PETROBRAS	**DATA SHEET**	Nº I-FD-3010.78-1200-835-TKP-461	
	CLIENT: UN-ES / ATP - JUB-CHT		SHEET 1 of 80
	PROGRAM NORTE DO PARQUE DAS BALEIAS FIELD DEVELOPMENT		-
	AREA: PETROBRAS 58 (P-58)		
ENGENHARIA IEEPT/IEES	TITLE: **SHUTDOWN VALVES UTILITIES SHIP DECK- MODULE N-1B**		CORPORATIVE / IEES

TECHNIP BRASIL - ENGENHARIA, INSTALAÇÕES E APOIO MARÍTIMO LTDA	TKP Nr:	F70033-NN1B-SP-1543-461		
	CONTRACT Nr:	0801.0000063.09.2		
	TECHNICAL RESP:	NAME: CRISTINA ARAUJO	INITIALS:	CAP
File Nr: WORD 2000/I-FD-3010.78-1200-835-TKP-461_J.psr	CREA REG. Nr:	RJ:1988106377		

REVISION INDEX

REV.	DESCRIPTION AND/OR REVISED SHEETS
0	FOR PNBV COMMENTS.
A	#DETAIL DESIGN# - FOR PURCHASE. RELEASE BY ADP-P58-TKP-022552. INCLUDED SDV-1210016N AND SDV-1210016P.
B	FOR PURCHASE .REVISED IN ACCORDANCE SWITH ADP-P58-TKP-05657.
C	FOR PURCHASE .REVISED WHERE INDICATED, RELEASED BY ADP-P58-TKP-06839.
D	FOR PURCHASE .REVISED WHERE INDICATED, RELEASED BY ADP-P58-TKP-07191.
E	FOR PURCHASE .REVISED WHERE INDICATED, RELEASED BY ADP-P58-TKP-11036.
F	AS PURCHASED (EXCEPT SDV-1231018 & SDV-5111011)
G	AS PURCHASED (EXCEPT SDV-1231018 & SDV-5111011). REVISED SDV-5111011, ACCORDING TO TQF-P58-CQG-INS-0073.
H	AS PURCHASED (EXCEPT SDV-1231018).
J	AS PURCHASED. REVISED WHERE INDICATED.

	REV.0	REV.B	REV.C	REV.D	REV.E	REV.F	REV.G	REV.H	REV.J
DATE	14/Apr/10	21/Oct/10	19/Nov/10	21/Feb/11	28/Sep/11	17/Apr/12	26/Sep/12	18/Feb/13	30/Sep/13
PROJECT	TKP	TKP	TKP	TKP	TKP	TKP	TKP	TKP	TKP
EXECUTION	SLOURENCO	SLOURENCO	SLOURENCO	MCKAUFFMANN	SLOURENCO	BRALMEIDA	CSMARQUES	CSMARQUES	ARACRUZ
CHECK	MCKAUFFMANN	LSALLES	JCSIMIOLI	IMECKLER	JCSIMIOLI	IMECKLER	MCKAUFFMANN	MCKAUFFMANN	CLVITAL
APPROVAL	CAP/SMP	CAP/SMP	CAP/SMP	CAP/SMP	CAP/SMP	CAP/SMP	CAP/SMP	CAP/SMP	CAP/SMP

THE DATA, OR PART THEREOF, ARE PETROBRAS PROPERTY AND THUS MUST NOT BE USED IN ANY WAY WITHOUT PERMISSION

Technip Checked by — Claudia Andelo Vital 2013.09.30 10:14:54 -02'00'

Technip Approved by — Cristina Andrade Portela de Araujo 2013.09.30 10:18:06 -03'00'

Technip Approved by — Evandro Jacomini 2013.09.30 13:54:18 -02'00'

GENERAL NOTES

1. Environmental and Operation Conditions:

1.1. Air power supply:

Temperature: maximum : 45°C
minimum : 10°C

Humidity
Max. rel. Air Humidity: 100%
Min. rel. Air Humidity: 30%
Salinity: 1mg of NaCl/m3of air

1.2. Air Quality

Dry (maximum Dew Point: + 4°C @ 1030 kPa (10.5 bar)
Oil free: < 1 ppm vol.
Maximum size of the impurity particles: 3μm (micron)

1.3. All material used shall be non-hygroscopic, flame retardant and resistant to corrosion caused by marine environmental and hydrocarbon continuous contact.

2. Actuators shall be pneumatic single-acting piston type with spring return; case housing shall be made of steel, with pneumatic connection of 1/2" NPT (F) steel material made accessories and internal parts shall be AISI 316 made. All bolts and nuts shall be alloy steel made and other assembly accessories and internal parts shall be AISI 316 made.

3. Hydraulic circuits shall be used whenever the sizing in actuators which are more than 2m length; the use of double action actuators shall be adopted; material shall be steel.

4. Over pressure protection by means of safety valves shall be provided.

5. Actuators shall be provided assembled with accessories such as position switches, pilot valves, quick exhaust valve, flow rate regulators and their corresponding installation materials.

6. Actuators for valves shall be the valve color.

7. A regulating filter; coalescent type; AISI 316 material with pressure gauge shall be supplied. The scale of pressure gage must be double with output indication signal graduation type in bar and Kpag.

8. Each SDV valves shall be provided with 1 (one) three way solenoid valve compact type, without gaskets, with stainless steel body and trims, seat with shoulder and seatings made of resilient material. Power supply 24VDC, pneumatic connections 1/2" NPTF, electrical connection 1/2" NPTF. Power consumption 0.7 watts, electrical area classification: Zone 1 or 2 (IEC), enclosure classification: IP 66/ IPW 68 Exd IIC T6. Insulation class for coils at least class "H". The solenoid must be provided with supression diodes, installed inside the solenoid enclosures. Normally energized.

9. The pneumatic and hydraulic instruments transmission lines shall be made of stainless steel, ASTM A 269 TP 316L with 2,5% Molibidenium and Material Certificate. All cable glands must be of the same material as the junction box AISI 316.

10. Seamless stainless steel tubing shall be used; connections compression type. The tubing walls must be 6,35mm (1/4") OD x 0,89mm (0,35") thick and they shall be flexible.

11. All the cables must be naval type, flame retarding and with insulation to 250V minimum voltage insulation and resistance shall not be smaller than 1 MOhm, with external cover in dark gray.

12. All valves shall be provided with solenoid valve, position switches, fast relief valves, flow rate regulators and accessories connected and ready to operate.

