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Pressure Relief Valve Sizing & Selection Report

No	Prpd.	Chk.	Appr.	Date	Revision
0	EVC			27-jul.-2021	

Quote Number: 093-093

Client: *TECHNIP ENERGIES*
Location: *CARTAGENA, SPAIN*
End-User Ref. No.: *201754C001*
Project: *C43 "New Bios 2G Hydrotreatment Unit"*
Project Ref. No.: *U-608 Hydrogen Unit*

Valve ID

Tag No.	*608-PSV-1003*
Service	*Fuel Gas K.O. Drum C-114 PSV*
PID No.	*P-C43-A-110990 H31*
Line No.	*1"P-3105-D1-P*
Quantity	1

GENERAL

Valve Type	*Balanced Bellows, Direct Spring-Op*		
Safety / Relief	*Safety Relief*	Balanced	*Yes*
Nozzle	*Full*	Bonnet	*Vented*

CONNECTIONS

Inlet	*1"*	*Flngd.*	*600#*	*RF*	Standard
Outlet	*2"*	*Flngd.*	*150#*	*RF*	*ASME B16.5*

MATERIALS OF CONSTRUCTION

Body / Base	*CS SA216-WCB/WCC*
Bonnet / Cylinder	*CS SA216-WCB/WCC*
Nozzle	*316 SST*
Disc	*316 SST*
Seat	*Metal*
Spindle	*416 SST*
Guide	*SS A297 Gr. HE*
Spring	*Chr. Steel - Alum. Metallized*
Gaskets	*316 SST*
Bellows	*Inconel® 625*
Cap Type	*Bolted w/ Test Rod*
NACE MR0175/ISO 15156:2015	*Yes*

Accessories: *Bug Screen*

SIZING / SELECTION SUMMARY

Valve Model No.		*1D2JLTJBS-E45M-PN2*		
Brand		*Crosby®*		
Area (cm²)	Calculated	Selected	*0.114*	*0.710*
	Data Set	Orifice	*API*	*D*
Flow	Unit	Required	kg/hr	331.8
		Maximum		2064.098
Reaction Force, Open Discharge			*300.3 N*	
Noise Level (db), Open Discharge			*133.7 at 1.0000-m*	

SIZING DATA

Design Code	*ASME VIII/XIII - UV*	Sizing Std.	*API 520*
Sizing Basis	*Fire Case*		
Fluid State at Inlet	*Gas / Vapor*		
Relieving Case	*Pressure Relief*		

Fluid Properties

Fluid Name	*HYDROCARBON*
Molecular Weight, M	*19.45*
Compressibility, Z	*0.989*
Ratio of Sp. Heats, k (Cp / Cv)	*1.174*
Gas Constant, C	*254*

Sizing Coefficients

Effective K, Gas		*0.975*	
Kb	Kc	*1*	*1*

Required Capacity

	Unit: kg/hr
Total	*331.8*

Pressures

		Unit: kg/cm² g	
MAWP	Operating	*49*	*39.5*
Set	CDTP	*49*	*49.49*
Over Pressure		*10.29*	*21%*
Back Pressure	Built-Up		*12.25*
	Constant Superimposed		*0*
	Variable Superimposed		*0*
	Total		*12.25*
Inlet Loss		*0*	*0%*
Atmospheric (Barometric)		*1.033*	*kg/cm² a*

Temperatures

		Unit: °C	
	Normal System		
Operating	Relieving	*90*	*225.8*
Design Min	Design Max		*105*

Tag Notes

1. Radiographic Test: Body and Bonnet
2. Maximum Carbon content % C Max 0.22 / %C Equivalent. Max. 0.43 (body and bonnet)
3. Max imum Content P(%) 0.020 - S(%) 0.015. (body and bonnet)
4. Stand ard C4M acc. ISO 12944
5. Opening Adjustment 5%
6. NACE 0103 ce rtificate required (disc & bellow).
7. ASME "UV" Stamp required.

Valve Dimensions

mm	
A	104.90
B	114.30
C	514.35
kg	
Weight	16.33