

Seetru *Safety Relief Valves*

For Hydrogen Applications

HYDROGEN

SEETRU



www.seetru.com

Edition 5 2.4.2025

Bristol-based Manufacturers of Safety and Relief Valves



Seetru Limited was founded in 1949 with the aim of producing the finest liquid level gauges so customers could “see the true” level even under the most severe conditions. This philosophy of making the finest through innovation continued with the introduction of the Seetru range of pressure relief devices, circa 1950 the Seetru Tutchtite-sealing system revolutionized the safety valve market with valves that do not leak even after repeated popping even at high pressures.

Today, Seetru have an extensive range of Pressure Relief Valves and Liquid Level Gauges which carry a wide range of international approvals and are supplied worldwide.

Our Products

Seetru are Bristol-based manufacturers of safety relief valves and other special purpose ancillary valves for a wide range of compressed air, industrial gas, refrigerants, powder, steam, liquid and liquefied gas applications. These valves meet important international standards which include: ISO-4126-1 & -7 and ASME BPVC VIII.1 & XIII design codes as well as type test approvals from TÜV and the National Board. These products comply with the requirements of the European Pressure Equipment Directive (PED) and are available with both the CE mark as well as the UV stamp, and have wide international approvals. Seetru products are fully compliant with the requirements of the UK Pressure Equipment (Safety) Regulations and come with the UKCA mark.



Seetru also have a wide range of special purpose valves. The range includes Change-Over Valves (designed for switching parallel safety valves without interrupting operation), Minimum Pressure Check Valves (typically suitable for application on compressors), Air-Start Valves (designed to handle a two-stage operation for air starting of engines). We also manufacture a range of Air Receiver & In-line Check Valves.

Seetru liquid level gauges are primarily of two types, sight gauges and magnetic float by-pass gauges. Many of the gauges are direct reading though most have optional electronic remote reading systems and computer interfaces. The range includes the Quickmount, Seemag and CPI gauges for industrial and chemical applications, and the Seeflex and Seemag for marine applications. The Company’s substantial design and development department, which includes TÜV approved testing facilities, enable us to provide extensive bespoke design, advisory and manufacturing services to develop or adapt individual products for new applications.

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Type	Product / Design	Materials	Inlet Connections	Pressure Range	Page
636/656/646	Enclosed Discharge	Bronze Or Stainless Steel	3/8" To 2" Bsp, Bspt Or Npt	0.32 To 55.2 bar	7-13
936/946	Enclosed Discharge	Bronze Stainless Steel	1/2" To 2" Bsp, Bspt Or Npt	0.3 To 28.0 bar	14-20
	Threaded Connections	Metal To Metal Sealing			
33020/ 34020/ 34320	Enclosed Discharge	Brass Or Stainless Steel	3/8" To 1/2" Bsp, Bspt Or Npt	55.0 To 103.4 bar	21-23
33110/ 34110/ 34410	Enclosed Discharge	Brass Or Stainless Steel	3/8" To 1/2" Bsp, Bspt Or Npt	27 To 241.3 bar	24-26
329	Enclosed Discharge	Bronze Or Stainless Steel	3/8" To 3/4" Bsp, Bspt Or Npt	53.0 To 370.0 bar	27-29
Type 359 / B4605 / B6605	Enclosed Discharge Safety Relief Valves	Stainless Steel Construction With Metal Ball Sealing	Inlet Connections From 3/8" To 1/2" Bsp, Bspt Or Npt	35.0 To 500.0 bar	30-32
Type 94605 / 946H5 / 95605 / 956H5	Enclosed Discharge Safety Relief Valves	Stainless Steel	◦ 1/2" Npt, Bsp & Bspt ◦ 9/16" Cone & Thread ◦ 3/4" Cone & Thread	◦ 35.0 To 515 bar (9*605) ◦ 35.0 To 1100 bar (9*6h5)	34-36
946 FLANGED	Enclosed Discharge	Stainless Steel	Dn20 (3/4") Or Dn25 (1") Din Or Ansi Flanges	0.3 To 28.0 bar	37-39
	Flanged Connections				
646 FLANGED	Enclosed Discharge	Stainless Steel	Dn20 (3/4") Or Dn25 (1") Din Or Ansi Flanges	0.32 To 49.0 bar	40-42
	Flanged Connections				
COV10	Change Over Valve	Stainless steel construction with PTFE	Suitable for Safety Relief Valves with up to 10mm bore (Full Lift Type)	For Safety valves with set pressure up to 75.0 bar	43-45
COV13	Change Over Valve	Stainless steel construction with PTFE or Elastomer sealing	Suitable for Safety Relief Valves with up to 10mm bore (Full Lift Type)	For Safety valves with set pressure up to 65.0 bar	43-45
COV30	Change Over Valve	Stainless steel construction with PTFE sealing	Suitable for Safety Relief Valves with up to 18mm bore (Full Lift Type)	For Safety valves with set pressure up to 100.0 bar	43-45

PhD Chartered Engineers **Innovation Fuelled by Expertise**



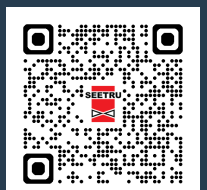
Where Innovation Meets Expertise

At Seetru, safety isn't just a priority, it's a passion fuelled by a team of highly qualified engineers. We combine cutting-edge innovation with unparalleled expertise to deliver the industry's most reliable and advanced safety relief valves.

Our team boasts a unique blend of academic excellence and real-world experience. Many of our engineers hold PhDs and are Chartered Engineers, signifying their commitment to ongoing professional development and adherence to the highest engineering standards.

www.seetru.com/about-seetru

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Ensuring Safety

Reliable protection for your pressurised systems



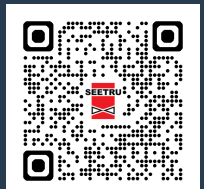
Why Choose Seetru Safety Valves?

Seetru prioritises rigorous testing and analysis, ensuring exceptional valve performance across diverse applications. Our keen understanding of various industries allows us to tailor valves to specific needs. By combining cutting-edge design, unparalleled expertise, and application-specific solutions, we have established ourselves as a leader in the safety valve industry.

A company you can trust to safeguard your critical systems

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Seetru Safety Relief Valves



Setting the Standard

Seetru safety valves set the standard for reliability and safety across a wide range of industrial applications



Engineered for Every Need

Safety valves available with a range of bore sizes, material options, and connection types.



Performance Approved

The Seetru range of safety valves are approved for a wide range of temperatures & pressures



Powerful Protection ...In the Palm of Your Hand



Easier Installation

Seetru safety valves fit seamlessly into tight spaces, simplifying system integration



Enhanced Flexibility

Allows for greater layout freedom during system design



Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed Air & Gas

hydrogen

Type 636 / 631 656 / 651

Safety valves with bronze body <
Enclosed discharge valve with threaded connections <

Example Applications

- Air / gas compressors
- Pressure vessels
- Pneumatic systems
- Medical gases
- Technical gases

Specifications

- Inlet connections: 3/8" to 2" (depending on bore size)
- Temperature: -40°C to +200°C (depending on seal material)
- Pressure range: 0.32 to 55.2 bar (depending on bore size)

Materials of Construction

Component	Material	Grade
Inlet	Brass ^(636 / 631)	CW614N
	Stainless Steel ^(656 / 651)	1.4401 (316)
Body	Bronze	CC491K SB-62 C83600
Wetted Parts	Brass ^(636 / 631)	CW614N
	Stainless Steel ^(656 / 651)	1.4401 (316)
Spring	Stainless Steel	1.4310 (302)

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)
- ASME BPVC VIII.1 & XIII (UV)
- CRN



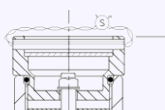
Seal Materials

Seal Material	Temperature Range
Viton® (FKM)	-15°C to +200°C
Nitrile (NBR)	-40°C to +120°C

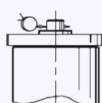
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear Options

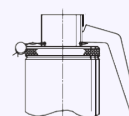
- **Standard option:**
Rota-lift, twist type
(not gas tight)



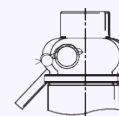
- **Other Options:**



Sealed Cap (gas tight cap)



Unsealed lever (not gas tight)



Sealed lever (gas tight)

Technical information by bore size



Bore size	9.5/10mm			13.7mm			17mm			20mm			25mm		
Inlet Size	3/8"	1/2"	3/4"	1/2"	3/4"	1"	1"	1 1/4"	1 1/2"	1"	1 1/4"	1 1/2"	1 1/4"	1 1/2"	2"
Outlet Size	3/4"			1"			1 1/2"			2"			2"		
Flow Area	70.9mm ² (above 1.55 bar)			147.7mm ²			227mm ²			314mm ²			490.4mm ²		
H - Height (Rota-lift cap version)	102mm (up to 33 bar) 116mm (33-55.2 bar)			143mm (up to 35 bar) 172.5mm (35-49 bar)			204mm			227mm			252mm		
TÜV allotted outflow coefficient	0.77 above 1.55 bar			0.77			0.77			0.77			0.77		
NB Certified rated slope (ASME)	1.74 scfm/psia			3.47 scfm/psia			5.60 scfm/psia			7.77 scfm/psia			12.26 scfm/psia		
Weight (approximate) Kg	0.8			1.1			3.6			4.0			5.1		
Set Pressure range - PED (CE) bar	0.48 to 55.2			0.32 to 49.0			1.0 to 35.0			3.0 to 35.0			5.65 to 30.0		
Set Pressure range - ASME (UV) psi	22.5 to 800.4			20.3 to 710.5			34.8 to 507.5			43.5 to 507.5			82.0 to 435.0		
Relieving pressure/fully open pressure	Set Pressure +10%														
Reseating pressure	Set Pressure -10% (0.3 bar minimum)														

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.