13. Limit switches shall be of the magnetic type (no moving parts) and mechanically rotating visual valve position indication type, with a transparent device protecting the movable part, open/close indication by means of different colors and inscription in black, able to be easily visualized the actual valve position from the lateral as well as from the top of the indication device. Also they shall permit set point adjustment without disassembling from the valve bodies.

14. Field electronic instruments casings or enclosures shall be made of ASTM A351 GR.CF8M.

15. Electrical connections of each solenoid valve and limit switch to the platform connecting cables, shall be supplied by means of one stainless steel connection box, with cable glands, gas tight and weather proof, enclosure classification IP-56 electrical classification Exe, with terminal blocks (10 blocks) for cables of 2,5mm^{2,} no spark and adequate for use when vibrations. All the electrical connections for switches and solenoids shall be grouped in only one terminal box provided with two holes. Three inlet (1/2" F NPTF). Two outlets one (3/4" F NPTF) and other (1/2" F NPT) for ship connections. Enclosure material shall be ASTM A351 GR.CF8M.

16. The micro-switches must be hermetically sealed and IP 66/ IPW 68, SPDT contacts, rated 2 Amperes at 24Vdc.The contact shall be normally closed.

17. All instruments casings and their accessories shall be resistant to atmospheric conditions produced by the process and to the marine environment. They shall be at least IP-56 in accordance with standard IEC-60529.

18. All SDV valves and their accessories shall be supplied AISI 316 stainless nameplates attached, with the respective tag number engraved besides model and supplier.

19. Whenever it is impossible to avoid the contact of different materials and galvanic corrosion is expected, protection procedures shall be foressen, such as insulation, besides the use of anti-oxidant products.

20. All electrical/electronic instruments and equipments shall be according to IEC-60079 AND IEC-61892-7 STANDARD.

21. All field instruments shall be part of the project Vendor List (VLO) for is category and type. Instruments of the same type and function shall be of the same manufacturer.

22. All SDV valves shall be tested to seal in both directions against all pressures up to the maximum service pressure rating for class. Valves that only seal in one direction shall not be acceptable.

23. All instruments shall be furnished with "Certificate of Compliance" by INMETRO according to Brazilian regulations (Portaria INMETRO 083/2006).

24. Test requirement for all valves: 100% visual casting according to MSS SP-55; dye penetrant in machined parts.

25. Marking according to MSS SP-25.

26. CANCELLED.

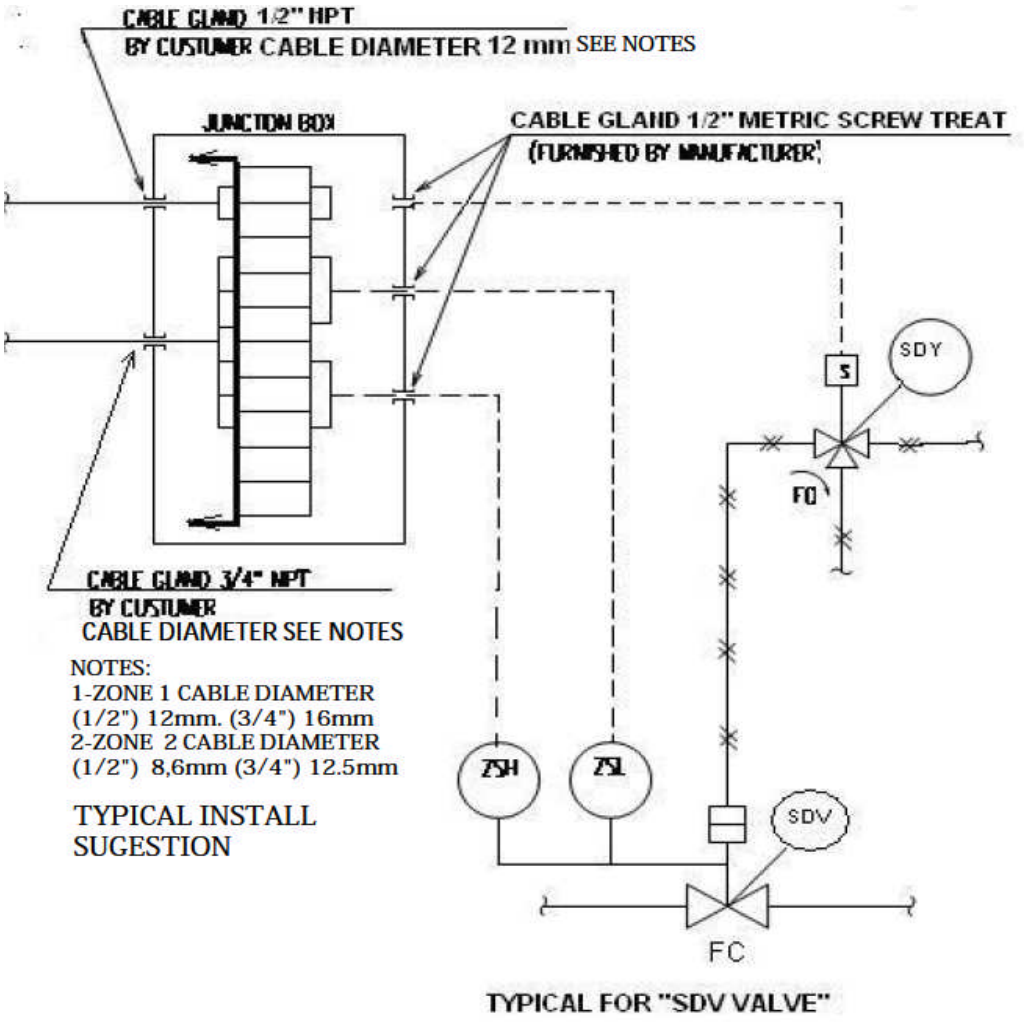
27. For valves in carbon steel body material and operation temperature >=60°C; the body must be externally Metalized High Temperature in accordance with I-ET-3010.78-1200-956-PPC-004 THERMAL SPRAY COATING APPLICATION OF ALUMINUM

28. CABLE GLAND; Prof of explosion Exd+e; for instalallation in zones 1 and 2, class II , stainless steel AISI 316, for cable external sheath without armour or lead, neoprene gasket.

29. All electrical/electronic components shall be marinized and tropicalized for proper protection against the application atmosphere and funguses attack. Bidder shall explain in its bid the marinizing and tropicalization used method and provide applicable procedures and standards

30. CANCELLED.

31. For valves that required adequate system of protection, fireproofing actuator shall be supplied by CQG as technical specification I-ET-3010.78-5400-433-TKP-001.



