DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT

R.DM M.B H.P

Rev.	Date	DESCRIPTION	PRPD. BY	CHK. BY	APP'D. BY
5	06.06.2023	Final Issue	R.DM	M.B	H.P
4	16.08.2022	Final Issue (Generally Revised)	R.DM	M.B	H.P
3	22.01.2022	Final Issue (Generally Revised)	R.DM	M.B	H.P
2	16.08.2014	Final Issue (FI)	SKH/ARS	MBS	DMO
1	26.07.2014	OWNER/PMC Comments Incorporated (OCI)	SKH/ARS	MBS	DMO

LIST OF CONTENTS

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	SAZEH CONSULTANTS	
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 4 of 14

ITEM

Description	Flushing Water Supply Choke Valve	Mark or Tag Number	2-SP-21500	
		Quantity	1	
		Orientation	N/A	
		Line No.: / P&ID	2-FF-1000-2"(15S1)-C	2UA-229-21-PR-PID-11454

PROCESS CONDITIONS

Service	Flushing Fluid	
Inlet Pressure	134.2	bara
Outlet Pressure	10	bara
Operating Temperature	132.1	°c
Design Temperature (MAX/MIN)	200/-27	°c
Design Pressure	167.7	barg
Flowrate (Norm/Max)	400-6000 (3)	kg/hr
Molecular Weight	18.02	

FLUID

Name	Flushing Fluid	
Compressibility @ Op. Temp.	N/A	bara
Viscosity @ Op. Temp.	0.21	cP
Density @ Op Temp	933	kg/m3
Corrosive / Erosive	~~yes~~ / no / ~~due to~~	
Toxic / Flammable	~~yes~~ / no / ~~due to~~	

MECHANICAL DATA

BODY MATERIAL	ASTM A105
TRIM MATERIAL	316 SS+Stellite 6
Corrosion Allowance	1.5

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./SCH Rating	Service
Inlet	2"	(5)	SCH.160/1500#	Flushing Fluid
Outlet	2"	(5)	SCH.160/1500#	Flushing Fluid

SKETCH

NOTES

(1) 2-SP-21500 is a hand operated choke located in the feed line to the Flushing Water Supply.

(2) A High Pressure Drop throttling valve (choke) is required suitable for critical pressure drop service.

(3) Valve Size - Vendor to Confirm

(4) Inlet Line Number, 2-FF1000-2"(15S1)-C
Outlet Line Number, 2-FF1001-2"(3S1)-C

(5) Angle pattern choke valve required, forged construction with Flanged ends.

(6) No copper or copper bearing alloys to be used.

(7) Normal barometric pressure is 877.6 mbar(a). Max/Min barometric pressure is 881.2 / 851.6 mbar (a) respectively.

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	SAZEH CONSULTANTS	
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 5 of 14

ITEM

Description	Methanator Feed Heater, E2172, Condensate Choke Valve	Mark or Tag Number	2-SP-21501	
		Quantity	1	
		Orientation	N/A	
		Line No.: / P&ID	2-SC1174-3"(15S1)-1	2UA-229-21-PR-PID-11431

PROCESS CONDITIONS

Service	Steam Condensate	
Inlet Pressure	125	bara
Outlet Pressure	4.5	bara
Operating Temperature	328	°c
Design Temperature (MAX/MIN)	345/-27	°c
Design Pressure	137.9	barg
Flowrate (Norm/Max)	2624 / 3453 (3)	kg/hr
Molecular Weight	18.02	

FLUID

Name	HP Condensate	
Compressibility @ Op. Temp.	N/A	bara
Viscosity @ Op. Temp.	0.075	cP
Density @ Op Temp	647	kg/m3
Corrosive / Erosive	~~yes~~ / no / ~~due to~~	
Toxic / Flammable	~~yes~~ / no / ~~due to~~	

MECHANICAL DATA

BODY MATERIAL	ASTM A105
TRIM MATERIAL	316 SS+Stellite 6
Corrosion Allowance	1.5

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./SCH Rating	Service
Inlet	3"	(7)	SCH.160/1500#	HP Condensate
Outlet	1.5"	(7)	XS/900#	HP Condensate

SKETCH

NOTES

(1) 2-SP-21501 is a hand operated choke located in the condensate stream exiting the Methanator Feed Heater, 2-E-2172.

