

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air or gases

steam

cryogenics & liquefied gases

hydrogen

Type 946 Threaded

Safety valves made from Stainless Steel <
Enclosed discharge valve with threaded connections <
Metal to metal sealing <

Example Applications

- Air / gas compressors
- Pressure vessels
- Medical gases/Technical gases
- Refrigeration (including ammonia)
- Thermal relief
- Steam systems
- Hydrogen (including liquid Hydrogen)
- Cryogenic applications

Specifications

- Inlet connections: 1/2" to 2" threaded connections (depending on valve bore size) *For flanged connections see datasheet 946 Flanged
- Temperature range: -269°C to +250°C (depending on body o'ring material)*see table on page 2
- Pressure range: 0.3 to 28.0 bar (depending on valve bore size)

Valves with bore size 10mm and 15mm are suitable down to -269°C when a 1.4401 stainless-steel body is used. If this is required, please ensure you speak to Seetru

Materials of Construction

Component	Material	Grade
Inlet	Stainless Steel	1.4401 (316)
Body	Stainless Steel	1.4408 / 1.4401 (316)**
Internal Parts	Stainless Steel	1.4401 (316)
Spring	Stainless Steel	1.4310 (302)
Disc	Stainless Steel	S20910

1.4408 casting used for standard applications, 1.4401 machined body can be used for 10mm and 15mm bore variants for temperatures down to -269°C

Approvals

- Designed in accordance with BS EN ISO-4126-1 &-7
- PED 2014/68/EU (CE)
- PE(S)R UK SI 2016 No. 1105 (UKCA)
- Leak tightness at 90% set pressure to API 527 and in accordance with EN ISO 4126-1
- TPED (Transportable Pressure Equipment Directive) type approval from TUV

CE UKCA EAC π

Seal Materials

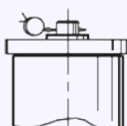
This valve using metal to metal sealing. There is a choice of o'ring used for the sealed cap/lever.

O'ring material – Top cap	Temperature Range
Viton® (FKM)	-20°C to +200°C
Nitrile (NBR)	-20°C to +120°C
Silicone	-50°C to +200°C
EPDM	-55°C to +130°C
PTFE	-196°C to +250°C for all, for 10mm and 15mm bore variants they can be used down to -269°C with a 1.4401 valve body

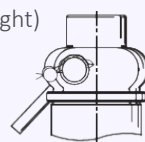
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear / Top Fitting Options

- Sealed Cap (gas tight cap)



- Sealed lever (gas tight)



- Rota-lift (not gas tight)

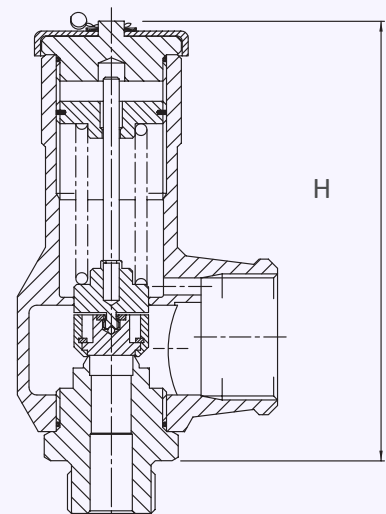


Technical information by bore size

Bore size	10mm (94610)			15mm (94615)			20mm (94620)			25mm (94625)			
Inlet Size	1/2"	3/4"	1"	1"	1 1/4"	1 1/2"	1"	1 1/4"	1 1/2"	1"	1 1/4"	1 1/2"	2"
Outlet Size	1"			1 1/2"			2"			2"			
Flow Area	78.5mm ²			177mm ²			314mm ²			491mm ²			
H - Height (Sealed Lever version)	114mm			168mm			141mm			225mm			
TÜV alloted outflow coefficient	0.85 (0.7 below 0.8 bar)			0.85 (0.7 below 0.8 bar)			0.85 (0.7 below 0.8 bar)			0.85 (0.7 below 0.8 bar)			
Weight (approximate) Kg	1.0			2.1			3.5			4.2			
Set Pressure range - PED (CE) bar	0.3 to 28.0			0.3 to 28.0			0.3 to 28.0			0.3 to 20.0			
Minimum Operating Temperature	-196°C with 1.4408 body -269°C with 1.4401 body			-196°C with 1.4408 body, -269°C with 1.4401 body			196°C with 1.4408 body			-196°C with 1.4408 body			
Relieving pressure/fully open pressure	Set pressure +10% (0.1 bar below 1.0 bar)												
Reseating pressure	Set pressure -10% (0.3 bar below 3.0 bar)												

