Base Load Power Hub (BLPH)

SHAFT SEAL DRAWING AND BILLS OF MATERIAL
(INCLUDING FLUSHING PLAN 51)
For Sea Water Lift Progressive Cavity Pumps (P-50001 A/B)

Document Number: 1724000936-MAC-DD-00007

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
	18-10-2024

Document Class: 3

Rev.	Date	Description	Prepared	Reviewed	Approved
03	17/10/2024	Issue for Information (IFI)	APD	GLL	AHN
02	05/09/2024	Issue for Information (IFI)	APD	GLL	AHN
01	06/08/2024	Issue for Information (IFI)	APD	GLL	AHN
00	18/07/2024	Issue for Information (IFI)	APD	GLL	AHN

PCM | keep it moving

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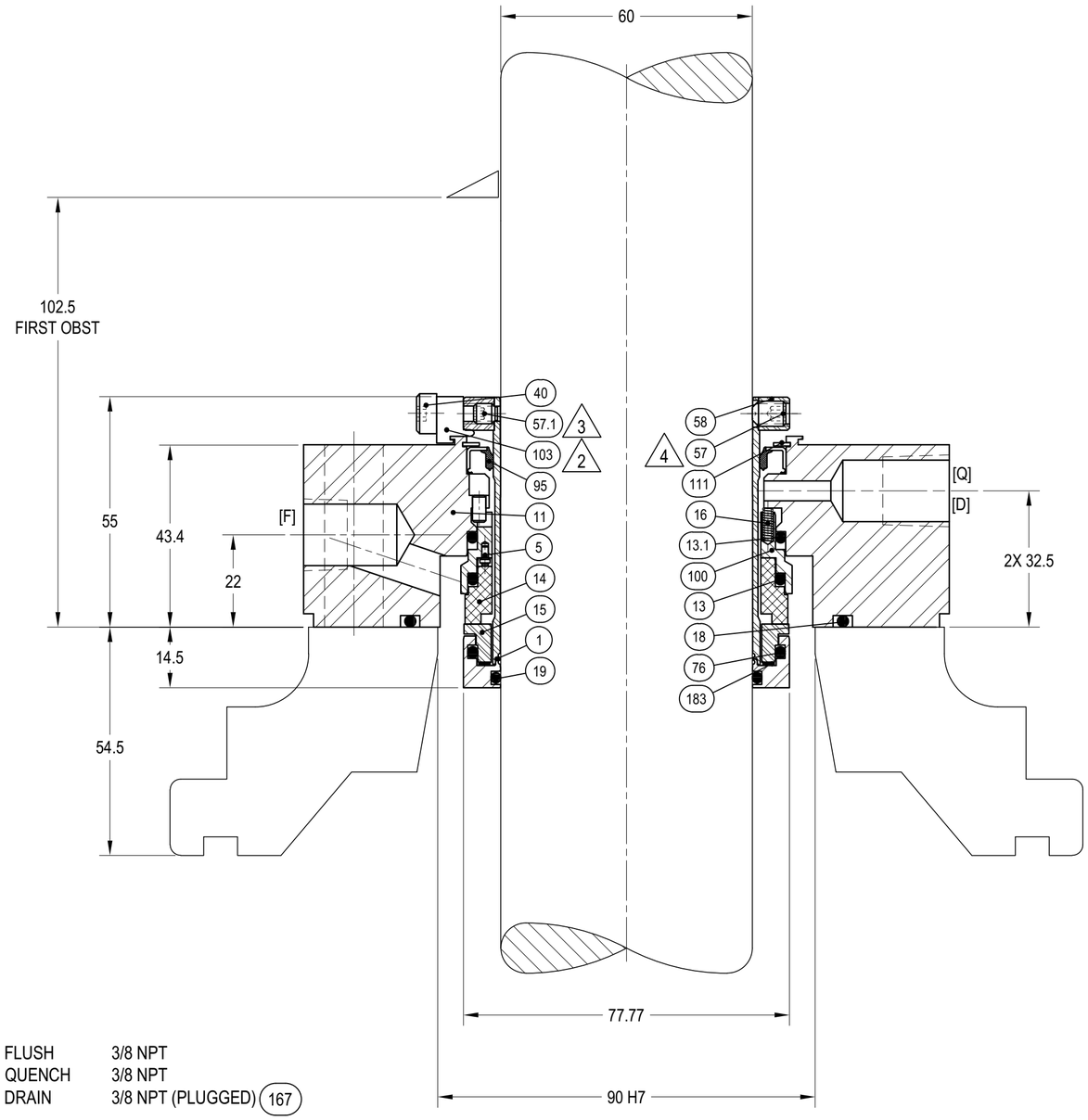
Revision / Change Log

