HIGH PRESSURE GAS CYLINDER VALVES

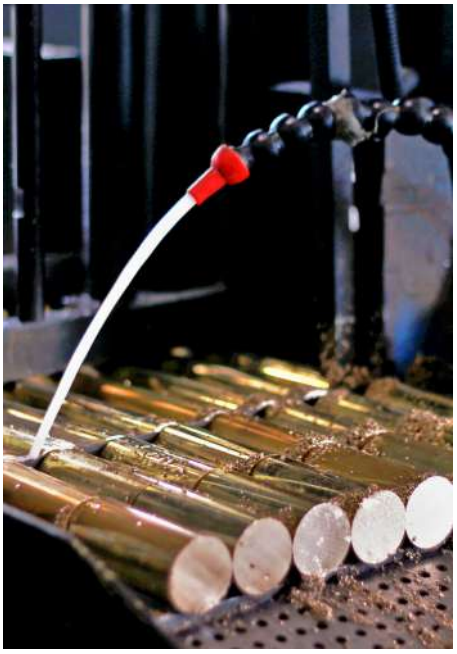
PRODUCT CATALOGUE

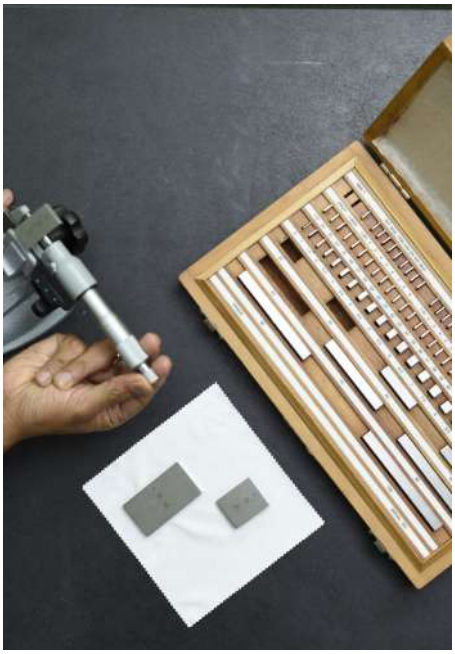
INDIAN EDITION

tekno valves

50 YEARS OF EXCELLENCE

Your Safety Is Valued







CONTRACT

Your Technology Partner for High Pressure Gas Cylinder Valves

Tekno Valves is a leading manufacturer of high pressure gas cylinder valves for Industrial, Medical, Speciality, Firefighting, CNG, SCBA, Refrigerants & Corrosive gases.

Established in 1971, Tekno Valves is proudly family-owned, with the first and second-generation working with a shared vision to put Indian gas equipment at the global centre stage.

With long-term and sustainable decision-making at the core of all activities, our journey of 51 years has led to Tekno Valves being accepted and used in 65+ countries worldwide.

Our integrated manufacturing facility based in Kolkata, India, is equipped with the latest technology and inclusive of a tool & die shop, forging unit & ISO 17025-certified laboratories in the field of calibration, mechanical & chemical testing. The infrastructure is sustainably designed to minimize environmental impact.

Cylinder valves are designed, certified, and manufactured to exceed the requirements of national & international standards. Valves bear Pi, Rho and CGA V-9 marks for exports and are approved by Federal Institute for Materials Research & Testing (BAM), Germany and Arrowhead UK.

Through active participation, we contribute towards the development of technical standards in the International Organization for Standardization (ISO) / Compressed Gas Association (CGA) / Chlorine Institute (CI) / Bureau of Indian Standards (BIS) cylinder valve committees. Our association with the gas industry includes membership in IOMA, CGA, GAWDA, CI, ASTM & AIIGMA.

“Tekno” is synonymous with safety in handling high pressure, and our dedicated team of valve experts remain committed to delivering reliable valving solutions to our customers.

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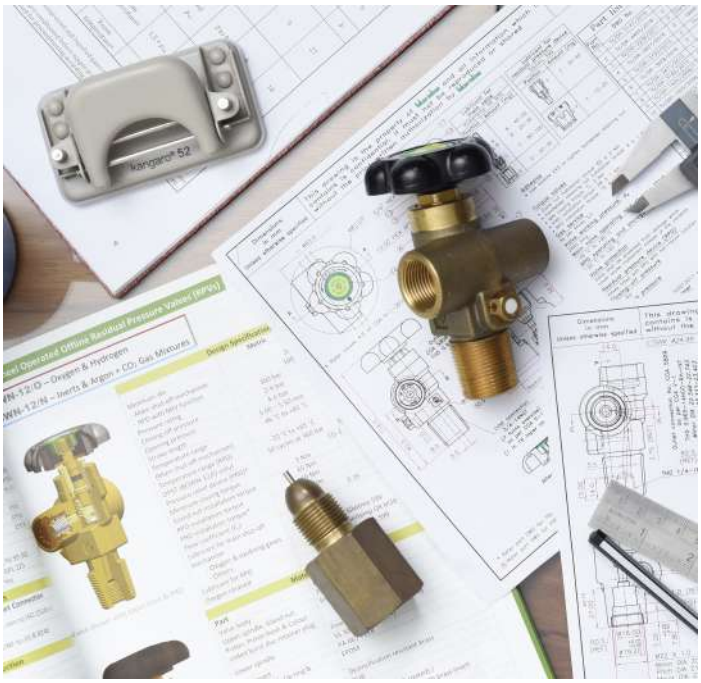
About Us

Valves Technology

360º Manufacturing Under One Roof

Design & Development

Cylinder valves are designed to meet national and international specifications, tested and certified by a European notified body. Product development is aided by the CAD/CAM software, which seamlessly integrates with manufacturing.



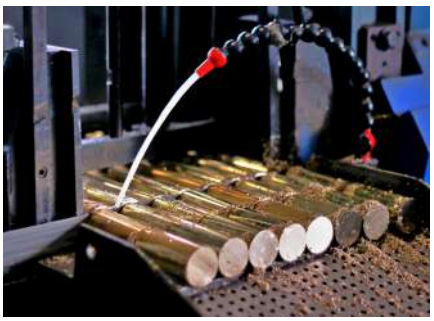
Tool & Die Studio

Modern tool room assists design and production activity by developing forging dies, trimming punches, jigs and fixtures, packaging trays and other utilities.

In-house Forging

Integrated forge shop is equipped to produce in-house customized forgings using energy-efficient induction furnaces and carry out subsequent heat-treatment processes.






Machining Bay

Our state of the art machine shop uses multi-axis CNC machines to carry out simultaneous operations of valve bodies and components in a single setup to minimize loading time and ensure accuracy.


Deburring & Degreasing

Valve bodies and components are degreased in a close circuit using vacuum solvent technology to remove oil and grease, cutting fluid and particulate matter.

Assembly & Testing Bay

Automated equipment used for O-ring fitment, lubrication dispensation, PTFE taping and wheel assembly. Torques are imparted using DC nut runners and each valve is pressure tested prior to despatch.

Eco-Friendly Packaging

Valves are packed in customized foam trays made on-site to provide cushioning and protection during transport. The foam compacts to approximately 10% of its original volume in a landfill. It is biostable and will not degrade to pollute air or groundwater. Valves for Oxygen service are heat sealed to maintain the integrity of the cleaning process.

ISO 17025 Laboratories

Our dedicated Mechanical, Chemical, and Calibration laboratories are ISO 17025 certified and NABL accredited, allowing us to carry complete chemical and mechanical tests of raw materials and in-house calibration of measuring instruments, torque wrenches and pressure gauges.

Cylinder Valves Designs

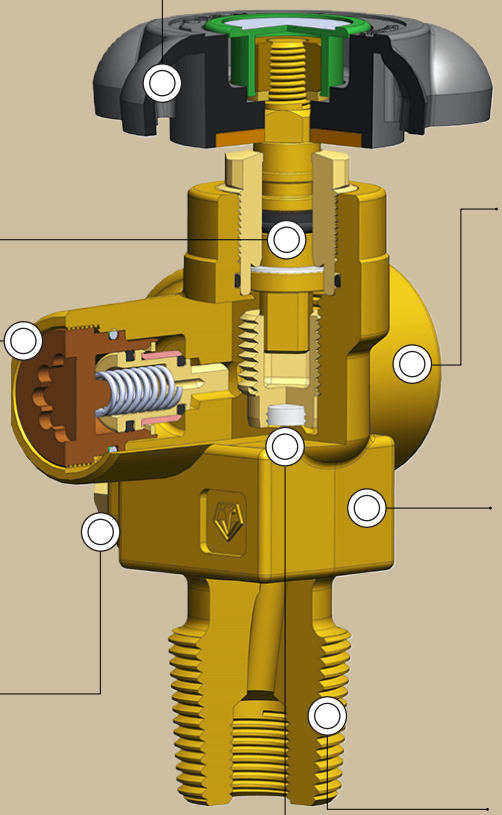
Nomenclature

Valve Operating Device

Component which actuates the valve operating mechanism – handwheel, key, knob or actuator.

Valve Operating Mechanism

Mechanism which opens & closes the valve orifice.



Outlet

Portion of the valve body through which gas is introduced or discharged.

Residual Pressure Device (RPD)

Device that is designed to prevent ingress of contaminants by maintaining a positive pressure within the cylinder relative to atmosphere by closing off its internal gas passages in the discharging direction.

Valve Body

Portion of the valve that contains the orifice, seat, inlet & outlet connections. It is machined to accept the components to create the valve assembly & sealing system.

Pressure Relief Device (PRD)

Device used to prevent the pressure in a normally charged cylinder from rising above a predetermined maximum, thereby preventing rupture of the cylinder in case of fire & / or overfilling.

Inlet

Portion of the valve body that connects to the cylinder.

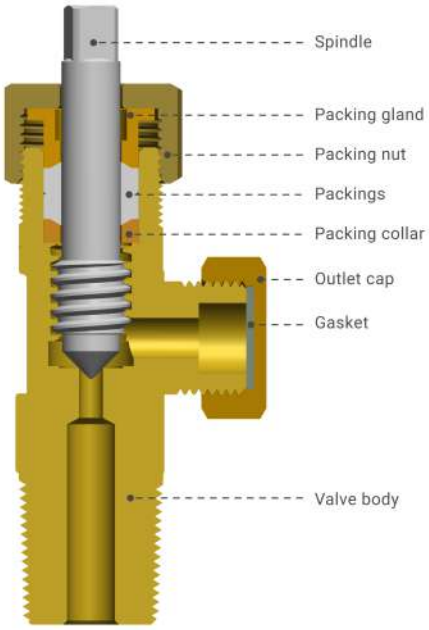
Seat

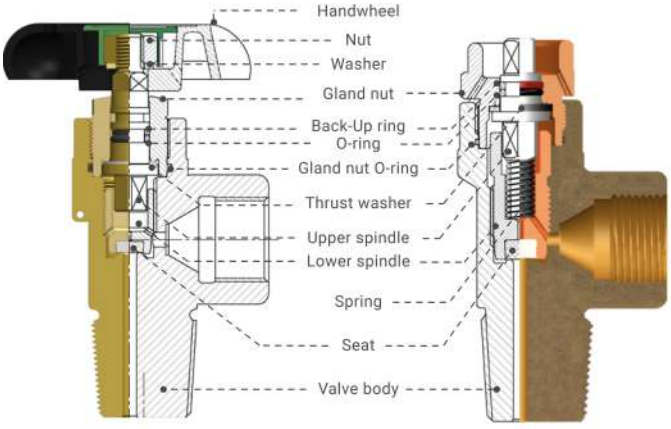
Sealing surface surrounding the orifice in the valve body

01 Compression Packed Valves

(Key Operated, Single Spindle, Metal Seated)

These valves, available in Brass, Al-Si Bronze and Carbon Steel, use compressed packing to make a seal around the valve spindle & body. To ensure a good seal, the packing nut is tightened to compress the packing against the spindle. As this results in higher torques, the valve is operated with wrench. The design allows for tightening of the gland nut in case of leakage past the packings. These valves are used for corrosive gases because of the ability of the operating mechanism to withstand higher torques to overcome any build-up of salts or contaminants in the seating area. These valves are generally used up to valve test pressure of 50 bar & not preferred for high purity applications because of particulate generation from valve seat & packing wear.





Handwheel Operation

Key Operation

02 O-ring Seal Valves

(Two-piece Spindle, Soft Seated)

These valves, available in brass body, have a non-rising upper spindle & threaded lower spindle. It uses O-ring/s to create a seal around the upper spindle. These valves are easier to operate than packed valves due to absence of packing load on the upper spindle & hence used for a wide range of pressure & non-corrosive gas applications where low torque operation is desired. The top spindle is designed to fail first, allowing valve maintenance & package content recovery in the event of a failure, even when the cylinder is full. These valves come in key, toggle, handwheel & handle operation.

a) Key Operation

The upper spindle is usually manufactured from Stainless steel as the valves are expected to withstand high torques in the field.

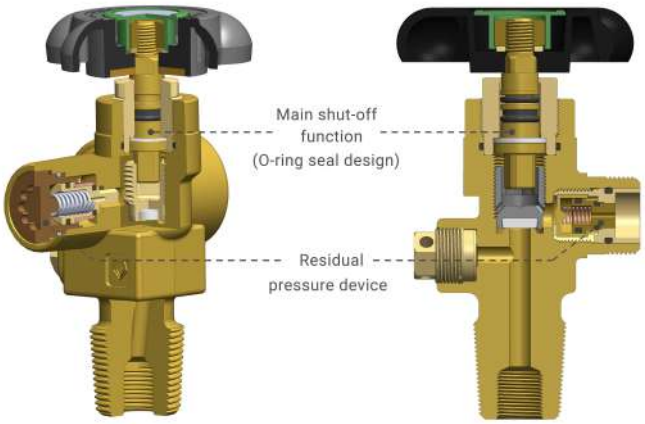
b) Handwheel Operation

The upper spindle is fitted to a handwheel to operate the valve by hand. This restricts imparting of high torques by the user to operate the valve, preventing damage to the operating mechanism & facilitating high cycle life.

03

Residual Pressure Valves (RPV)

These are handwheel operated O-ring seal valves fitted with an offline or inline Residual Pressure Device (RPD). The RPD has a built in Non-Return Valve (NRV) function to prevent backflow of downstream contents preventing contamination risks as a result of positive pressure always present in the cylinder. RPV technology provides improved safety of the cylinder & ensures purity of gas contents eliminating the need to purge cylinder each time it comes back for filling. The user needs a filling connector consisting of a projected “Pin” during filling & evacuation to neutralize the NRV function.



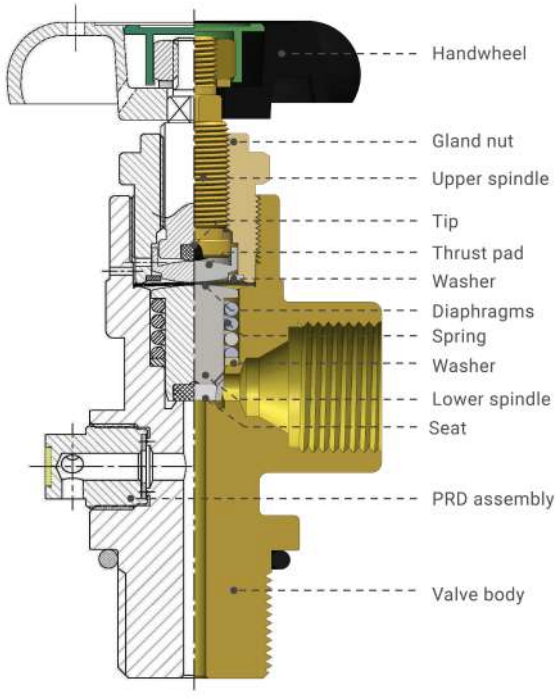
Offline RPV Inline RPV

Inline RPV

The RPD is contained within the outlet & therefore is mainly used for external threaded outlet requiring sealing on the face. Due to limitation of the volume within which the inline RPD have to be accommodated, they have greater flow limitation than the offline version.