Standard Thread Connection Types



- BSP Parallel male thread
- BSP Taper male thread
- NPT male thread

Standard Outlet Connection Types



- BSP Parallel female thread
- NPT female thread

Valve Selection Guide



Approval Required	Valve type	Select Bore	Inlet Size	Thread Type	Outlet Thread Type	Easing Gear	Seal Material
PED (CE)	636 (Brass inlet)	Select bore size from above table	Select inlet size from above table	Select Inlet thread type	Select Outlet thread type	Select easing gear/top fitting	Viton® (FKM)
	656 (St. Steel inlet)						Nitrile (NRB)
PED (CE), ASME (UV) & CR	631 (Brass inlet)						Other
	651 (St. Steel inlet)						

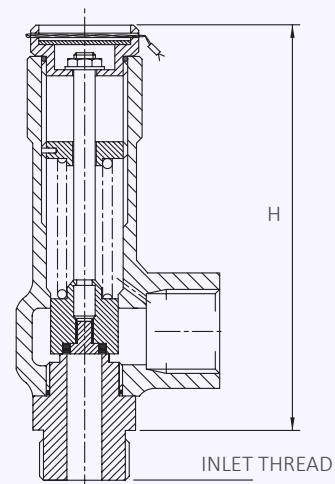
EAC marking available upon request

***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	CE/PED	636	20	1 1/2"	BSP Taper	BSP parallel	Rota-lift	Viton	10.5 bar
	Approval	Valve Type	Bore = 20mm	Inlet Size	Inlet Thread Type	Outlet Thread Type	Easing Gear	Seal	Set Pressure



Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour
Type 636/656: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		9.5mm	13.7mm	17mm	20mm	25mm
bar	psi	Nm³/Hour	Nm³/Hour	Nm³/Hour	Nm³/Hour	Nm³/Hour
0.32	4.64		123.9			
0.48	6.96	51.5	138.2			
1	14.5	79.1	178.9	251.6		
2	29	119.4	248.4	385.5		
3	43.5	160.4	333.5	513.5	710.7	
4	58	201.2	418.5	644.4	891.9	
5	72.5	242.1	503.6	775.4	1073.2	
5.65	81.93	268.7	558.8	860.5	1191.0	1860.9
6	87	283.0	588.6	906.3	1254.5	1960.1
7	101.5	323.9	673.6	1037.3	1435.7	2243.3
8	116	364.8	758.7	1168.2	1616.9	2526.5
9	130.5	405.7	843.7	1299.2	1798.2	2809.7
10	145	446.6	928.8	1430.2	1979.4	3092.9
15	217.5	651.1	1354.0	2084.9	2885.7	4508.9
20	290	855.6	1779.3	2739.7	3791.9	5924.9
25	362.5	1060.0	2204.5	3394.4	4698.2	7340.9
30	435	1264.5	2629.7	4049.2	5604.4	8756.9
35	507.5	1468.9	3054.9	4703.9	6510.7	
40	580	1673.4	3480.2			
45	652.5	1877.9	3905.4			
49	710.5	2041.5	4245.6			
50	725	2082.4				
55.2	800.4	2295.0				

For any intermediate pressures/flows please contact Seetru

Capacity Table - In accordance with ASME BPVC.XIII, AIR at 60°F and 14.7 psia/scfm. SCFM
Type 631/651: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		9.5mm	13.7mm	17mm	20mm	25mm
psi	bar	SCFM	SCFM	SCFM	SCFM	SCFM
20.3	1.40		131.9			
22.5	2.50	68.7	139.4			
30	2.07	81.5	165.5			
34.8	2.80	90.6	183.8	296.7		
40	2.76	100.4	203.7	328.7		
43.5	3.00	106.9	217.0	350.2	486.0	
50	3.45	119.2	241.8	390.3	541.5	
82	5.66	179.3	363.9	587.3	814.9	1285.8
100	6.90	213.2	432.6	698.1	968.7	1528.4
150	10.34	307.2	623.4	1006.1	1395.9	2202.6
200	13.79	401.2	814.2	1314.0	1823.2	2876.8
250	17.24	495.3	1005.0	1621.9	2250.4	3550.8
300	20.69	589.3	1195.8	1929.8	2677.6	4224.9
350	24.14	683.3	1386.6	2237.8	3104.9	4899.1
400	27.59	777.4	1577.4	2545.7	3532.2	5573.3
435	30.00	843.2	1711.0	2761.2	3831.2	6045.2
450	31.03	871.4	1768.2	2853.6	3959.3	
500	34.48	965.4	1959.0	3161.5	4386.6	
507.5	35.00	979.5	1987.6	3207.7	4450.7	
550	37.93	1059.4	2149.8			
600	41.38	1153.4	2340.6			
650	44.83	1247.5	2531.4			
700	48.28	1341.5	2722.2			
710.5	49.00	1361.3	2762.3			
750	51.72	1435.5				
800.4	55.20	1530.3				

For any intermediate pressures/flows please contact Seetru

Think Hydrogen ...Think Safety Valves

Your Reliable Partner in Your Hydrogen Future

Seetru supplies safety relief valves suitable for a wide range of hydrogen applications, including hydrogen generation, fuel cells, compressors and pumps, fuelling systems, storage, pressure vessels, piping systems, and transportation.

These valves can withstand set pressures up to 1100 bar, making them ideal for use in even the most demanding hydrogen applications. Seetru's valves are designed to open quickly and reliably when the system pressure exceeds the set pressure, allowing excess gas to escape safely. This helps to prevent damage to the system and protect personnel from injury.



Generation



Chemical & Process Industries



Compression



Storage & Transmission

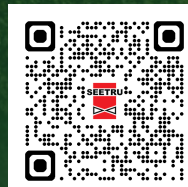


Power Generation Systems



www.seetru.com/hydrogen

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Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed Air & Gas

hydrogen

Type 646 / 641

Safety valves with Stainless Steel body <
Enclosed discharge valve with threaded connections <

Example Applications

- Air / gas compressors
- Pressure vessels
- Pneumatic systems
- Medical gases
- Technical gases

Specifications

- Inlet connections: 3/8" to 2" (depending on bore size)
- Temperature: -40°C to +200°C (depending on seal material)
- Pressure range: 0.32 to 55.2 bar (depending on bore size)

Materials of Construction

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

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)
- ASME BPVC VIII.1 & XIII (UV)
- CRN



Seal Materials

Seal Material	Temperature Range
Viton® (FKM)	-15°C to +200°C
Nitrile (NBR)	-40°C to +120°C

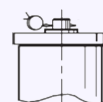
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear Options

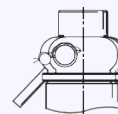
- **Standard option:** Rota-lift cap, twist type (not gas tight)



- **Other Options:**



Sealed Cap (gas tight cap)



Sealed lever (gas tight)

Technical information by bore size



Bore size	9.5/10mm			13.7mm			17mm			20mm			25mm		
Inlet Size	3/8"	1/2"	3/4"	1/2"	3/4"	1"	1"	1 1/4"	1 1/2"	1"	1 1/4"	1 1/2"	1 1/4"	1 1/2"	2"
Outlet Size	3/4"			1"			1 1/2"			2"			2"		
Flow Area	70.9mm ² (above 1.55 bar)			147.7mm ²			227mm ²			314mm ²			490.4mm ²		
H - Height (Rota-lift cap version)	116mm			143mm (up to 35 bar) 172.5mm (35-49 bar)			211mm			227mm			252mm		
TÜV allotted outflow coefficient	0.77 above 1.55 bar			0.77			0.77			0.77			0.77		
NB Certified rated slope (ASME)	1.74 scfm/psia			3.47 scfm/psia			5.60 scfm/psia			7.77 scfm/psia			12.26 scfm/psia		
Weight (approximate) Kg	0.8			1.1			3.6			4.0			5.1		
Set Pressure range - PED (CE) bar	0.48 to 55.2			0.32 to 49.0			1.0 to 35.0			3.0 to 35.0			5.65 to 30.0		
Set Pressure range - ASME (UV) psi	22.5 to 800.4			20.3 to 710.5			34.8 to 507.5			43.5 to 507.5			82.0 to 435.0		
Relieving pressure/fully open pressure	Set Pressure +10%														
Reseating pressure	Set Pressure -10%														

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.

Standard Thread Connection Types



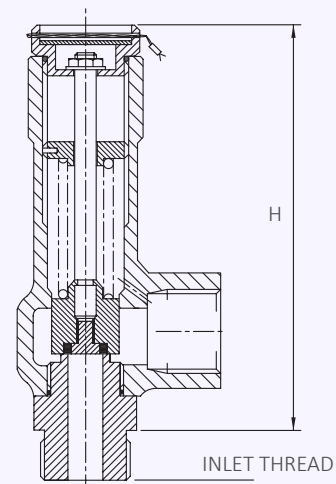
- BSP Parallel male thread
- BSP Taper male thread
- NPT male thread

Standard Outlet Connection Types



- BSP Parallel female thread
- NPT female thread

Valves with Rota-lift Easing Gear



Valve Selection Guide



Approval Required	Valve type	Select Bore	Inlet Size	Inlet Thread Type	Outlet Thread Type	Easing Gear	Seal Material
PED (CE)	646	Select bore size from above table	Select inlet size from above table	Select Inlet thread type	Select Outlet thread type	Select easing gear/top fitting	Viton® (FKM)
PED (CE), ASME (UV) & CRN	641						Nitrile (NRB)
							Other

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	PED, ASME & CRN	641	20	1 1/2"	BSP Taper	BSP parallel	Rota-lift	Viton	10.5 bar
	Approval	Valve Type	Bore = 20mm	Inlet Size	Inlet Thread Type	Outlet Thread Type	Easing Gear	Seal	Set Pressure

Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour
Type 646: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		9.5mm	13.7mm	17mm	20mm	25mm
bar	psi	Nm³/Hour	Nm³/Hour	Nm³/Hour	Nm³/Hour	Nm³/Hour
0.32	4.64		123.9			
0.48	6.96	51.5	138.2			
1	14.5	79.1	178.9	251.6		
2	29	119.4	248.4	385.5		
3	43.5	160.4	333.5	513.5	710.7	
4	58	201.2	418.5	644.4	891.9	
5	72.5	242.1	503.6	775.4	1073.2	
5.65	81.93	268.7	558.8	860.5	1191.0	1860.9
6	87	283.0	588.6	906.3	1254.5	1960.1
7	101.5	323.9	673.6	1037.3	1435.7	2243.3
8	116	364.8	758.7	1168.2	1616.9	2526.5
9	130.5	405.7	843.7	1299.2	1798.2	2809.7
10	145	446.6	928.8	1430.2	1979.4	3092.9
15	217.5	651.1	1354.0	2084.9	2885.7	4508.9
20	290	855.6	1779.3	2739.7	3791.9	5924.9
25	362.5	1060.0	2204.5	3394.4	4698.2	7340.9
30	435	1264.5	2629.7	4049.2	5604.4	8756.9
35	507.5	1468.9	3054.9	4703.9	6510.7	
40	580	1673.4	3480.2			
45	652.5	1877.9	3905.4			
49	710.5	2041.5	4245.6			
50	725	2082.4				
55.2	800.4	2295.0				