Rev.	Description
00	Issue for Information (IFI)
01	Issue for Information (IFI)
02	Issue for Information (IFI)
03	Issue for Information (IFI)

HOLDS LIST

No.	Description
1	
2	
3	
4	

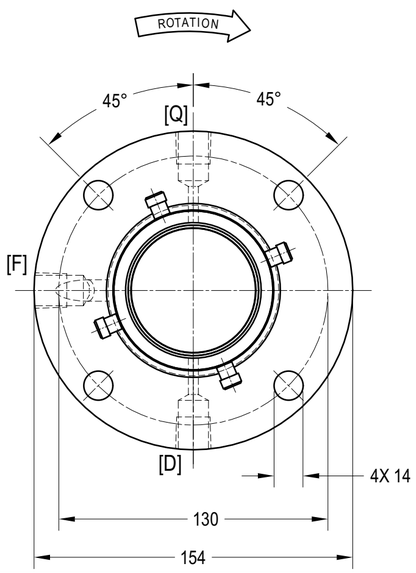
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[F] FLUSH 3/8 NPT
[Q] QUENCH 3/8 NPT
[D] DRAIN 3/8 NPT (PLUGGED) (167)

NOTES:

1. FOR INSTALLATION AND OPERATING INSTRUCTIONS SEE APPROPRIATE FLOWSERVE INSTALLATION SHEET (FIS).
2. REMOVE SETTING DEVICES (#103) BEFORE START-UP.
3. DO NOT TORQUE DOG POINT SET SCREWS (#10-24).
4. TIGHTEN(M6) SETSCREWS EQUALLY, CROSSWISE, IN 4 STEPS. FINAL TORQUE: 8.5 Nm.
5. PARTS #1 & #11 MUST BE SUPPLIED WITH 3.1 CERTS.



BILL OF MATERIAL NO: C100033781

SPARE PARTS: [1] STARTUP [2] 2 YEAR [3] CAPITAL/CRITICAL

NO	PART CODE	QTY	DESCRIPTION	MATERIAL	
1	C100036102	1	SLEEVE, SEAL	DUPLEX 255	
5	C0012107NL	3	PIN, BUTTON-HEAD	ALLOY C-276	1
11	C100036104	1	GLAND, SEAL	DUPLEX 255	
13	568149GU	1	O-RING, OTHER	FLUOROELASTOMER (FKM)	1
13.1	568149GU	1	O-RING, OTHER	FLUOROELASTOMER (FKM)	1
14	C0011933KR3	1	FACE, SEAL	CARBON-GRAPHITE, RESIN IMPREGNATED	1
15	K23C2375C33	1	FACE, SEAL	DIRECT SINTERED SILICON CARBIDE	1
16	MIAX88403CM	18	SPRING, COIL	ALLOY C-276	1
18	568242GU	1	O-RING, OTHER	FLUOROELASTOMER (FKM)	1
19	568142GU	1	O-RING, OTHER	FLUOROELASTOMER (FKM)	1
40	C0032674CK	4	SCREW, CAP	18-8	1
57	4N01857X902	4	SCREW, SET	17-4 PH COND H900	1
57.1	MLA36788233	2	SCREW, SET	ALLOY C-276	1
58	C100036236	1	DRIVE COLLAR, STYLE 2	DUPLEX 2205	
76	568149GU	1	O-RING, OTHER	FLUOROELASTOMER (FKM)	1
95	MNAX9078470	1	SEAL, LIP	MULTIPLE MATERIAL	1
100	C0011995ZB	1	SUPPORT, FACE	DUPLEX 255	1
103	C0012106CK	4	SETTING DEVICE, NOTCH	18-8	1
111	UR300CK	1	RING, SNAP	18-8	1
167	4R3000X953	1	END FITTING, PIPE	ASME SA-479 TYPE 316/316L	
183	C0012057QF	1	GASKET, FLAT	FLEXIBLE GRAPHITE	1

API PLAN 13

RECIRCULATION FROM SEAL THROUGH FLOW CONTROL ORIFICE TO PUMP SUCTION.