TYPICAL FOR "SDV VALVE"

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 5 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER			SDV -1210012A			
	2	SERVICE			GAS LIFT - CP-1210001A			
	3	LINE	EQUIPMENT		5"-P-G10P-005-		---	
	4	LINE SIZE	SCHEDULE	CLASS	5			1500# RTJ
	5	P&ID			I-DE-3010.78-1210-944-TKP-001			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-30000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			21736	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST		A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL			ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			----			
	31	SIZE			1919 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	585 / 490 kPag			
	34	ACTUATING TIME			< 5 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 6 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012A	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012A	ZSL-1210012A
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2"" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		zone 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		91611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS

DATA SHEET

N° I-FD-3010.78-1200-835-TKP-461 REV. J

AREA OR UNIT PETROBRAS 58 (P-58) SHEET 7 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012B			
	2	SERVICE				GAS LIFT - CP-1210001B			
	3	LINE	EQUIPMENT			5"-P-G10P-069-		---	
	4	LINE SIZE	SCHEDULE		CLASS	5			1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-002			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				---			
	31	SIZE				1919 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag			
	34	ACTUATING TIME				< 5 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 8	OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012B	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012B	ZSL-1210012B
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2""""" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 9 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER			SDV -1210012C			
	2	SERVICE			GAS LIFT - CP-1210001C			
	3	LINE	EQUIPMENT		5"-P-G10P-142-		---	
	4	LINE SIZE	SCHEDULE	CLASS	5			1500# RTJ
	5	P&ID			I-DE-3010.78-1210-944-TKP-003			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			21736	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST		A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL			ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			---			
	31	SIZE			1919 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	585 / 490 kPag			
	34	ACTUATING TIME			< 5 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 10 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012C	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012C	ZSL-1210012C
	3	ELECTRICAL CONNECTION			
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 11 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012D		
	2	SERVICE				GAS LIFT - CP-1210001D		
	3	LINE	EQUIPMENT			5"-P-G10P-166-	---	
	4	LINE SIZE	SCHEDULE		CLASS	5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-004		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4""""" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 12 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012D	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012D	ZSL-1210012D
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 13 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER			SDV -1210012E			
	2	SERVICE			GAS LIFT - CP-1210001E			
	3	LINE	EQUIPMENT		5"-P-G10P-156-		---	
	4	LINE SIZE	SCHEDULE	CLASS	5			1500# RTJ
	5	P&ID			I-DE-3010.78-1210-944-TKP-005			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			21736	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST		A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL			ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			---			
	31	SIZE			1919 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	585 / 490 kPag			
	34	ACTUATING TIME			< 5 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 14 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012E	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012E	ZSL-1210012E
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2"" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 15 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012F		
	2	SERVICE				GAS LIFT - CP-1210001F		
	3	LINE	EQUIPMENT			5"-P-G10P-157-	---	
	4	LINE SIZE	SCHEDULE		CLASS	5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-006		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 16 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012F	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012F	ZSL-1210012F
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 17 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER			SDV -1210012G			
	2	SERVICE			GAS LIFT - CP-1210001G			
	3	LINE	EQUIPMENT		5"-P-G10P-158-		---	
	4	LINE SIZE	SCHEDULE	CLASS	5			1500# RTJ
	5	P&ID			I-DE-3010.78-1210-944-TKP-007			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			21736	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST		A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL			ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			---			
	31	SIZE			1919 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	585 / 490 kPag			
	34	ACTUATING TIME			< 5 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 18 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012G	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012G	ZSL-1210012G
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER			
	11	MODEL			
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 19 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012H		
	2	SERVICE				GAS LIFT - CP-1210001H		
	3	LINE	EQUIPMENT			5"-P-G10P-247-	---	
	4	LINE SIZE	SCHEDULE	CLASS		5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-008		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 20 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012H	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012H	ZSL-1210012H
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER			
	11	MODEL			
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 21 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012J		
	2	SERVICE				GAS LIFT - CP-1210001J		
	3	LINE	EQUIPMENT			5"-P-G10P-159-	---	
	4	LINE SIZE	SCHEDULE	CLASS		5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-009		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 22 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012J	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012J	ZSL-1210012J
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 23 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012K		
	2	SERVICE				GAS LIFT - CP-1210001K		
	3	LINE	EQUIPMENT			5"-P-G10P-161-	---	
	4	LINE SIZE	SCHEDULE		CLASS	5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-010		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 24 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012K	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012K	ZSL-1210012K
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER			
	11	MODEL			
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 25 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012L		
	2	SERVICE				GAS LIFT - CP-1210001L		
	3	LINE	EQUIPMENT			5"-P-G10P-250-	---	
	4	LINE SIZE	SCHEDULE		CLASS	5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-011		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 26 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012L	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012L	ZSL-1210012L
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 27 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210012M		
	2	SERVICE				GAS LIFT - CP-1210001M		
	3	LINE	EQUIPMENT			5"-P-G10P-163-	---	
	4	LINE SIZE	SCHEDULE		CLASS	5		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-012		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				1919 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 5 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 28 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210012M	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210012M	ZSL-1210012M
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 5 " 1500# + RG416SR4	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 4,063", wall tickiness 0,750".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 5"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 29 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016A			
	2	SERVICE				CP-1210002A INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-GX9-042-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6		XXS	1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-025			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			22555	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				22555	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API-6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				7389 N.m			
	31	SIZE				1580.4 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 30 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016A	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016A	ZSL-1210016A
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T1500WCBBI + B-1150U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1054.8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 31 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210016B			
	2	SERVICE				CP-1210002B INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-HX9-043-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-026			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4ISO 10497:04		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N. m			
	31	SIZE				1455 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				6 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 32 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016B	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016B	ZSL-1210016B
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T2500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1649,8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 33 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016C			
	2	SERVICE				CP-1210002C INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-HX9-044-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-027			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N.m			
	31	SIZE				1455 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				6 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 34 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016C	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016C	ZSL-1210016C
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T2500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1649,8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS

DATA SHEET

N° I-FD-3010.78-1200-835-TKP-461 REV. J

AREA OR UNIT PETROBRAS 58 (P-58) SHEET 35 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210016D			
	2	SERVICE				CP-1210002D INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-HX9-045-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-028			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N.m			
	31	SIZE				1455 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				6 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 36 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016D	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016D	ZSL-1210016D
	3	ELECTRICAL CONNECTION		x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T2500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1649,8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS

