 TORUS	· Owner PR-101 INLET PIG RECEIVER MECHANICAL DATASHEET	Document No.	MEC-DS-002		
		Revision / Date	A · September 29, 2026		
		Issue purpose	Issued for Review		
MECHANICAL · PR-101 INLET PIG RECEIVER MECHANICAL DATASHEET					
Rev.	Date	Revision description	Prepared	Reviewed	Approved
A	2026-09-29	Issued for Review			

NOTES

1. This sheet defines inlet pig receiver PR-101 for purchase. Sizing and checks are in  MEC-CAL-007, Pig Receiver PR-101 Sizing and Closure Safety. The arrangement is shown on  PIP-DWG-005 and the P&ID on  PRO-DWG-101.
2. Values marked typical are budgetary. The vendor shall confirm them with its proposal and final data (HOLD H-15).
3. Tool lengths and the pigging program are assumed pending the Owner's program (HOLD H-16).
4. Units are US customary. Pressures are gauge. Station X is the plot plan coordinate in feet; the closure outer face is at X = 24.0.
5. PR-101 is included in field hydrotest section TS-01A ( MEC-CAL-003), which sets its shop test pressure.

GENERAL

Table 1: General Data

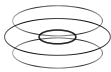
Item	Value	Item	Value
Tag	PR-101	Quantity	1
Service	Inlet pig receiver on the Owner's NPS 12 upstream lateral; dry sweet natural gas (7 lb/MMscf water, 4 ppmv hydrogen sulfide maximum) with occasional pigged liquids and solids	Configuration	Horizontal, NPS 12 line x NPS 16 barrel, quick-actuating closure at the west end, barrel centerline about 2.8 ft above grade
Design code	ASME BPVC Section VIII Division 1 (2023), U-stamped and National Board registered; closure to UG-35.2	Piping interface	Line 12"-G-1001-A6 at N2; ASME B31.8 station piping, Class 3 location test (49 CFR 192.505(b))
Scope of supply	Barrel from closure to the N2 weld neck flange, closure with pressure warning device and interlock hardware, saddles, nozzles, nameplate, receiving tray, lifting lugs, shop coating	Not in scope	Trap valve HV-101B, kicker valve HV-101C and all line valves, which are station piping ( MEC-LST-003)
Pigs and tools	Bi-directional pig 1.67 ft; foam or brush pig 2.0 ft; gauge pig 1.75 ft; geometry tool 5.5 ft; MFL in-line inspection tool 9.0 ft (HOLD H-16)	Location	Plot plan  MEC-DWG-001; barrel east-west, closure at X = 24.0

DESIGN DATA

Table 2: Design Data

Item	Value	Item	Value
Design pressure	1,440 psig at -20 to 133 °F; 1,420 psig at 150 °F (Class 600 flange and closure rating)	External pressure	Not required; vendor to state the vacuum rating of the barrel
Design temperature	150 °F maximum	Minimum design metal temperature	-20 °F at 1,440 psig; impact-tested materials, UCS-66 exemption not relied on
Operating pressure	900 to 1,150 psig	Operating temperature	45 to 120 °F
Corrosion allowance	1/16 in	Joint efficiency	1.0; SMLS pipe, full radiography of butt welds
Postweld heat treatment	Not required by UCS-56 for the 0.844 in P-No. 1 wall; vendor to confirm for the closure hub	Overpressure protection	PSV-101 on the inlet section ( PRO-CAL-007) under UG-150 and Section XIII; barrel not left isolated under pressure



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		Revision / Date	A · September 29, 2026
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MECHANICAL · PR-101 INLET PIG RECEIVER MECHANICAL DATASHEET			
Item	Value	Item	Value
Shop hydrotest	2,225 psig, closure installed and locked, 1 h minimum	Wind and seismic	108 mph Exposure C; Seismic Design Category B (GEN-DB-001)
Pig arrival load	Horizontal load at the fixed saddle equal to twice the ILI tool weight, along the barrel axis (typical, HOLD H-16)	Nozzle loads	Vendor to accept the loads in MEC-CAL-004

The shop test of 2,225 psig is above the UG-99(b) minimum of $1.3 \times 1,440 = 1,872$ psig. It is specified so that PR-101 can be included in the station field test, which reaches about 2,195 psig at the receiver. At 2,225 psig the barrel membrane stress is 66 % of yield.

DIMENSIONS AND MATERIALS

Table 3: Barrel and Closure

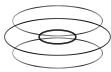
Item	Value
Major barrel	NPS 16 Sch 80 (0.844 in), SA-333 Gr 6 SMLS, 15.00 ft from the closure hub weld to the reducer
Required wall	0.714 in including corrosion allowance (Appendix 1-1); 0.738 in provided after 12.5 % mill tolerance; MAWP of the wall 1,495 psig
Reducer	NPS 16 x 12 eccentric, flat on bottom, SA-420 WPL6, Sch 80 x Sch 80, ASME B16.9, 14 in long
Minor barrel	NPS 12 Sch 80 (0.688 in), SA-333 Gr 6 SMLS, 3.88 ft; 0.582 in required, 0.602 in provided
Closure	16 in Class 600 quick-actuating closure (yoke, clamp ring or threaded ring), SA-350 LF2 Cl 1 or SA-352 LCC, hinged on the north side, with integral pressure warning device; about 1,650 lb (typical)
Kicker connection	ASME B16.9 NPS 16 x 8 reducing tee, SA-420 WPL6, Sch 80 run x XS branch, with 3 guide bars (1/2 x 1-1/2 in SA-516-70 flat bar, welded both ends, flush with the barrel bore). A set-on Sch 80 nozzle does not meet UG-37 and is not acceptable. A forged integrally reinforced nozzle is acceptable only with the full 7.625 in bore and a vendor UG-37 calculation
Nozzle necks	NPS 2 and NPS 1: SA-333 Gr 6 Sch 160 or SA-350 LF2 Cl 1 long weld necks
Flanges	SA-350 LF2 Cl 1, ASME B16.5 Class 600 RF weld neck, bored to match
Saddles	2, SA-516-70 or A36, 120° wrap with SA-516-70 wear plate; fixed at X = 37.5, sliding at X = 28.0 (slotted holes, PTFE slide plate)
Slope	Major barrel slopes 1:100 down toward the closure
Overall length	21.83 ft from the closure outer face to the N2 flange face
Internals	None; removable stainless receiving tray at the closure