1. MAINTAIN VAPOR PRESSURE MARGIN NOT LESS THAN 3.5 BAR [50 PSI]. IF NOT POSSIBLE, MAINTAIN SEAL CHAMBER PRESSURE NOT LESS THAN 30% ABOVE VAPOR PRESSURE AT PUMPING TEMPERATURE.
2. ORIFICE DIAMETER Ø 3.0 MM [.118 INCH].

FLUSH RATE: 9 LPM [3.4 GPM]

PIPING REQUIREMENTS

API PLAN 51

EXTERNAL RESERVOIR PROVIDING DEAD-ENDED BLANKET TO QUENCH CONNECTION OF GLAND.

PIPING REQUIREMENTS

OPERATING DATA	
PRODUCT: SEA WATER, FEW PARTICLES	RPM (MIN): 118
TEMP: 25.0 °C Max	SUCTION PRES: 0 barG Max
SEAL CHAMBER PRES: 5.9 barG Max	DISCHARGE PRES: 5.9 barG Max
VISCOSITY: 0.9 cP Max	API PLAN: 13/51
CUSTOMER DATA	ULTIMATE USER: CROSSWIND (JV SHELL + ENECO)
CUSTOMER: PCM MANUFACTURING FRANCE SAS	ADDRESS: THE NETHERLANDS
ADDRESS: CHAMPTOCE-SUR-LOIRE FRANCE	CUSTOMER P.O.: PO070-24-07869
SEAL DATA	EQUIP MODEL: 60
MATL CODE: DZ4T	EQUIP DRAWING: W-004921 REVB
EQUIP MFG: PCM MANUFACTURING FRANCE SAS	INSTR: FIS 190
GENERAL DATA	REF DWG: D0110893

JOB NUMBER 400370175-000100

DRWN: AjSr
DATE: 03-Sep-2024
CHKD: MuMa
DATE: 04-Sep-2024
APVD: MuMa
DATE: 04-Sep-2024

FLOWSERVE AMSS Seals & Systems

DRAWING TITLE

MECHANICAL SEAL - ASSEMBLY

ISC2-PX - 60MM

ALL DIMENSIONS ARE REFERENCE UNLESS OTHERWISE SPECIFIED

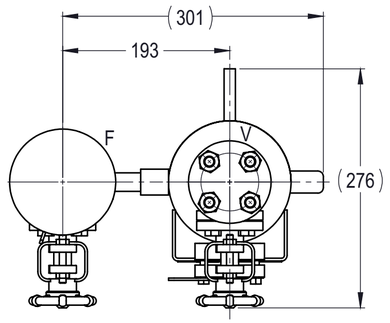
3rd ANGLE

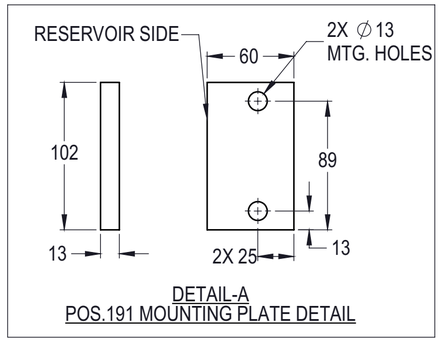
SIZE	DRAWING NUMBER	REV.
A2	F001604380	0

SCALE: TO SCALE UNITS: mm SHEET: 1 OF: 1

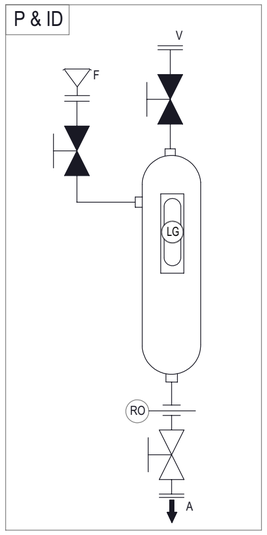
REV.	CHG NO.	DATE	REVD	CHKD	APVD
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	DESC: ----				

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DETAIL-A
POS.191 MOUNTING PLATE DETAIL