DATA SHEET

N° I-FD-3010.78-1200-835-TKP-461 REV. J

AREA OR UNIT PETROBRAS 58 (P-58) SHEET 37 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210016E			
	2	SERVICE				CP-1210002E INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-HX9-046-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-029			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N.m			
	31	SIZE				1455 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				6 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 38 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016E	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016E	ZSL-1210016E
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T2500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1649.8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 39 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016F			
	2	SERVICE				CP-1210002F INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-GX9-047-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6		XXS	1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-030			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			22555	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				22555	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				7389 N.m			
	31	SIZE				1580,4 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				6 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-022
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 40 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016F	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016F	ZSL-1210016F
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T1500WCBBI + B-1150U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1054,8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-022
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 41 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016G			
	2	SERVICE				CP-1210002G/H INLET INJECTION WATER			
	3	LINE	EQUIPMENT			8"-IW-HX9-048-		---	
	4	LINE SIZE	SCHEDULE		CLASS	8			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-031			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				22536 N.m			
	31	SIZE				2525 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 10		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				16 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1""NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing not exceed 63 µin.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 8"
9-It shall be according to ASME B16.34 and ASME Section VIII standards.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 42	OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016G	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016G	ZSL-1210016G
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2"" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP8T2500WCBBI + B-2385U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		2996,2 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing not exceed 63 µin.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 8"
9-It shall be according to ASME B16.34 and ASME Section VIII standards.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 43 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016J			
	2	SERVICE				CP-1210002J/K INLET INJECTION WATER			
	3	LINE	EQUIPMENT			8"-IW-GX9-049-		---	
	4	LINE SIZE	SCHEDULE		CLASS	8			1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-032			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			22555	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				22555	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N.m			
	31	SIZE				1579,8 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-022
8- BODY SIZE: 8"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 44	OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016J	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016J	ZSL-1210016J
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP8T1500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1540.8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-022
8- BODY SIZE: 8"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 45 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016L			
	2	SERVICE				CP-1210002L/M INLET INJECTION WATER			
	3	LINE	EQUIPMENT			8"-IW-HX9-050-		---	
	4	LINE SIZE	SCHEDULE		CLASS	8			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-033			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION SEA WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				22536 N.m			
	31	SIZE				2525 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				16 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 8"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 46 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016L	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016L	ZSL-1210016L
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP8T2500WCBBI + B-2385U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		2996.2 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 8"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS

DATA SHEET

N° I-FD-3010.78-1200-835-TKP-461 REV. J

AREA OR UNIT PETROBRAS 58 (P-58) SHEET 47 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210016N			
	2	SERVICE				CP-1210002N INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-HX9-1033-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-039			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.				kPa-g		
	11	FLOW	MIN.	NORM.	MAX.				AUS gal/min
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		kPa-g	33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N.m			
	31	SIZE				1455 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				12 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4""NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				---			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 48	OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016N	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016N	ZSL-1210016W
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T2500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1649,8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 49 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210016P			
	2	SERVICE				CP-1210002P INLET INJECTION WATER			
	3	LINE	EQUIPMENT			6"-IW-HX9-1034-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			2500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-040			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			INJECTION WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		28830		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		38		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			33931	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				33931	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		2500# RTJ	
	25	SEAT	STANDARD TEST			PEEK®		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				8446 N.m			
	31	SIZE				1455 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				12 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				3/4"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 50 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210016P	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210016P	ZSL-1210016P
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T2500WCBBI + B-1150U-S080	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1649,8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 63 AARH according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-045
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 51 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER			SDV -1210059			
	2	SERVICE			MSP-001 INLET LIFT GAS			
	3	LINE	EQUIPMENT		8"-P-G10P-152-		---	
	4	LINE SIZE	SCHEDULE	CLASS	8			1500# RTJ
	5	P&ID			I-DE-3010.78-1210-944-TKP-035			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			21736	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST		A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL			ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			----			
	31	SIZE			3184 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	585 / 490 kPag			
	34	ACTUATING TIME			< 8 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 52 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210059	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210059	ZSL-1210059
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 8" 1500# + RG622SR2	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS

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AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 53 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210060			
	2	SERVICE				MSP-001 INLET TEST LIFT GAS			
	3	LINE	EQUIPMENT			8"-P-G10P-151-		---	
	4	LINE SIZE	SCHEDULE		CLASS	8			1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-035			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				---			
	31	SIZE				3184 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag			
	34	ACTUATING TIME				< 8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET			N° I-FD-3010.78-1200-835-TKP-461		REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)				SHEET 54	OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**					

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210060	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210060	ZSL-1210060
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 8" 1500# + RG622SR2	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 55 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210069			
	2	SERVICE				MSP-002 INLET LIFT GAS			
	3	LINE	EQUIPMENT			8"-P-G10P-150-		---	
	4	LINE SIZE	SCHEDULE		CLASS	8			1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-036			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				---			
	31	SIZE				3184 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag			
	34	ACTUATING TIME				< 8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 56 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210069	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210069	ZSL-1210069
	3	ELECTRICAL CONNECTION			
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 8" 1500# + RG622SR2	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 57 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1210070		
	2	SERVICE				MSP-002 INLET TEST LIFT GAS		
	3	LINE	EQUIPMENT			8"-P-G10P-154-	---	
	4	LINE SIZE	SCHEDULE		CLASS	8		1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-036		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				---		
	31	SIZE				3184 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag		
	34	ACTUATING TIME				< 8 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 58 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210070	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210070	ZSL-1210070
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 8" 1500# + RG622SR2	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 59 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

GENERAL	1	TAG NUMBER				SDV -1210079			
	2	SERVICE				MSP-003 INLET LIFT GAS			
	3	LINE	EQUIPMENT			8"-P-G10P-160-		---	
	4	LINE SIZE	SCHEDULE		CLASS	8			1500# RTJ
	5	P&ID				I-DE-3010.78-1210-944-TKP-037			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				---			
	31	SIZE				3184 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	585 / 490 kPag			
	34	ACTUATING TIME				< 8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 60 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210079	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210079	ZSL-1210079
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 8" 1500# + RG622SR2	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1-Metal to Metal ball valve, piggable, internal diameter 6.00", wall tickiness 1.312".
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2"NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 61 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

