	188.36	86.87	40.08	0.50/ 1081887.77/ 1428697.85	Flanged, RF, ASME B16.47 Series A	ASTM A352 Gr. LCB	Spiral Wound (SS316-Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. Analogous to API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Spring loaded stuffing box. 6. Flow direction shall be marked on the body (unidirectional valve). 7. Bleed valve, NPS 1, on the upstream of closure part. 8. Bleed Valve datasheet: ASP 3AR35/ASME. 9. Bleed valve tap: Position C (See 'Specification' sheet). 10. Technical Purchase Specs.: 031-6XX B01
XAS038	HE4312	16	&AA-P-FP 3805.01	38-52009, 38-62009	C2- FRACTION	BCJR76	CL600	855	59	-148	-100	450.14	263.78	18.19	-23.8	-31	71.34	94758.7/ 157931.17/ 210693.24	Flanged, RF, ASME B16.5	ASTM A351 Gr. CF3/ CF8	Spiral Wound (SS316-Graphite)	API 600 Trim 2 or 10	ASTM A193 Gr.B8-C12 / ASTM A194 Gr.8A	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/ Bonnet connection flanged with T&G or M&F. 4. Extended bonnet: L=300 5. Gear Req: Acc. to RSP 1032. 6. Flow direction shall be marked on the body (unidirectional valve). 7. Bleed valve, NPS 1, on the downstream of closure part. 8. Bleed Valve datasheet: ASP 6FR49/ASME. 9. Bleed valve tap: Position D (See 'Specification' sheet). 10. Technical Purchase Specs.: 031-6XX B01



Project No: 3110A2J4				Doc No: &AA-R-SS 1023																				Issue: 04	Code: Baytown
Client Project No.				Special Piping Item Gate Valves																					
Special Part ID	Ident No.	Size (NPS)	P&ID Name	Line ID	Fluid	Pipe Class	Pressure Class	Design Press [psig] Max / Min	Design Press [barg] Max / Min	Design Temp [°F] Max / Min	Design Temp [°C] Max / Min	Density (Kg/m3)	Operating Press [psig]	Operating Press [barg]	Operating Temp [°F]	Operating Temp [°C]	Viscosity (x 10E-6 Pas)	Min. / Norm. / Max. Flow Rate (Kg/hr)	End Connection	Body/ Bonnet	Bonnet Gasket	Trim	Fasteners	Face to Face Dimension	Design
XAS041	HE4313	8	&AA-P-FP 8105.01	81-50002, 81-50003	CONDENSAT E	BABR70	CL150	216/ -14	14.90/ -1.0	320/ 320	160/ 160	958.61	2.71	0.19	220.65	104.81	258.35	1796.46/ 38715.72/ 90891.74	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr. B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged. 4. Hand wheel operated (acc. to RSP 1032). 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of the closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS042	HE4314	14	&AA-P-FP 8204.01	82-10015, 82-10020	DEMINERALI ZED WATER	BANR72	CL150	245	16.9	140	60	991.15	-0.19	-0.013	107.8	42.11	631.03	16063.99/ 90204.11/ 368246.18	Flanged, RF, ASME B16.5	ASTM A351 Gr. CF8C	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A193 Gr. B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged. 4. Gear Req: Acc. to RSP 1032 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR22/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 6. Technical Purchase Specs.: 031-6XX B01
XAS043	HE4315	1	&AA-P-FP 3501.01	34-44152	TAIL GAS	BAJR62	CL300	72/ 79/ -7/ -14	5/ 5.45/ -0.5/ -1	572/ 329/ 212/ 572	300/ 165/ 100/ 300	0.35	7.78	0.54	201.37	94.1	12.52	370.82/ 463.52/ 729.4	Flanged, RF, ASME B16.5	ASTM A182 Gr. F304L	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A193 Gr. B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Solid wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Hand wheel operated (acc. to RSP 1032). 5. Valve with integral flange. 6. Technical Purchase Specs.: 031-6XX B01
XAS045	HE4316	14	&AA-P-FP 5602.01	56-38004, on 56-T01	PYROLYSIS GASOLINE	BBBR61	CL300	536/ -14	37/ -1	599/ 599	315/ 315	847.23	3.43	0.24	433.74	223.2	449.33	59289.56/ 169398.74/ 203278.49	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr. B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible Wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS046	HE4317	24	&AA-P-FP 5602.01	56-38006, on 56-T01	PYROLYSIS GASOLINE	BBBR61	CL300	536/ -14	37/ -1	599/ 599	315/ 315	22.02	3.43	0.24	439.42	226.34	20.03	99310.07/ 169398.74/ 203278.49	Flanged, RF, ASME B16.5	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr. B7/ ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible Wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Flow direction shall be marked on the body (unidirectional valve). 6. Bleed valve, NPS 1, on the downstream of closure part. 7. Bleed Valve datasheet: ASP 3FR106/ASME. 8. Bleed valve tap: Position D (See 'Specification' sheet). 9. Technical Purchase Specs.: 031-6XX B01