DESIGN CONDITIONS

		UNIT
QUENCH FLUID	WATER	
DESIGN PRESSURE	12	BARG
DESIGN TEMPERATURE	-10 TO 93	°C
OPERATING PRESSURE	ATMOSPHERIC	BARG
OPERATING TEMPERATURE	MAX.80	°C
DESIGN CODE (VESSEL)	ASME VIII DIV 1	
DESIGN CODE (PIPING)	ASME B31.3	
EC DIRECTIVE	PED 2014/68/EU	
PED CATEGORY	SEP	
TOTAL VOLUME	7	LITER
VOLUME AT NLL	5	LITER
WEIGHT EMPTY	~40	KG

N.D. TESTING / INSPECTION

HYDROTEST PRESSURE	18	BARG
RADIOGRAPHY	NONE	
DYE-PENETRANT	100%	
MATERIAL CERTIFICATES	REFER NOTE 3	
INSPECTION	FLOWSERVE	

WELDING

WPS & PQR IN ACCORDANCE WITH ASME IX.

REMARKS

STAINLESS STEEL SURFACES SHALL NOT BE PAINTED.
CLEANING IN ACCORDANCE WITH RSD-SP-ENG-089E.
BOLTHOLES STRADDLE TO CENTERLINE.
STAINLESS STEEL WELDS TO BE PICKLED & PASSIVATED OR GLASS-PEARL CLEANED.
DO NOT USE TEFLON TAPE, BUT USE LOCTITE 577.

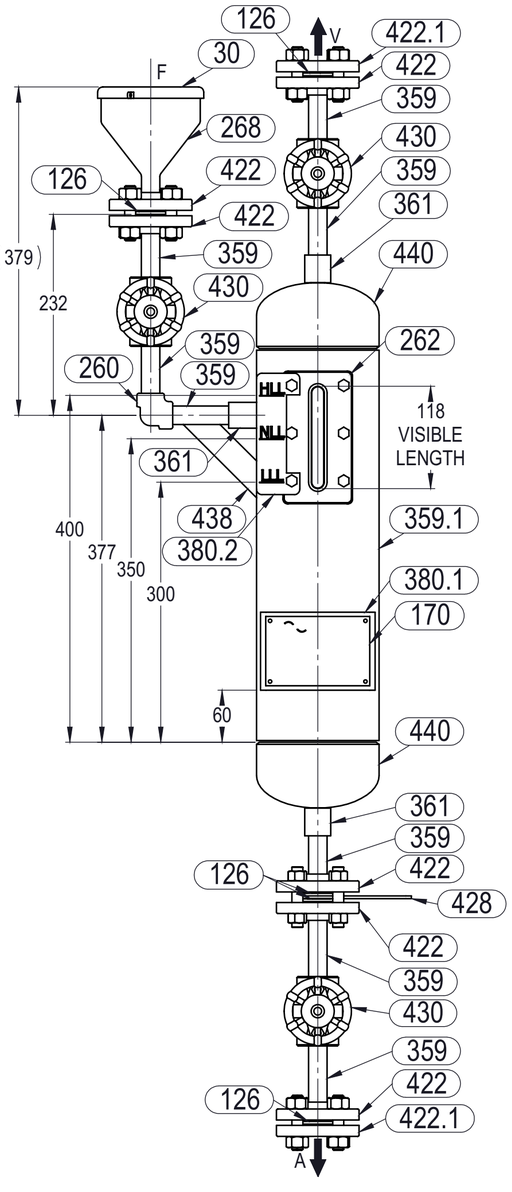
CONNECTIONS

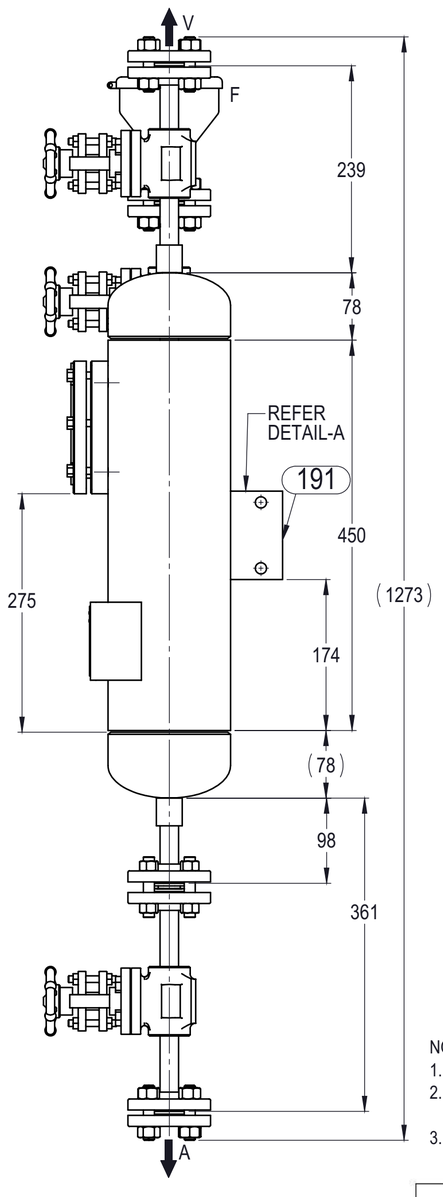
NO.	NAME	SIZE
A	TO SEAL	1/2 IN 300# RF + BLIND
F	FILLING	4 IN FUNNEL
V	VENT	1/2 IN 300# RF + BLIND