GENERAL	1	TAG NUMBER			SDV -1210080			
	2	SERVICE			MSP-003 INLET TEST LIFT GAS			
	3	LINE	EQUIPMENT		8"-P-G10P-153-		---	
	4	LINE SIZE	SCHEDULE	CLASS	8			1500# RTJ
	5	P&ID			I-DE-3010.78-1210-944-TKP-037			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		NON-CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		19613		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		40		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			21736	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		70	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			21736	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 5		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary			
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		1500# RTJ	
	25	SEAT	STANDARD TEST		A182F51/Arguloy1(NOTE 4)		ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL			ASTM A995 4A / Arguloy 1 (NOTE 4)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			---			
	31	SIZE			3184 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		STEEL		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	585 / 490 kPag			
	34	ACTUATING TIME			< 8 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/2" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.
3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
5-Fire tested for all components according to ISO 10497.
6-Flange surface finishing not exceed 63 µin.
7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
8-Internal Reference: VET-940BP
9-Self-relief ball valve; Sealant injection in the seat and the stem.
10-Valve seats are adequate for services with presence of solids in suspension.
11- BODY SIZE: 8"
12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.
14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 62	OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1210080	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1210080	ZSL-1210080
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2"" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE + AUTOMAX	
	11	MODEL		ARGUS HK35 8" 1500# + RG622SR2	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT			
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:2- Stem/ trunnion material 17-4PH SS(DIN 1.4548.4), blow out proof stem , double seal (Certf.TA-LUFT); O"" rings seal RPTFE; Spring seat INCONEL® X750; Drain / Vent plug in cavity with 1/2""NPTF Pluged.

3- Test complement according to ISO 14313 (API6D) low pressure gas seat testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).

4- Arguloy 1- Nickel coating with 500 to 700 µm, with 62 Hrc minimum.Cr-1,7%, Ni-70%; Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.

5-Fire tested for all components according to ISO 10497.

6-Flange surface finishing not exceed 63 µin.

7-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".

8-Internal Reference: VET-940BP

9-Self-relief ball valve; Sealant injection in the seat and the stem.

10-Valve seats are adequate for services with presence of solids in suspension.

11- BODY SIZE: 8"

12-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.

13-Actuator with 3/4"" Hight flow air pilot, HERION 8040015 in SS.

14-Regulator Filter NORGREN , cod. SPBR/B38444/001, 1/2"" NPT.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 63 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

GENERAL	1	TAG NUMBER				SDV -1223043A			
	2	SERVICE				TQ-1223001A INLET			
	3	LINE	EQUIPMENT			6"-PC-B11-226-PP		---	
	4	LINE SIZE	SCHEDULE		CLASS	6		40	150# RF
	5	P&ID				I-DE-3010.78-1223-944-TKP-004			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.				kPa-g		
	11	FLOW	MIN.	NORM.	MAX.				Aft³/h
	12	PRESSURE	MIN.	NORM.	MAX.	0	0		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		66		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.	-6	kPa-g	343	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		100	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				343	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		A216 Gr.WCB+Inconel®625	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		150#RF	
	25	SEAT	STANDARD TEST			PTFE reinforced w/25% carbon		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 + INCONEL 625/A-564 Gr.17.4 PH(STEM			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				1349 N.m			
	31	SIZE				1191,5 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 10		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 585 kPag			
	34	ACTUATING TIME				8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-094
7- BODY SIZE: 6"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 64 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1223043A	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1223043A	ZSL-1223043A
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T150WCBBI + B-210U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		214.5 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-094
7- BODY SIZE: 6"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 65 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

GENERAL	1	TAG NUMBER				SDV -1223043B			
	2	SERVICE				TQ-1223001B OUTLET			
	3	LINE	EQUIPMENT			6"-PC-B11-232-PP	---		
	4	LINE SIZE	SCHEDULE	CLASS		6	40	150# RF	
	5	P&ID				I-DE-3010.78-1223-944-TKP-013			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001		
PROCESS DATA	9	FLUID	STATE			CORROSIVE HYDROCARBON	Gas/Vapor		
	10	CRITICAL PRESSURE	CRITICAL TEMP.				kPa-g		
	11	FLOW	MIN.	NORM.	MAX.				Aft³/h
	12	PRESSURE	MIN.	NORM.	MAX.	0	0		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		66		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.	-6	kPa-g	343	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		100	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				343	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4	ISO 14313 (API 6D)		
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	A216 Gr.WCB+Inconel®625		
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	150# RF		
	25	SEAT	STANDARD TEST			PTFE reinforced w/25% carbon	ISO 10497:04		
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 + INCONEL 625/A-564 Gr.17.4 PH(STEM			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				1349 N.m			
	31	SIZE				1191,5 mm in			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 10	PISTON SPRING RETURN		
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 585 kPag			
	34	ACTUATING TIME				8 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-094
7- BODY SIZE: 6"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 66 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1223043B	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1223043B	ZSL-1223043B
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2"" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T150WCBBI + B-210U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		214.5 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-094
7- BODY SIZE: 6"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 67 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-1B

GENERAL	1	TAG NUMBER				SDV -1231018		
	2	SERVICE				LR-1231001 OUTLET		
	3	LINE	EQUIPMENT			12"-P-G10P-089-	---	
	4	LINE SIZE	SCHEDULE		CLASS	12"		1500# RTJ
	5	P&ID				I-DE-3010.78-1231-944-TKP-011		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-66/ IPW-68, Exd IIC T6		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			NON-CORROSIVE HYDROCARBON	Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		19613	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		40	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		21736	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		70	ºC
	16	MAX. ΔP FOR CLOSED VALVE				21736	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				Two-party/Trunnion/Full bore (piggable)		
	22	FIRE-SAFE	STANDARD			YES	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	Forged A350 LF2 (DIN 1.0566)	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	1500# RTJ	
	25	SEAT	STANDARD TEST			A182F51 / Arguloy 1 (NOTE 2)	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A995 Gr. 4A Arguloy 1 (NOTE 2)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FC		
ACTUATOR	30	REQUIRED TORQUE						
	31	SIZE						
	32	ACTUATOR MAT.	ACTUATOR TYPE			STEEL	PNEUMATIC SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag		
	34	ACTUATING TIME				< 12 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				YES		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2" NPTF		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:

