 TORUS	· Owner PROCESS DATASHEET, RESTRICTION ORIFICES AND PSV-141B	Document No.	PRO-DS-013		
		Revision / Date	A · September 29, 2026		
		Issue purpose	Issued for Review		
PROCESS · PROCESS DATASHEET, RESTRICTION ORIFICES AND PSV-141B					
Rev.	Date	Revision description	Prepared	Reviewed	Approved
A	2026-09-29	Issued for Review			

BLOWDOWN AND VENT ORIFICES

Tag	Service	Line	Bore, in	Upstream state	Peak flow, lb/h	Time to 50 psig, min
RO-181	Inlet section blowdown	4"-V-1072-S1	9/16	1,150 psig, 45 °F	16,900	24
RO-182	Meter and heater section	4"-V-1073-S1	9/16	1,145 psig, 45 °F	16,800	20
RO-183	Outlet section	2"-V-1074-S1	3/16	1,150 psig, 44 °F	1,880	12
RO-172B	Outlet lateral, via HV-172A	2"-V-1170-S1	3/8	1,200 psig, 45 °F	7,890	17
RO-102	PR-101 barrel vent	2"-V-1075-S1	3/16	1,150 psig, 45 °F	1,870	11

FLOW-LIMITING ORIFICES

Tag	Service	Bore, in	Design flow	Limiting case
RO-104	V-101 liquid dump, downstream of LCV-104	7/16	30 gpm liquid, flashing	LCV-104 failed open: 8,000 lb/h (131,000 SCFH air)
RO-141A	Analyzer sample line at B-101, downstream of SDV-141	1/32	3.6 SLPM (7.6 scf/h), 0.5 psi drop	Tube break at 25 psig: 32 scf/h (limit 126 scf/h)

ORIFICE CONSTRUCTION

Item	Value
Type	Square-edge plate; RO-141A as a tubing-fitting insert
Plate material	316 SS; RO-104 hardened (stellite overlay or 17-4 SS H1150)
Flanges	Upstream Class 600; downstream in spec S1 or D1
Bore tolerance	+/-0.001 in
Tag plate	Tag, bore, flow direction and line number on the handle

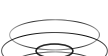
PSV-141B, SAMPLE REGULATOR RELIEF

Item	Value	Item	Value
Service	SP-141 probe regulator outlet	Set pressure	50 psig
Contingency	Probe regulator fails open	Regulator C_v	0.06
Relief load	159 lb/h (3,250 scf/h)	Required area	0.036 in ²
Selected	1/2 x 1/2 in, 0.040 in ² minimum	Discharge	1/2"-V-1121-T1 to header 1120

NOTES

- Blowdown bores per PRO-CAL-008; RO-104, RO-141A and PSV-141B per PRO-CAL-007.
- Discharge coefficients used: 0.75 for gas at critical flow, 0.61 for liquid, 0.80 for RO-141A.



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3. With PSV-141B relieving, a tube break inside B-101 releases 57 scf/h through RO-141A.
4. Bore calculations and plate thickness: Vendor to confirm (HOLD H-15).
5. Process data only. The mechanical, instrument and electrical datasheets complete the purchase specification.
6. Pressures are gauge unless stated. Standard conditions are 14.73 psia and 60 °F; local atmospheric pressure is 14.10 psia.
7. Values marked HOLD H-15 are typical and shall be confirmed by the selected vendor.