(2) Valve is a High Pressure Drop throttling valve (choke) suitable for flashing steam condensate service.

(3) Nomal / maximum flowrates shown. Max rate occurs for short duration only.

(4) Valve to possess dual range throttling capability; enabling throttling through the primary range of a conventional choke valve plus a supercapacity range for purging the build up of foreign particles and accomodating higher than normal flows at plant start-ups.

(5) Valve Size - Vendor to Confirm.

(6) Inlet Line Number, 2-SC1174-3"(15S1)-1

Outlet Line Number, 2-SC1172-3"(9S1)-2

(7) Angle pattern choke valve required, forged construction with Flanged ends.

(8) No copper or copper bearing alloys to be used.

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah	SAZEH CONSULTANTS	
		Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT		
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 6 of 14

ITEM

Description	: Secondary Flash Separator 2-D-2106	Mark or Tag Number	2-SP-21503
	level bridle Angle Blowdown Valves	Quantity	: 3
		Orientation	: N/A
		P&ID/Line No.:	: 2UA-229-21-PR-PID-11440/2-AM1054-2"(15P2)-5

PROCESS CONDITIONS

Service	: Ammonia (L / V) Note (1)		
Inlet Pressure	: 142.6	bara	
Outlet Pressure	: Note (2)&(3)	bara	
Operating Temperature	: -18	°c	
Design Temperature	: 60/-27	°c	
Design Pressure	: 154	barg	
Flowrate (Norm/Max)	: Note (4)	-/670kg/hr	
Molecular Weight	: 17.00		

FLUID

Name	:Liquid Ammonia with dissolved Syngas		
Vapour Pressure @ Op. Temp.	: 142.6	bara	
Viscosity @ Op. Temp.	: 0.233	cP	
Density @ Op Temp	: 668.96	kg/m3	
Corrosive / Erosive	NO		
~~Toxic~~ / Flammable	: yes / ~~no~~ / due to Syngas		

MECHANICAL DATA

Body Material	: ASTM A105		
Trim Material	: 316 SS		
Corrosion Allowance	: 1.5	mm	

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./ SCH	Service
Inlet	Note (4)	Note (8)	SCH 160	Liquid Ammonia with dissolved Syngas
Outlet	Note (4)	Note (8)	SCH XS	Liquid Ammonia with dissolved Syngas

SKETCH

NOTES

(1) 2-SP-21503 are angle pattern multistage/choke valves located on the level control bridle of the Secondary Flash Separator, 2-D-2106 is used for the periodic (intermittent) blowdown of the bridle.

(2) 2-SP-21503 route liquid ammonia/dissolved syngas to grade at a safe location. Outlet 'pressure on the valve: minimum = atm, normal - as built up during blowdown operation.

(3) Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.

(4) 1/2" NPS valves are required, Vendor to confirm size.

(5) 2-SP-21503 to have Tight Shut Off capability at the quoted design pressure to ANSI/FCI 70-2-2006 Class V.

(6) No copper or copper bearing alloys to be used

(7) Equipment to be designed to operate normally at -27 ºC.

(8) End connections to be 1/2" SW.