For any intermediate pressures/flows please contact Seetru

Capacity Table - In accordance with ASME BPVC.XIII, AIR at 60°F and 14.7 psia/scfm. SCFM
Type 641: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		9.5mm	13.7mm	17mm	20mm	25mm
psi	bar	SCFM	SCFM	SCFM	SCFM	SCFM
20.3	1.40		131.9			
22.5	2.50	68.7	139.4			
30	2.07	81.5	165.5			
34.8	2.80	90.6	183.8	296.7		
40	2.76	100.4	203.7	328.7		
43.5	3.00	106.9	217.0	350.2	486.0	
50	3.45	119.2	241.8	390.3	541.5	
82	5.66	179.3	363.9	587.3	814.9	1285.8
100	6.90	213.2	432.6	698.1	968.7	1528.4
150	10.34	307.2	623.4	1006.1	1395.9	2202.6
200	13.79	401.2	814.2	1314.0	1823.2	2876.8
250	17.24	495.3	1005.0	1621.9	2250.4	3550.8
300	20.69	589.3	1195.8	1929.8	2677.6	4224.9
350	24.14	683.3	1386.6	2237.8	3104.9	4899.1
400	27.59	777.4	1577.4	2545.7	3532.2	5573.3
435	30.00	843.2	1711.0	2761.2	3831.2	6045.2
450	31.03	871.4	1768.2	2853.6	3959.3	
500	34.48	965.4	1959.0	3161.5	4386.6	
507.5	35.00	979.5	1987.6	3207.7	4450.7	
550	37.93	1059.4	2149.8			
600	41.38	1153.4	2340.6			
650	44.83	1247.5	2531.4			
700	48.28	1341.5	2722.2			
710.5	49.00	1361.3	2762.3			
750	51.72	1435.5				
800.4	55.20	1530.3				

For any intermediate pressures/flows please contact Seetru

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air or gases

steam

cryogenics & liquefied gases

hydrogen

Type 936 Threaded

Safety valves made with brass inlets<
Enclosed discharge valve with threaded connections<
Metal to metal sealing<

Example Applications

- Air / gas compressors
- Pressure vessels
- Medical gases/Technical gases
- Thermal relief
- Steam systems

Specifications

- Inlet connections: 1/2" to 2" threaded connections (depending on valve bore size) (for flanged connections see 946 Flanged datasheet).
- Temperature range: -60°C to +250°C (depending on body o'ring material)
- Pressure range: 0.3 to 28.0 bar (depending on valve bore size)

Materials of Construction

Component	Material	Grade
Inlet	Brass	CZ132 / CW602N
Outlet Body (10mm bore valve)	Bronze	SB-62 C8360
Outlet Body (15, 20 & 25mm bore valves)	Stainless Steel	1.4408 (316)
Spring	Stainless Steel	1.4310 (302)
Disc	Stainless Steel	S20910

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
- Materials meet the requirements of BAM (Germany) for oxygen service

CE UK EAC

Seal Materials

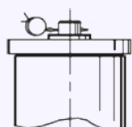
This valve using metal to metal sealing. There is a choice of o'ring used for the sealed cap/lever.

O'ring material	Temperature Range
Viton® (FKM)	-20°C to +250°C
Nitrile (NBR)	-20°C to +120°C
Silicone	-50°C to +200°C
PTFE	-60°C to +200°C
EPDM	-55°C to +130°C

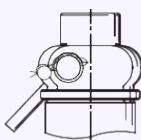
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear / Top Fitting Options

- Sealed Cap (gas tight cap)



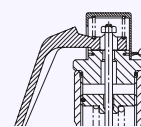
- Sealed lever (gas tight)



- Rota-lift (not gas tight)



- Open Lever (not gas tight)



Technical information by bore size

Bore size	10mm (93610)			15mm (93615)			20mm (93620)			25mm (93625)			
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 allotted 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			
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 allotted 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

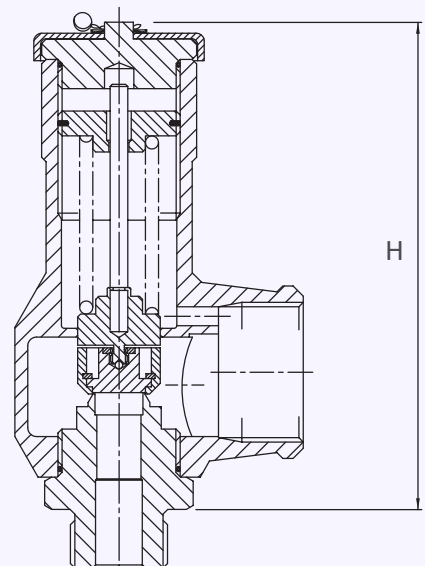
Standard INLET Connection Types

- 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 Drawing



Valve Selection Guide

Valve type	Select Bore	Inlet Size	Inlet Thread Type	Top Fitting	O'ring material (for cap)	Set pressure
936	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	936	15	1"	BSP parallel	Rota Lift	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 936: 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 936: 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		

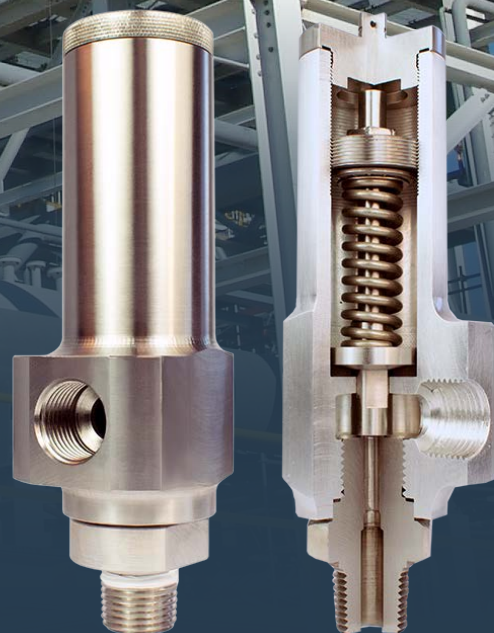
For any intermediate pressures/flows please contact Seetru

Ensuring Safety for Hydrogen Production



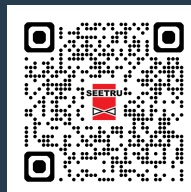
Safety Valves for Hydrogen Production

Hydrogen has many forms of production: Steam Methane Reforming, Coal Gasification, and Electrolysis. The Seetru range of safety valves for hydrogen have been designed to be compact and highly efficient, offering repeatable performance protection for a wide range of systems and processes.



www.seetru.com/hydrogen

www.seetru.com | info@seetru.com | +44 (0) 117 930 6100



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

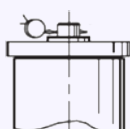
This valve using metal to metal sealing. There is a choice of o'ring used for the sealed cap/lever.

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

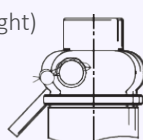
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear / Top Fitting Options

- Sealed Cap (gas tight cap)



- Sealed lever (gas tight)



- Rota-lift (not gas tight)



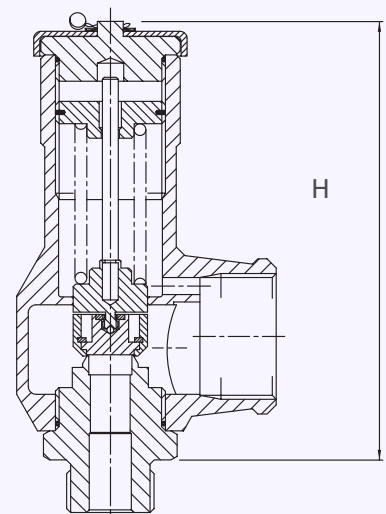
Technical information by bore size



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	78.5mm²			177mm²			314mm²			491mm²			
H - Height (Sealed Lever version)	114mm			168mm			141mm			225mm			
TÜV allotted 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 allotted 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	Nm³/Hour	Nm³/Hour	Nm³/Hour	Nm³/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

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air & gas

hydrogen

Type 33020 / 34020 / 34320

Safety valves made with a Brass or Stainless Steel body and Stainless Steel inlets <
Enclosed discharge valve with threaded connections <
Elastomer rubber sealing <

Example Applications

- Air / gas compressors
- Pressure vessels
- Pneumatic systems
- Medical gases/Technical gases
- Hydrogen (with 316 stainless steel inlet)

Specifications

- Inlet connections: 3/8" to 1/2" threaded inlet connections
- Temperature range: -40°C to +200°C
(depending on body rubber seal material)
- Pressure range: 55.0 to 103.4 bar

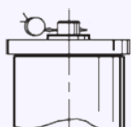
Materials of Construction

Component	Valve Type	Material	Grade
Inlet	33020	Stainless Steel	1.4305 (303)
	34020	Stainless Steel	1.4305 (303)
	34320	Stainless Steel	1.4401 (316)
Body	33020	Brass	CZ132
	34020	Stainless Steel	1.4408 (316)
	34320	Stainless Steel	1.4408 (316)
Spring	All	Stainless Steel	302

Drawing showing all component materials available upon request.

Top fitting

Sealed Cap (gas tight cap)



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)

CE UK EAC

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)	-15°C to +200°C
Nitrile (NBR)	-40°C to +120°C

Standard seal materials shown, others are available.

THESE VALVES SHOULD ONLY BE TESTED FOR SET PRESSURE ON LIQUID PRIOR TO FINAL INSTALLATION. VALVES THAT ARE TESTED ON AIR & FULLY LIFTED WILL CAUSE DAMAGE TO THE SEALING FACE.