NOZZLE SCHEDULE

Table 4: Nozzle Schedule

Mark	Size	Rating and facing	Service	X (from closure), ft	Orientation	Connects to
N1	16 in	Class 600 closure	Quick-actuating closure with pressure warning device	24.00 (0.00)	End, west	Receiving tray
N2	12 in	Class 600 RF WN	Barrel inlet, pig and gas from the lateral	45.83 (21.83)	End, east	HV-101B, 12"-G-1001-A6
N3	8 in	Class 600 RF, tee branch	Kicker, barrel gas outlet	39.00 (15.00)	Top	HV-101C, 8"-G-1101-A6
N4	2 in	Class 600 RF LWN	Drain	26.50 (2.50)	Bottom	HV-101E, HV-101F, 2"-L-1061



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					Revision / Date	A · September 29, 2026
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MECHANICAL · PR-101 INLET PIG RECEIVER MECHANICAL DATASHEET						
Mark	Size	Rating and facing	Service	X (from closure), ft	Orientation	Connects to
N5	2 in	Class 600 RF LWN	Barrel vent and blowdown	30.00 (6.00)	Top	BDV-102, RO-102 (3/16 in), 2"-V-1075-S1
N6	2 in	Class 600 RF LWN	Equalizing and pressurizing	44.00 (20.00)	South side, minor barrel	HV-101D, 2"-G-1102-A6
N7	2 in	Class 600 RF LWN	Pig signaler XI-102, intrusive, bi-directional	43.00 (19.00)	Top, minor barrel	XI-102
N8	1 in	Class 600 RF LWN	Pressure gauge PI-102 with block and bleed manifold and 0 to 30 psig gauge	28.00 (4.00)	Top	PI-102
N9	Integral	Vendor	Pressure warning device in the closure locking mechanism	24.00	Closure	Vents to the operator's side

Note 1: Nozzle projection 8 in from the barrel outside diameter to the flange face unless the vendor shows otherwise (typical).

CLOSURE SAFETY

Table 5: Closure Safety Requirements

Item	Requirement
Holding elements	Fully engaged before pressure can build; the closure cannot be released while the holding elements carry load (UG-35.2)
Pressure warning device	Integral with the locking mechanism; must be opened before the lock can move; vents residual pressure audibly
Key interlock I-08	Trapped-key type, vendor supplied: HV-101B locked closed releases key A; key A permits BDV-102 and HV-101E to open; BDV-102 locked open releases key B; key B alone unlocks the closure. Reverse sequence to return to service
Gauges	PI-102 (0 to 2,000 psig) and a 0 to 30 psig gauge, readable from the operator position south of the closure
Warning plate	"Do not open under pressure. Vent through BDV-102 and confirm 0 psig on PI-102 before operating the pressure warning device."
Blowdown	Through BDV-102 and RO-102 (3/16 in bore, Class 600 x Class 150 orifice flanges, stainless downstream): about 15 min from 1,150 to 5 psig ( MEC-CAL-007,  PRO-CAL-008)
Hazard values for the operating sign	Closure thrust about 800 lbf at 5 psig; stored gas energy at 1,150 psig about 1.9 kg TNT equivalent ( MEC-CAL-007)

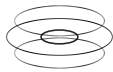
WEIGHTS

Table 6: Weights and Saddle Reactions

Condition	Weight, lb	Saddle at X 28.0, lb	Saddle at X 37.5, lb
Empty	5,457	2,921	2,536
Operating, gas at 1,440 psig	5,588	2,970	2,619
Hydrotest, full of water	6,674	3,369	3,304

Note 1: Barrel internal volume 19.5 ft³ (146 gal).



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INSPECTION, TESTING AND DOCUMENTS

Table 7: Inspection, Testing and Documents

Item	Requirement
Materials	Mill test reports to EN 10204 3.1; impact tests at -50 °F for SA-333 Gr 6, SA-350 LF2 and SA-420 WPL6
Nondestructive examination	100 % radiography of butt welds; 100 % magnetic particle examination of nozzle, tee and saddle attachment welds; ultrasonic examination of the closure hub weld
Positive material identification	All pressure parts ( PIP-SPC-001)
Shop tests, witnessed by the Owner	Hydrotest at 2,225 psig; three full closure open and close cycles; pressure warning device test; interlock function test
Bore check	A gauge plate of 95 % of the NPS 12 Sch 80 bore shall pass from N2 through the reducer into the barrel
Coating	External three-coat system per  SPC-SPC-010; internal bare, dry and capped; nozzles blinded for shipment with nitrogen or vapor corrosion inhibitor
Documents	General arrangement and nozzle drawings for approval; ASME calculations (UG-27, UG-35.2, tee rating, saddles); U-1A data report; closure operating manual; interlock sequence drawing; weights and center of gravity

OPEN ITEMS

Table 8: Open Items

No.	Item	Hold	By
1	Pig and ILI tool lengths and pigging frequency	H-16	Owner
2	Upstream lateral MAOP not exceeding 1,440 psig	H-16	Owner
3	Closure type, weight, hinge side and interlock hardware	H-15	Vendor