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	SAZEH CONSULTANTS	
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 7 of 14

ITEM

Description	Steam Blowoff Valve			Mark or Tag Number	2-SP-21507
				Quantity	1
				Orientation	:
				P&ID/Line No.:	: 2UA-229-21-PR-PID-11479 / 2-BD1101-3"(15S1U)-C

PROCESS CONDITIONS				**FLUID**		
Service	:	Boiler Feed Water (Liquid)		Name	BLOWDOWN	
Inlet Pressure	:	125.1	bara	Vapour Pressure @ Op. Temp.	125.1	bara
Outlet Pressure	:	4.5	bara	Viscosity @ Op. Temp.	0.08	cP
Operating Temperature	:	328	°c	Density @ Op Temp	663.1	kg/m3
Design Temperature	:	345/-27	°c	Corrosive / Erosive	Demineralized water	
Design Pressure	:	137.9/FV	barg	~~Toxic~~ / Flammable	NO	
Flowrate (Norm/Max)	:	1670/2611	kg/hr			
Molecular Weight	:	18.02				

MECHANICAL DATA			
Body Material	:	ASTM A105	
Trim Material	:	Trim No.5 (API 600)	
Corrosion Allowance	:	1.5	mm

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./ SCH	Service
Inlet	Note (4)	Note (8)	SCH 160	BLOWDOWN
Outlet	Note (4)	Note (8)	SCH XS	BLOWDOWN

SKETCH

NOTES

(1) 2-SP-21507 are Blow off valve.
Located at the bottom of steam drum 2-D-2101.
(2) Blow down routed to 2-D-2156, 175°C and 7.1/ FV barg design temerature and pressure respectively.
(3) Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.
(4) 1" NPS valves is required, Vendor to confirm size.
(5) 2-SP-21507 to have Tight Shut Off capability at the quoted design pressure to ANSI/FCI 70-2-2006 Class V.
(6) No copper or copper bearing alloys to be used
(7) Equipment to be designed to operate normally at -27 ºC.
(8) End connections to be 1" SW.

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	SAZEH CONSULTANTS	
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 8 of 14

ITEM

Description	Continuous Blowdown Valve	Mark or Tag Number	2-SP-21508
		Quantity	1
		Orientation	:
		P&ID/Line No.:	: 2UA-229-21-PR-PID-11479 / 2-BD1015-2"(15S1U)-1

PROCESS CONDITIONS				FLUID		
Service	: Boiler Feed Water (Liquid)			Name	BLOWDOWN	
Inlet Pressure	:	125.1	bara	Vapour Pressure @ Op. Temp.	125.1	bara
Outlet Pressure	:	4.5	bara	Viscosity @ Op. Temp.	0.08	cP
Operating Temperature	:	328	°c	Density @ Op Temp	663.1	kg/m3
Design Temperature	:	345/-27	°c	Corrosive / Erosive	Demineralized water	
Design Pressure	:	137.9/FV	barg	~~Toxic~~ / Flammable	NO	
Flowrate (Norm/Max)	:	740/1160	kg/hr			
Molecular Weight	:	18.02				

MECHANICAL DATA

Body Material	: ASTM A105		
Trim Material	: Trim No.5 (API 600)		
Corrosion Allowance	:	1.5	mm

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./ SCH	Service
Inlet	Note (4)	Note (8)	SCH 160	BLOWDOWN
Outlet	Note (4)	Note (8)	SCH XS	BLOWDOWN

SKETCH

NOTES

(1) 2-SP-21508 are Blow off valve.
Located at the bottom of steam drum 2-D-2101.
(2) Blow down routed to 2-D-2156, 175°C and 7.1/ FV barg design temerature and pressure respectively.
(3) Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.
(4) 1" NPS valves is required, Vendor to confirm size.
(5) 2-SP-21508 to have Tight Shut Off capability at the quoted design pressure to ANSI/FCI 70-2-2006 Class V.
(6) No copper or copper bearing alloys to be used
(7) Equipment to be designed to operate normally at -27 ºC.
(8) End connections to be 1" SW.