Technical information by bore size



Bore size	7.14mm (33020)		7.14mm (34020)		7.14mm (34320)	
Inlet Size	3/8"	1/2"	3/8"	1/2"	3/8"	1/2"
Outlet Size	1/2"		1/2"		1/2"	
Flow Area	40.04mm ²		40.04mm ²		40.04mm ²	
H - Height	96mm		96mm		96mm	
TÜV allotted outflow coefficient	0.67		0.67		0.67	
Weight (approximate) Kg	0.8		0.8		0.8	
Set Pressure range - PED (CE) bar	55.0 to 103.4 bar		55.0 to 103.4 bar		55.0 to 103.4 bar	
Relieving pressure/fully open pressure	Set pressure +10%					
Reseating pressure	Set pressure -15%					

Maximum permissible built up back pressure = 10% of set pressure at or below which flow is not reduced.

Standard INLET Connection Types



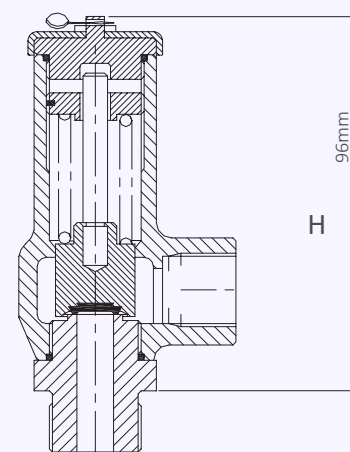
- BSP parallel male thread
- BSP taper male thread
- NPT male thread

Standard OUTLET Connection Types



- BSP parallel female thread
- NPT female thread

Valve Drawing



Valve Selection Guide



Valve type	Inlet Size	Inlet Thread Type	Outlet Thread Type	Seal Material	Set pressure
33020, 34020 or 34320 (see materials)	Select inlet size from above table	Select Inlet Thread type	Select Outlet Thread type	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	33020	1/2"	NPT	NPT	Viton	100 bar
	Valve Type	Inlet Size	Inlet Thread Type	Outlet Thread Type	Seal Material	Set Pressure

Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour
Type 33020, 34020 & 34320: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		7.14mm				
bar	psi	Nm ³ /Hour				
55	797.5	1124.0				
60	870	1224.5				
65	942.5	1325.0				
70	1015	1425.5				
75	1087.5	1526.0				
80	1160	1626.5				
85	1,232.50	1727.0				
90	1305	1827.5				
95	1377.5	1928.0				
100	1450	2028.5				
103.4	1499.3	2096.9				

For any intermediate pressures/flows please contact Seetru

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air & gas

hydrogen

Type 33110 / 34110 / 34410

Safety valves made with a Brass or Stainless Steel body and Stainless Steel inlets <
Enclosed discharge valve with threaded connections <
Elastomer rubber sealing <

Example Applications

- Air / gas compressors
- Pressure vessels
- Pneumatic systems
- Medical gases/Technical gases
- Hydrogen (with 316 stainless steel inlet)

Specifications

- Inlet connections: 3/8" to 1/2" threaded inlet connections
- Temperature range: -40°C to +200°C
(depending on body rubber seal material)
- Pressure range: 27 to 36 & 48.3 to 241.3 bar

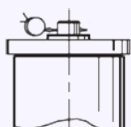
Materials of Construction

Component	Valve Type	Material	Grade
Inlet	33110	Stainless Steel	303
	34110	Stainless Steel	303
	34410	Stainless Steel	316
Body	33110	Brass	CZ122
	34110	Stainless Steel	316
	34410	Stainless Steel	316
Spring	All	Stainless Steel	302

Drawing showing all component materials available upon request.

Top fitting

Sealed Cap (gas tight cap)



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)

CE UK EAC

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)	-15°C to +200°C
Nitrile (NBR)	-40°C to +120°C

Standard seal materials shown, others are available.

THESE VALVES SHOULD ONLY BE TESTED FOR SET PRESSURE ON LIQUID PRIOR TO FINAL INSTALLATION. VALVES THAT ARE TESTED ON AIR & FULLY LIFTED WILL CAUSE DAMAGE TO THE SEALING FACE. [RETURN TO CONTENTS PAGE](#)

Technical information by bore size



Bore size	3.66mm (33110)		3.66mm (34110)		3.66mm (34410)	
Inlet Size	3/8"	1/2"	3/8"	1/2"	3/8"	1/2"
Outlet Size	3/8"	1/2"	3/8"	1/2"	3/8"	1/2"
Flow Area	10.52mm ²		10.52mm ²		10.52mm ²	
H - Height	92mm		92mm		92mm	
TÜV alloted outflow coefficient	0.73		0.73		0.73	
Weight (approximate) Kg	0.8		0.8		0.8	
Set Pressure range - PED (CE) bar	27 to 36 & 48.3 to 241.3 bar		27 to 36 & 48.3 to 241.3 bar		27 to 36 & 48.3 to 241.3 bar	
Relieving pressure/fully open pressure	Set pressure +10%					
Reseating pressure	Set pressure -10%					

Maximum permissible built up back pressure = 10% of set pressure at or below which flow is not reduced.

Standard INLET Connection Types



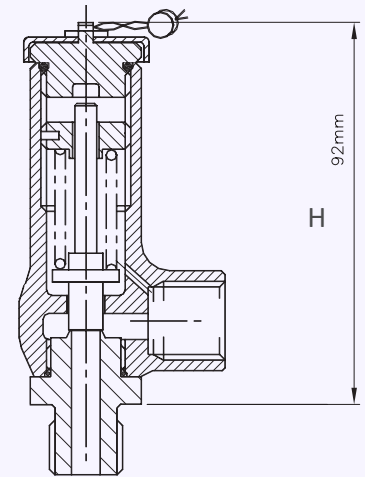
- BSP parallel male thread
- BSP taper male thread
- NPT male thread

Standard OUTLET Connection Types



- BSP parallel female thread
- NPT female thread

Valve Drawing



Valve Selection Guide



Valve type	Inlet Size	Inlet Thread Type	Outlet Thread Type	Seal Material	Set pressure
33110, 34110 or 34410 (see materials)	Select inlet size from above table	Select Inlet Thread type	Select Outlet Thread type	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	33110	1/2"	BSP parallel	BSP parallel	Viton	100 bar
	Valve Type	Inlet Size	Inlet Thread Type	Outlet Thread Type	Seal Material	Set Pressure

Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour
Type 33110, 34110 and 34410: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		3.66mm				
bar	psi	Nm ³ /Hour				
27	391.5	160.7				
30	435	177.9				
33	478.5	195.2				
36	522	212.5				
48	696	281.5				
50	725	293.0				
60	870.00	350.6				
70	1015	408.1				
80	1160	456.7				
90	1305	523.2				
100	1450	580.8				
150	2175	868.5				
200	2900	1156.2				
241	3494.5	1392.1				

For any intermediate pressures/flows please contact Seetru

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air or gases

cryogenic & liquefied gas

refrigeration

hydrogen

Type 329

Safety valves with either Bronze or Stainless Steel body <
Enclosed discharge valve with threaded connections <

Example Applications

- Air/Gas systems
- Natural Gas
- CNG/LNG
- Pressure vessels
- Medical gases
- Technical Gases
- CO2 refrigeration
- Ammonia refrigeration (Stainless steel)
- Cryogenic applications
- Liquefied gases

Specifications

- Inlet connections: 3/8" to 3/4"
- Temperature range: -196°C to +70°C
- Pressure range: 53.0 to 370.0 bar

Materials of Construction

Component	Material	Grade
Inlet	Stainless Steel	1.4401 (316)
Body	Bronze	C83600
	Stainless Steel	1.4408 (316)
Internal Parts	Brass	BS EN 12164 CW614N
	Stainless Steel	1.4401 (316)
Spring	Stainless Steel	1.4310 (302)

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)
- ASME BPVC VIII.1 & XIII (UV)
- CRN



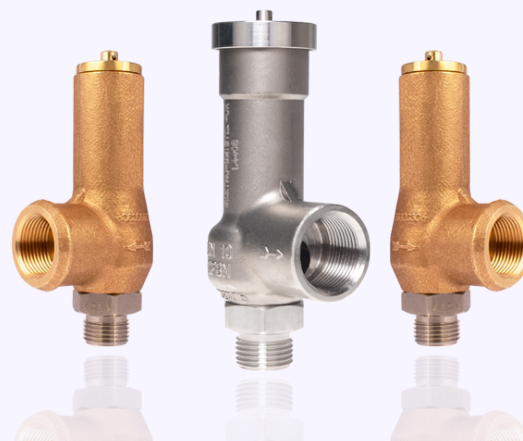
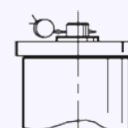
Seal Materials

Seal Material	Temperature Range
PTFE (up to 202 bar) PPS (202 to 370 bar)	-196°C to +70°C

Standard seal materials shown, others are available.

Top Fitting Options

- **Standard Option**
Sealed Cap (gas tight cap)

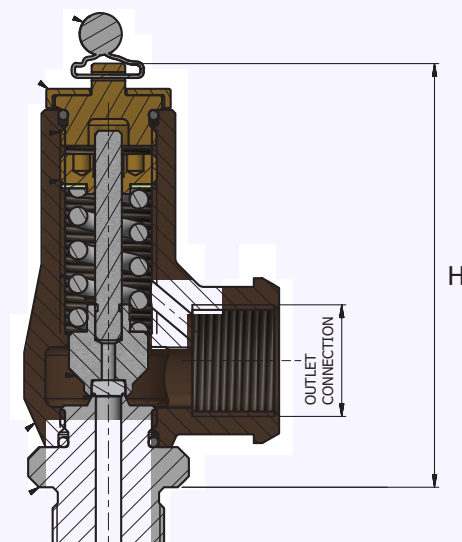


Technical information by bore size

Bore size	6mm		
Inlet Size	3/8"	1/2"	3/4"
Outlet Size	3/4"		
Flow Area	28.2mm ²		
H - Height	100mm (53.0 to 240.0 bar) 114mm (240.0 to 370.0 bar)		
TÜV allotted outflow coefficient	0.77		
NB Certified rated slope (ASME)	0.7scfm/psia		
Weight (approximate) Kg	0.8		
Set Pressure range - PED (CE) bar	53.0 to 370.0		
Set Pressure range - ASME (UV) psi	768.5 to 5365.0		
Relieving pressure/fully open pressure	Set pressure +10%		
Reseating pressure	Set pressure -15%		

Maximum permissible built up back pressure = 10% of set pressure at or below which flow is not reduced.