Offline RPV

The outlet is offset with respect to the inlet plane & the RPD is backside of the outlet. Offline valves can be designed for any outlet connection but are mainly used for outlet with internal threads & for external threaded outlet requiring sealing in the cone. They are less restrictive on the flow passage of the valve.



04

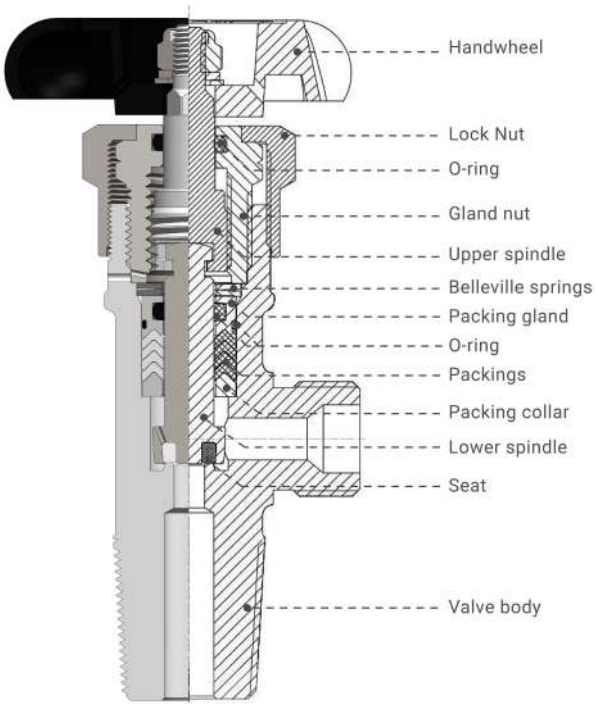
Diaphragm Seal Valves

(Handwheel Operated, Two-piece Spindle, Soft Seated)

These valves, available in brass & stainless steel body, use diaphragms for gland sealing. The gland nut threads into the valve body & clamps the outer edges of the diaphragms against a ledge in the valve body to form a seal. The lower spindle assembly is non-threaded & encased in a spring which forces it away from the seat when the valve is opened. The upper spindle is threaded into the gland nut.

The replacement of elastomeric seals with metal diaphragms gives the valve superior leak integrity. The lower spindle is non-threaded & non-lubricated making the design highly suitable for toxic, pyrophoric & high purity gas. The valve opening is restricted by the stroke of the diaphragm, limiting the flow through the valve. Due to high torque required to close the valve by overcoming cylinder pressure X area of the diaphragm plus the spring force, the use of these valves is limited to cylinder pressure up to 200 bar.

05



Compression Packed Valves with O-ring Seal

(Handwheel Operated, Two-piece Spindle, Soft Seated)

These valves, available in Brass, Al-Si Bronze, Carbon Steel & Stainless Steel body, combine compressed gland packing & O-ring technology to gland seal the valve. The lower spindle connects to the upper spindle via a slip joint. The lower spindle assembly seals against the seat without rotating, reducing wear & particle generation. The gland nut is usually secured by a lock nut having threads in the opposite direction to prevent accidental loosening of the gland nut.

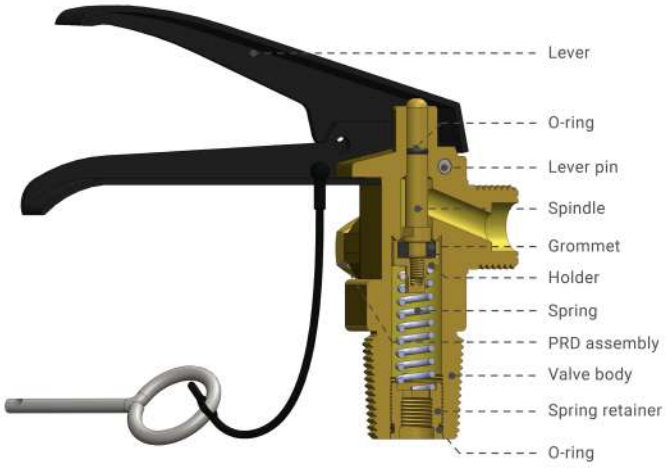
Unlike the single spindle packed valve, the packing is smaller, better contained, spring loaded & backed by O-ring/s. This allows the mechanism to seal with handwheel up to 200 bar & eliminates the need to retighten gland nut making the design very suitable for toxic & corrosive gases.

Reverse Seated Valves

These are brass valves & use an O-ring to seal around the valve spindle. Pressure tends to keep the valve shut & as the cylinder pressure decreases, the total force available to sustain valve shut-off also decreases & seat closure is achieved by spring force. If there is a leak at the seat when the valve closes, there is no way to manually apply more force.

This design is used for squeeze grip carbon dioxide valves for firefighting application where quick release of gas content is desired.

06



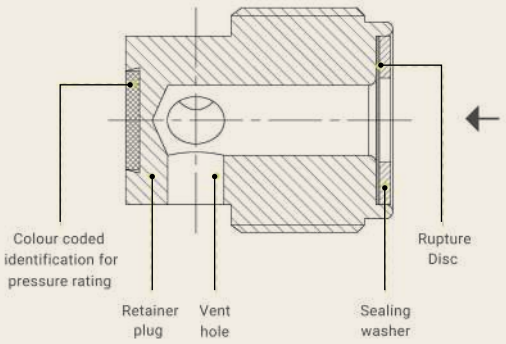
Pressure Relief Device (PRD)

Pressure & / or temperature activated device installed on cylinders to prevent the pressure in a cylinder from rising above a predetermined maximum, thereby preventing rupture of the cylinder in case the cylinder is exposed to fire, high temperature & / or overfilling.

Rupture Disc Device (CG-1)

Pressure operated non-reclosing device designed to function by the bursting of a pressure containing disc. Once the disc ruptures, it completely releases the content of the cylinder. It is equipped with colour coded safety for easy identification of its set pressure.

For compressed gas UN cylinder, test pressure of the cylinder is 1.5 times the working pressure of cylinder. For liquefiable gas UN cylinder, test pressure & the corresponding filling ratio is given in P200 of ADR. Test pressure of a DOT cylinder is 5/3 times the working/service pressure.



01

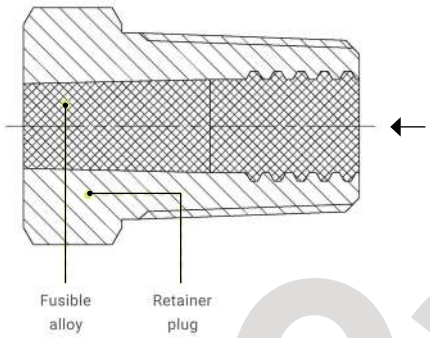
Fusible Plug Device (CG-2/CG-3)

Thermally operated non-reclosing device designed to function by the yielding of a fusible metal at a set temperature. These devices do not protect from overpressurization at temperatures below their melting point. In the event a cylinder is exposed to fire or excess heat, the fusible plug is designed to melt & release the cylinder contents preventing product within the cylinder from creating excessively high pressures, caused by high external temperatures & rupturing the cylinder.

These devices are limited for use up to 500 psig service pressure due to risk of extrusion of the alloy.

CG-2 plug yields at a temperature between 157°F to 170°F (69.4°C to 76.7°C). Nominal temperature 165 °F (74 °C).

CG-3 plug yields at a temperature between 208°F to 224°F (97.8°C to 106.7°C). Nominal temperature 212 °F (100 °C).



02

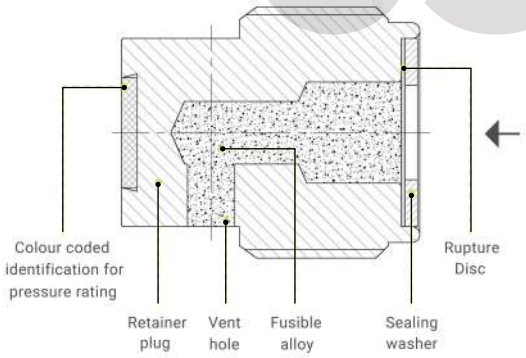
03

Combination Rupture Disc/ Fusible Alloy (CG-4/CG-5)

Combination of pressure & temperature operated non-reclosing device consisting of a rupture disc backed by fusible alloy on the atmospheric side of the disc. In case of fire or high temperature, the fusible metal yields & cylinder overpressure is relieved by the bursting of the rupture disc. Both the pressure & temperature requirements of the device must be satisfied for the device to actuate. This device will not protect a cylinder from overpressurization if the fusible alloy is not heated to its yield temperature. The fusible metal prevents premature rupture disc failure from momentary overpressurization & also protects the disc from external corrosion.

CG-4 plug yields at a temperature between 157°F to 170°F (69.4°C to 76.7°C). Nominal temperature 165 °F (74 °C).

CG-5 plug yields at a temperature between 208°F to 224°F (97.8°C to 106.7°C). Nominal temperature 212 °F (100 °C).

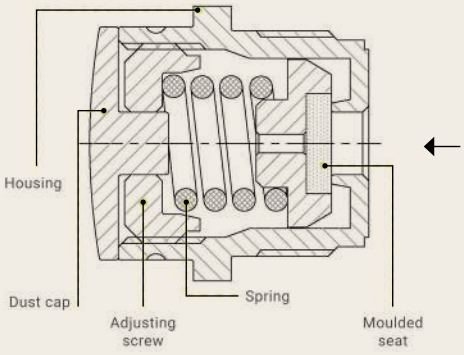


Pressure Relief Valve (PRV, CG-7)

Spring-loaded device designed to relieve excessive pressure & reclose & reseat to prevent further flow of gas or fluid from the container after resealing pressure is achieved. When the cylinder pressure exceeds the pressure setting of the spring in the relief valve, the valve opens to discharge the cylinder contents. Once the cylinder pressure decreases to the Pressure Relief Valve's (PRV's) pressure setting, it reseats above the pressure in a normally charged cylinder at 130°F (54.4 °C) after venting sufficient gas to control the internal cylinder pressure.

The pressure setting of the pressure relief valve is normally between 75% & 100% of the minimum test pressure of the cylinder.

This device does not protect against rupture of the container when the application of heat weakens the container to the point where its rupture pressure is less than the operating pressure of the device. These devices are limited for use up to 500 psig charging pressure cylinders.



04

SERIES SELECTION TABLE

Operating Mechanism	Operating Device	Valve Seal	Spindle Configuration	Valve Body Material			
				Brass	Al-Si Bronze	Carbon Steel	Stainless Steel
INDUSTRIAL GASES							
Oxygen, Hydrogen & other gases							
Compression packed	Key	Metal to metal	Single	BSKM-21/O			
O-ring seal	Key	Soft seated	Two-piece	BSKN-12/O & BTKN-12/O			
	Handwheel			SWN-12/O & TWN-12/O			
				SWN-12/N			
O-ring seal (Offline RPV)				BOWN-12/O & BOWN-12/N			
Acetylene							
Compression packed	Key	Metal to metal	Single	BSKM-21/O			
O-ring seal	Key	Soft seated	Two-piece	BSKN-12/O & BTKN-12/O			
	Handwheel			SWN-12/O & TWN-12/O			
Carbon Dioxide							
O-ring seal	Key	Soft seated	Two-piece	BSKN-12/C			
	Handwheel			BSWN-12/C			
O-ring seal (Offline RPV)				BOWN-12/C			
MEDICAL GASES							
Compression packed	Key	Metal to metal	Single	BSKM-21/O			
		Soft seated		MYC-11			
O-ring seal	Key		Two-piece	BSKN-12/O & BTKN-12/O			
	Key / Toggle / Knob			MYC-10C			
	Handwheel			SWN-12/O & TWN-12/O			
				SWN-12/N			
O-ring seal (Offline RPV)				BOWN-12/O			
CHLORINE & CORROSIVE GASES							
Compression packed	Key	Metal to metal	Single		ASKM-21		
				BSKM-21			
Compression packed with O-ring seal	Handwheel	Soft seated	Two-piece				SSWN-22/V
SPECIALITY GASES							
Diaphragm gland seal	Handwheel	Soft seated	Two-piece				SSWN-32/V
AMMONIA & AMINES							
Compression packed	Key	Metal to metal	Single			CSKM-21	

SERIES SELECTION TABLE

Operating Mechanism	Operating Device	Valve Seal	Spindle Configuration	Valve Body Material			
				Brass	Al-Si Bronze	Carbon Steel	Stainless Steel
REFRIGERANT GASES							
Compression packed	Key	Metal to metal	Single	BSKM-21			
Diaphragm gland seal	Handwheel	Soft seated	Two-piece	RDP-03			
BREATHABLE AIR (SCBA)							
O-ring seal	Handwheel	Soft seated	Two-piece	HBA-10/I			
				HBA-10/I with PG			
				MBA-10/I			
MASTER SHUT-OFF VALVES							
O-ring seal	T-handle	Metal to metal	Two-piece	BMV-09			
		Soft seated		BHN-12/N			
FIRE FIGHTING							
O-ring seal	Handwheel	Soft seated	Two-piece	BSWN-12/F			
Reverse seated	Lever (Squeeze grip)		-	FSG-07/F			
Quick release	Actuator			FSV-01			
	Puncturing device			FSV-08			
COMPRESSED NATURAL GAS (CNG)							
O-ring seal	Handwheel	Soft seated	Two-piece	BSWN-12			

O_2, N_2O, O_2+N_2O, O_2+He

O_2, C_2H_2, CO_2, H_2, N_2 CO_2 - CLASS B & ELECTRICAL

Cl_2, SO_2, HCl, HF, $COCl_2$

O_2, Ar, He, CO, Kr Xe, SF_6, NO, NO_2, SiH_4

NH_3, H_2S, COS, BF_3, $C_2H_5NH_2$

CHC_1F_2, CF_3C_1, $CHFCl_2$, CH_2FCF_3

N_2, O_2, Ar, CO_2 CNG

Gas Cylinder Valves for Industrial Gases

OXYGEN, HYDROGEN & OTHER GASES

ACETYLENE

CARBON DIOXIDE

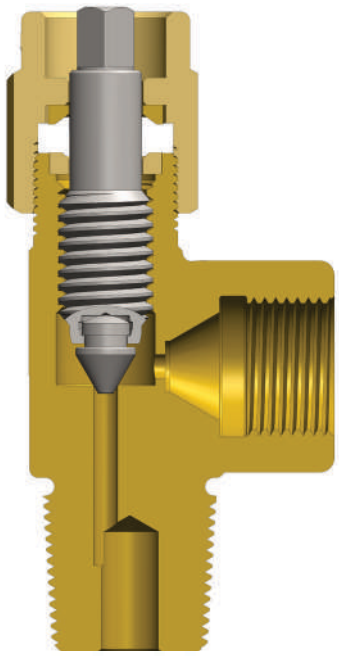
BSKM-21/O

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Oxygen, Hydrogen & Other Gases

BAM TPED Certification by BAM as notified body: ID-0589



Design Specifications	
Minimum life	2000 cycles
Maximum pressure rating (type approval)	240 bar
Spindle square	7.1 mm / 8 mm
Oxygen pressure surge test	20 cycles at 240 bar
Temperature range	-20 °C to + 65 °C
Minimum closing torque [a]	8 Nm
Gland nut installation torque [b]	60 Nm
Spindle failure torque	80-85 Nm
Flow coefficient (C_v)	0.40
Lubricant	Krytox GPL 225
Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	HT brass
Self-centering spindle	SS 303
Packing	PTFE
Other components	Free cutting brass

a - Higher torques may be required to operate the valve in service (Maximum recommended 25 Nm)
b - Retightening may be required in service