1- Internal diameter 11"
2-Arguloy 1-Nickel coating with 500 to 700 µm, with 62 Hrc minimum. Cr-1.7%, Ni-70%, Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
3- Flange surface finish not exceed 63 µin.
4- Fire tested for all components according to ISO 10497.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-503P
7- BODY SIZE: 12"
8- It shall be according to ASME B16.34 and ASME Section VIII standards.
9-Pig/Line Int. Diameter/Wall Thick: Yes/ 10.62" / 1.062"
10-Stem Material:17-4PH SS (DIN1.4548.4)
11-Seals Material / Rate: RPTFE / ISO 5208 Rate a (6).
12-Painting: valve and actuator according to I-ET-3010.78-1200-956-PPC-001 and color according to I-ET-30000.00-1200-956-PCI-001. (NOTE1: Aluminum).
13-Actuator with 1" High Flow Aír Pilot, Herion 8040025 em aço inox 316.
14-Actuator Lenght: 3840mm.
Actuator Model: RG732SR3.
15-Valve Monitor System: WESTLOCK/366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
16-Air Filter Regulator: NORGREN/ MOD: SPBR/B38444/001.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 68 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-1B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-1231018	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-1231018	ZSL-1231018
	3	ELECTRICAL CONNECTION		2x 1/2" (NPTF)	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2 A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66 / IPW-68, Exd IIC T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		FLOWSERVE	
	11	MODEL		HK35 12" 1500#	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		5832 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Internal diameter 11"
2-Arguloy 1-Nickel coating with 500 to 700 µm, with 62 Hrc minimum. Cr-1.7%, Ni-70%, Si-4%. Applied by Flame Spraying process, with siterization process in the coating after applyed.
3- Flange surface finish not exceed 63 µin.
4- Fire tested for all components according to ISO 10497.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-503P
7- BODY SIZE: 12"
8- It shall be according to ASME B16.34 and ASME Section VIII standards.
9-Pig/Line Int. Diameter/Wall Thick: Yes/ 10.62" / 1.062"
10-Stem Material:17-4PH SS (DIN1.4548.4)
11-Seals Material / Rate: RPTFE / ISO 5208 Rate a (6).
12-Painting: valve and actuator according to I-ET-3010.78-1200-956-PPC-001 and color according to I-ET-30000.00-1200-956-PCI-001. (NOTE1: Aluminum).
13-Actuator with 1" High Flow Aír Pilot, Herion 8040025 em aço inox 316.
14-Actuator Lenght: 3840mm.
Actuator Model: RG732SR3.
15-Valve Monitor System: WESTLOCK/366-I-2A-BY-N-2M06-10T-1XSO5400-0-SD-000.
16-Air Filter Regulator: NORGREN/ MOD: SPBR/B38444/001.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 69 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-01B

GENERAL	1	TAG NUMBER				SDV -5111011		
	2	SERVICE				SEA WATER LIFT PUMPS		
	3	LINE	EQUIPMENT			26"-SW-B12-009-	---	
	4	LINE SIZE	SCHEDULE		CLASS	26	10	150# RF
	5	P&ID				I-DE-3010.78-5111-944-TKP-001		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			AERATED SEA WATER	Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.		894	kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		28	ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		1466	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		58	ºC
	16	MAX. ΔP FOR CLOSED VALVE				1466	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING						
	22	FIRE-SAFE	STANDARD			YES	API 609 category B	
	23	VALVE TYPE	BODY MATERIAL			Butterfly	ASTM A995 5A	
	24	END CONNECTIONS	RATING			LUG ASME B16.47serie A	150# RF (Note 12)	
	25	SEAT	STANDARD TEST			RPTFE / INCONEL 718	ISO 10497/ monogram API	
	26	BOLTS / NUTS MATERIAL				NOTE 9		
	27	TRIM / BALL MATERIAL				ASTM A995 5A		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FC		
ACTUATOR	30	REQUIRED TORQUE						
	31	SIZE				in		
	32	ACTUATOR MAT.	ACTUATOR TYPE			CARBON STEEL	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag		
	34	ACTUATING TIME				26 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/4" NPTF		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1- Valve type: Bi-Off Set Butterfly
2- Body material :ASTM A995 5A.
3- Stem : MONEL K500
4- Test complement according to API 598.
5- Fire tested for all components according to ISO 10497.
6- Internal reference: VET-858
7- ASTMA 193 Gr. B8M CL2 / ASTM A194 Gr. 8M STRAIN HARDENED
8- BODY SIZE: 26"
9- Face to Face: API 609 catergoria B
10- Regulator Filter: ASCO P72B-02G
11- Weight Actuator: 398,5 Kg

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 70 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-5111011	0,7 Watts
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-5111011	ZSL-5111011
	3	ELECTRICAL CONNECTION		1/2" (NPTF)	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W / IP-68, Exd IIC T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		BRAY CONTROLS	
	11	MODEL		S41	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.	SAVEN	APM 41.20 FF
	18	WEIGHT		1435 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Valve type: Bi-Off Set Butterfly
2- Body material :ASTM A995 5A.
3- Stem : MONEL K500
4- Test complement according to API 598.
5- Fire tested for all components according to ISO 10497.
6- Internal reference: VET-858
7- ASTMA 193 Gr. B8M CL2 / ASTM A194 Gr. 8M STRAIN HARDENED
8- BODY SIZE: 26"
9- Face to Face: API 609 catergoria B
10- Regulator Filter: ASCO P72B-02G
11- Weight Actuator: 398,5 Kg

PETROBRAS

DATA SHEET

N° I-FD-3010.78-1200-835-TKP-461 REV. J

AREA OR UNIT PETROBRAS 58 (P-58) SHEET 71 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-01B

GENERAL	1	TAG NUMBER				SDV -5115004		
	2	SERVICE				B-5115005A/B INLET		
	3	LINE	EQUIPMENT			2"-W-B10-054-	---	
	4	LINE SIZE	SCHEDULE		CLASS	2	80	150# RF
	5	P&ID				I-DE-3010.78-5115-944-TKP-004		
	6	MODULE				N-1B		
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3		
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			FRESH WATER	Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM.	MAX.			
	12	PRESSURE	MIN.	NORM.	MAX.	174		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.	30		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.		343	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.	60	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				343	kPa	
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP	
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE		
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 3	ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	150# RF	
	25	SEAT	STANDARD TEST			PTFE reinforced w/25% carbon	ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B16 / ASTM A-194 Gr.2H Zn Ni COATED		
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15/A-564 Gr. 17-4 PH(STEM)		
	28	LEAKAGE CLASS				Tight Shut-Off		
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE		
ACTUATOR	30	REQUIRED TORQUE				147 N.m		
	31	SIZE				621 mm		
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 10	PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag		
	34	ACTUATING TIME				2 SECONDS		
	35	FAIL POSITION				Close		
	36	FIREPROOFING				NO		
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/4" NPTF		
	38	EMERGENCY ACCUMULATOR				NO		
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----		
	40	MANUAL ACTION				NO		
	41	PARTIAL OPENING TEST				NO		

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-006
7- BODY SIZE: 2"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA1H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 72 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-5115004	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-5115004	ZSL-5115004
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP2T150WCBBI + B-023U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		30,3 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-006
7- BODY SIZE: 2"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA1H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 73 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