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	SAZEH CONSULTANTS	
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 9 of 14

ITEM

Description	Angle Blowdown Valve	Mark or Tag Number	2-SP-21509
		Quantity	1
		Orientation	:
		P&ID/Line No.:	: 2UA-229-21-PR-PID-11479 / 2-BD1008-1"(15S1U)-1

PROCESS CONDITIONS			FLUID		
Service	: Boiler Feed Water (Liquid)		Name	BLOWDOWN	
Inlet Pressure	: 125.1	bara	Vapour Pressure @ Op. Temp.	125.1	bara
Outlet Pressure	: 4.5	bara	Viscosity @ Op. Temp.	0.08	cP
Operating Temperature	: 328	°c	Density @ Op Temp	663.1	kg/m3
Design Temperature	: 350/-27	°c	Corrosive / Erosive	Demineralized water	
Design Pressure	: 141.4/FV	barg	~~Toxic~~ / Flammable	NO	
Flowrate (Norm/Max)	: 185/290	kg/hr			
Molecular Weight	: 18.02				

MECHANICAL DATA

Body Material	: ASTM A105	
Trim Material	: Trim No.5 (API 600)	
Corrosion Allowance	: 1.5	mm

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./ SCH	Service
Inlet	Note (4)	Note (8)	SCH 160	BLOWDOWN
Outlet	Note (4)	Note (8)	SCH XS	BLOWDOWN

SKETCH

NOTES

(1) 2-SP-21509 are Angle pattern multistage/choke valve.
Located at the bottom of secondary reformer waste heat boiler 2-E-21201.
(2) Blow down routed to 2-D-2156, 175°C and 7.1/ FV barg design temerature and pressure respectively.
(3) Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.
(4) 1" NPS valves is required, Vendor to confirm size.
(5) 2-SP-21509 to have Tight Shut Off capability at the quoted design pressure to ANSI/FCI 70-2-2006 Class V.
(6) No copper or copper bearing alloys to be used
(7) Equipment to be designed to operate normally at -27 ºC.
(8) End connections to be 1" SW.

Owner:	PMC:	Project:	Contractor:	
K.P.I.C	NDEC	2nd Ammonia and Urea Project- Kermanshah Doc. Title: DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	SAZEH CONSULTANTS	
Contract No.: KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev. : 5	Page: 10 of 14

ITEM

Description	Tandem Blowdown Valve			Mark or Tag Number	2-SP-21510
				Quantity	7
				Orientation	:
				P&ID/Line No.:	: 2UA-229-21-PR-PID-11479 / 2-BD1025~31-2"(15S1U)-C

PROCESS CONDITIONS				**FLUID**		
Service	: Boiler Feed Water (Liquid)			Name	BLOWDOWN	
Inlet Pressure	:	125.1	bara	Vapour Pressure @ Op. Temp.	125.1	bara
Outlet Pressure	:	4.5	bara	Viscosity @ Op. Temp.	0.08	cP
Operating Temperature	:	328	°c	Density @ Op Temp	663.1	kg/m3
Design Temperature	:	345/-27	°c	Corrosive / Erosive	Demineralized water	
Design Pressure	:	137.9/FV	barg	~~Toxic~~ / Flammable	NO	
Flowrate (Norm/Max)	:	740/1160	kg/hr			
Molecular Weight	:	18.02				

MECHANICAL DATA

Body Material	:	ASTM A105	
Trim Material	:	Trim No.5 (API 600)	
Corrosion Allowance	:	1.5	mm

NOZZLE CONNECTION SUMMARY

No.	Size	Conn. Type	Thk./ SCH	Service
Inlet	Note (4)	Note (8)	SCH 160	BLOWDOWN
Outlet	Note (4)	Note (8)	SCH XS	BLOWDOWN

SKETCH

NOTES

(1) 2-SP-21510 are Blow off valve.
Located at the bottom of auxiliary boiler.
(2) Blow down routed to 2-D-2156, 175°C and 7.1/ FV barg design temerature and pressure respectively.
(3) Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.
(4) 1" NPS valves is required, Vendor to confirm size.
(5) 2-SP-21510 to have Tight Shut Off capability at the quoted design pressure to ANSI/FCI 70-2-2006 Class V.
(6) No copper or copper bearing alloys to be used
(7) Equipment to be designed to operate normally at -27 ºC.
(8) End connections to be 1" SW.