Compliance & Certification
• Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection [c] for Indian market
• Valves meet EN ISO 10297:2017
• Valves are certified to European TPED & available with Pi ( ) mark

c - Available only with 7.1mm spindle square valves

For features, benefits & ordering information, refer detailed catalogue

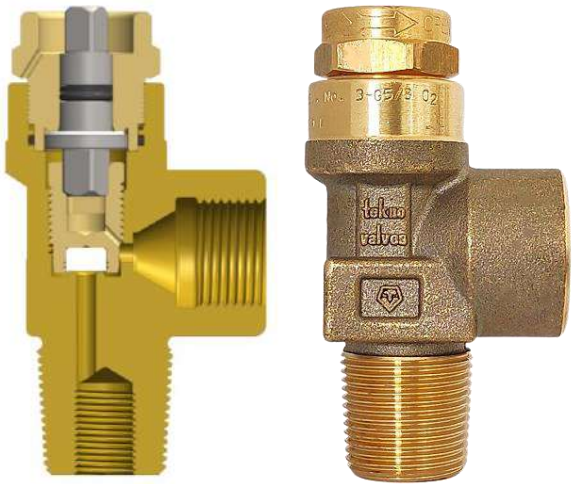
BSKN-12/O & BTKN-12/O

Key Operated Soft Seated Valves in O-ring Seal Design

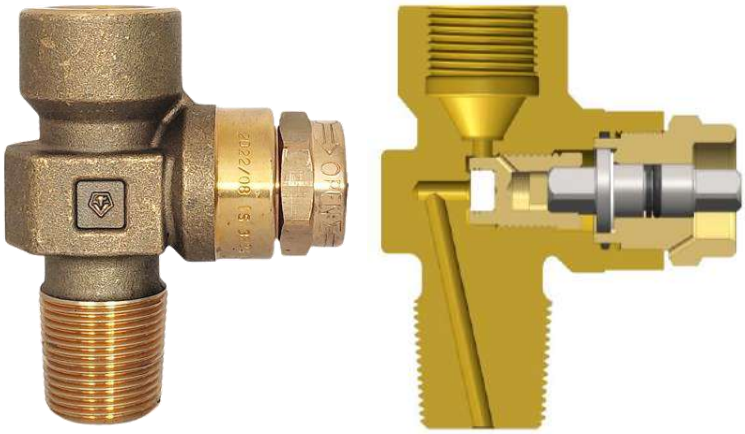
tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Oxygen, Hydrogen & Other Gases

BAM TPED Certification by BAM as notified body: ID-0589



BSKN-12/O
Side Outlet Valve



BTKN-12/O
Top Outlet Valve

Design Specifications	
Maximum working pressure (WP)	300 bar
Spindle square	7.1 mm
Minimum closing torque	8 Nm
Gland nut installation torque	75 Nm
Spindle failure torque	70-80 Nm
Flow coefficient (C_v)	0.35
Lubricant - Oxygen - Others	 Gleitmo 599 Krytox GPL 225
Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged brass
Upper spindle	SS 303
Lower spindle	Naval Brass
Gland Nut	Free cutting brass
Seat insert & Thrust washer	PEEK
O-rings & Back-Up Ring	EPDM

Gas Service & Outlet Details		
Gas Service	**Thread designation**	**Connection**
Carbon Monoxide (CO)	G5/8-14 TPI-LH	IS-2
Hydrogen (H_2)		
Oxygen (O_2)	G5/8-14 TPI-RH	IS-3
Air	G7/8A-14 TPI-RH	IS-19
Argon (Ar)	G3/4A-14 TPI-RH	IS -20
Helium (He)		
Krypton (Kr)		
Neon (Ne)		
Nitrogen (N_2)		
Xenon (Xe)		

Compliance & Certification
• Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection for Indian market
• Valves meet EN ISO 10297:2017
• Valves are certified to European TPED & available with Pi (ΠΤ) mark

For features, benefits & ordering information, refer detailed catalogue

SWN-12/O & TWN-12/O

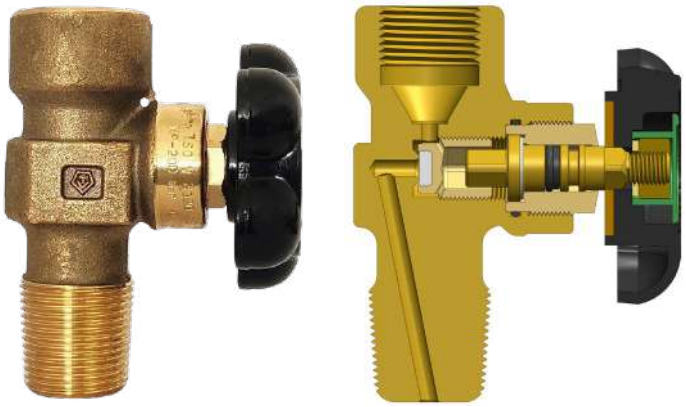
Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder valves for Oxygen, Hydrogen & Other Gases

BAM TPED Certification by BAM as notified body: ID-0589

SWN-12/O
Side Outlet Valve (shown with taper inlet)



TWN-12/O
Top Outlet Valve

Design Specifications	
Maximum working pressure (WP)	400 bar
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
Flow coefficient (C_v)	0.36
Lubricant - Oxygen - Others	 Gleitmo 599 Klubertemp GR M30
Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged brass
Gland nut, Upper & Lower spindle	Free cutting brass
Seat insert	PA 66
Thrust washer	PEEK
O-rings & Back-Up Ring	See table
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Inlet O-ring *	EPDM / PTFE

** Applicable for parallel inlet connection in SWN-12/O*

Gas Service & Outlet Details			
Gas Service	**Thread Designation**	**Connection**	**O-rings & Back-Up Ring**
Butadiene (C_4H_6)	G5/8-14 TPI-LH	IS-2	FKM
Ethylene (C_2H_4)			
Isobutylene (C_4H_8)			
Methane (CH_4)			
Hydrogen (H_2)			EPDM
Carbon Monoxide (CO)			
Oxygen (O_2)	G5/8-14 TPI-RH	IS-3	
Air	G7/8A-14 TPI-RH	IS-19	
Argon (Ar)	G3/4A-14 TPI-RH	IS -20	
Helium (He)			
Krypton (Kr)			
Neon (Ne)			
Nitrogen (N_2)			
Xenon (Xe)			

Compliance & Certification

- Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection for Indian market
- Valves meet EN ISO 10297:2017 & CGA V-9:2019
- Valves are certified to European TPED, available with Pi (ℼ) mark & UK TPE, available with Rho (ρ) mark

For features, benefits & ordering information, refer detailed catalogue

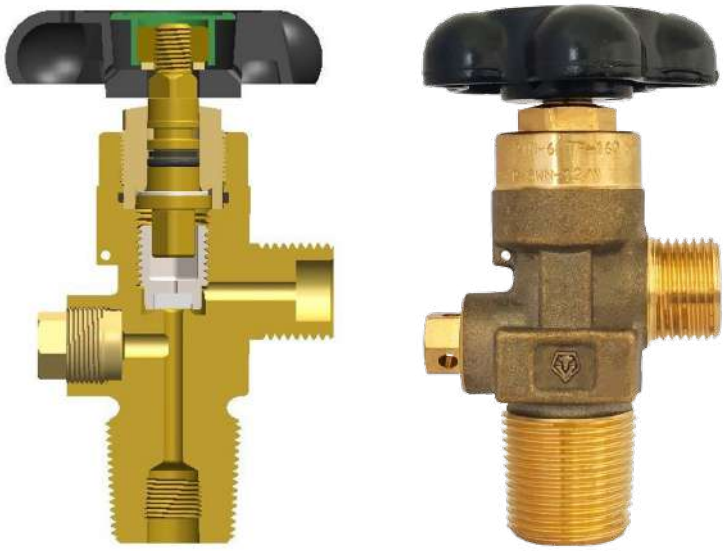
SWN-12/N

Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for N_2O, SF_6 & Argon-CO_2 mixture

BAM TPED Certification by BAM as notified body: ID-0589



Valve shown with PRD

Design Specifications	
Maximum working pressure (WP)[b]	300 bar
Pressure relief device (PRD) [a]	Bursting disc type
PRD burst pressure [b]	See note
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
PRD installation torque	28 Nm
Flow coefficient (C_v)	0.36
Lubricant - Nitrous oxide - SF_6 & Argon-CO_2 mixture	 Gleitmo 599 Klubertemp GR M30

a - Optional

b - The bursting disc pressure shall not exceed the cylinder test pressure for which device is intended and shall be more than the developed pressure of the gas at 65 °C.

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Upper spindle, Gland nut & Retainer plug	Free cutting brass
Lower spindle - Nitrous oxide - SF_6 & Argon-CO_2 mixture	 Free cutting brass SS 303
Seat insert	PA 66
Thrust washer	PEEK
O-rings & Back-Up Ring	EPDM
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Burst disc	Nickel
Burst disc sealing washer	Copper

Gas Service & Outlet Details		
Gas Service	**Thread Designation**	**Connection**
Nitrous Oxide (N_2O)	EXT-W17.42 X 1.27-RH	IS-12
Sulphur Hexafluoride (SF_6)	G5/8A-14 TPI-RH	IS-5
Argon & CO_2 mixture	EXT-W21.8 x 1.814-RH	IS -7
	G3/4A-14 TPI-RH	IS-20

Compliance & Certification

- Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection for Indian market
- Valves meet EN ISO 10297:2017 & CGA V-9:2019
- Valves are certified to European TPED, available with Pi (⚶) mark & UK TPE, available with Rho (ρ) mark

For features, benefits & ordering information, refer detailed catalogue

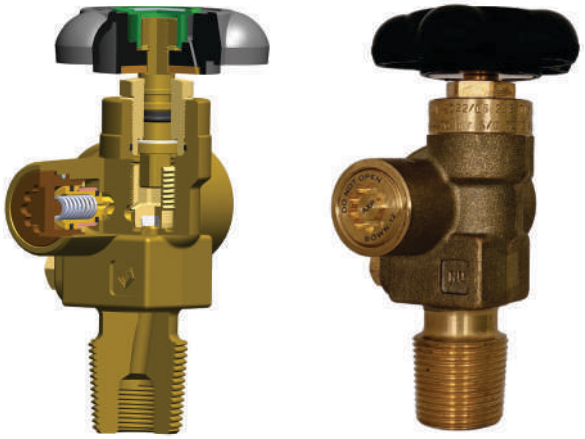
BOWN-12/O & BOWN-12/N

Handwheel Operated Offline Residual Pressure Valves (RPVs) with Non-Return Valve Function

tekno valves 50 YEARS OF EXCELLENCE

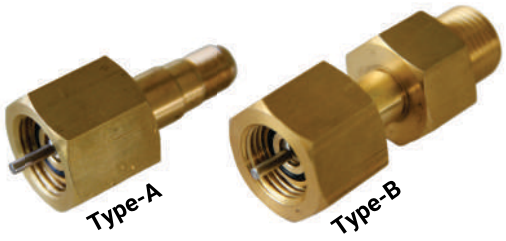
BOWN-12/O - Oxygen, Hydrogen & Other Gases
BOWN-12/N - Inerts & Argon + CO_2 Gas Mixtures

BAM TPED Certification by BAM as notified body: ID-0589



Valve shown with taper inlet & PRD

RPV Filling Adapters



Design Specifications		
	Metric	**English**
Minimum life - Main shut-off mechanism - Residual pressure device (RPD)	2000 cycles 100000 cycles	
Minimum pressure rating (type approval)	360 bar	5220 psig
Closing-off pressure	2-4 bar	30-60 psig
Opening pressure	4-6 bar	60-90 psig
Stroke length	5.0–5.5 mm	0.20–0.22 in
Temperature range (Main shut-off mechanism)	-46 °C to +85 °C	-51 °F to +185 °F
Temperature range (RPD)	-20 °C to +65 °C	-4 °F to +149 °F
OPST (BOWN-12/O)	50 cycles at 360 bar	50 cycles at 5220 psig
Pressure relief device (PRD) [a]	CG-1 / CG-4 / CG-5	
Minimum closing torque	3 Nm	2.2 ft.lb
Gland nut installation torque	65 Nm	48 ft.lb
RPD installation torque	19 Nm	14 ft.lb
PRD installation torque [a]	28 Nm	21 ft.lb
Flow coefficient (C_v)	0.35	
Lubricant for main shut-off mechanism - Oxygen & oxidizing gases - Others	Gleitmo 599 Klubertemp GR M30	
Lubricant for RPD	Gleitmo 599	
Oxygen cleaned	Yes	

a - Optional

Material of Construction		
Part		**Material**
Valve body		Forged LT brass
Upper spindle, Gland nut, Piston, Piston bush & Retainer plug		Free cutting brass
Lower spindle	BOWN-12/O	Free cutting brass
	BOWN-12/N	SS 303
Seat insert		PA 66
O-rings, Back-Up Ring & Quad ring		EPDM
Housing		Dezincification resistant brass
RPD O-rings		PUR
Thrust washer		PEEK
Handwheel		Aluminium (CED coated) / Glass filled PA with brass insert
Spring		Copper beryllium
Burst disc		Nickel / Copper
Burst disc sealing washer		Copper
Inlet O-ring [b]		EPDM

b - For parallel inlet connection only

Compliance & Certification
• Valves are approved by PESO & supplied under Lloyd's inspection for Indian market
• Valves meet EN ISO 10297:2017, ISO 15996:2017 & CGA V-9:2019
• Valves are certified to European TPED, available with Pi (ΠT) mark & UK TPE, available with Rho (ρ) mark
• PRD complies with CGA S-1.1
• Available with CGA XXXR outlet connection as per CGA V-1

For features, benefits & ordering information, refer detailed catalogue

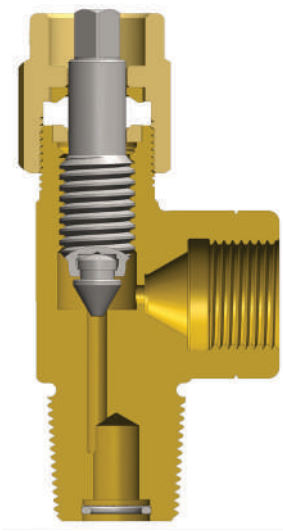
BSKM-21/O

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

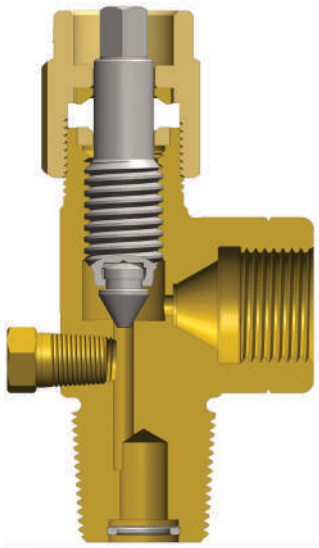
tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Acetylene

BAM TPED Certification by BAM as notified body: ID-0589



Standard valve



Valve with fusible plug

Design Specifications	
Minimum life	2000 cycles
Maximum pressure rating (type approval)	60 bar
Spindle square	7.1 mm / 8 mm
Temperature range	-20 °C to + 65 °C
Pressure relief device (PRD) [a]	CG-3
Fusible alloy yield temperature	98°C -104°C
Minimum closing torque [b]	8 Nm
Gland nut installation torque [c]	60 Nm
Spindle failure torque	80-85 Nm
Fusible plug installation torque [a]	17 Nm
Filter net size	60 mesh
Flow coefficient (C_v)	0.40
Lubricant	Krytox GPL 225