GENERAL	1	TAG NUMBER				SDV -5125002			
	2	SERVICE				B-5115002A / B INLET			
	3	LINE	EQUIPMENT			2"-W-B10-065-	---		
	4	LINE SIZE	SCHEDULE		CLASS	2	80		150# RF
	5	P&ID				I-DE-3010.78-5115-944-TKP-004			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3010.00-0000-956-PCI-001		
PROCESS DATA	9	FLUID	STATE			FRESH WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		174		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		30		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			343	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		60	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				343	kPa		
	17	CALCULATED CV	SELECTED CV			0			
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				FLOATING (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 3	ISO 14313 (API 6D)		
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	ASTM A216 Gr.WCB		
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	150# RF		
	25	SEAT	STANDARD TEST			PTFE reinforced w/25% carbon	ISO 10497:04		
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B16 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15/A-564 Gr. 17-4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				147 N.m			
	31	SIZE				621 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 10	PISTON SPRING RETURN		
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 487 kPag			
	34	ACTUATING TIME				2 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/4" NPTF			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-006
7- BODY SIZE: 2"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA1H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 74 OF 80
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-5125002	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-5125002	ZSL-5125002
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP2T150WCBBI + B-023U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		30.3 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
3- Fire tested for all components according to ISO 10497.
4- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
6- Internal reference: VET-006
7- BODY SIZE: 2"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA1H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 75 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

GENERAL	1	TAG NUMBER				SDV -5331001			
	2	SERVICE				CI-Z-5331001A/B INLET			
	3	LINE	EQUIPMENT			6"-FG-B10-011-		---	
	4	LINE SIZE	SCHEDULE		CLASS	6			150# RF
	5	P&ID				I-DE-3010.78-5331-944-TKP-001			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 2, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE			FUEL GAS		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		1272		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		60		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			1468	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		90	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				1468	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			0.01	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary		ASTM A216 Gr.WCB	
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5		150# RF	
	25	SEAT	STANDARD TEST			PTFE reinforced w/25% carbon		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15 /A-564 Gr. 17.4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				1349 N.m			
	31	SIZE				1191.5 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 585 kPag			
	34	ACTUATING TIME				6 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-007
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 76 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-5331001	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-5331001	ZSL-5331001
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 2	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP6T150WCBBI + B-210U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		214.5 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE); automatic thermal relief device from the body and needle blocking valve, with calibration certificate; sealant injection in the seat and the stem; anti-static device.
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-007
8- BODY SIZE: 6"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS

DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
AREA OR UNIT PETROBRAS 58 (P-58)		SHEET 77 OF 80

TITLE

SHUTDOWN VALVE (SDV)

UTILITIES SHIP DECK - MODULE N-01B

GENERAL	1	TAG NUMBER				SDV -5331002			
	2	SERVICE				FL-Z-5331001A/B INLET			
	3	LINE	EQUIPMENT			16"-PCW-B11-004-PP	---		
	4	LINE SIZE	SCHEDULE		CLASS	16	10		150# RF
	5	P&ID				I-DE-3010.78-5331-944-TKP-001			
	6	MODULE				N-1B			
	7	HAZARDOUS AREA CLASSIFICATION				ZONE 1, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR			I-ET-3010.78-1200-956-PPC-001	I-ET-3000.00-1200-956-PCI-001		
PROCESS DATA	9	FLUID	STATE			PRODUCED WATER		Liquid	
	10	CRITICAL PRESSURE	CRITICAL TEMP.						
	11	FLOW	MIN.	NORM.	MAX.				
	12	PRESSURE	MIN.	NORM.	MAX.		786		kPa-g
	13	TEMPERATURE	MIN.	NORM.	MAX.		70		ºC
	14	DESIGN PRESSURE	MIN.		MÁX.			1400	kPa-g
	15	DESIGN TEMP.	MIN.		MÁX.		100	ºC	
	16	MAX. ΔP FOR CLOSED VALVE				1400	kPa		
	17	CALCULATED CV	SELECTED CV						
	18	VISCOSITY	MOLECULAR WEIGHT			1	cP		
	19	DENSITY							
	20	CP/CV	COMPRESSIBILITY						
VALVE	21	MOUNTING				TRUNNION (SPLIT-BODY) FULL BORE (piggable)			
	22	FIRE-SAFE	STANDARD			YES-SEE NOTE 4	ISO 14313 (API 6D)		
	23	VALVE TYPE	BODY MATERIAL			Ball / Rotary	A216 Gr.WCB+Inconel®625		
	24	END CONNECTIONS	RATING			FLANGE ASME B16.5	150# RF		
	25	SEAT	STANDARD TEST			PTFE reinforced w/25% carbon	ISO 10497:04		
	26	BOLTS / NUTS MATERIAL				ASTM A-193 Gr. B7 CL2 / ASTM A-194 Gr.2H Zn Ni COATED			
	27	TRIM / BALL MATERIAL				ASTM A-217 GR. CA15+INCONEL 625/A-564 Gr.17-4 PH(STEM)			
	28	LEAKAGE CLASS				Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)				FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE				6334 N.m			
	31	SIZE				1580 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE			SEE NOTE 11	PISTON SPRING RETURN		
	33	ACTUATING PRESS.	NORMAL		MIN.	1027 / 929 / 585 kPag			
	34	ACTUATING TIME				16 SECONDS			
	35	FAIL POSITION				Close			
	36	FIREPROOFING				NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION				1/2"" NPTF (WITH 1/4"" NPTF ADAPTOR)			
	38	EMERGENCY ACCUMULATOR				NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)				----			
	40	MANUAL ACTION				NO			
	41	PARTIAL OPENING TEST				NO			

NOTES:
1- Ball valve double piston effect (DPE)
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (APl6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-094
8- BODY SIZE: 16"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 78 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-5331002	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-5331002	ZSL-5331002
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 1	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP16T150WCBBI + B-1150U-S060	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		1356.8 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Ball valve double piston effect (DPE)
2- Blow out proof stem , double seal; O´ rings seal VITON (-26ºC); Lip seal PTFE+Elgiloy; bushing material DU®; spring seat INCONEL® X750, drain / vent plug in cavity.
3- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR +/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing.
Low pressure test shall be executed after three complete action (total stroke).
4- Fire tested for all components according to ISO 10497.
5- Flange surface finishing 125 µin- 250 µin according MSS-SP-6.
6-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A".
7- Internal reference: VET-094
8- BODY SIZE: 16"
9-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
10-Regulator Filter NORGREN ,mod. YR2ACA3H1BS040.
11- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 79 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