Valve drawing



Standard Thread Connection Types

- BSP Parallel male thread
- BSP Taper male thread
- NPT male thread

Standard Outlet Connection Types

- BSP Parallel female thread
- NPT female thread

Valve Selection Guide

Valve Type	Body Material	Approval Required	Select Bore	Inlet Size	Inlet Thread Type	Outlet Thread Type	Easing Gear	Seal Material
329	Stainless Steel Bronze	PED (CE)	6mm	Select inlet size from above table	Select Inlet thread type	Select Outlet thread type	Sealed cap	PTFE
		PED (CE), ASME (UV, NB), CRN						

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	Bronze	329	PED (CE)	6	1/2"	NPT	NPT	Sealed Cap	PTFE	175 bar
	Body Material	Valve Type	Approval	Bore = 6mm	Inlet Size	Inlet Thread Type	Outlet Thread Type	Top Fitting	Seal	Set Pressure

Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour
Type 329: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		6mm				
bar	psi	Nm³/Hour				
53	768.5	879.6				
60	870.0	993.8				
70	1015.0	1156.9				
80	1160.0	1320.0				
90	1305.0	1483.1				
100	1450.0	1646.3				
150	2175.0	2461.9				
200	2900.0	3277.5				
250	3625.0	4093.1				
300	4350.0	4908.7				
350	5075.0	5724.4				
370	5365.0	6050.6				

For any intermediate pressures/flows please contact Seetru

Capacity Table - In accordance with ASME BPVC.XIII, AIR at 60°F and 14.7 psia/scfm. SCFM
Type 329: Flow rates at 10% above the set pressure



Set Pressure		Bore Size (D0)				
		6mm				
psi	bar	SCFM				
768.5	53	602				
870	60	680				
913.5	63	714				
1203.5	83	937				
1305	90	1015				
1450	100	1127				
2175	150	1685				
2900	200	2243				
2929	202	2266				
3480	240	2690				
3625	250	2802				
4350	300	3360				
5075	350	3918				
5365	370	4141				

For any intermediate pressures/flows please contact Seetru

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air & gas

hydrogen

Type B4605 / B6605 / 359

Safety valves made from Stainless Steel <
Enclosed discharge valve with threaded connections <

Example Applications

- Air/Gas compressors
- Natural Gas
- Pressure vessels
- Medical gases
- Technical Gases
- Hydrogen production/generation

Specifications

- Inlet connections: 3/8" and 1/2"
- Temperature range:
 - 0°C to 200°C (with 1.4057 (431) stainless steel inlet)
 - -50°C to 150°C (with 1.4401 (316) stainless steel inlet)
- Pressure range: 35.0 to 500.0 bar

Materials of Construction

Component	Material	Grade
Inlet	Stainless Steel	1.4057 (431)
		1.4401 (316)
Body	Stainless Steel	1.4408 (316)
Internal Parts	Stainless Steel	1.4305 (303)
Spring	Stainless Steel	1.4310 (302)

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)



Inlet Seat Material

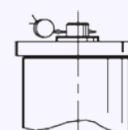
This valve seals using a metal ball design

Seal Material	Temperature Range
Stainless steel 1.4057 (431)	0°C to +200°C
Stainless steel 1.4401 (316)	-50°C to +150°C

Standard seal materials shown, others are available.

Top Fitting Options

- Standard Option
Sealed Cap (gas tight cap)

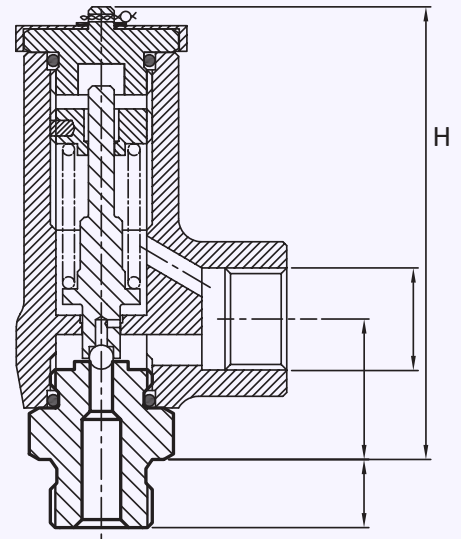


Technical information by bore size

Bore size	4.6mm	
Inlet Size	3/8"	1/2"
Outlet Size	1/2"	
Flow Area	16.6mm ²	
H - Height	96mm	
TÜV allotted outflow coefficient	0.402	
NB Certified rated slope (ASME)	0.34 scfm/psia	
Weight (approximate) Kg	0.8	
Set Pressure range - PED (CE) bar	35.0 to 500.0	
Set Pressure range - ASME (UV) psi	507.5 to 7250.0	
Relieving pressure/fully open pressure	Set pressure +10%	
Reseating pressure	Set pressure -10%	

Maximum permissible built up back pressure = 10% of set pressure at or below which flow is not reduced

Valve drawing



IMPORTANT NOTE:

These valves should only be tested for set pressure on liquid prior to final installation. Valves that are tested on air & fully lifted will cause damage to the sealing face.

Standard Thread Connection Types

- BSP Parallel male thread
- BSP Taper male thread
- NPT male thread

Standard Outlet Connection Types

- BSP Parallel female thread
- NPT female thread

Valve Selection Guide

Valve Type	Inlet Material	Approval Required (Available for both Inlet materials)	Select Bore	Inlet Size	Inlet Thread Type	Outlet Thread Type	Easing Gear	Seal Material
B6605	Stainless Steel 1.4057 (431)	PED (CE)	4.66mm	Select inlet size from above table	Select Inlet thread type	Select Outlet thread type	Sealed cap	Metal ball seal
B4605	Stainless Steel 1.4401 (316)	PED (CE)						

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	1.4057 (431)	359	PED (CE)	4.66	1/2"	BSP taper	BSP	Sealed Cap	Ball Seal	385 bar
	Inlet Material	Valve Type	Approval	Bore = 4.6mm	Inlet Size	Inlet Thread Type	Outlet Thread Type	Top Fitting	Seal	Set Pressure

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



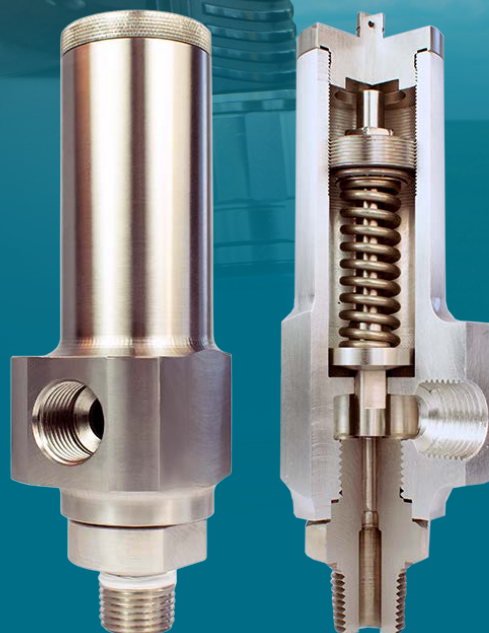
Set Pressure		Bore Size (D0)				
		4.6mm				
bar	psi	Nm³/Hour				
35	507.5	179.8				
50	725.0	254.9				
100	1450.0	505.2				
150	2175.0	755.5				
200	2900.0	1005.8				
250	3625.0	1256.0				
300	4350.0	1506.3				
350	5075.0	1756.6				
400	5800.0	2006.9				
450	6525.0	2257.2				
500	7250.0	2507.5				

Protection for Hydrogen Refuelling

**SEETRU**

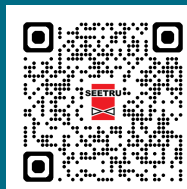
Safety Valves for Hydrogen Refuelling

Hydrogen-fuelled vehicles are one of the main applications for hydrogen energy. Its viability and success is largely dependant upon the infrastructure for hydrogen fuelling and the related safety standards. Seetru Safety Valves are your reliable safety-critical component in hydrogen fuelling; controlling the flow of gaseous hydrogen and most importantly, serving as the last line of defence by shutting down systems.



www.seetru.com/hydrogen

www.seetru.com | info@seetru.com | +44 (0) 117 930 6100



Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air or gases

cryogenic & liquefied gas

hydrogen

Type

94605 / 946H5 / 95605 / 956H5

Safety valves made from stainless steel <
Enclosed discharge with threaded connections <

Example Applications

- Air/Gas Compression
- Air/Gas Boosters
- Natural Gas
- Pressure Vessels
- Hydrogen Production
- Hydrogen Storage – Including liquid Hydrogen
- Cryogenic applications
- Gas transportation (TPED approval available)

Specifications

- **Inlet Connections**
 - ½" NPT, BSP & BSPT
 - 9/16" Cone & Thread
 - 3/4" Cone & Thread
- **Outlet Connections**
 - ½" NPT & BSP
 - ¾" NPT & BSP
 - 1" NPT & BSP
- **Temperature Range**
 - Type 94605 and 946H5 = -20° to 250°C
 - Type 95605 and 956H5 (H2 option) = -196°C to 250°C
- **Temperature Range (Special Options)**
 - High temperature option, up to 300°C, available upon request
 - -269°C version (up to 300 bar) available upon request
- **Pressure Range**
 - 35.0 to 515 bar (9*605)
 - 35.0 to 1100 bar (9*6H5)

*Maximum set pressure for steam is 85 bar



Key Features

- Compact and space saving design
- Designed and built for repeatable operation
- Advanced sealing technology with super-lapped hard-faced seat and disc, designed to offer robust high-performance sealing
- Orientable gas-tight packed lever option (9*6H5 only)
- Simple and robust design with three moving parts
- Maintenance friendly design
- Designed with Hydrogen embrittlement resistant materials (H₂ option)
- Option available suitable for -269°C

Approvals

- BS EN ISO 4126-1
- PED 2014/68/EU
 - Module B – TÜV Rheinland
 - Module D – LRQA Deutschland
- PE(S)R 2016 (UKCA)
 - Module B – TÜV UK
 - Module D – LRQA UK
- Seat tightness better than API 527
- TPED (Transportable Pressure Equipment Directive)
 - Type approval from TU
- EAC marking available upon request