Material of Construction	
Part	**Material**
Valve body	Forged HT brass
Self-centering spindle	SS 303
Packing	PTFE
Other components	Free cutting brass
Fusible plug	Naval brass
Filter net	Stainless steel
Filter washer	SS 304

a - Optional

b - Higher torques may be required to operate the valve in service (Maximum recommended 25 Nm)

c - Retightening may be required in service

Compliance & Certification
• Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection [d] for Indian market
• Valves meet EN ISO 10297:2017
• Valves are certified to European TPED & available with Pi ( ) mark
• Fusible plug complies with CGA S-1.1

d - *Available only with 7.1 mm spindle square valves*

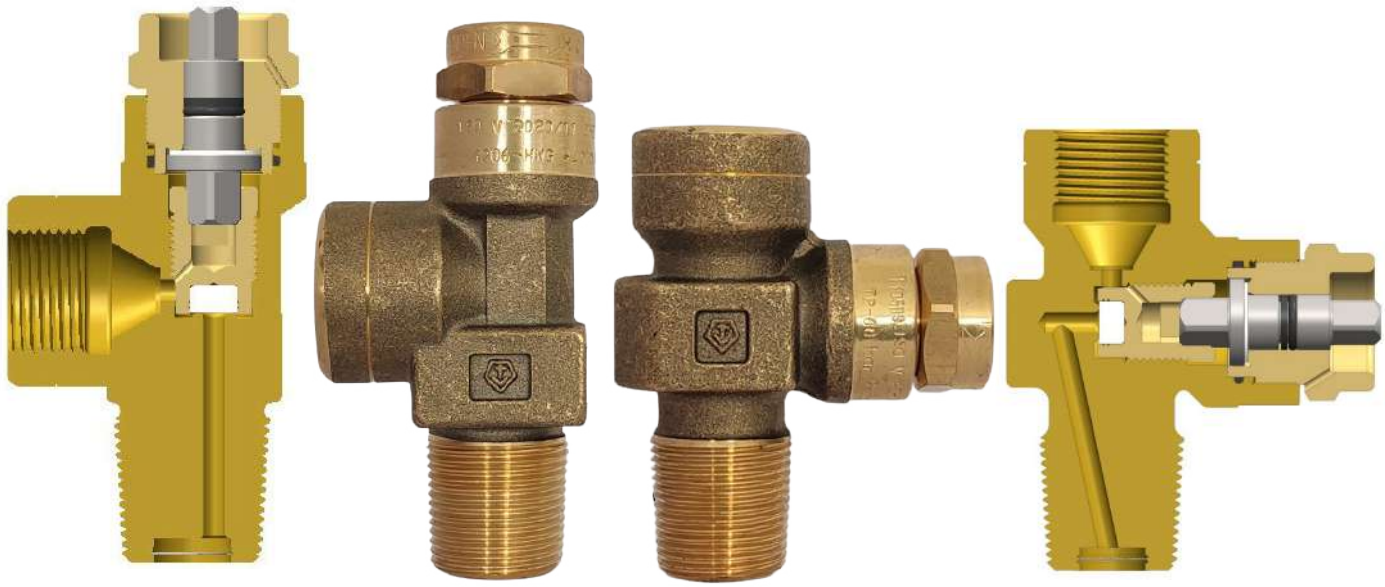
For features, benefits & ordering information, refer detailed catalogue

BSKN-12/O & BTKN-12/O

Key Operated Soft Seated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Acetylene



BSKN-12/O
Side Outlet Valve

BTKN-12/O
Top Outlet Valve

Design Specifications	
Maximum working pressure (WP)	60 bar
Outlet connection	IS-2 (G5/8-14 TPI-LH)
Spindle square	7.1 mm
Minimum closing torque	8 Nm
Gland nut installation torque	75 Nm
Spindle failure torque	70-80 Nm
Filter net size	250 micron
Flow coefficient (C_v)	0.35
Lubricant	Krytox GPL 225

Material of Construction	
Part	**Material**
Valve body	Forged brass
Upper spindle	SS 303
Lower spindle	Naval Brass
Gland Nut	Free cutting brass
Seat insert & Thrust washer	PEEK
O-rings & Back-Up Ring	EPDM
Filter net	Stainless steel
Filter washer	SS 304

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

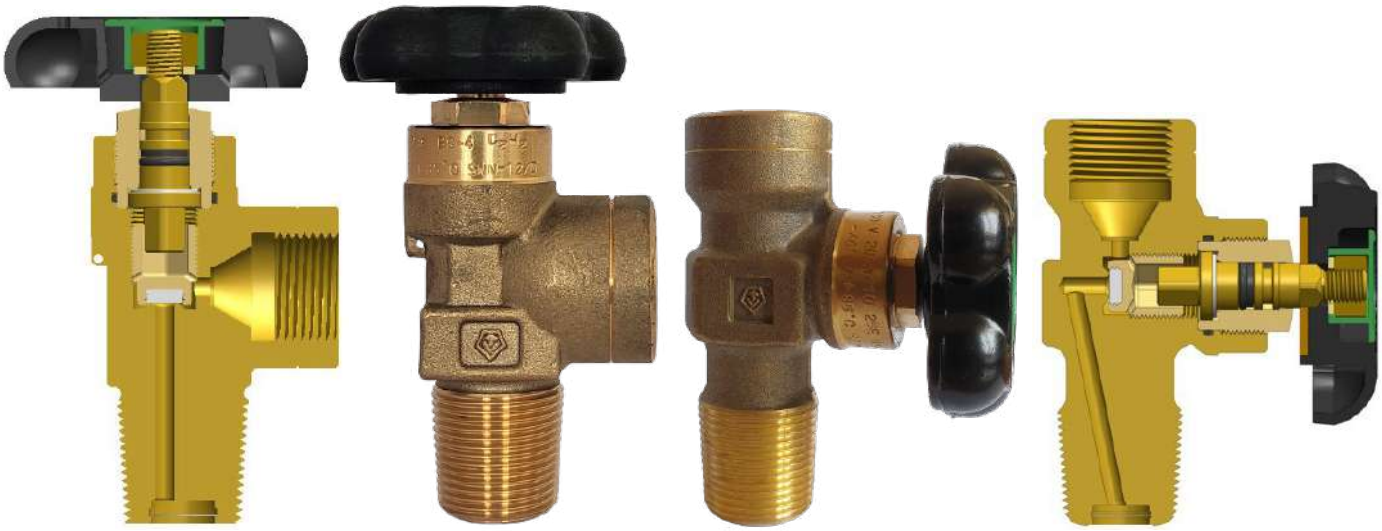
For features, benefits & ordering information, refer detailed catalogue

SWN-12/O & TWN-12/O

Handwheel Operated Valves in O-ring Seal Design

tekno valves
50 YEARS OF EXCELLENCE

Cylinder Valves for Acetylene



SWN-12/O
Side Outlet Valve

TWN-12/O
Top Outlet Valve

Design Specifications	
Maximum working pressure (WP)	60 bar
Outlet connection	IS-2 (G5/8-14 TPI-LH)
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
Filter net size	250 micron
Flow coefficient (C_v)	0.36
Lubricant	Klubertemp GR M30

Material of Construction	
Part	**Material**
Valve body	Forged brass
Gland nut, Upper & Lower spindle	Free cutting brass
Seat insert	PA 66
Thrust washer	PEEK
O-rings & Back-Up Ring	EPDM
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Filter net	Stainless steel
Filter washer	SS 304

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

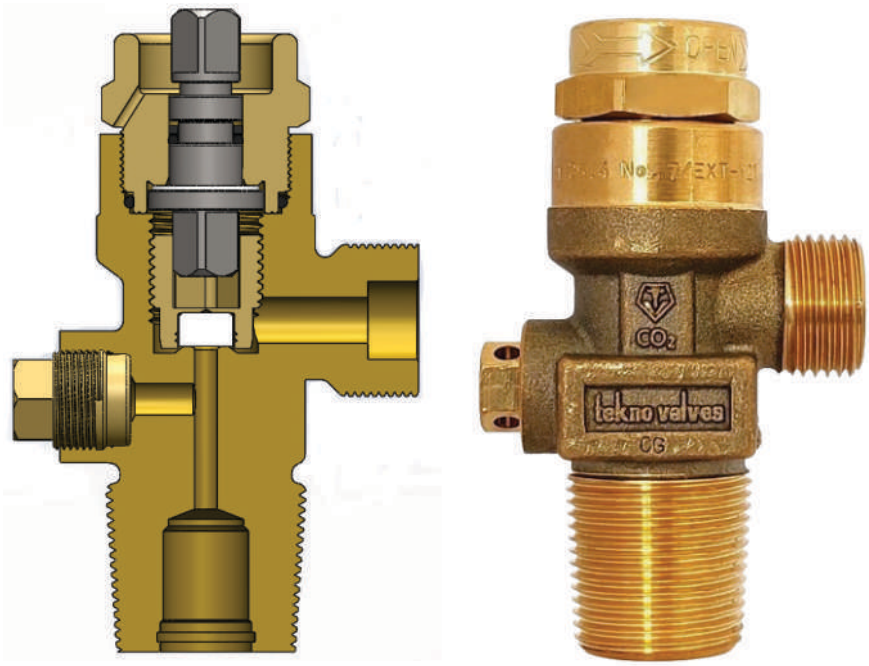
For features, benefits & ordering information, refer detailed catalogue

BSKN-12/C

Key Operated Soft Seated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Carbon Dioxide



Design Specifications	
Maximum working pressure (WP) *	250 bar
Spindle square	9.50 mm
Pressure relief device (PRD)	Bursting disc type
PRD burst pressure *	See note
Minimum closing torque	6 Nm
Gland nut installation torque	65 Nm
PRD installation torque	25 Nm
Spindle failure torque	65-70 Nm
Flow coefficient (C_v)	0.74
Lubricant	Kluebertemp GR AR 555

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Upper & Lower spindle	SS 303
Gland nut & Retainer plug	Free cutting brass
Seat insert	PA 66
O-rings & Back-Up Ring	EPDM
Thrust washer	PEEK
Burst disc	Nickel
Burst disc sealing washer	Copper

** The bursting disc pressure shall not exceed the cylinder test pressure for which device is intended and shall be more than the developed pressure of the gas at 65 °C.*

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

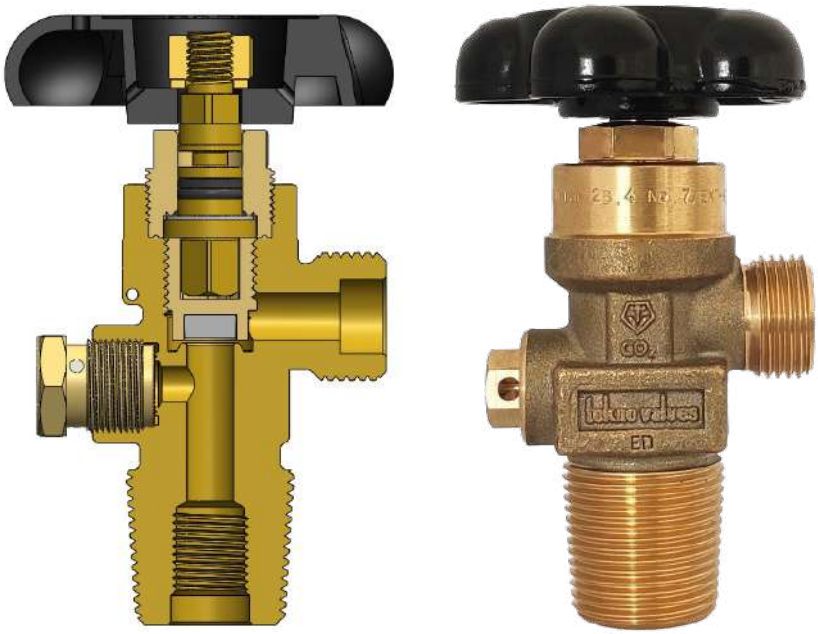
For features, benefits & ordering information, refer detailed catalogue

BSWN-12/C

Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Carbon Dioxide



Valve shown with taper inlet

Design Specifications	
Maximum working pressure (WP) *	250 bar
Pressure relief device (PRD)	Bursting disc type
PRD burst pressure *	See note
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
PRD installation torque	25 Nm
Flow coefficient (C_v)	0.81
Lubricant	Kluebertemp GR AR 555

** The bursting disc pressure shall not exceed the cylinder test pressure for which device is intended and shall be more than the developed pressure of the gas at 65 °C.*

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Upper & Lower spindle	SS 303
Gland nut & Retainer plug	Free cutting brass
Seat insert	PA 66
O-rings & Back-Up ring	EPDM
Thrust washer	PEEK
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Burst disc	Nickel
Burst disc sealing washer	Copper
Inlet O-ring *	PTFE / EPDM

** For parallel inlet connection only*

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

For features, benefits & ordering information, refer detailed catalogue

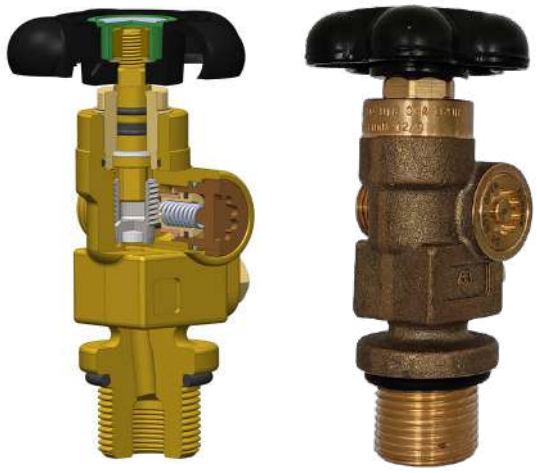
BOWN-12/C

Handwheel Operated Offline Residual Pressure Valves (RPVs) with Non-Return Valve Function

tekno valves 50 YEARS OF EXCELLENCE

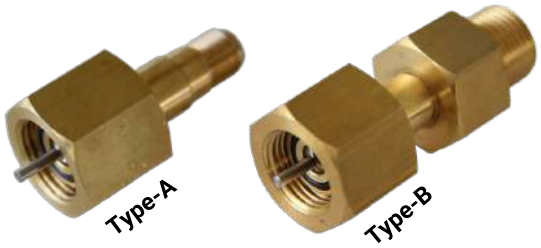
Cylinder Valves for Carbon Dioxide

BAM TPED Certification by BAM as notified body: ID-0589



Valve shown with parallel inlet

RPV Filling Adapters



Design Specifications		
	Metric	**English**
Minimum life - Main shut-off mechanism - Residual pressure device (RPD)	2000 cycles 100000 cycles	
Maximum pressure rating (type approval)	360 bar	5220 psig
Closing-off pressure	2-4 bar	30-60 psig
Opening pressure	4-6 bar	60-90 psig
Stroke length	5.0–5.5 mm	0.20–0.22 in
Temperature range (Main shut-off mechanism)	-46 °C to +85 °C	-51 °F to +185 °F
Temperature range (RPD)	-20 °C to +65 °C	-4 °F to +149 °F
Pressure relief device (PRD)	CG-1	
Minimum closing torque	3 Nm	2.2 ft.lb
Gland nut installation torque	65 Nm	48 ft.lb
RPD installation torque	19 Nm	14 ft.lb
PRD installation torque	28 Nm	21 ft.lb
Flow coefficient (C_v)	0.45	
Lubricant for main shut-off mechanism	Krytox GPL 225	
Lubricant for RPD	Gleitmo 599	

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Upper spindle, Gland nut, Piston, Piston bush & Retainer plug	Free cutting brass
Lower spindle	SS 303
Seat insert	PA 66
O-rings, Back-Up Ring & Quad ring	EPDM
Housing	Dezincification resistant brass
Housing and Piston O-ring	PUR
Thrust washer	PA 66
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Spring	Copper beryllium
Burst disc	Nickel
Burst disc sealing washer	Copper
Inlet O-ring *	NBR

** For parallel inlet connection only*

Compliance & Certification

- Valves are approved by PESO and supplied under Lloyd's inspection for
- Indian market
- Valves meet EN ISO 10297:2017, ISO 15996:2017 & CGA V-9:2019
- Valves are certified to European TPED & available with Pi (ᴨ) mark
- PRD complies with CGA S-1.1
- Available with CGA 320R outlet connection as per CGA V-1

