PROVAL co.,Ltd

Calculation Sheet

Calculation header

Identifier	*01*
Tag No.	*100-FV-5106*

Medium selection and state

Medium		*Oxigen*	
State		*Gaseous*	
Gas		*Gas, dry (Standard conditions)*	
Standard conditions		*0°C, 1013.25 mbar*	
◯ Density (standard conditions)	ρN	*1.4296*	kg/m³
◯ Specific gas constant	R	*259.83*	J/(kg K)
◉ Molar mass	M	*31.999*	kg/kmol
◯ Specific gravity	Sg	*1.1047*	-
Critical pressure	pc	*50.46*	bar(a)

Operating data

☐ Safety-related application

	Maximum flow	Mean flow	Minimum flow	
t1	*25.0*	*25.0*	*25.0*	°C
p1	*0.8*	*0.8*	*0.8*	kgf/cm²(g)
◉ p2	*-0.52337*	*-0.52337*	*-0.52337*	kgf/cm²(g)
◯ Δp	*1.3234*	*1.3234*	*1.3234*	kgf/cm²
◉ qm	☒ *64,239.0*	☒ *32,168.0*		kg/h
◯ qn	*44,934.0*	*22,502.0*		m³/h
	Choked flow!	*Choked flow!*	*Choked flow!*	

Fluid operating data

	Maximum flow	Mean flow	Minimum flow	
cF1	*328.77*	*328.77*	*328.77*	m/s
ϰ	*1.4159*	*1.4159*	*1.4159*	-
Z1	*0.99817*	*0.99817*	*0.99817*	-

Pipe downstream of valve

Size class downstream of valve	NPS2	*1"*
Schedule downstream	SCH2	*STD*

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Valve configuration

Valve type	*Straight globe valve*
Trim type	*Cage trim*
Flow direction	*FTO*
Valve performance class	*Heavy duty valve*
Protection	*Hardened seat/plug*
Low-noise design	*n.a.*

Valve data

Basic characteristic		*Equal percentage*	
Nominal flow coefficient	Cv100	*16.0*	GPM(US)
Suggested valve size f(u)	NPS1,min	*355.6*	mm
Inlet valve size	NPS1	*3"*	
Outlet valve size	NPS2	*1"*	
Pressure class	class	*class 150*	

Load-dependent values

	Maximum flow	Mean flow	Minimum flow	
MaDN	*886.1*	*162.81*		-
P	*1,471.9*	*737.06*		kW

Noise calculation

Calculation standard (noise, gas)	*IEC 60534-8-3 (2010)*

Noise prediction data

Low-noise design	*n.a.*

Minor noise prediction data

Mach number (valve outlet)	MaDN	*886.1*	-
Power loss	P	*1,471.9*	kW

Legend

- Errors
- Alarm