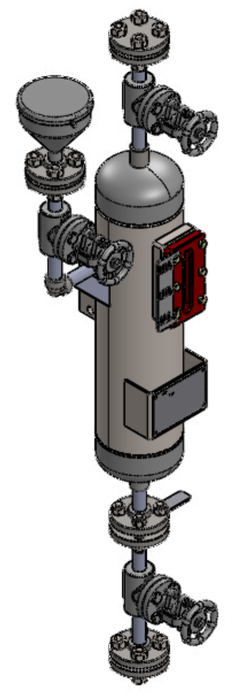
BILL OF MATERIAL NO: C100033782

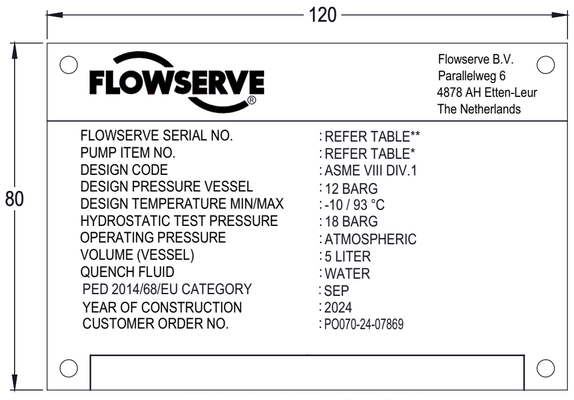
SPARE PARTS: [1] STARTUP [2] 2 YEAR [3] CAPITAL/CRITICAL

NO	PART CODE	QTY	DESCRIPTION	MATERIAL
30	C0538533ZZ-Q2	1	CAP, OTHER - DUST, 4 IN WITH CHAIN	GRADE 316/316L
126	C0111934ZZ	5	GASKET, SPIRAL WOUND -CL 300, 1/2 IN, SPIRAL WOUND	STAINLESS STEEL 316 + GRAPHITE
170	C100032896	1	PLATE, NAME - FOR AUXILIARY PLAN 51	316
191	C0243841ZZ-Q1	1	PLATE, MOUNTING - 102 X 60X 13 MM THK.	316
260	C0216202X941	1	ELBOW FITTING, PIPE - 1/2 IN, SOCKET WELD, CL 3000, 90 DEG	ASME SA-182 GRADE F316/F316L
262	C0560271ZZ	1	INDICATOR, LEVEL - GAUGE, WELD ON TYPE, VISIBLE LENGTH : 118 MM, BOROSILICATE GLASS	GRADE 316/316L
268	C0405667X941	1	STRAIGHT FITTING, PIPE - SWAGE, 4 IN X 1/2 IN, SCH 40, PBE, SMLS	ASME SA-182 GRADE F316/F316L
359	C0063392X951	1	PIPE, OTHER - SCH.80, 1/2 IN, SEAMLESS, PLAIN BOTH END	ASME SA-312 GRADE TP316/316L
359.1	C0172048X951	1	PIPE, OTHER - 5 IN X 450 MM LG, SCH 40, SMLS, BBE	ASME SA-312 GRADE TP316/316L
361	C0215993X941	3	STRAIGHT FITTING, PIPE - HALF COUPLING, 1/2 IN SW, CL. 3000	ASME SA-182 GRADE F316/F316L
380	4R124140ZZ-Q1	2	PLATE, NAME - FOR INSTRUMENT	ASME SA-240 GRADE 316/316L
380.1	C0234657ZZ-Q1	1	PLATE, NAME - BRACKET FOR NAMEPLATE	316
380.2	C0538973ZZ-Q2	1	PLATE, NAME - FOR LEVEL INDICATION, SIZE 2	316
422	C0362295X941	6	FLANGE, PIPE - 1/2 IN, CL 300, RFSW	ASME SA-182 GRADE F316/F316L
422.1	C0363170X941	2	FLANGE, PIPE - BLIND 1/2 IN CL 300	ASME SA-182 GRADE F316/F316L
428	C0095396ZZ	1	PLATE, ORIFICE - 1/2 IN, CL 300, 3.2 MM ORIFICE	316
430	C0369816ZZ	3	VALVE, GATE CL 800,1/2 IN SOCKET WELD,SCH 80,BOLTED BONNET,REDUCED BORE	316
438	C0493357X944-Q2	1	GUSSET, OTHER - 6 MM THK X 30 MM WIDE	ASME SA-240 GRADE 316/316L
440	C0489371X947	2	HEAD, RESERVOIR - CAP, 5 IN BUTT WELD, SCH 40	ASME SA-403 GRADE WP316/316L