For features, benefits & ordering information, refer detailed catalogue

NOTES

Gas Cylinder Valves for Medical Gases

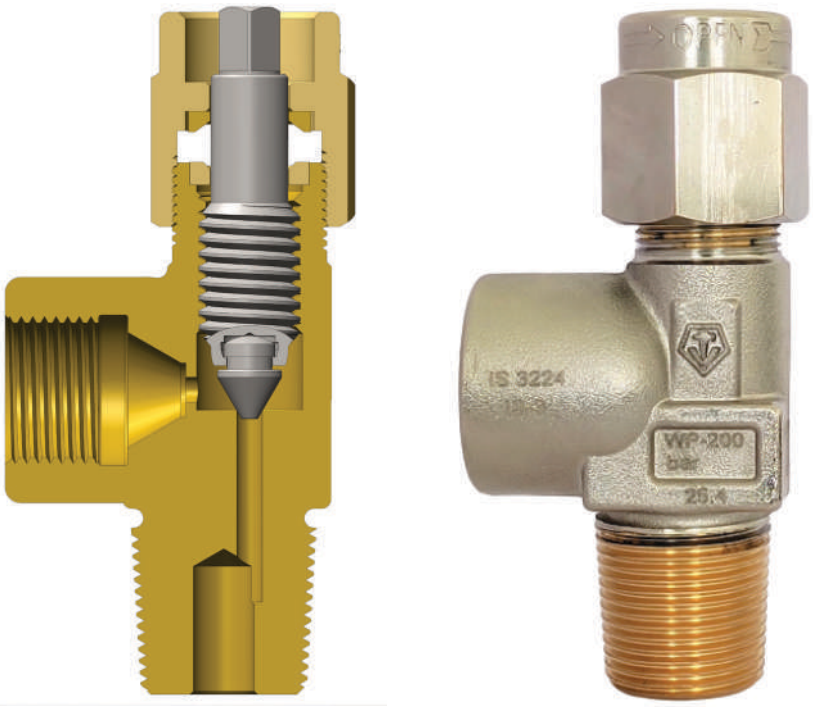
BSKM-21/O

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Medical Gases

BAM TPED Certification by BAM as notified body: ID-0589



Design Specifications	
Minimum life	2000 cycles
Maximum pressure rating (type approval)	240 bar
Spindle square	7.1 mm / 8 mm
Oxygen pressure surge test	20 cycles at 240 bar
Temperature range	-20 °C to + 65 °C
Minimum closing torque [a]	8 Nm
Gland nut installation torque [b]	60 Nm
Spindle failure torque	80-85 Nm
Flow coefficient (C_v)	0.40
Lubricant	Krytox GPL 225
Nickel chrome plated & Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged HT brass
Self-centering spindle	SS 303
Packing	PTFE
Other components	Free cutting brass

a - Higher torques may be required to operate the valve in service (Maximum recommended 25 Nm)
b - Retightening may be required in service

Compliance & Certification
• Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection [c] for Indian market
• Valves meet EN ISO 10297:2017
• Valves are certified to European TPED & available with Pi (ℼ) mark

c - Available only in 7.1mm spindle square

For features, benefits & ordering information, refer detailed catalogue

BSKN-12/O & BTKN-12/O

Key Operated Soft Seated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Medical Oxygen

BAM TPED Certification by BAM as notified body: ID-0589

BSKN-12/O
Side Outlet Valve

BTKN-12/O
Top Outlet Valve

Design Specifications	
Maximum working pressure (WP)	300 bar
Outlet connection	IS-3 (G5/8-14 TPI-RH)
Spindle square	7.1 mm
Minimum closing torque	8 Nm
Gland nut installation torque	75 Nm
Spindle failure torque	70-80 Nm
Flow coefficient (C_v)	0.35
Lubricant	Gleitmo 599
Nickel chrome plated & Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged brass
Upper spindle	SS 303
Lower spindle	Naval Brass
Gland Nut	Free cutting brass
Seat insert & Thrust washer	PEEK
O-ring & Back-Up Ring	EPDM

Compliance & Certification
• Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection for Indian market
• Valves meet EN ISO 10297:2017
• Valves are certified to European TPED & available with Pi (⠏) mark

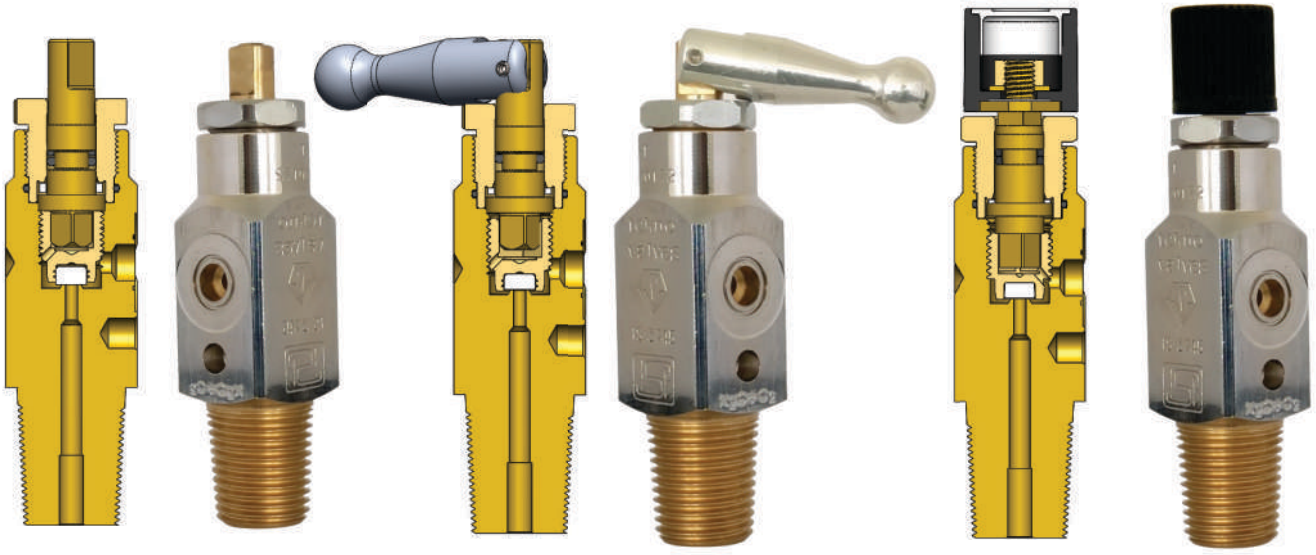
For features, benefits & ordering information, refer detailed catalogue

MYC-10C

Pin Index Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Medical Gases



Key Operated Valve
(shown with taper inlet)

Toggle Operated Valve
(shown with taper inlet)

Knob Operated Valve
(shown with taper inlet)

Design Specifications		
Maximum working pressure (WP)		205 kgf/cm^2
Minimum closing torque	Toggle & Key	2.33 Nm
	Knob	1.20 Nm
Packing nut installation torque		50 Nm
Flow coefficient (C_v)		0.15
Lubricant		Gleitmo 599
Nickel chrome plated & Oxygen cleaned		Yes

Material of Construction	
Part	**Material**
Valve body	Forged / Extruded brass
Upper & Lower spindle	Naval brass
Packing nut & Flange ring [a]	Free cutting brass
Seat insert & Thrust Washer	PA 66
O-ring, Back-Up Ring & Gland nut O- ring	EPDM
Inlet O-ring [a]	PTFE
Toggle (Short / Long) [b]	Aluminium
Knob [c]	ø22 mm Glass filled PA moulded with brass insert

Gas Service & Outlet Connection Details	
Gas Service	**Figure No. as per IS 3745**
Oxygen (O_2)	6
Oxygen & CO_2 mixture	7
Oxygen & Helium mixture	8
Ethylene (C_2H_4)	9
Nitrous Oxide (N_2O)	10
Cyclo-Propane (C_3H_6)	11
Helium & Oxygen mixture	12
CO_2 & Oxygen mixture	13
Medical air	14
Nitrous Oxide & Oxygen mixture	15
Nitrogen (N_2)	16

a - For parallel inlet connection
b - Applicable for Toggle operated valves
c - Applicable for Knob operated valves

Compliance & Certification

- Valves meet IS 3745:2006
- Valves approved by PESO & supplied under BIS/Lloyd's inspection
- MRI approved upto 3 tesla as per ASTM F2052-15 & stamped as per ASTM F2503-13

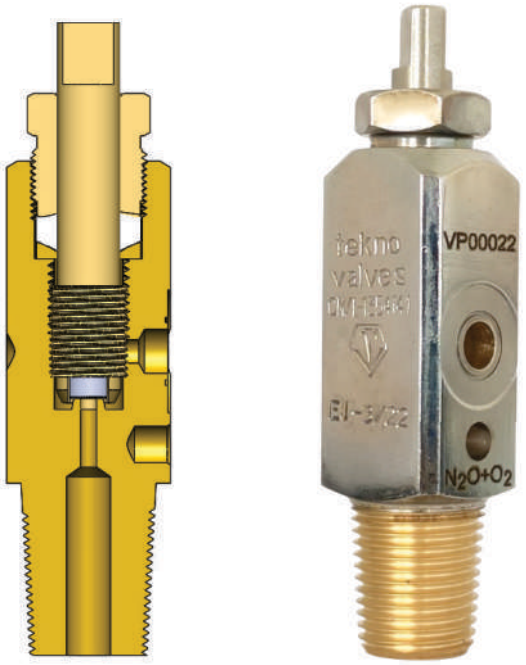
For features, benefits & ordering information, refer detailed catalogue

MYC-11

Key Operated Pin Index Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Medical Gases



Design Specifications	
Maximum working pressure (WP)	205 kgf/cm^2
Minimum closing torque	6 Nm
Gland nut installation torque	45 Nm
Flow coefficient (C_v)	0.20
Lubricant	Krytox NRT 8908
Nickel chrome plated & Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged / Extruded brass
Spindle	SS 304
Gland nut & Washer	Free cutting brass
Seat insert	PA 66
Packing	PTFE

Gas Service & Outlet Connection Details	
Gas Service	**Figure No. as per IS 3745**
Oxygen (O_2)	6
Oxygen & CO_2 mixture	7
Oxygen & Helium mixture	8
Ethylene (C_2H_4)	9
Nitrous Oxide (N_2O)	10
Cyclo-Propane (C_3H_6)	11
Helium & Oxygen mixture	12
CO_2 & Oxygen mixture	13
Medical air	14
Nitrous Oxide & Oxygen mixture	15
Nitrogen (N_2)	16

Compliance & Certification

- Valves meet IS 3745:2006
- Valves approved by PESO & supplied under BIS inspection

For features, benefits & ordering information, refer detailed catalogue

SWN-12/O & TWN-12/O

Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Medical Oxygen

SWN-12/O
Side Outlet Valve (Shown with taper inlet)

TWN-12/O
Top Outlet Valve

Design Specifications	
Maximum working pressure (WP)	400 bar
Outlet connection	IS-3 (G5/8-14 TPI-RH)
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
Flow coefficient (C_v)	0.36
Lubricant	Gleitmo 599
Nickel chrome plated & Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged brass
Gland nut, Upper & Lower spindle	Free cutting brass
Seat insert	PA 66
Thrust washer	PEEK
O-rings & Back-Up Ring	EPDM
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Inlet O-ring *	EPDM / PTFE

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

** Applicable for parallel inlet connection in SWN-12/O*

For features, benefits & ordering information, refer detailed catalogue

SWN-12/N

Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Nitrous Oxide

BAM TPED Certification by BAM as notified body: ID-0589

Design Specifications	
Maximum working pressure (WP)*	250 bar
Outlet Connection	IS-12 (EXT-W17.42 x 1.27-RH)
Pressure relief device (PRD)*	Bursting disc type
PRD burst pressure	See note
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
PRD installation torque	28 Nm
Flow coefficient (C_v)	0.36
Lubricant	Gleitmo 599
Nickel chrome plated & Oxygen cleaned	Yes

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Gland nut, Retainer plug, Upper & Lower spindle	Free cutting brass
Seat insert	PA 66
Thrust washer	PEEK
O-rings & Back-Up Ring	EPDM
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Burst disc	Nickel
Burst disc sealing washer	Copper

** The bursting disc pressure shall not exceed the cylinder test pressure for which device is intended and shall be more than the developed pressure of the gas at 65 °C.*

Compliance & Certification
• Valves meet IS 3224:2021, approved by PESO & supplied under BIS inspection for Indian market
• Valves meet EN ISO 10297:2017 & CGA V-9:2019
• Valves are certified to European TPED, available with Pi (ℼ) mark & UK TPE, available with Rho (ρ) mark

For features, benefits & ordering information, refer detailed catalogue

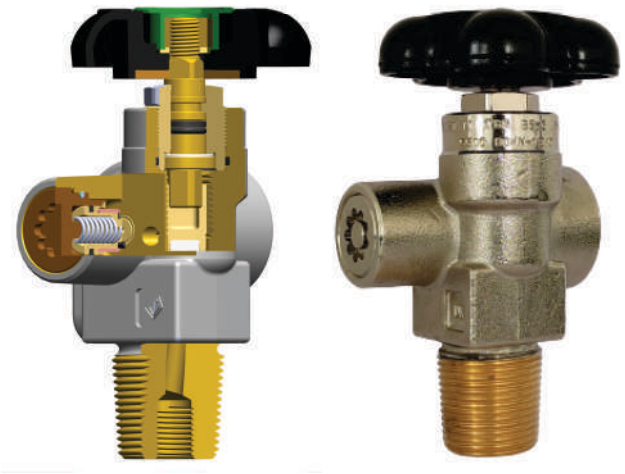
BOWN-12/O

Handwheel Operated Offline Residual Pressure Valves (RPVs) with Non-Return Valve Function

tekno valves 50 YEARS OF EXCELLENCE

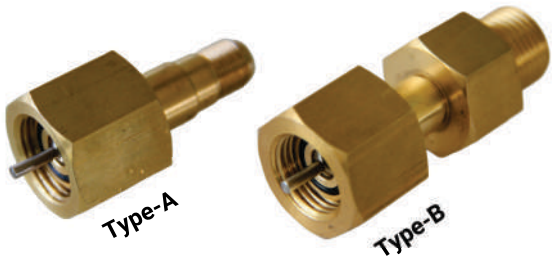
Cylinder Valves for Medical Gases

BAM TPED Certification by BAM as notified body: ID-0589



Valve shown with taper inlet & PRD

RPV Filling Adapters



Design Specifications		
	Metric	**English**
Minimum life - Main shut-off mechanism - Residual Pressure Device (RPD)	2000 cycles 100000 cycles	
Maximum pressure rating (type approval)	360 bar	5220 psig
Closing-off pressure	2-4 bar	30-60 psig
Opening pressure	4-6 bar	60-90 psig
Stroke length	5.0–5.5 mm	0.20–0.22 in
Temperature range - Main shut-off mechanism - RPD	 -46 °C to +85 °C -20 °C to +65 °C	 -51 °F to +185 °F -4 °F to +149 °F
Oxygen pressure surge test	50 cycles at 360 bar	50 cycles at 5220 psig
Pressure relief device (PRD) [a]	CG-1	
Minimum closing torque	3 Nm	2.2 ft.lb
Gland nut installation torque	65 Nm	48 ft.lb
RPD installation torque	19 Nm	14 ft.lb
PRD installation torque [a]	28 Nm	21 ft.lb
Flow coefficient (C_v)	0.35	
Lubricant	Gleitmo 599	
Nickel chrome plated & Oxygen cleaned	Yes	

a - Optional

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Upper & Lower spindle, Gland nut, Piston, Piston bush & Retainer plug	Free cutting brass
Seat insert	PA 66
O-rings, Back-Up Ring & Quad ring	EPDM
Housing	Dezincification resistant brass
RPD O-rings	PUR
Thrust washer	PEEK
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert
Spring	Copper beryllium
Burst disc	Nickel
Burst disc sealing washer	Copper
Inlet O-ring [b]	EPDM

b - For parallel inlet connection only

Compliance & Certification
• Valves are approved by PESO & supplied under Lloyd's inspection for Indian market
• Valves meet EN ISO 10297:2017, ISO 15996:2017 & CGA V-9:2019
• Valves are certified to European TPED, available with Pi (ΠΙ) mark & UK TPE, available with Rho (ρ) mark
• PRD complies with CGA S-1.1
• Available with CGA XXXR outlet connection as per CGA V-1