CE UK EAC π

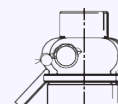
Materials of Construction

Component	Valve Type 2nd Digit	Material	Grade
Seat	4	Stainless	1.4057
	5		S20910
Body	4 & 5	Stainless	1.4401 or 1.4408 (1.4401 body required for temperatures below -196°C)
Disc	4	Stainless	1.4057
	5	Ceramic	
Spring	4 & 5	Stainless	1.4401
Gaskets	4 & 5	PTFE	

For Hydrogen applications above 515 bar, a ceramic disc is required, use type 956H5

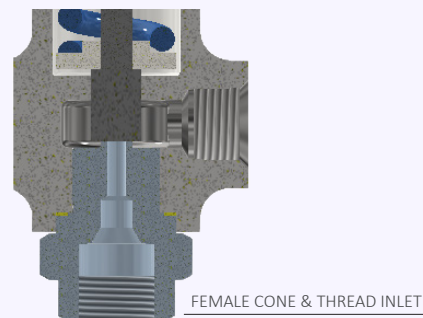
Top Fitting Options

- Sealed Cap (gas tight cap)
- Sealed lever (gas tight)



Technical information by bore size

Model No.	9*605		9*6H5		
Bore	4.6mm				
Inlet	1/2"	9/16"	1/2"	9/16"	3/4"
Outlet	1/2"		1/2"	3/4"	1"
Flow Area	16.6 mm ²				
Height H	158		202		
Kdr	0.75				
Weight	1.5 kg		2.8 kg		

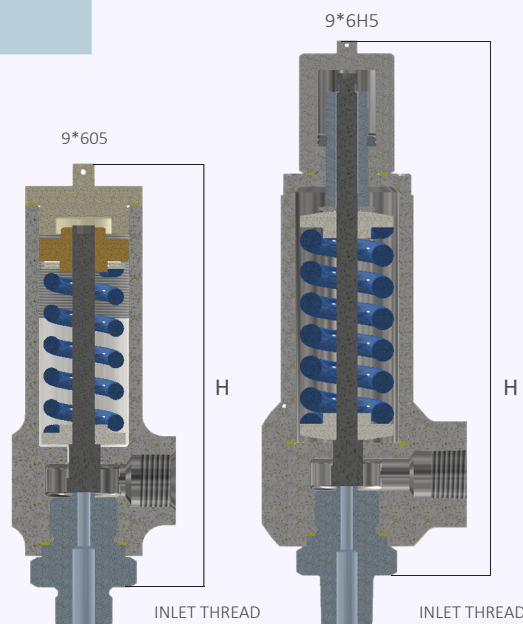


Standard INLET Connection Types

- BSP (male) max 515 bar
- BSPT (male) max 515 bar
- NPT (male) max 1034 bar
- Cone & Thread (female) max 1100 bar

Standard OUTLET Connection Types

- BSP (female)
- NPT (female)



Please send your selected details to Seetru and we can provide the full ordering code, price and lead-time.

Valve Selection Guide - Type 94605, 946H5, 95605 & 956H5

Valve Type	Approval	Temperature Range	Inlet Size	Inlet Connection	Outlet Size	Outlet Connection	Easing Lever (Sealed Lever)
94605	PED (CE) and UKCA	-20° to 250°C	9/16" & 3/4"	C&T	1/2"	NPT, BSP	9*6H5 only
94T05	PED (CE), UKCA, and TPED (π)	-20° to 250°C		1/2"			
95605	PED (CE) and UKCA	-196°C to 250°C	NPT, BSP, BSPT		1/2"		
95T05	PED (CE), UKCA, and TPED (π)	-196°C to 250°C					
9L605	PED (CE) and UKCA	-269°C to 250°C	1/2"				
9LT05	PED (CE), UKCA, and TPED (π)	-269°C to 250°C					
946H5	PED (CE) and UKCA	-20° to 250°C	9/16" & 3/4"	C&T	1/2", 3/4", 1"		
94TH5	PED (CE), UKCA, and TPED (π)	-20° to 250°C					
956H5	PED (CE) and UKCA	-196°C to 250°C	9/16" & 3/4"	C&T	1/2", 3/4", 1"		
95TH5	PED (CE), UKCA, and TPED (π)	-196°C to 250°C					

Example of Valve Selection Process for Order Code 956H5F1297

Example Selection	Approval	Materials from above Table	Bore	Inlet Size	Inlet Thread	Outlet Size	Outlet Thread	Duty	Set Pressure
	PED and UKCA (ASME in process)	5 = Body=1.4401, Seat=S20910, Disc=Ceramic	4.6mm	1/2"	NPT	3/4"	NPT	Hydrogen	1000 bar

Capacity Table -Per EN 4126-7 and at 10% Overpressure

Type 94605 / 946H5 / 95605 / 956H5: Flow rates at 10% above the set pressure.



Set Pressure 		Flow of Air
bar	psi	Nm ³ /hr
35	507.5	335.5
50	725	475.5
75	1087.5	709.0
100	1450	942.5
150	2175	1409.4
200	2900	1876.4
250	3625	2343.3
300	4350	2810.3
350	5075	3277.2
400	5800	3744.2
450	6525	4211.1
500	7250	4678.1
550	7975	5145.1
600	8700	5612.0
650	9425	6078.9
700	10150	6545.9
750	10875	7012.8
800	11600	7479.8
850	12325	7946.7
900	13050	8413.7
950	13775	8880.6
1000	14500	9347.6
1050	15225	9814.5
1100	15950	10281.5

Set Pressure 		Flow of Hydrogen
bar	psi	Nm ³ /hr
35	507.5	1273.2
50	725	1804.9
75	1087.5	2691.1
100	1450	3577.2
150	2175	5349.5
200	2900	7121.8
250	3625	8894.1
300	4350	10666.3
350	5075	12438.6
400	5800	14210.9
450	6525	15983.3
500	7250	17755.5
550	7975	19527.8
600	8700	21300.1
650	9425	23072.4
700	10150	24844.7
750	10875	26617.1
800	11600	28389.2
850	12325	30161.5
900	13050	31933.8
950	13775	33706.1
1000	14500	35478.5
1050	15225	37250.7
1100	15950	39023.0

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air or gases

cryogenic & liquefied gas

steam

refrigeration

hydrogen

Type 946 Flanged

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

Example Applications

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

Specifications

- Inlet connections: DN15 (1/2), DN20 (3/4") or DN25 (1") flange – DIN EN1092 and ANSI flanges are available
- Temperature range: -196°C to +250°C (depending on body o'ring material)
- Pressure range: 0.3 to 28.0 bar

Materials of Construction

Component	Material	Grade
Inlet & Outlet Flanges	Stainless Steel	1.4401 (316)
Body	Stainless Steel	1.4408 (316)
Internal Parts	Stainless Steel	1.4401 (316)
Spring	Stainless Steel	1.4310 (302)
Disc	Stainless Steel	S20910

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

CE UK EAC

Seal Materials

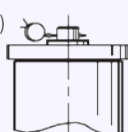
This valve using metal to metal sealing. There is a choice of o'ring used for the sealed cap/lever.

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 +200°C

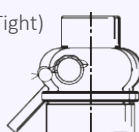
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear / Top Fitting Options

- Sealed Cap (Gas Tight Cap)

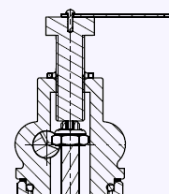


- Sealed lever (Gas Tight)



- Sealed lever (With Test Gag)

A test gag is used to prevent the valve from opening at the set pressure during hydraulic testing when commissioning a system. Once tested, the gag screw is removed and replaced with a short blanking plug before the valve is place in service.



Technical information by bore size

Bore size	10mm (94610)			15mm (94615)
Inlet Size	DN15 (1/2")	DN20 (3/4")	DN25 (1")	DN25 (1")
Outlet Size	DN25 (1")			DN40 (1 1/2")
Flow Area	78.5mm ²			177mm ²
H - Height (Sealed Lever version)	200mm			253mm
TÜV allotted outflow coefficient	0.85 (0.7 below 0.8 bar)			0.85 (0.7 below 0.8 bar)
Weight (approximate) Kg	3.0			5.3
Set Pressure range - PED (CE) bar	0.3 to 28.0			0.3 to 28.0
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 allotted outflow coefficients for pressures above 3.0 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.

Standard INLET Connection Types

- DIN EN1092 Flange PN16, PN25 or PN40
- ASME Flange CL150, CL300 or CL600

Standard OUTLET Connection Types

- DIN EN1092 Flange PN16, PN25 or PN40
- ASME Flange CL150 or CL300

Valve Selection Guide

Valve type	Select Bore	Inlet Size	Inlet Flange Type	Outlet Flange Type	Easing Gear	O'ring material (for cap)
946	Select bore size from above table	Select inlet size from above table	Select Inlet Flange type	Select Outlet Flange type	Select easing gear/top fitting	See table

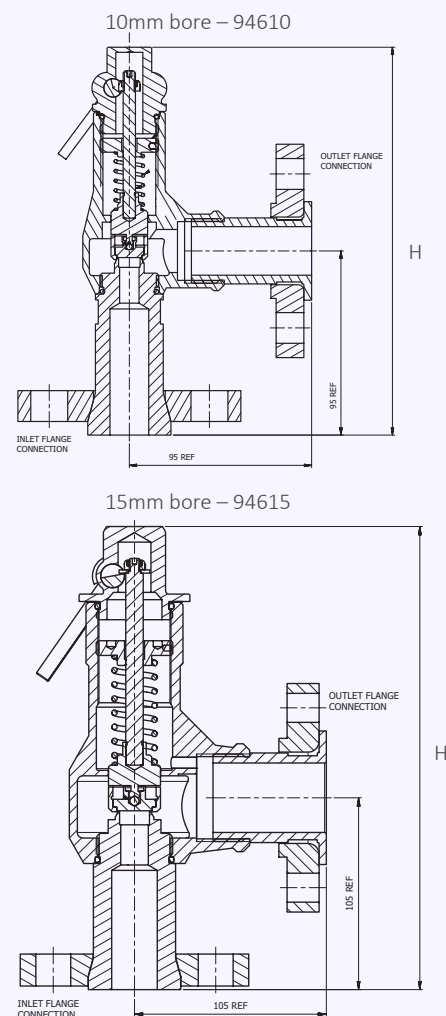
EAC marking available upon request

***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	10	DN20	DIN EN1092 Flange PN16	DIN EN1092 Flange PN16	Sealed Lever	Viton	10.5 bar	16.2 bar
	Valve Type	Bore = 10mm	Inlet Size	Inlet Flange Type	Outlet Flange Type	Top Fitting	O'ring	Set Pressure	Set Pressure