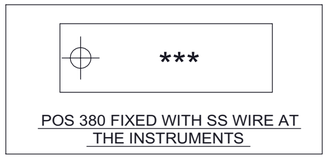








POS.170 NAMEPLATE DETAIL
(SCALE: NTS)



POS 380 FIXED WITH SS WIRE AT THE INSTRUMENTS

NOTES:
1. ALL VALUES IN () ARE REFERENCE DIMENSIONS.
2. CARBON STEEL STUDS(ASME SA-193 GR B7) & NUTS(ASME SA 194 GR 2H) WITH HOT-DIP GALVANIZED. ALL MISCELLANEOUS FASTENERS MUST BE 316 SS.
3. MATERIAL CERTIFICATE OF ALL PRESSURE CONTAINING PARTS (PIPES/FLANGES/PIPE FITTINGS) REQUIRES EN 10204 3.1. EN 10204 2.2 FOR NON-PRESSURE CONTAINING PARTS.

* PUMP ITEM NO.	** FLOSERVE SERIAL NO.	*** INSTRUMENT TAG NUMBER					
		LG	RO	FUNNEL VALVE	VENT VALVE	OUTLET VALVE	SEAL POT
50001 A	400370175-000200-001	50-LG-001	50-RO-003	BLPH-MV-503	BLPH-MV-503	BLPH-MV-503	V-50000 A
50001B	400370175-000200-002	50-LG-002	50-RO-004	BLPH-MV-503	BLPH-MV-503	BLPH-MV-503	V-50000 B

DIM TOLERANCES (UNLESS SPECIFIED)
X. = ± 5 ANGLE = ± 0.5°
X.X = ± 2.5

ALL DIMENSIONS ARE REFERENCES UNLESS OTHERWISE SPECIFIED

OPERATING DATA
PRODUCT: SEA WATER
SEAL CHAMBER PRES: 5.9 barG Max
BARRIER FLUID: WATER
DISCHARGE PRES: 5.9 barG Max
API PLAN: 13/51

CUSTOMER DATA
CUSTOMER: PCM MANUFACTURING FRANCE SAS
ADDRESS: CHAMPTOCE-SUR-LOIRE FRANCE
ULTIMATE USER: CROSSWIND (JV SHELL + ENECO)
ADDRESS: THE NETHERLANDS
CUSTOMER P.O.: PO070-24-07869

SEAL DATA
MATL CODE: ----

0	00210008	21-Aug-2024	HaMa	LoSh	HaSc
	DESC: RELEASE TO MANUFACTURE				
REV.	CHG NO.	DATE	REVD	CHKD	APVD

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JOB NUMBER	400370175-000200
DRWN	LoSh
DATE	23-Jul-2024
CHKD	LoSh
DATE	23-Jul-2024
APVD	HaSc
DATE	24-Jul-2024
3D MODEL NO. / REV.	F001614989 / 0
≈ WEIGHT ( )	64.95 lb (29 kg)

FLOWSERVE AMSS Seals & Systems

DRAWING TITLE
SEAL SYSTEM - GENERAL ARRANGEMENT
PLAN 51 -

SIZE	DRAWING NUMBER	REV.
A2	F001615657	0

3rd ANGLE

SCALE: 1:1 | DIM. UNITS: mm | SHEET: 1 OF: 1

Part of 1