For features, benefits & ordering information, refer detailed catalogue

NOTES

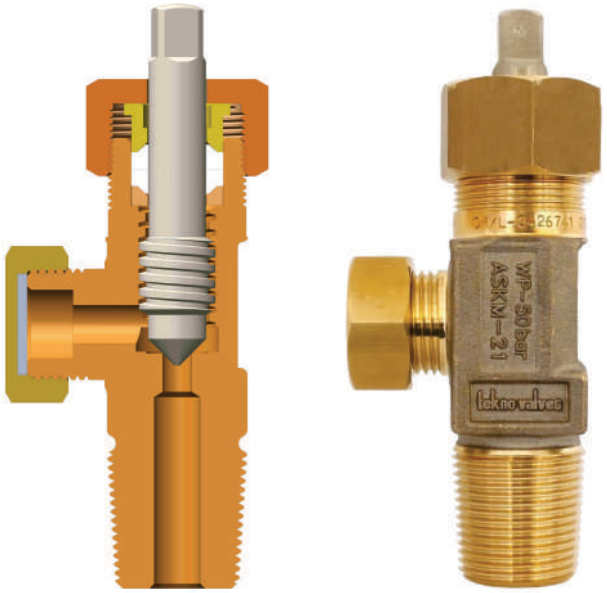
Gas Cylinder Valves for Chlorine & Corrosive Gases

ASKM-21

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Chlorine & Corrosive Gases



Design Specifications	
Maximum working pressure (WP)	200 bar
Spindle square	9.50 mm
Flow coefficient (C_v)	1.2
Minimum closing torque [a]	11 Nm
Gland nut installation torque [b]	54 Nm
Spindle failure torque in closing direction	>125 Nm
Lubricant	Krytox GPL 225

Material of Construction	
Part	**Material**
Valve body	Forged AlSi bronze
Spindle	Monel metal
Gland nut & Packing collar	AlSi bronze
Packing gland & Seal nut [c]	Free cutting brass
Packing X 2	PTFE
Gasket [c]	Lead

c - Optional

a - Higher torques may be required to operate the valve in service (Maximum recommended 30 Nm)

b - Retightening may be required in service

Gas Service & Outlet Details		
Gas service	**Thread designation**	**Connection**
Chlorine (Cl_2)	G5/8A-14 TPI-RH	IS -5
Hydrogen fluoride (HF)		
Boron trifluoride (BF_3)		
Vinyl chloride (C_2H_3Cl)	G5/8A-14 TPI-LH	IS -6
Ethyl Chloride (C_2H_5Cl)		
Methyl Chloride (CH_3Cl)		
Sulphur dioxide (SO_2)	G1/2A-14 TPI-RH	IS -11

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

For features, benefits & accessories, refer detailed catalogue

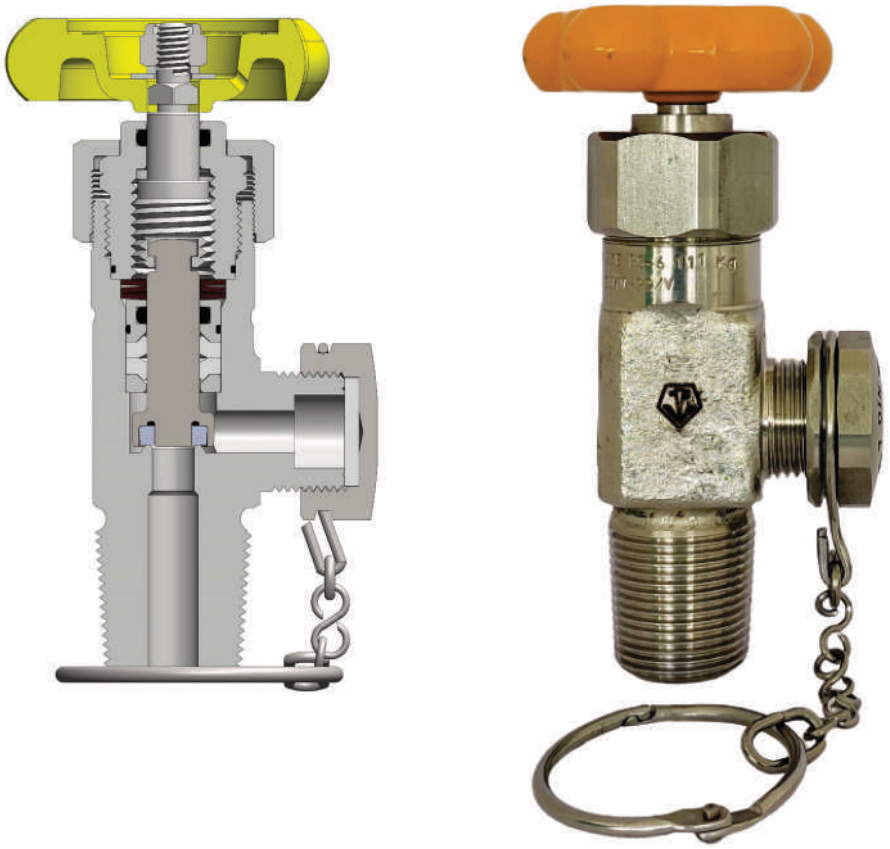
SSWN-22/V

Handwheel Operated Compression Packed Valves with O-ring Seal

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Corrosive Gases

BAM TPED Certification by BAM as notified body: ID-0589



Valve shown with chain & keeper ring

Design Specifications		
	Metric	**English**
Minimum life	2000 cycles	
Maximum pressure rating (type approval)	250 bar	3600 psig
Operating temperature range	-20 °C to +65 °C	-4 °F to +149 °F
Storage temperature range	-40 °C to +65 °C	-40 °F to +149 °F
Minimum closing torque	6 Nm	4 ft.lb
Gland nut installation torque	95 Nm	70 ft.lb
Lock nut installation torque	35 Nm	26 ft.lb
Flow coefficient (Cv)	1.1	
Lubricant	Klubertemp GR M30	

Material of Construction	
Part	**Material**
Valve body	Forged SS 316L (Electropolished)
Lock nut & Packing collar	SS 316L
Upper spindle, Gland nut, Packing gland & Outlet cap*	SS 303
Lower spindle	Monel metal
Seat insert	PCTFE
Tip blank & Gasket*	PVDF
Packing X 2	PTFE
O-rings	FKM
Belleville spring X 3	EN 42
Handwheel	Zinc base alloy (Powder coated)
Chain & keeper ring*	Stainless steel

** Optional*

Compliance & Certification
• Valves approved by PESO & supplied under Lloyd's inspection for Indian market
• Valves meet EN ISO 10297:2017
• Valves are certified to European TPED & available with Pi (ᴨ) mark

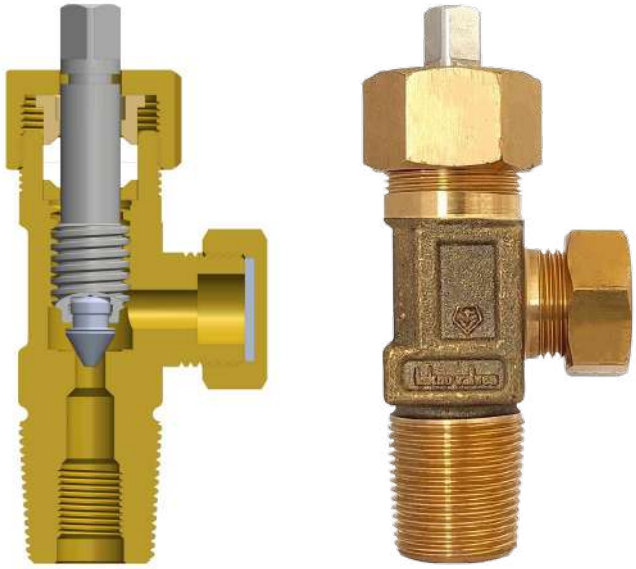
For features, benefits & ordering information, refer detailed catalogue

BSKM-21

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Corrosive Gases



Design Specifications	
Maximum working pressure (WP)	200 bar
Spindle square	9.50 mm
Minimum closing torque [a]	11 Nm
Packing nut installation torque [b]	54 Nm
Spindle failure torque	105-110 Nm
Flow coefficient (C_v)	1.20
Lubricant	Krytox GPL 225

a - Higher torques may be required to operate the valve in service (Maximum recommended 30 Nm)

b - Retightening may be required in service

Material of Construction	
Part	**Material**
Valve body	Forged HT Brass
Self-centering spindle	SS 316L spindle and tip
Gland nut, Packing gland & Seal nut [c]	Free cutting brass
Packing collar	Naval brass
Packing X 2	PTFE
Gasket [c]	Lead / PTFE

c - Optional

Gas Service & Outlet Details		
Gas Service	**Thread designation**	**Connection**
Sulphur dioxide (SO_2)	G1/2A-14 TPI-RH	IS-11
Methyl chloride (CH_3Cl)	G5/8A-14 TPI-LH	IS-6
Ethyl chloride (C_2H_5Cl)		
Ethylene oxide (C_2H_4O)		
Vinyl chloride (C_2H_3Cl)		
Phosgene ($COCl_2$)		
Sulphur hexafluoride (SF_6)		
Chlorine trifluoride (ClF_3)		

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

For features, benefits & accessories, refer detailed catalogue

NOTES

Gas Cylinder Valves for Speciality Gases

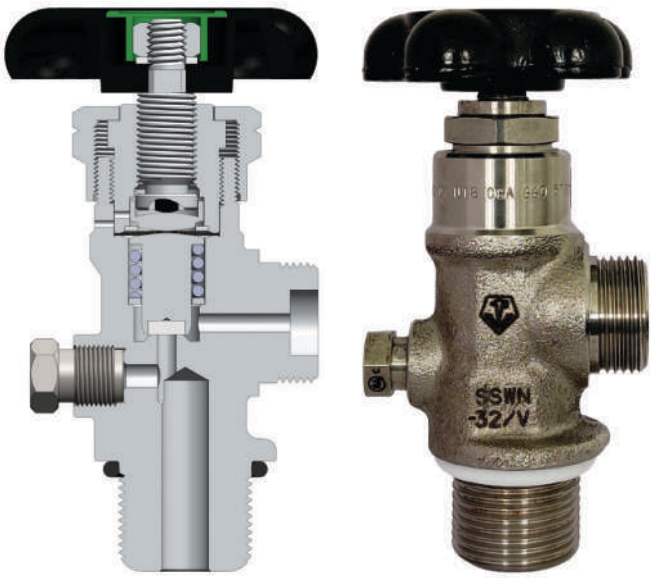
SSWN-32/V

Handwheel Operated Stainless Steel Valves in Diaphragm Gland Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Speciality Gases

BAM TPED Certification by BAM as notified body: ID-0589



Valve with parallel inlet
(shown with PRD)

Valve with taper inlet
(shown with chain & keeper ring)

Design Specifications		
	Metric	**English**
Minimum life	2000 cycles	
Maximum pressure rating (type approval)	250 bar	3600 psig
Oxygen pressure surge test	20 cycles at 250 bar	20 cycles at 3625 psig
Temperature range	-20 °C to +65 °C	-4 °F to +149 °F
Pressure relief device (PRD) [a]	CG-1 / CG-4 / CG-5	
Minimum closing torque	7 Nm	5.2 ft.lb
Gland nut installation torque	95 Nm	70 ft.lb
PRD installation torque [a]	35-40 Nm	26-30 ft.lb
Flow coefficient (C_v)	0.30	
Lubricant (only used in non-gas wetted parts)	Klubertemp GR M30	
Oxygen cleaned	Yes	

a - Optional

Material of Construction	
Part	**Material**
Valve body	Forged SS 303 (Electropolished)
Upper & Lower spindle, Gland nut, Lock nut [a], Thrust metallic pad, Outlet cap [a] & Retainer plug	SS 303
Seat insert	PCTFE
Upper diaphragm X 4	SS 301
Lower diaphragm X 1	Inconel® 625
Handwheel	Aluminium (CED coated)
Burst disc	Platinum clad Nickel
Burst disc sealing washer	SS alloy
Outlet gasket [a]	PVDF
Inlet O-ring [b]	PTFE / NBR
Chain & keeper ring [a]	Stainless steel

b - For parallel inlet connection only

Compliance & Certification
• Valves approved by PESO & supplied under Lloyd's inspection for Indian market
• Valves meet EN ISO 10297:2017 & CGA V-9:2019
• Valves are certified to European TPED & available with Pi (ᴨ)mark
• PRD complies with CGA S-1.1

For features, benefits & ordering information, refer detailed catalogue

NOTES

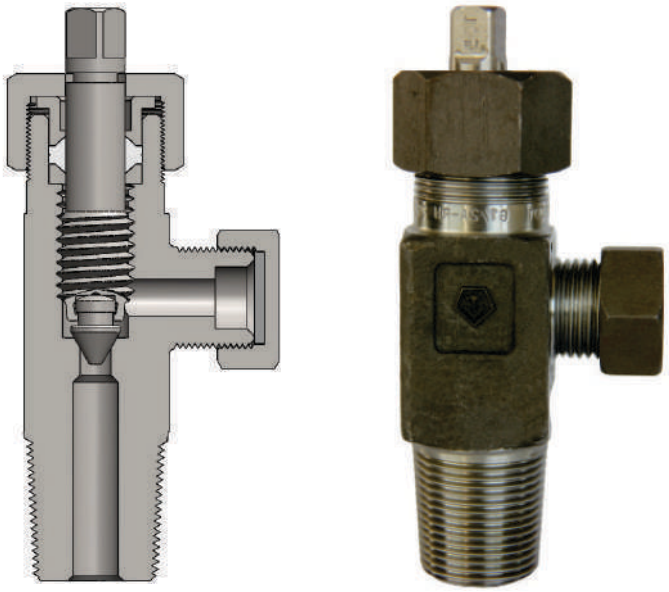
Gas Cylinder Valves for Ammonia & Amines

CSKM-21

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Ammonia & Amines



Design Specifications	
Maximum working pressure (WP)	200 bar
Spindle square	9.5 mm
Minimum closing torque [a]	11 mm
Gland nut installation torque [b]	54 Nm
Spindle failure torque in closing direction	110-115 Nm
Flow coefficient (C_v)	1.25
Lubricant	Krytox GPL 225

Material of Construction	
Part	**Material**
Valve body	Forged Low carbon steel
Self-centering spindle	SS 316L spindle and tip
Packing X 2	PTFE
Packing collar	SS 303
Other components	Mild steel
Seal nut [c]	
Gasket [c]	PA 6 / Lead

a - Higher torques may be required to operate the valve in service (Maximum recommended 30 Nm)

b - Retightening may be required in service

c - Optional

Gas Service and Outlet Details				
Gas service	**As per IS 3224**		**As per BS 341-3** [d]	
	Thread designation	**Connection**	**Thread designation**	**Connection**
Ammonia (NH_3)	G1/2A-14 TPI-RH	IS-9	G1/2A-RH	BS-10
Ethylamine ($C_2H_5NH_2$)	G1/2A-14 TPI-LH	IS-10	G1/2A-LH	BS-11
Methylamine (CH_3NH_2)				
Dimethylamine $(CH_3)_2NH$	G5/8A-14 TPI-LH	IS-6		
Trimethylamine $(CH_3)_3N$				
Ethyl chloride (C_2H_5Cl)			G5/8A-LH	BS-7
Ethylene oxide (C_2H_4O)				
Methyl chloride (CH_3Cl)				
Vinyl chloride (C_2H_3Cl)				
Phosgene ($COCl_2$)	G5/8A-14 TPI-RH	IS-5	G5/8A-RH	BS-6

d – For reference only

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

For features & benefits, refer detailed catalogue

NOTES

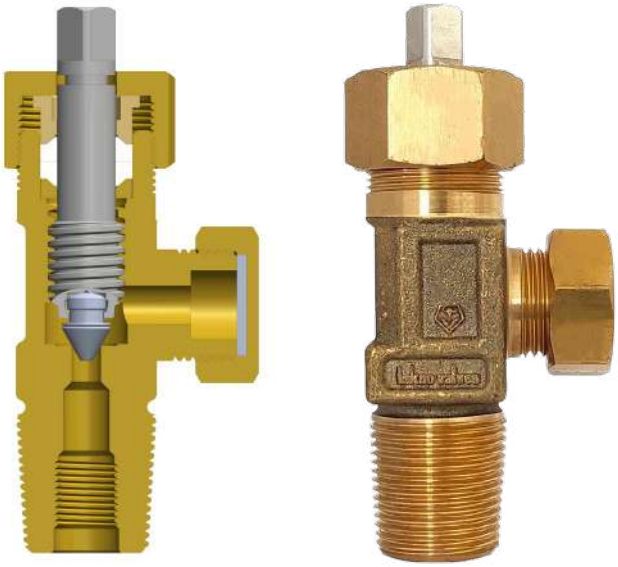
Gas Cylinder Valves for Refrigerant Gases