GENERAL	1	TAG NUMBER			SDV -5412011			
	2	SERVICE			Z-5412001 OUTLET			
	3	LINE	EQUIPMENT		3"-PC-BX16-098-		---	
	4	LINE SIZE	SCHEDULE	CLASS	3		10S	150# RF
	5	P&ID			I-DE-3010.78-5412-944-TKP-004			
	6	MODULE			N-1B			
	7	HAZARDOUS AREA CLASSIFICATION			ZONE 2, IP-56, Exd IIA T3			
	8	PAINTING PROC.	COLOR		I-ET-3010.78-1200-956-PPC-001		I-ET-3000.00-1200-956-PCI-001	
PROCESS DATA	9	FLUID	STATE		CORROSIVE HYDROCARBON		Gas/Vapor	
	10	CRITICAL PRESSURE	CRITICAL TEMP.					
	11	FLOW	MIN.	NORM. MAX.				
	12	PRESSURE	MIN.	NORM. MAX.		880		kPa-g
	13	TEMPERATURE	MIN.	NORM. MAX.		64		ºC
	14	DESIGN PRESSURE	MIN.	MÁX.			1655	kPa-g
	15	DESIGN TEMP.	MIN.	MÁX.		95	ºC	
	16	MAX. ΔP FOR CLOSED VALVE			1655	kPa		
	17	CALCULATED CV	SELECTED CV					
	18	VISCOSITY	MOLECULAR WEIGHT		0.01	cP		
	19	DENSITY						
	20	CP/CV	COMPRESSIBILITY					
VALVE	21	MOUNTING			TRUNNION (SPLIT-BODY) FULL BORE			
	22	FIRE-SAFE	STANDARD		YES-SEE NOTE 4		ISO 14313 (API 6D)	
	23	VALVE TYPE	BODY MATERIAL		Ball / Rotary		ASTM A995 Gr4A UNS J92205	
	24	END CONNECTIONS	RATING		FLANGE ASME B16.5		150# RF	
	25	SEAT	STANDARD TEST		PTFE reinforced w/25%carbon		ISO 10497:04	
	26	BOLTS / NUTS MATERIAL			ASTM A-193 Gr. B 8M CL2 / ASTM A-194 Gr.8M			
	27	TRIM / BALL MATERIAL			ASTM A-995 GR. 4A /A-564 Gr. 17-4 PH(STEM)			
	28	LEAKAGE CLASS			Tight Shut-Off			
	29	OPERATION (FAIL OPEN OR FAIL CLOSE)			FAIL CLOSE			
ACTUATOR	30	REQUIRED TORQUE			295 N.m			
	31	SIZE			640 mm			
	32	ACTUATOR MAT.	ACTUATOR TYPE		SEE NOTE 10		PISTON SPRING RETURN	
	33	ACTUATING PRESS.	NORMAL	MIN.	1027 / 929 / 585 kPag			
	34	ACTUATING TIME			3 SECONDS			
	35	FAIL POSITION			Close			
	36	FIREPROOFING			NO			
	37	PNEUMATIC / HYDRAULIC CONNECTION			1/4" NPTF			
	38	EMERGENCY ACCUMULATOR			NO			
	39	ACCUMULATOR: MATERIAL/CAPACITY (VOL.)			----			
	40	MANUAL ACTION			NO			
	41	PARTIAL OPENING TEST			NO			

NOTES:
1- Blow out proof stem , double seal; O´rings seal VITON A; lip seal PTFE+ELGILOY; bushing DU®; spring seat INCONEL® X750, combined drain and vent.; locking device; anti-static device.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR =/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing, anti-static device. Low pressure test shall be executed after three complete action (total stroke).
3-Fire tested for all components according to ISO 10497.
4-Flange surface finishing serrated 125 µin-250 µin.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A"..
6- Internal reference: VET-043A
7- BODY SIZE: 3"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA1H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.

PETROBRAS	DATA SHEET	N° I-FD-3010.78-1200-835-TKP-461	REV. J
	AREA OR UNIT PETROBRAS 58 (P-58)	SHEET 80 OF 80	
	TITLE **SHUTDOWN VALVE (SDV)** **UTILITIES SHIP DECK - MODULE N-01B**		

SOLENOID VALVE / POSITION INDICATOR	1	SOLENOID VALVE	CONSUMPTION	SDY-5412011	0.7 W
	2	LIMIT SWITCH OPENED	LIMIT SWITCH CLOSED	ZSH-5412011	ZSL-5412011
	3	ELECTRICAL CONNECTION		2x 3/2"NPTF TO 1/2" NPTF	
	4	CONTACT TYPE	CONTACT FORM	micro-switch/hermetically sealed	1 spdt (quantity 2)
	5	AREA		ZONE 2	
	6	VOLTAGE	CURRENT	24 VDC	2A
	7	ENCLOSURE CLASSIFICATION (IEC 60079)		IP-66W/ IP68, Exd IIB+H2 T6	
	8	MOUNTING		LOCAL	
	9	CABLE GLAND		YES (AISI 316)	
PURCHASE REFERENCE	10	MANUFACTURER		LUPATECH + MORIN	
	11	MODEL		ESP3T1504ABI + B-046U-S070	
	12	PURCHASE ORDER NUMBER			
	13	PRICE	ITEM NUMBER		
	14	SERIAL NUMBER			
	15	MANUFACTURER REFERENCE			
	16	MODEL REFERENCE			
	17	ACTUATOR VENDOR	ACT. SERIAL NUMB.		
	18	WEIGHT		39.3 Kg	
	19	MATERIAL CODE			
	20	FORM CODE		1611	

NOTES:
1- Blow out proof stem , double seal; O´rings seal VITON A; lip seal PTFE+ELGILOY; bushing DU®; spring seat INCONEL® X750, combined drain and vent.; locking device; anti-static device.
2- Test complement according to ISO 14313 (API6D) low pressure gas saet testing between 0,5 BAR and 1,0 bar using air or nitrogen as the test medium; low-pressure gas seat testing of 5,5 BAR =/- 0.7 BAR using air or nitrogen as the test medium; anti-static testing; torque / trust functional testing; cavity relief testing, anti-static device.
Low pressure test shall be executed after three complete action (total stroke).
3-Fire tested for all components according to ISO 10497.
4-Flange surface finishing serrated 125 µin-250 µin.
5-Tightness acceptance criterium of zero leakage in both seat shall be according to ISO 5208, "rate A"..
6- Internal reference: VET-043A
7- BODY SIZE: 3"
8-Valve Monitor system WESTLOCK, 366-I-2A-BY-N-2M06-10T-1XSO532S-0-SD-00-000.
9-Regulator Filter NORGREN ,mod. YR2ACA1H1BS040.
10- Actuador Material :316 STEEL/DUCTILE IRON A395.