Valve Drawing



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			
bar	psi	Nm ³ /Hour	Nm ³ /Hour			
0.3	4.35	48.5	109.2			
0.5	7.25	59.0	132.9			
1	14.5	96.1	216.2			
2	29	146.1	328.7			
3	43.5	196.1	441.3			
4	58	246.1	553.8			
5	72.5	296.1	666.4			
6	87.00	346.2	778.9			
7	101.5	396.2	891.4			
8	116	446.2	1004.0			
9	130.5	496.2	1116.5			
10	145	546.7	1229.1			
15	217.5	796.3	1791.8			
20	290	1046.4	2354.6			
25	362.5	1296.5	2917.3			
28	406	1446.6	3254.9			

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			
bar	psi	Kg/hour of Steam	Kg/hour of Steam			
0.3	4.35	37.6	84.5			
0.5	7.25	46.6	104.8			
1	14.5	76.6	172.5			
2	29	115.1	259.0			
3	43.5	153.2	344.6			
4	58	190.9	429.7			
5	72.5	228.6	514.3			
6	87.00	266.1	598.6			
7	101.5	303.4	682.6			
8	116	340.6	766.5			
9	130.5	377.9	850.4			
10	145	415.1	933.9			
15	217.5	600.3	1350.7			
20	290	785.4	1767.2			
25	362.5	970.5	2183.7			
28	406	1081.9	2434.4			

For any intermediate pressures/flows please contact Seetru

Enclosed Discharge Safety Relief Valves

Seetru Limited

for compressed air & gas

hydrogen

Type 64613 / 64113 Flanged

Safety valves with Stainless Steel body <
Enclosed discharge valve with flanged connections <

Example Applications

- Air / gas compressors
- Pressure vessels
- Pneumatic systems
- Medical gases
- Technical gases

Specifications

- Inlet connections: DN20 (3/4") or DN25 (1") DIN or ANSI flanges
- Temperature: -40°C to +200°C (depending on seal material)
- Pressure range: 0.32 to 49.0 bar

Materials of Construction

Component	Material	Grade
Inlet	Stainless Steel	1.4401 (316)
Body	Stainless Steel	1.4408 (316)
Internal parts	Stainless Steel	1.4401 (316)
Spring	Stainless Steel	1.4310 (302)

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)
- ASME BPVC VIII.1 & XIII (UV)
- CRN



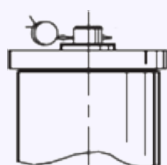
Seal Materials

Seal Material	Temperature Range
Viton® (FKM)	-15°C to +200°C
Nitrile (NBR)	-40°C to +120°C

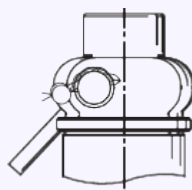
Standard seal materials shown, others are available.

Easing Gear / Lifting Gear Options

Standard Option: Sealed Cap (gas tight cap)



Other Option: Sealed lever (gas tight)

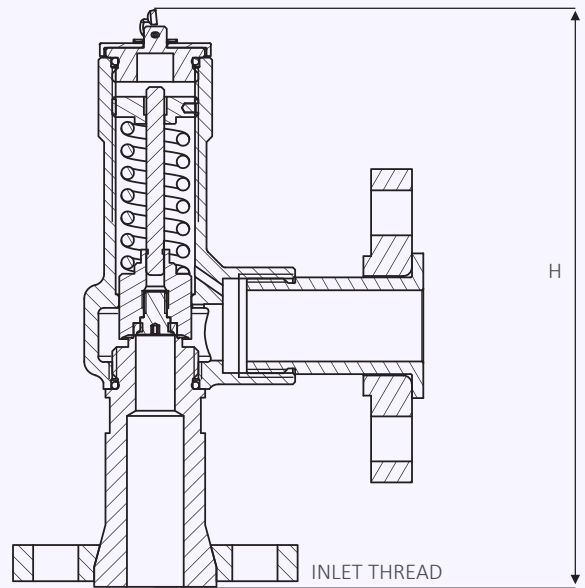


Technical information by bore size

Bore size	13.7mm	
Inlet Size	DN20 (3/4")	DN25 (1")
Outlet Size	DN25 (1")	
Flow Area	147.4mm ²	
H - Height (Sealed cap version)	197mm (up to 35 bar) 226mm (35-49 bar)	
TÜV allotted outflow coefficient	0.77	
NB Certified rated slope (ASME)	3.47 scfm/psia	
Weight (approximate) Kg	3.2	
Set Pressure range - PED (CE) bar	0.32 to 49.0	
Set Pressure range - ASME (UV) psi	20.3 to 710.5	
Relieving pressure/fully open pressure	Set pressure +10% (0.3 bar below 1.4 bar)	
Reseating pressure	Set pressure-10% (0.3 bar minimum)	

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.

Valve Drawing



Standard Thread Connection Types

- DIN EN1092 Flange PN16, PN25 or PN40
- ASME Flange CL150, CL300 or CL600

Standard Outlet Connection Types

- DIN EN1092 Flange PN16, PN25 or PN40
- ASME Flange CL150, CL300 or CL600

Valve Selection Guide

Approval Required	Valve type	Inlet Size	Inlet Flange Type	Outlet Flange Type	Easing Gear	Seal Material
PED (CE)	64613	Select inlet size from above table	Select Inlet flange type	Select Outlet flange type	Select easing gear/top fitting	Viton® (FKM)
PED (CE), ASME (UV) & CRN	64113					Nitrile (NBR)
						Other

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	PED, ASME & CRN	64113	DN20	DIN EN1092 Flange PN16	DIN EN1092 Flange PN16	Sealed Cap	Viton	3.5 bar
	Approval	Valve Type	Inlet Size	Inlet Flange Type	Outlet Flange Type	Easing Gear	Seal	Set Pressure

Capacity Table - In accordance with TÜV, AIR at 0°C and 1013mbar. Normal m³/hour

Type 64613: Flow rates at 10% above the set pressure

Set Pressure 		Bore Size (D0)
		13.7mm
bar	psi	Nm³/Hour
0.32	4.64	160.1
1	14.5	231.2
2	29	321.1
3	43.5	431.0
4	58	540.9
5	72.5	650.8
6	87	760.8
7	101.5	870.7
8	116	980.6
9	130.5	1090.5
10	145	1200.5
15	217.5	1750.1
20	290	2299.7
25	362.5	2849.3
30	435	3398.9
35	507.5	3948.5
40	580	4498.1
45	652.5	5047.7
49	710.5	5487.4

For any intermediate pressures/flows please contact Seetru

Capacity Table - In accordance with ASME BPVC.XIII, AIR at 60°F and 14.7 psia/scfm. SCFM

Type 64113: Flow rates at 10% above the set pressure

Set Pressure 		Bore Size (D0)
		13.7mm
psi	bar	SCFM
20.3	1.40	131.9
22.5	2.50	139.4
30	2.07	165.5
34.8	2.80	183.8
40	2.76	203.7
43.5	3.00	217.0
50	3.45	241.8
82	5.66	363.9
100	6.90	432.6
150	10.34	623.4
200	13.79	814.2
250	17.24	1005.0
300	20.69	1195.8
350	24.14	1386.6
400	27.59	1577.4
435	30.00	1711.0
450	31.03	1768.2
500	34.48	1959.0
507.5	35.00	1987.6
550	37.93	2149.8
600	41.38	2340.6
650	44.83	2531.4
700	48.28	2722.2
710.5	49.00	2762.3

For any intermediate pressures/flows please contact Seetru

Change-Over Valves

Seetru Limited

for compressed air or gases

cryogenic & liquefied gas

refrigeration

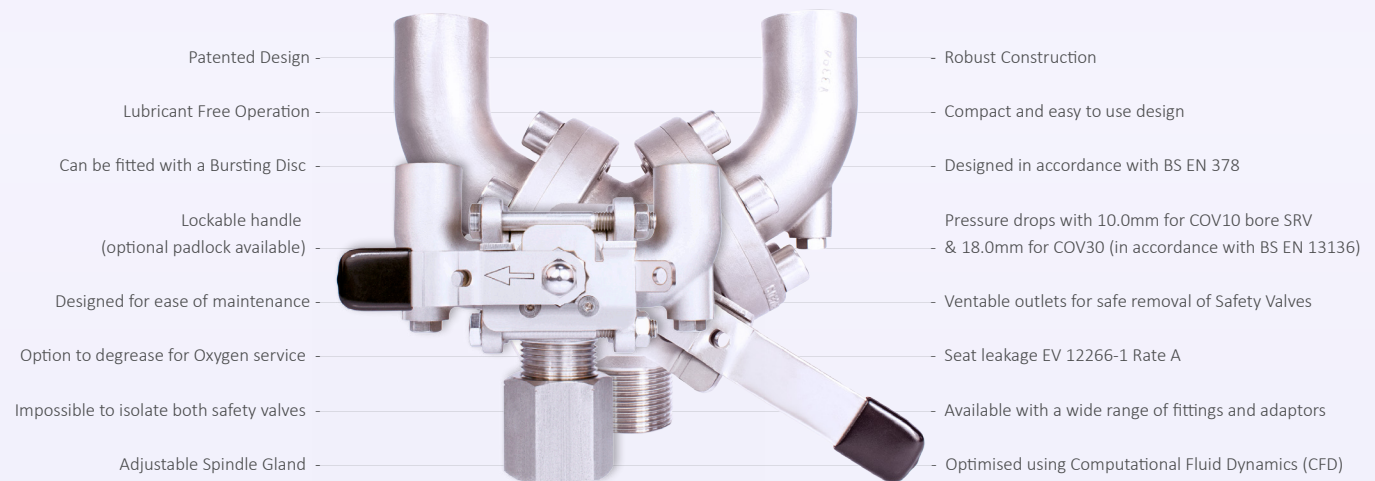
hydrogen

COV10 / COV13 / COV30

Solutions for plant and process efficiency

Change-over valves (sometimes referred to as selector valves or three-way valves) enables the switching of flow from one safety valve to another. Typically used where plant shutdown is impossible or undesirable for process, engineering or commercial reasons. With change-over valves it is possible to switch over between parallel safety valves without interrupting operation, so that maintenance work can be carried out on each safety valve in turn. Seetru change-over valves in combination with our safety valves provide the best solution for plant safety and efficiency. Seetru products are widely recognised for their exceptional quality and reliability.