					Modifications Proposed By Vendor
HAND CONTROL VALVE (BUTTERFLY)					
1		GENERIC TYPE	:	Butterfly Valve (Note 4)	
2		TAG NUMBER	:	2-SP-21502	
3		QUANTITY	:	1	
4		SPECIFIC TYPE	:	HAND CONTROL VALVE	
5		NOMINAL SIZE (in)	:	18"	
6		Rating (#) / Standard	:	1500#/ASME B16.34	
7		Design Standard	:	MNFSTD	
8		Ending	:	FLANGED	
9		Facing	:	RTJ	
10		End to End Dimension	:	ASME B16.10	
11	PROCESS DATA	LINE NO.	:	2-SG1015-18"(15P2D)-1	
12		P&ID NO.	:	2UA-229-21-PR-PID-11436	
13		SERVICE	:	SYNTHESIS GAS	
14		FLOW RATE (m^3/hr)	:	9437	
15		Inlet Pressure	:	141.7 bara	
16		Outlet Pressure	:	-	
17		Diff. Pressure	:	Min.	
18		DENSITY (kg/m^3)	:	29.73	
19		Design Pressure (barg)		154	
20		Design Temperature (ºC)		310/-27	
21		Operating Pressure (barg)		141.7	
22		Operating Temperature (ºC)	:	259	
23		Shut off Pressure		154 barg	
24		Flow Direction		outlet 2-E-2121 to 2-R-2105	
25		Test Pressure (Hydro./Pneumatic) (barg)	:	388.5	
26	MATERIALS OF CONSTRUCTION	BODY	:	ASTM A182 GR F11/ASTM A217 GR WC6	
27		DISC/DISC SEAL	:	316 SS	
28		SHAFT	:	316 SS	
29		BODY SEAT	:	316 SS	
30		GLAND PACKING	:	316 SS	
31		Bolt & Nuts	:	ASTM A193 Gr.B16/ ASTM A194 Gr.7	
32		BEARING		SS + TEFLONE	
33	OTHER REQUIREMENTS	PWHT Requirement	:	N/A	
34		CRYOGENIC SERVICE	:	N/A	
35		OTHER ACCESSORIES	:	BY VENDOR	
36		SEALANT INJECTION	:	BY VENDOR	
37		SPARE ELEMENTS	:	BY VENDOR	
38		MARKING /TAGGING	:	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004	
39		PACKING / SHIPMENT	:	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004	
40		PAINTING	:	PROJECT SPEC.: 2UA-229-30-PI-ESS-6113	
41		CLIMATE CONDITION	:	SEE NOTES 2 AND 3	

REMARKS:

1- Vendor to confirm bearing material.

2- The design minimum ambient temperature is -27˚C.

3- Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.

4- Tight Shut-Off valve.

Owner :	PMC :	Project:	Contractor:
K.P.I.C		**2nd Ammonia and Urea Project- Kermanshah**	SAZEH CONSULTANTS
		DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	
Contract No : KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev : 5 Page: 12 of 14

