Sizing - Medium				
1000	Designation	Nitrogen		
1004	Formula	N2		
1001	Molar mass	M	28	kg/kmol
1002	Ratio of specific heats	k	1.400	
1003	Compressibility factor	Z	1.000	

Sizing - Service condition				
1009	Case for blow off		Pressure control N2 failure	
1100	Maximum allowable working pressure			
1101	Set pressure	p	6	bar-g
1102	Constant superimposed back pressure	paf		
2102	Variable superimposed back pressure			
1103	Built up back pressure	pae	0.04	bar
1104	Backpressure		0.04	bar-g
1105	Overpressure	dp	10.00	%
1106	Environmental pressure	pu	1.013	bar
1107	Relieving Temperature	T	20	°C
1111	Operating Temperature		20	°C
1108	Required massflow	qm,ab		
1109	Volume flow to be discharged (working condition)	qvb,ab		
1110	Volume flow to be discharged (std condition) [T=15 °C P=101,325 Pa]	qvn,ab		

Inlet pipe				
1195	Calculation according to		ISO 4126-9	
1160	Length of inlet pipe	Le	0.3	m
1161	Inlet pipe diameter	De	29.7	mm
1162	Equivalent pipe roughness	K	0.020	
1163	Pipe friction coefficient	λ	0.018	
1164	Coefficient of resistance of the straight pipe line	ζ	0.180	
1165	Coefficient of resistance of other fittings	ζ i	0.350	
1166	Coefficient of resistance complete pipe line	ζ	0.530	
1167	Coefficient of resistance permitted	ζz	6.391	
1168	Pressure loss	Δpr	0.015	bar
1169	Pressure loss based on p - paf (%)		0.26	%
1170	Allowed pressure loss based on p-paf (%)	Δp	3.00	%
1171	Maximum length of inlet pipe	Lmax	10.044	m
1172	Maximum length of the inlet pipe without pipe components		10.626	m

Inlet components					
Denomination	**Q**		**Zeta**		**Q * Zeta**
Right angled T-pieces: socked sharp edged fit in through pass			1	0.350	0.35
Total coefficient of resistance					**0.350**

Outlet pipe				
1196	Calculation according to		ISO 4126-9	
1189	Coefficient of resistance for all pipe segments	ζ_i	1.840	
1184	Pressure drop of silencer	Δp		
1194	Built-up backpressure ratio		0.70	%

Outlet pipe segment #1				
1180	Length of outlet pipe	La	3	m
1181	Inner diameter outlet pipe	Da	44.3	mm
1182	Equivalent pipe roughness	K	0.070	
1183	Pipe friction coefficient	λ	0.022	
1185	Effective coefficient of resistance of the straight pipe line	ζ,Rohr	1.490	
1186	Effective coefficient of resistance of other fittings	ζ,Einb	0.350	
1188	Effective coefficient of resistance of complete pipe segment	ζ	1.840	
1190	Maximum length of outlet pipe	Lmax	95.74	m

Components of the outlet pipe segment #1					
Name	**Zeta**	**Eff. Zeta**	**Quantity**	**Eff. total**	
Miscellaneous pipe-component	0.350	0.35	1	0.35	
Total coefficient of resistance				**0.350**	

Sizing - Calculation				
1200	Certified massflow	qm,zu	505.53	kg/h
1201	Certified volumeflow (operating condition)	qvb,zu	57.918	m³/h
1203	Certified volumeflow (standard condition)	qvn,zu	426.891	m³/h
1204	Maximum mass flow	qm,max	561.7	kg/h
1205	Maximum volume flow (working condition)	qvb,max	64.354	m³/h
1206	Maximum volume flow (standard condition)	qvn,max	474.323	m³/h
1207	Capacity exceed			

Valve - General			
1500	Article number		4834.7702
1512	Reseller article number		
1513	Quantity of safety valve		1
1501	Certified coefficient of discharge for steam and gases	K,DG	0.6
1502	Certified coefficient of discharge for liquid	K,F	0.4
1505	Bonnet / Lifting device		Cap H2
1506	Body-/ Inlet base material		1.4435 / 316L
1511	Bonnet		Closed Bonnet
1514	Order code	4834.7702-6 bar_g-L79I16L86A16-3.1	

Inlet connection		
1300	Pipe standard	DIN 11850
1303	Connection standard	DIN 32676
1304	DN / NPS	25
1360	Code	SO
1305	PN / PR	16
1302	Information	Clamp acc. to DIN 32676 DN 25 (pipe standard acc. to DIN 11850)

Outlet connection		
1350	Pipe standard	DIN 11850
1353	Connection standard	DIN 32676
1354	DN / NPS	25
1361	Code	SO
1355	PN / PR	16
1352	Information	Clamp acc. to DIN 32676 DN 25 (pipe standard acc. to DIN 11850)

Valve - Dimensions				
1400	Discharge area	Ao	132.732	mm^2
1401	Discharge diameter	do	13	mm
1402	Centre to Face dimensions	a	29	mm
1403	Centre to Face dimensions	b	52	mm
1405	Height	H	179.2	mm
1406	Weight	M	1.6	kg

Lift				
1507	Standard		2.5	mm

Name	ISO 4126	ISO 4126			
Date	2023-10-18 11:07:23	2023-10-19 09:14:04			
Rev.No	1	2			

Valve - Calculation				
1200	Certified massflow	qm,zu	505.53	kg/h
1201	Certified volumeflow (operating condition)	qvb,zu	57.918	m^3/h
1203	Certified volumeflow (standard condition)	qvn,zu	426.891	m^3/h
1204	Maximum mass flow	qm,max	561.7	kg/h
1205	Maximum volume flow (working condition)	qvb,max	64.354	m^3/h
1206	Maximum volume flow (standard condition)	qvn,max	474.323	m^3/h
1207	Capacity exceed			
1600	Required actual discharge area	Ao, req		
1601	Required discharge diameter	do,req		
1612	Reaction force (acc. to ISO / CD 4126-9)	Fr	54.468	N
1618	Cold differential test pressure	CDTP	6	bar-g
1620	Cold differential test pressure, manually	CDTP		