

 TORUS	 · Owner PROCESS DATASHEET, PSV-161 PRESSURE RELIEF VALVE	Document No.	PRO-DS-006		
		Revision / Date	A · September 29, 2026		
		Issue purpose	Issued for Review		
PROCESS · PROCESS DATASHEET, PSV-161 PRESSURE RELIEF VALVE					
Rev.	Date	Revision description	Prepared	Reviewed	Approved
A	2026-09-29	Issued for Review			

GENERAL

Item	Value	Item	Value
Tag	PSV-161	Service	Fuel gas low-pressure system relief
Protected equipment	FG-101 downstream of PCV-161, lines 1051 and 1052	Governing contingency	PCV-161 fails wide open, E-161 off
Code	ASME Section XIII, API 520, API 526		

RELIEVING CONDITIONS

Item	Value	Item	Value
Set pressure	250 psig	Allowable overpressure	10 %
Relieving pressure	289.1 psia	Required capacity	1,650 lb/h
Fluid	Natural gas, MW 18.46	Relieving temperature	-23 °F
Compressibility Z	0.906	Ideal-gas k	1.299

SIZING AND SELECTION

Item	Value	Item	Value
Required area	0.078 in ²	Selected orifice	API 526 D, 0.110 in ²
Rated capacity	2,320 lb/h	Inlet loss	0.7 % of set
Built-up back pressure	5.4 % of set	Superimposed back pressure	Atmospheric, vent header
Reaction force, open discharge	63 lbf	Discharge	Vent header to VS-101

VALVE

Item	Value	Item	Value
Inlet	1 in Class 150 RF	Outlet	2 in Class 150 RF
Outlet line	2"-V-1077-S1	Type	Conventional, soft seat acceptable
Materials	CF8M or LCC, impact tested at -50 °F		

NOTES

- Sizing per  PRO-CAL-007 with the regulator flow from  PRO-CAL-010. The ISA-75.01 flow equation uses the isentropic exponent κ .
- The valve relieves below the -20 °F minimum design metal temperature, so the body and outlet line are low-temperature materials.
- Certified capacity: Vendor to confirm (HOLD H-15).
- Process data only. The mechanical, instrument and electrical datasheets complete the purchase specification.
- Pressures are gauge unless stated. Standard conditions are 14.73 psia and 60 °F; local atmospheric pressure is 14.10 psia.
- Values marked HOLD H-15 are typical and shall be confirmed by the selected vendor.