SPECIAL BUTTERFLY VALVE						**Modifications Proposed By Vendor**
1	GENERIC TYPE		:	Butterfly Valve (Note 4)		
2	TAG NUMBER		:	2-SP-21506		
3	QUANTITY		:	1		
4	SPECIFIC TYPE		:	Butterfly Valve with Minimum Stop		
5	NOMINAL SIZE (in)		:	16"		
6	Rating (#) / Standard		:	600#/		
7	Design Standard		:	MNFSTD		
8	Ending		:	FLANGED		
9	Facing		:	RF		
10	End to End Dimension		:	ASME B16.10		
11	PROCESS DATA	LINE NO.	:	2-MD1020-16"(6P1)-C		
12		P&ID NO.	:	2UA-229-21-PR-PID-11447		
13		SERVICE	:	MDEA Solution		
14		FLOW RATE (m^3/hr)	:	915		
15		Inlet Pressure	:	36.9 bara		
16		Outlet Pressure	:	-		
17		Diff. Pressure	:	Min.		
18		DENSITY (kg/m^3)	:	1022.4		
19		Design Pressure (barg)		48.5		
20		Design Temperature (ºC)		95/-27		
21		Operating Pressure (barg)		36.9		
22		Operating Temperature (ºC)	:	50		
23		Shut off Pressure		49 barg		
24		Flow Direction		outlet 2-E-2110 to 2-T-2101		
25		Test Pressure (Hydro./Pneumatic) (barg)	:	72.75		
26	MATERIALS OF CONSTRUCTION	BODY	:	ASTM A105/A216 WCB		
27		DISC/DISC SEAL	:	316 SS		
28		SHAFT	:	316 SS		
29		BODY SEAT	:	316 SS		
30		GLAND PACKING	:	316 SS		
31		Bolt & Nuts	:	ASTM A193 Gr.B7/ ASTM A194 Gr.2H		
32		BEARING		SS + TEFLONE		
33	OTHER REQUIREMENTS	PWHT Requirement	:	N/A		
34		CRYOGENIC SERVICE	:	N/A		
35		OTHER ACCESSORIES	:	BY VENDOR		
36		SEALANT INJECTION	:	BY VENDOR		
37		SPARE ELEMENTS	:	BY VENDOR		
38		MARKING /TAGGING	:	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004		
39		PACKING / SHIPMENT	:	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004		
40		PAINTING	:	PROJECT SPEC.: 2UA-229-30-PI-ESS-6113		
41		CLIMATE CONDITION	:	SEE NOTES 2 AND 3		

REMARKS:

1- Vendor to confirm bearing material.

2- The design minimum ambient temperature is -27˚C.

3- Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.

4- The type is butter fly valve with minimum stop.

Owner :	PMC :	Project:	Contractor:
K.P.I.C		2nd Ammonia and Urea Project- Kermanshah	SAZEH CONSULTANTS
		DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	
Contract No : KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev : 5

AXIAL FLOW CHECK VALVE

					Modifications Proposed By Vendor
1		GENERIC TYPE	:	Axial Flow Check Valve	
2		TAG NUMBER	:	2-SP-21518	
3		QUANTITY	:	1	
4		SPECIFIC TYPE	:		
5		NOMINAL SIZE (in)	:	16"	
6		Rating (#) / Standard	:	1500#	
7		Design Standard	:	MNF STD	
8		Ending	:	FLANGED	
9		Facing	:	RTJ	
10		End to End Dimension	:	ASME B16.10	
11	PROCESS DATA	LINE NO.	:	2-SG1011-16"(15P2)-N	
12		P&ID NO.	:	2UA-229-21-PR-PID-11435	
13		SERVICE	:	SYNTHESIS GAS	
14		FLOW RATE (m^3/hr)	:	6224.7	
15		Inlet Pressure	:	144	
16		Outlet Pressure	:		
17		Diff. Pressure	:	<0.1	
18		DENSITY (kg/m^3)	:	53.54	
19		Design Pressure (barg)	:	154	
20		Design Temperature (ºC)	:	-27/90	
21		Operating Pressure (barg)	:	143.1	
22		Operating Temperature (ºC)	:	52	
23		Shut off Pressure	:	154	
24		Flow Direction	:		
25		Test Pressure (Hydro./Pneumatic) (barg)	:	231	
26	MATERIALS OF CONSTRUCTION	BODY	:	ASTM A105/A216 WCB	
27		TRIM	:	316 SS	
28		SEAT RING	:	316 SS	
29		BODY SEAT	:	316 SS	
30		GLAND PACKING	:	316 SS	
31		BOLT & NUTS	:	ASTM A193 Gr.B7/ ASTM A194 Gr.2H	
32		BEARING	:	SS + TEFLONE	
33	OTHER REQUIREMENTS	PWHT Requirement	:	N/A	
34		CRYOGENIC SERVICE	:	N/A	
35		OTHER ACCESSORIES	:	BY VENDOR	
36		SEALANT INJECTION	:	BY VENDOR	
37		SPARE ELEMENTS	:	BY VENDOR	
38		MARKING /TAGGING	:	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004	
39		PACKING / SHIPMENT	:	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004	
40		PAINTING	:	PROJECT SPEC.: 2UA-229-30-PI-ESS-6113	
41		CLIMATE CONDITION	:	SEE NOTES 1 AND 2	