XAS049	HE4318	40	&AA-P-FP 2504.01	25-12178	ETHANE	BBBR61	CL300	335	23.1	239	115	8.65	96.98	6.68	150	65.55	10.79	150536.12/ 353567.28/ 386213.52	Flanged, RF, ASME B16.47 Series A	ASTM A216 Gr. WCB	Spiral Wound (SS316- Graphite)	API 600 Trim 5 or 8	ASTM A193 Gr. B7/ ASTM A194 Gr.4	Manuf. Std	1. Analogous to API 600 2. Closure Part: Flexible or Split Wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Gear Req: Acc. to RSP 1032 5. Technical Purchase Specs.: 031-6XX B01
XAS050	HE4319	3	&AA-P-FP 3905.01	39-43028	C2- FRACTION	BBJR69	CL300	551/ -7/ 551/ 551	38/ -0.5/ 38/ 38	158/ 284/ 284/ -112	70/ 140/ 140/ -80	-	-	-	-	-	-	-	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Hand wheel operated (acc. to RSP 1032). 5. Extended bonnet: L=300 6. Valve in Hydrogen Service. 7. Technical Purchase Specs.: 031-6XX B01
XAS051	HE4320	8	&AA-P-FP 3905.01	39-43031	C2- FRACTION	BBJR69	CL300	551/ 551/ 551	38/ 38/ 38	158/ -112/ 284	70/ -80/ 140	30.63	415.34	28.64	-10.31	-23.5	9.54	66396.85/ 152714.12/ 152714.12	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Hand wheel operated (acc. to RSP 1032). 5. Extended bonnet: L=300 6. Spring loaded stuffing box. 7. Valve in Hydrogen Service. 8. Technical Purchase Specs.: 031-6XX B01
XAS061	JR9785	30	&AA-P-FP 2503.02	25-12053	ETHANE	BDBR73	CL900	1440	100	405	208	-	-	-	-	-	-	-	Butt Welded, ASME B16.25	ASTM A216 Gr. WCB	Ring Joint (Soft Iron)	API 600 Trim 5	ASTM A193 Gr. B7 / ASTM A194 Gr.4	Manuf. Std	1. Analogous to API 600. 2. Connecting Wall thickness: 30.18 mm 3. Closure Part: Flexible or Split wedge. 4. Body/Bonnet connection flanged with RJ. 5. Gear Req: Acc. to RSP 1032. 6. Technical Purchase Specs.: 031-6XX B01
XAS063	LQ5038	4	&AA-P-FP 3905.01	39-43028	C2- FRACTION	BBJR69	CL300	551/ -7/ 551/ 551	38/ -0.5/ 38/ 38	158/ 284/ 284/ -112	70/ 140/ 140/ -80	-	-	-	-	-	-	-	Flanged, RF, ASME B16.5	ASTM A352 Gr. LC3 (Note 1)	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A320 Gr. L7 / ASTM A194 Gr.4	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/Bonnet connection flanged with T&G or M&F. 4. Hand wheel operated (acc. to RSP 1032). 5. Extended bonnet: L=300 6. Spring loaded stuffing box. 7. Valve in Hydrogen Service. 8. Technical Purchase Specs.: 031-6XX B01

Project No: 3110A2J4 Client Project No.				Doc No: &AA-R-SS 1023 Special Piping Item Gate Valves																				Issue: 04	Code: Baytown
Special Part ID	Ident No.	Size (NPS)	P&ID Name	Line ID	Fluid	Pipe Class	Pressure Class	Design Press [psig] Max / Min	Design Press [barg] Max / Min	Design Temp [°F] Max / Min	Design Temp [°C] Max / Min	Density (Kg/m3)	Operating Press [psig]	Operating Press [barg]	Operating Temp [°F]	Operating Temp [°C]	Viscosity (x 10E-6 Pas)	Min. / Norm. / Max. Flow Rate (Kg/hr)	End Connection	Body/ Bonnet	Bonnet Gasket	Trim	Fasteners	Face to Face Dimension	Design
XAS076	BP0464	14	&AA-P-FP 4302.01	44-61267	Ethylene	BBJR76	CL300	406	28	-155	-103.89	---	---	---	---	---	---	---	Flanged, RF, ASME B16.5	ASTM A351 Gr. CF3/ CF8	Spiral Wound (SS316- Graphite)	API 600 Trim 2 or 10	ASTM A193 Gr.B8-C12 / ASTM A194 Gr.8A	ASME B16.10	1. API 600 2. Closure Part: Flexible wedge. 3. Body/ Bonnet connection flanged with T&G or M&F 4. Extended bonnet: L=300 5. Gear Req. Acc: to RSP 1032. 6. Flow direction shall be marked on the body (unidirectional valve). 7. Bleed valve, NPS 1, on the downstream of closure part. 8. Bleed Valve datasheet: ASP 3FR70R/ASME. 9. Bleed valve tap: Position D (See 'Specification' sheet). 10. Technical Purchase Specs.: 031-6XX B01
Note 1: For ASTM A352 Gr. LC3 material, the yield strength shall be less than or equal to 370 MPa and tensile strength shall be less than or equal to 620 Mpa. As an alternative, ASTM A351 Gr. CF3 is acceptable. Note 2: US customary units for reference only.																									