BSKM-21

Key Operated Metal Seated Valves in Single Spindle Compression Packed Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Refrigerant Gases



Design Specifications	
Maximum working pressure (WP)	200 bar
Spindle square	9.50 mm
Minimum closing torque [a]	11 Nm
Packing nut installation torque [b]	54 Nm
Spindle failure torque	105-110 Nm
Flow coefficient (C_v)	1.20
Lubricant	Krytox GPL 225

a - Higher torques may be required to operate the valve in service (Maximum recommended 30 Nm)

b - Retightening may be required in service

Material of Construction	
Part	**Material**
Valve body	Forged HT Brass
Self-centering spindle	SS 304 spindle and tip
Gland nut, Packing gland & Seal nut [c]	Free cutting brass
Packing collar	Naval brass
Packing X 2	PTFE
Gasket [c]	Lead / PTFE

c - Optional

Gas Service & Outlet Details		
Gas Service	**Thread designation**	**Connection**
Dichloro difluoro methane (CCl_2F_2)	G5/8A-14 TPI-RH	IS-5
Chloro trifluoro methane (CF_3Cl)		
Dichloro fluoro methane ($CHCl_2F$)		
Chloro difluoro methane ($CHClF_2$)		
Difluoro methane (CH_2F_2)		
Trichloro fluoro methane ($CFCl_2$)		

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

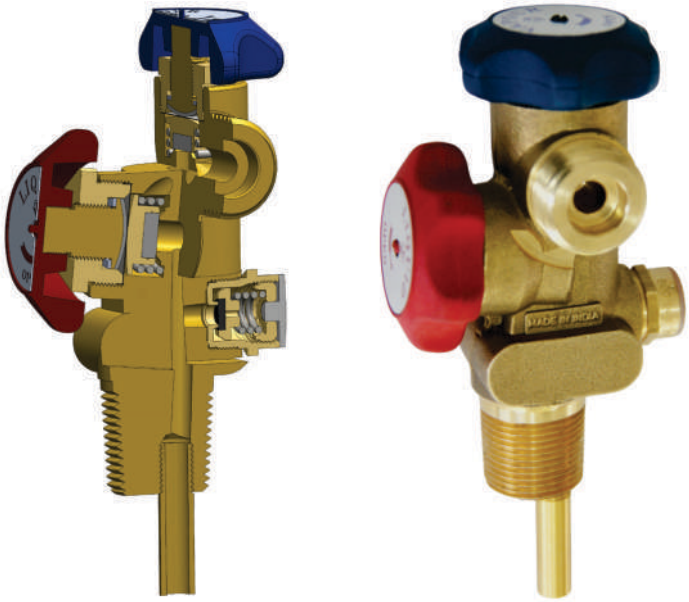
For features, benefits & accessories, refer detailed catalogue

RDP-03

Handwheel Operated Twin Phase Valves in Diaphragm Gland Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Refrigerant Gases



Valve shown with PRV

Design Specifications		
	Metric	**English**
Minimum life	2000 cycles	
Maximum pressure rating (type approval)	50 bar	725 psig
Temperature range	-20 °C to +65 °C	-4 °F to +149 °F
Pressure relief valve (PRV) [a]	CG-7	
Minimum closing torque	4 Nm	3 ft.lb
Gland nut installation torque	60 Nm	45 ft.lb
PRV installation torque [a]	30 Nm	22 ft.lb
Flow coefficient (Cv) - Liquid port - Vapour port	 0.51 0.56	
Lubricant	Krytox GPL 225	

a - Optional

Material of Construction	
Part	**Material**
Valve body	Forged HT brass
Spindle, Tip holder & Gland nut	Free cutting brass
Tip, Washer & Friction washer	PA 66
Diaphragm X 4	SS 301
Spring	SS 302
Circular disc	Aluminium
Handwheel	ø52 mm Glass filled PA (V-0) - Red for liquid service - Blue for vapour service
Dip tube	Brass fitting connected with HDPE tube [a] (1/2" X 3/8" X L [b])
Pressure Relief Valve (PRV)	
Housing, Seat holder & Adjusting screw	Free cutting brass
Seat	Neoprene
Spring	SS 302
Sealing washer	Copper

b – As per customer requirement

Pressure Relief Valve Rating, psig		
Cylinder service pressure	**Start-to-discharge pressure**	**Cylinder test pressure**
300	450-600	600
400	600-800	800

Compliance & Certification
• Valves without PRV meet IS 3224:2002, approved by PESO & supplied under BIS inspection for Indian market
• Valves meet EN ISO 10297:2017 & CGA V-9:2019
• PRV complies with CGA S-1.1

For features & benefits, refer detailed catalogue

Gas Cylinder Valves for Breathable Air (SCBA)

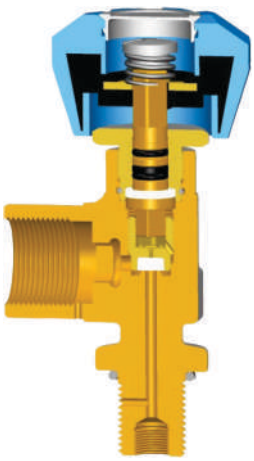
HBA-10/I

Handwheel Operated Valves in O-ring Seal Design

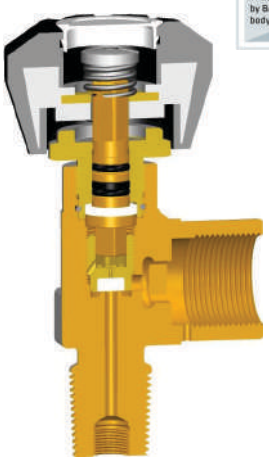
tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Breathable Air (SCBA)

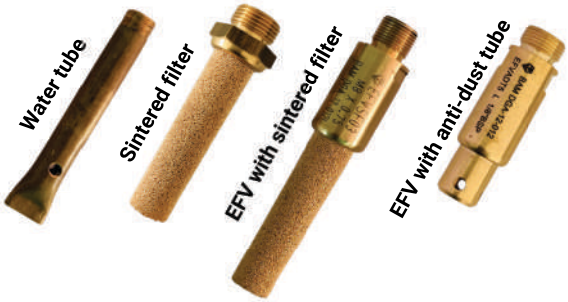
BAM TPED Certification by BAM as notified body: ID-0589



Valve with parallel inlet
(shown with Normal handwheel)



Valve with taper inlet
(shown with Self-locking handwheel)



Inlet Accessories

Design Specifications	
Minimum life	2000 cycles
Maximum working pressure (WP)	300 bar
Outlet connection	232 bar / 300 bar as per EN 144-2 / ISO 12209
Temperature range	-46 °C to +85 °C
Resistance to mechanical impact	120 J
Pressure relief device (PRD) [a]	CG-1
Minimum closing torque	3 Nm
Gland nut installation torque	50 Nm
PRD installation torque [a]	17 Nm
EFV actuation pressure when cylinder valve is fully open	30 - 40 bar
Lubricant	Krytox GPL 225
Nickel chrome plated	Yes

a - Optional

Material of Construction	
Part	**Material**
Valve body	Forged HT brass
Gland nut, handwheel nut & Retainer plug	Free cutting brass
Upper & Lower spindle	Naval brass
Thrust washer & Seat insert	PA 66
O-rings, Inlet O-ring [b] & Back-Up ring	EPDM
Spring	SS 302
Handwheel (Blue / Black)	ø52.5 mm PA coated with FR Thermoplastic PU & brass insert
Burst disc	Nickel
Burst disc sealing washer	Copper

b - For parallel inlet connection only

Compliance & Certification
• Valves without PRD meet IS 7302:1974, approved by PESO & supplied under Lloyd's inspection for Indian market
• Valves meet EN ISO 10297:2017, EN 144-1:2018 & EN 144-2:2018
• Valves are certified to European TPED & available with Pi (⛩) mark
• EFV with anti-dust tube tested for 2000 pressure shocks by BAM
• PRD complies with CGA S-1.1

For features, benefits & ordering information, refer detailed catalogue

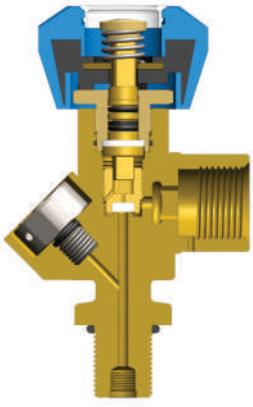
HBA-10/I with Pressure Gauge

Handwheel Operated Valves in O-ring Seal Design with Pressure Gauge (PG)

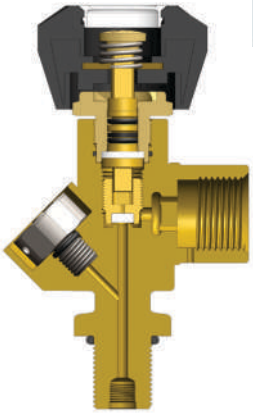
tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Breathable Air (SCBA)

BAM TPED Certification by BAM as notified body: ID-0589



Valve with normal handwheel



Valve with self-locking handwheel

Inlet Accessories

Design Specifications	
Minimum life	2000 cycles
Maximum working pressure (WP)	300 bar
Inlet connection	M18 X 1.5 as per ISO 15245-1
Outlet connection	232 bar / 300 bar as per EN 144-2 / ISO 12209
Temperature range	-46 °C to +85 °C
Resistance to mechanical impact	120 J
Pressure relief device (PRD) *	CG-1
Pressure gauge	0 to 300 bar (Make – WIKA)
Minimum closing torque	3 Nm
Gland nut installation torque	50 Nm
PRD installation torque *	9 Nm
Pressure gauge installation torque	20 Nm
EFV actuation pressure when cylinder valve is fully open	30 - 40 bar
Lubricant	Krytox GPL 225
Nickel chrome plated	Yes

Material of Construction	
Part	**Material**
Valve body	Forged HT brass
Gland nut, handwheel nut & Retainer plug	Free cutting brass
Upper & Lower spindle	Naval brass
Thrust washer & Seat insert	PA 66
O-rings, Inlet O-ring & Back-Up ring	EPDM
Spring	SS 302
Handwheel (Blue / Black)	ø52.5 mm PA coated with FR Thermoplastic PU & brass insert
Burst disc	Nickel
Burst disc sealing washer	Copper

** Optional*

Compliance & Certification
• Valves meet EN ISO 10297:2017, EN 144-1:2018 & EN 144-2:2018
• Valves are certified to European TPED & available with Pi (⊓) mark
• EFV with anti-dust tube tested for 2000 pressure shocks by BAM
• PRD complies with CGA S-1.1

For features, benefits & ordering information, refer detailed catalogue

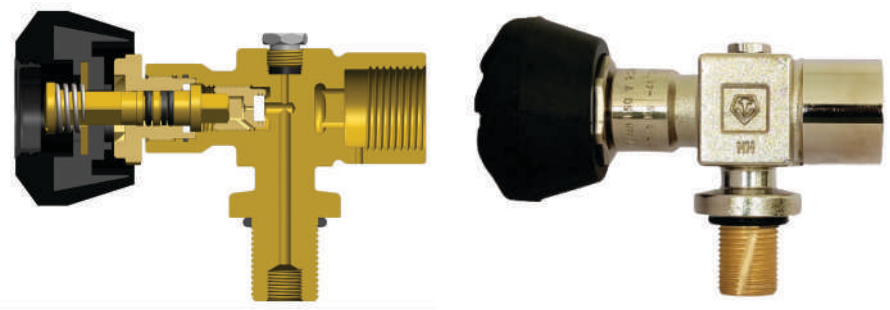
MBA-10/I

Side Handwheel Operated Valves in O-ring Seal Design

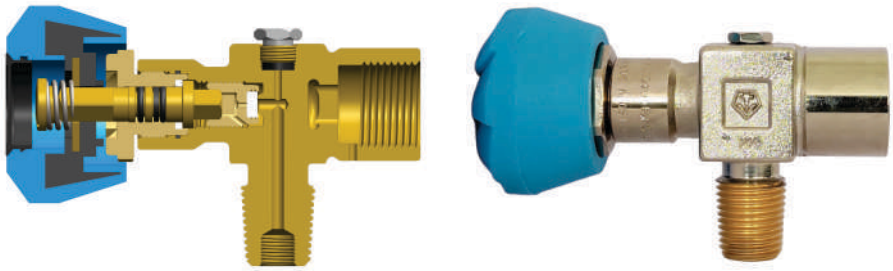
tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Breathable Air (SCBA)

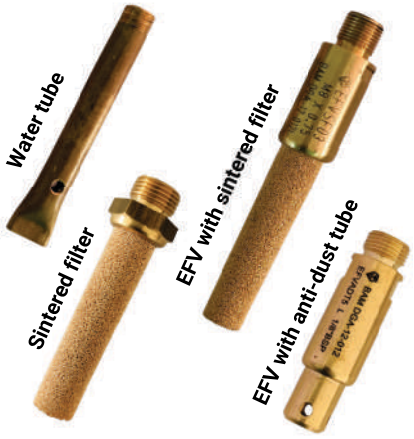
BAM TPED Certification by BAM as notified body: ID-0589



Valve with parallel inlet
(shown with Pressure gauge provision)



Valve with taper inlet
(shown with Pressure gauge provision)



Inlet Accessories

Design Specifications	
Minimum life	2000 cycles
Maximum working pressure (WP)	300 bar
Outlet connection	232 bar / 300 bar as per EN ISO 12209
Pressure relief device (PRD) [a]	CG-1
Pressure gauge provision [a]	1/8-28 BSP
Temperature range	-46 °C to +85 °C
Resistance to mechanical impact	120 J
Minimum closing torque	3 Nm
Gland nut installation torque	50 Nm
PRD installation torque [a]	9 Nm
EFV actuation pressure when cylinder valve is fully open	125 - 135 bar
Lubricant	Krytox GPL 225 / Gleitmo 599
Nickel chrome plated	Yes

a - Optional

Material of Construction	
Part	**Material**
Valve body	Forged HT brass
Upper & Lower spindle	Naval brass
Gland nut, Special nut & Retainer plug	Free cutting brass
Thrust washer & Seat insert	PA 66
Gland nut O-ring, O-ring, Back-Up ring & Inlet O-ring [b]	EPDM
Spring	SS 302
Handwheel (Blue / Black)	ø52.5 mm PA coated with FR Thermoplastic PU & brass insert
Burst disc	Nickel
Burst disc sealing washer	Copper

b - For parallel connection only

Compliance & Certification
• Valves meet IS 7302:1974, approved by PESO & supplied under Lloyd's inspection for Indian market
• Valves meet EN ISO 10297:2017, EN 144-1:2018 & EN 144-2:2018
• Valves are certified to European TPED & available with Pi (ΠΠ) mark
• EFV with anti-dust tube tested for 2000 pressure shocks by BAM
• PRD complies with CGA S-1.1