REMARKS:

1- The design minimum ambient temperature is -27˚C.

2- Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.

3- Vendor to confirm bearing material.

Owner :	PMC :	Project:	Contractor:
K.P.I.C		**2nd Ammonia and Urea Project- Kermanshah**	SAZEH CONSULTANTS
		DATA SHEET FOR SPECIAL VALVE - AMMONIA UNIT	
Contract No : KPIC/99/PC/362		Doc. No. : 2UA-229-21-PI-DSH-62520	Rev : 5

NON-SLAM CHECK VALVE

				Modifications Proposed By Vendor
1	GENERIC TYPE		NON-SLAM CHECK VALVE	
2	TAG NUMBER		2-SP-21519	
3	QUANTITY		1	
4	NOMINAL SIZE (in)		8"	
5	Rating (#) / Standard		600#	
6	Design Standard		MNF STD	
7	Ending		FLANGED	
8	Facing		RF	
9	End to End Dimension		ASME B16.10	
10	PROCESS DATA	LINE NO.	2-NG1010-8"(6P1)-1	
11		P&ID NO.	2UA-229-21-PR-PID-11424	
12		SERVICE	Natural Gas	
13		FLOW RATE (m^3/hr)	1559.291137	
14		Inlet Pressure	~44	
15		Outlet Pressure	43.95	
16		Diff. Pressure	<0.05	
17		DENSITY (kg/m^3)	19.41	
18		Design Pressure (barg)	54.1	
19		Design Temperature (ºC)	230	
20		Operating Pressure (barg)	43.1	
21		Operating Temperature (ºC)	148.02~203	
22		Shut off Pressure	54.1	
23		Test Pressure (barg)	65	
24	MATERIAL	BODY	ASTM A105/A216 WCB	
25		DISC/DISC SEAT	13 Cr/Hardfaced	
26		SHAFT	-	
27		BODY SEAT	13 Cr/Hardfaced	
28		DIFFUSER	13 Cr/Hardfaced	
29		SPRING	INCONEL 750	
30		BEARING	-	
31		BOLT	ASTM A193 Gr.B7/ ASTM A194 Gr.2H	
32	OTHER REQUIREMENTS	PWHT Requirement	NO	
33		CRYOGENIC SERVICE	NO	
34		OTHER ACCESSORIES	BY VENDOR	
35		SEALANT INJECTION	BY VENDOR	
36		SPARE ELEMENTS	BY VENDOR	
37		MARKING /TAGGING	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004	
38		PACKING / SHIPMENT	PROJECT PROCEDURE: 2UA-000-00-PQ-PCJ-004	
39		PAINTING	PROJECT SPEC.: 2UA-229-30-PI-ESS-6113	
40		CLIMATE CONDITION	SEE NOTES 1 & 2	

REMARKS:

1- The design minimum ambient temperature is -27˚C.

2- Normal Barometric Pressure is 877.6 mbar(a). Max/Min Barometric Pressure is 881.2 / 851.6 mbar(a) respectively.

3- Vendor to confirm bearing material.