- TÜV alloted outflow coefficients for pressures above 3.0/4.0 bar, for lower pressures please see the flow rate tables or contact Seetru.
- Maximum permissible built up back pressure = 10% of set pressure at or below which flow is not reduced.
- Stable operation on flows down to 50% of valve rated capacity. Leak tightness at 90% set pressure to API 527 and in accordance with EN ISO 4126-1

Valve Drawing



Standard INLET Connection Types

- BSP parallel male thread
- BSP taper male thread
- NPT male thread
- BSP parallel female thread (limited option)

Standard OUTLET Connection Types

- BSP parallel female thread

Valve Selection Guide

Valve type	Select Bore	Inlet Size	Inlet Thread Type	Top Fitting	O'ring material (for cap)	Set pressure
946 = PED and UKCA approval 94T = PED, UKCA and TPED approval 9L6 = PED approval for temperatures down to -269°C 9LT = PED, UKCA and TPED approval for temperatures down to -269°C	Select bore size from above table	Select inlet size from above table	Select Inlet Thread type	Select easing gear/top fitting	See table	Set pressure from available range

EAC marking available upon request
***Please send your selected details to Seetru and we can provide the full ordering code, price and lead-time.**

Example of Valve Selection Process

Example Selection	946	15	1"	BSP parallel	Sealed Lever	Viton	17.5 bar
	Valve Type	Bore = 15mm	Inlet Size	Inlet Thread Type	Top Fitting	O'ring	Set Pressure

Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour Type 946: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)			
		10mm	15mm	20mm	25mm
bar	psi	Nm ³ /Hour	Nm ³ /Hour	Nm ³ /Hour	Nm ³ /Hour
0.3	4.35	48.5	109.2	194.2	303.5
0.5	7.25	59.0	132.9	236.2	369.1
1	14.5	96.1	216.2	384.4	600.6
2	29	146.1	328.7	584.4	913.2
3	43.5	196.1	441.3	784.5	1225.8
4	58	246.1	553.8	948.6	1538.4
5	72.5	296.1	666.4	1184.7	1851.1
6	87.00	346.2	778.9	1384.8	2163.7
7	101.5	396.2	891.4	1584.8	2476.3
8	116	446.2	1004.0	1784.9	2788.9
9	130.5	496.2	1116.5	1985.0	3101.6
10	145	546.7	1229.1	2185.1	3414.2
15	217.5	796.3	1791.8	3185.5	4977.3
20	290	1046.4	2354.6	4185.9	6540.4
25	362.5	1296.5	2917.3	5186.3	
28	406	1446.6	3254.9	5786.5	

For any intermediate pressures/flows please contact Seetru

Capacity Table - In accordance with TÜV, STEAM. Kg/hour Type 946: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)			
		10mm	15mm	20mm	25mm
bar	psi	Kg/hour of Steam	Kg/hour of Steam	Kg/hour of Steam	Kg/hour of Steam
0.3	4.35	37.6	84.5	150.2	234.7
0.5	7.25	46.6	104.8	186.3	291.1
1	14.5	76.6	172.5	306.6	479.0
2	29	115.1	259.0	460.5	719.5
3	43.5	153.2	344.6	612.7	957.4
4	58	190.9	429.7	763.9	1193.7
5	72.5	228.6	514.3	914.4	1428.7
6	87.00	266.1	598.6	1064.2	1662.9
7	101.5	303.4	682.6	1213.5	1896.2
8	116	340.6	766.5	1362.6	2129.1
9	130.5	377.9	850.4	1511.8	2362.2
10	145	415.1	933.9	1660.4	2594.4
15	217.5	600.3	1350.7	2401.3	3752.0
20	290	785.4	1767.2	3141.7	4909.0
25	362.5	970.5	2183.7	3882.2	
28	406	1081.9	2434.4	4327.9	

For any intermediate pressures/flows please contact Seetru