Features



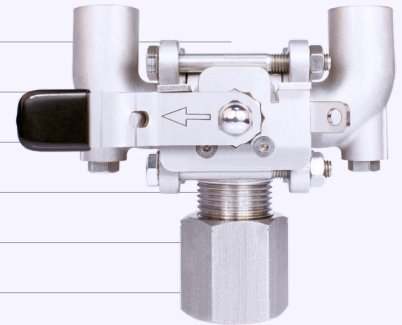
Fluid Mechanics



The Seetru Change-Over Valves were designed and developed using Computational Fluid Dynamics (CFD) in order to simulate and optimise the flow of the fluids through the valve.

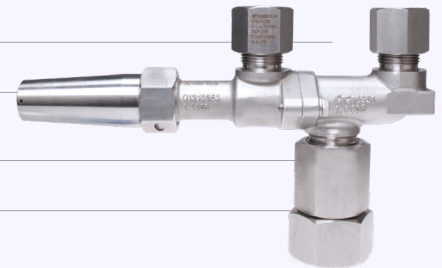
Specifications: COV10

System Connections	½" to 1" BSP, BSPT & NPT
Valve Connectiond	½" NPT or 3/4" BSP (with or without orientators)
Change-Over Valve Kv	10.0 (Cv= 11.5)
Materials of Construction	Stainless Steel
Seat Materials	25% Carbon filled P.T.F.E.
Temperature Range	-196°C to +200°C
Max Design Pressure	75 bar
Material Certification	BS EN ISO10204 3.1 Pressure Retaining Parts (Optional Extra)
Safety Valve Orifice Size	Up to 10mm (Full Lift Type)
Maximum Safety Valve Set Pressure	75 bar



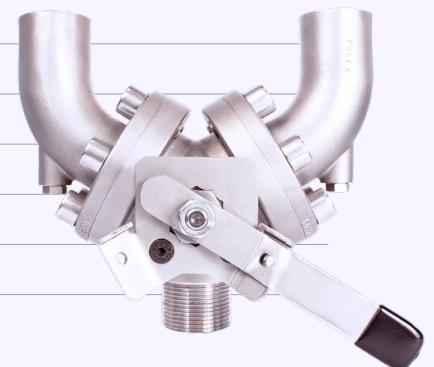
Specifications: COV13

System Connections	Please contact Seetru for information
Valve Connections	Please contact Seetru for information
Materials of Construction	Stainless Steel with Mild Steel or Stainless Steel Internals
Seat Materials	Elastomer P.T.F.E
Maxium Safety valve Set Pressure	65.0 bar
Temperature Range	-30 °C to 200 °C (subject to seal material)



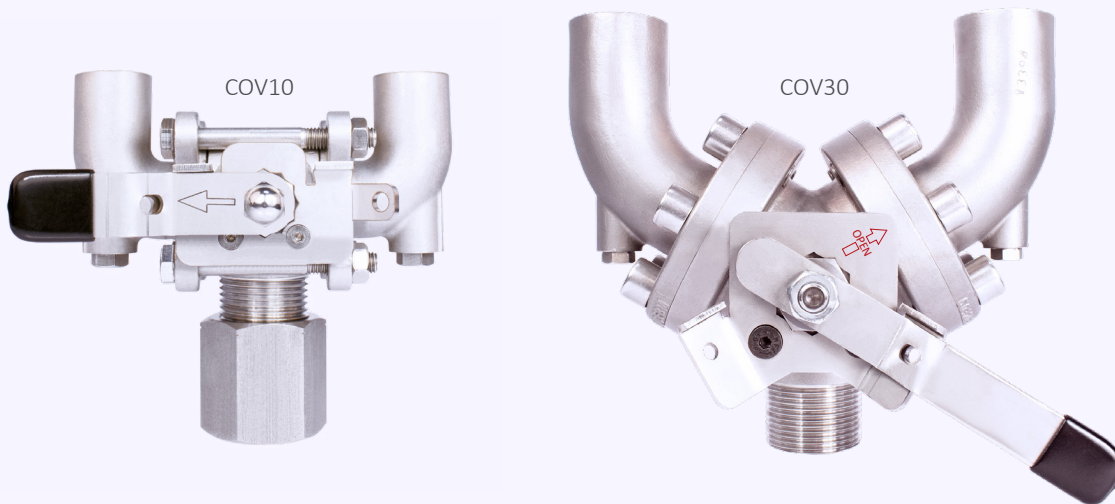
Specifications: COV30

System Connections	1" to 1-1/2" BSP, BSPT, NPT, CL150 to CL600 & PN16 to PN100
Valve Connections	¾" to 1" BSP, BSPT, NPT (with or without orientators), CL150 to CL600 & PN16 to PN100
Change-Over Valve Kv	30
Materials of Construction	CF8M/316/1.4401
Seat Materials	25% Carbon filled P.T.F.E.
Temperature Range	-196°C to +200°C
Max Design Pressure	CL600 or PN100
Material Certification	BS EN ISO10204 3.1 Pressure Retaining Parts (Optional Extra)
Safety Valve Orifice Size	Up to 18mm (Full Lift Type)
Maximum Safety Valve Set Pressure	100 bar

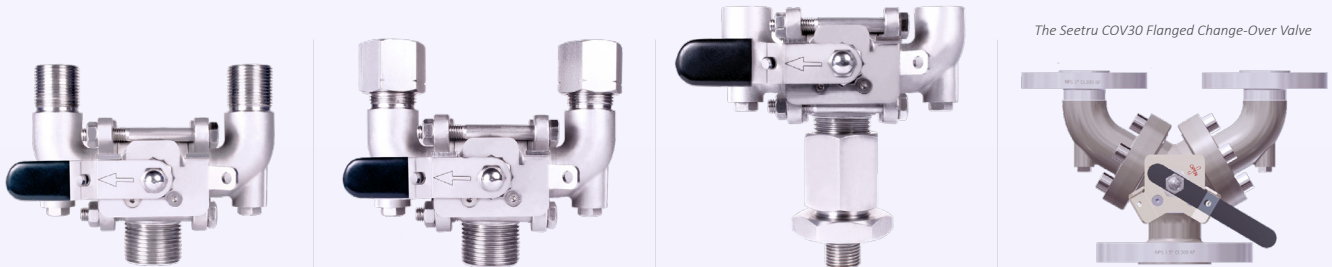


Operation Instructions: COV10 / COV30

1	Unlock handle if locking device fitted (recommended).
2	Starting in a motion away from the duty SRV, rotate handle through 180° (COV10) or 120° (COV30), either clockwise or anticlockwise dependent upon start position.
3	Once fully rotated, lock in position if locking device fitted (recommended).
4	If the now standby SRV is to be removed: with caution, un-tighten vent nut of standby Change-over arm by 1 to 2 revolutions to exhaust trapped fluid from change-over arm.
5	Once trapped fluid has de-pressurised, re-tighten vent plug with a tightening torque of 3.0 Nm.
6	Remove the standby SRV.
7	The user may plug the vacant outlet if desired, however sufficient safety procedures (for example Lock out Tag out) must be in place to prevent inadvertent change over, thus rendering the system un-protected against excessive pressure. If the outlet is plugged, vent arm of pressure, as previously described, prior to removal.



Fittings, Adaptors and Connections



- The Seetru COV10 and COV30 Change-Over Valves can be supplied with a range of fittings and adaptors to provide compatibility with a large variety of systems.
- The COV30 is also available with flanged connections (A or PN).

Explore Seetru's Product Range

Quality & Innovation



Safety Relief Valves

Seetru safety relief valves are known for their reliability, performance, and safety. These valves are manufactured in bronze, brass, or stainless steel and offer a wide range of connections, for applications up to 250 °C

Pressure & Temperature Valves

The Seetru P3W Pressure & Temperature relief valve provides protection against both excess temperature as well as over pressurisation. Each of the lift mechanisms will work independently of each other. The valve is designed to be used in hot water boiler applications.

Pressure Reducing Valves

Alongside our own manufactured items, Seetru also offers a range of pressure-regulating valves, pressure-reducing valves, and overflow valves. They are mainly used in industrial plants, plant engineering, and process engineering. Pressure-reducing valves can be supplied with flanges, weld ends, or threaded connections.

Change-Over Valves

Change-over valves are critical components in various industrial applications, enabling seamless switching between fluid sources or flow paths. Typically used where plant shut-down is impossible or undesirable for process, engineering, or commercial reasons.

Auxiliary Valves

From preventing backflow with check valves to guaranteeing precise pressure with minimum pressure valves, each compact valve plays a vital role. Air start valves deliver rapid pressure bursts while isolating valves segment flow for maintenance.

Testing Equipment

The Seetru Quicktester™ is compact, lightweight, and portable design is very robust and able to meet the demands of a busy maintenance workshop or mobile operation. The Quicktester™ can be used with plant-generated air supplies or with mobile bottled gas.

Liquid Level Gauges

Accurate liquid level monitoring is crucial, whether you're navigating the high seas or managing critical industrial processes. Seetru offers a comprehensive range of liquid-level gauges and indicators designed for precise, reliable measurement in diverse applications.

Circular Window Sight Glasses

Seetru circular window sight glasses are compact low-cost assemblies that provide reliable level indication and positive indication when liquid is present. These screw-in plugs are fitted with high-quality glass.

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Seetru Liquid Level Gauges Measure with Accuracy



Accurate liquid level monitoring is crucial

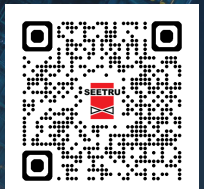
Whether you're navigating the high seas or managing critical industrial processes. Seetru offers a comprehensive range of liquid-level gauges and indicators designed for precise, reliable measurement in diverse applications.

Confidently navigate the complexities of liquid level monitoring with Seetru's comprehensive range of gauges and indicators. Engineered for exactitude and reliability, our instruments empower you across diverse applications, from the open seas to industrial heartlands.

Seetru Liquid Level Gauges

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