For features, benefits & ordering information, refer detailed catalogue

NOTES

Master Shut-Off Valves

BMV-09

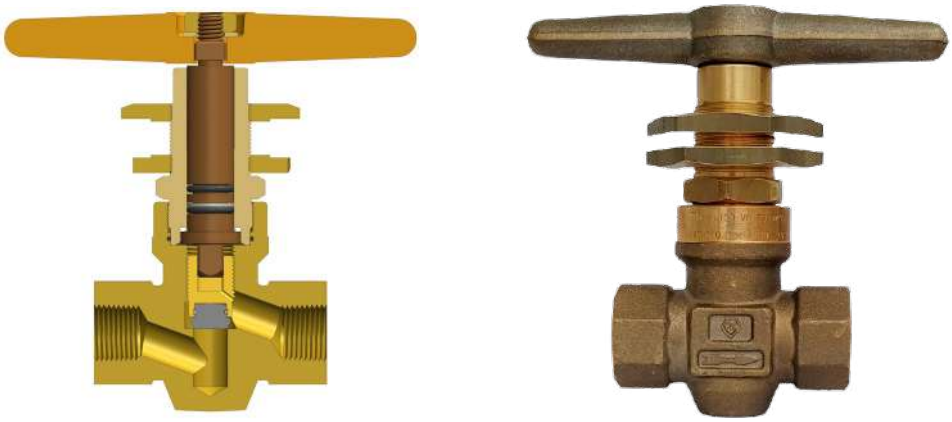
Handle Operated Metal Seated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Master Shut-off Valves (Main Valves) for Bundles, Manifold & Panels
Approved for Oxygen Service

BAM TPED Certification by BAM as notified body: ID-0589

Standard valve



Panel mounting valve

Design Specifications			
		Metric	**English**
Minimum life		2000 cycles	
Maximum pressure rating (type approval)		360 bar	5220 psig
Oxygen surge pressure test (tested via filling & inlet connection)		20 cycles at 360 bar	20 cycles at 5220 psig
Temperature range		-40 °C to +65 °C	-40 °F to + 149 °F
Minimum closing torque		10 Nm	7.4 ft.lb
Packing nut installation torque		105 Nm	77 ft.lb
Flow coefficient (C_v)		3.16	
Lubricant		Gleitmo 599	
Oxygen cleaned		Yes	
Panel hole size *	Standard	ø31	ø1.22
	Customer specific	ø32 - ø45 mm	ø1.26 - ø1.77 in

**For panel mounting valve*

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Packing nut & Panel mounting nut*	Free cutting brass
Upper Stem	Al-Si Bronze
Lower stem assembly	High silicon bronze with self-centering Monel seat
Thrust washer	PA 66
O-rings & Back-Up ring	EPDM
T-handle	152.4 mm forged brass

Outlet & Inlet Connection		
1. 1-11 BSP	2. 3/4-14NPT (F)	3. 1/2-14NPT (F)

Compliance & Certification
• Valves meet EN ISO 10297:2017 & CGA V-9:2019
• Valves are certified to European TPED & available with Pi (ΠΤ) mark

For gas service, features, benefits & ordering information, refer detailed catalogue

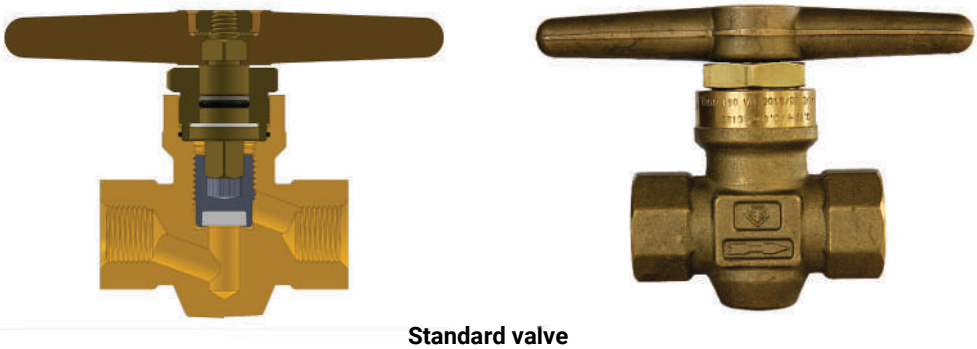
BHN-12/N

Handle Operated Soft Seated Valves in O-ring Seal Design

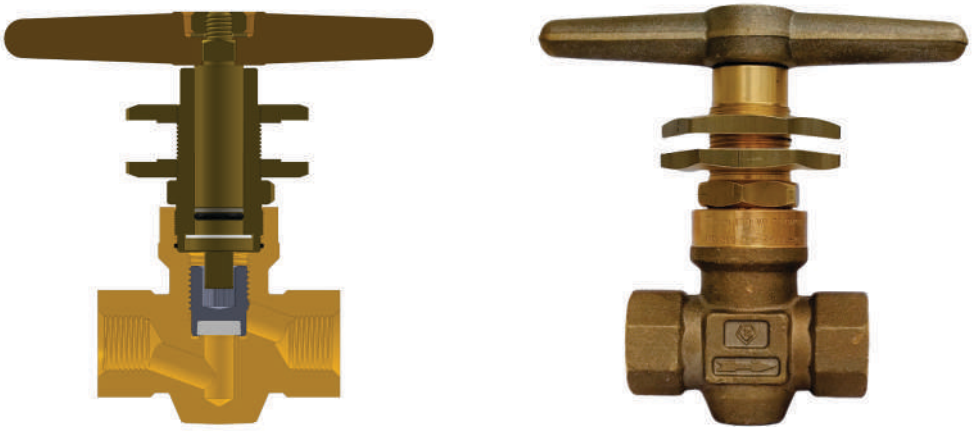
tekno valves 50 YEARS OF EXCELLENCE

Master Shut-off Valves (Main Valves) for Bundles, Manifold & Panels

BAM TPED Certification by BAM as notified body: ID-0589



Standard valve



Panel mounting valve

Design Specifications			
		Metric	**English**
Minimum life		2000 cycles	
Maximum pressure rating (type approval)		450 bar	6525 psig
Operating temperature range		-20 °C to + 85 °C	-4 °F to + 185 °F
Storage temperature range		-40 °C to + 85 °C	-40 °F to + 185 °F
Minimum closing torque		10 Nm	7.4 ft.lb
Packing nut installation torque		105 Nm	77 ft.lb
Handle retaining nut installation torque		15 Nm	11 ft.lb
Flow coefficient (C_v)		1.57	
Lubricant		Klubertemp GR M30	
Panel hole size *	Standard	ø31	ø1.22
	Customer specific	ø32 - ø45 mm	ø1.26 - ø1.77 in

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Upper Stem, Packing nut & Panel mounting nut*	Free cutting brass
Lower stem	SS 303
Seat Insert	PA 66 / PEEK / PCTFE
Thrust washer	PEEK
O-rings, Gland O-ring & Back-Up ring	EPDM
T-handle	152.4 mm forged brass

** For panel mounting valve*

Outlet & Inlet Connection		
1. 1-11 BSP	2. 3/4-14NPT (F)	3. 1/2-14NPT (F)

Compliance & Certification
• Valves meet EN ISO 10297:2017 & CGA V-9:2019
• Valves are certified by to European TPED & available with Pi (ᴨ) mark

For gas service, features, benefits & ordering information, refer detailed catalogue

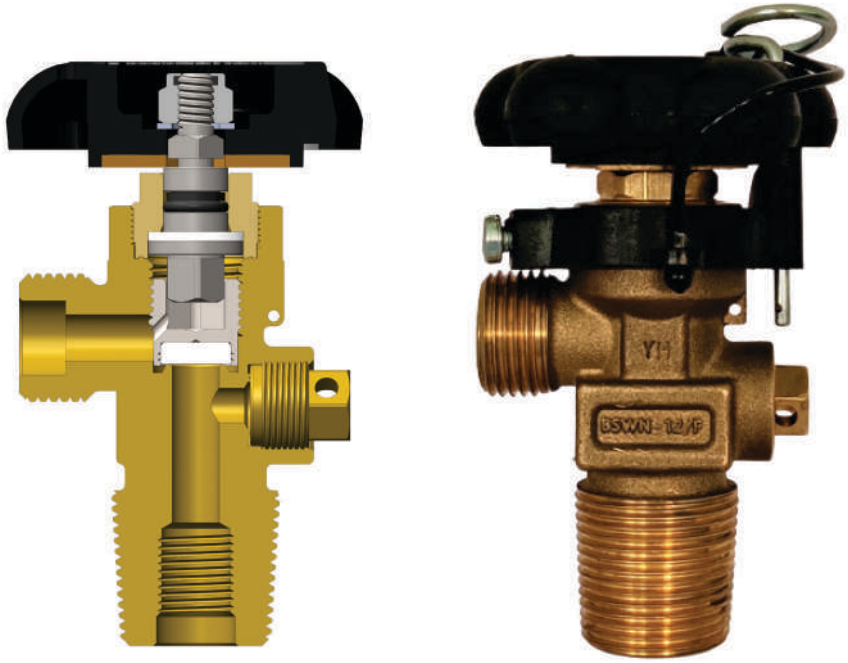
Gas Cylinder Valves for Fire Fighting Gases

BSWN-12/F

Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Fire Fighting (Carbon Dioxide)



Design Specifications	
Maximum working pressure (WP) *	250 bar
Pressure relief device (PRD)	Bursting disc type
PRD burst pressure *	See note
Minimum closing torque	7 Nm
Gland nut installation torque	55 Nm
PRD installation torque	25 Nm
Flow coefficient (C_v)	1.05
Lubricant	Krytox GPL 225
PRD flow rate suitability - Standard - On request	Water capacity of cylinder ≤15l ≤67l
Dip tube thread	3/8-26 BSB

Material of Construction	
Part	**Material**
Valve body	Forged LT brass
Gland nut & Retainer nut	Free cutting brass
Upper & Lower spindle	SS 303
Seat insert	PA 6
O-ring & Back-Up Ring	EPDM
Bursting disc	Nickel
Bursting disc washer	Copper
Handwheel	Aluminium (CED coated) / Glass filled PA with brass insert

** The bursting disc pressure shall not exceed the cylinder test pressure for which device is intended and shall be more than the developed pressure of the gas at 65 °C.*

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

Options
Lock ring arrangement - Glass filled PA lock ring with MS lock pin & PVC rubber chain

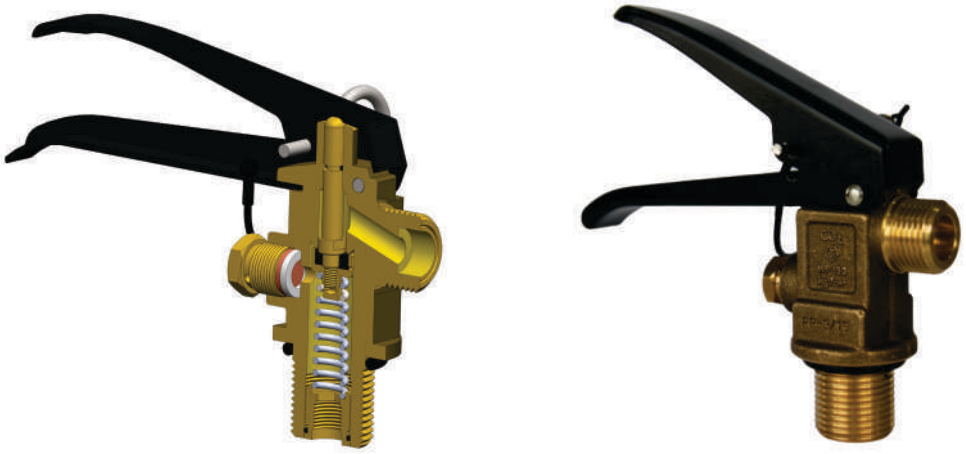
For features, benefits & ordering information, refer detailed catalogue

FSG-07/F

Reverse Seated Squeeze Grip Valves

tekno valves
50 YEARS OF EXCELLENCE

Cylinder Valves for Fire Fighting (Carbon Dioxide)



Valve with parallel inlet

Valve with taper inlet

Design Specifications	
Valve Orientation	Front outlet
Maximum working pressure (WP)	190 kgf/cm^2
Pressure relief device (PRD)	Bursting disc type
PRD burst pressure	200-220 kgf/cm^2
Spring retainer torque	4-6 Nm
PRD installation torque	12 Nm
Flow coefficient (C_v)	0.85
Lubricant	Gleitmo 591

Material of Construction	
Part	**Material**
Valve body	Forged brass
Spring retainer, Spindle, Brass holder & Retainer nut	Free cutting brass
Grommet, O-rings & Inlet O-ring*	Nitrile
Spring	SS 302
Lever	Mild steel (Powder coated)
Lever pin & Lock pin	Mild steel (Plated)
Lock pin chain	Rubber
Bursting disc	Copper
Bursting disc washer	PA 6

** For parallel inlet connection only*

Compliance & Certification
• Valves meet IS 3224:2002
• Valves approved by PESO & supplied under BIS / Lloyd's inspection

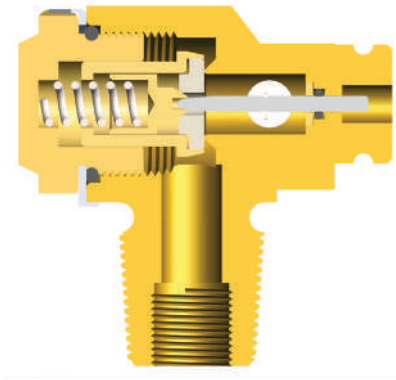
For features & benefits, refer detailed catalogue

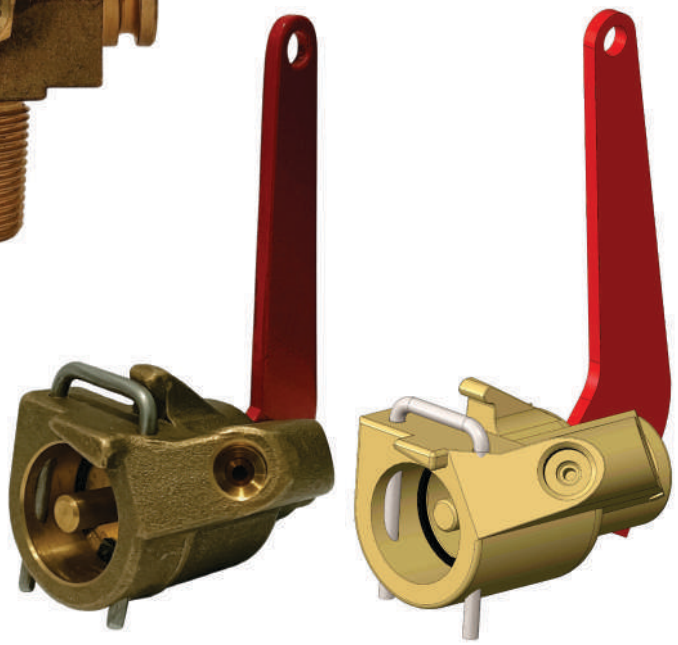
FSV-01

Actuator Operated Klem Valves

tekno valves
50 YEARS OF EXCELLENCE

Quick Release Cylinder Valves for Fire Fighting (Carbon Dioxide)





Actuator

Design Specifications	
Maximum working pressure (WP)	158 kgf/cm^2
Pressure relief device (PRD)	Bursting disc type
PRD burst pressure	200-220 kgf/cm2
Gland nut installation torque	65 Nm
PRD installation torque	12 Nm
Flow coefficient (C_v)	1.80
Lubricant	Kluebertemp GR AR 555

Compliance & Certification
• Valves meet IS 3224:2002
• Valves approved by PESO & supplied under BIS inspection

Material of Construction	
Part	**Material**
Valve	
Valve body	Forged brass
Gland nut, Seal housing, Metal seal, Washer & Retainer plug	Free cutting brass
Spring & Circlip	SS
Actuator pin	SS 304
O-ring	Silicon
O-ring	NBR
Soft seat	PA 66
Bursting Disc	Copper
Bursting disc washer	PA
Lock washer	Galvanized tin sheet
Actuator	
Body, Plunger & Retainer washer	Free cutting brass
O-rings	NBR
Split pin, U-clip & Lock pin	SS 304
Circlip	Spring steel
Lever	Carbon steel (Powder coated)

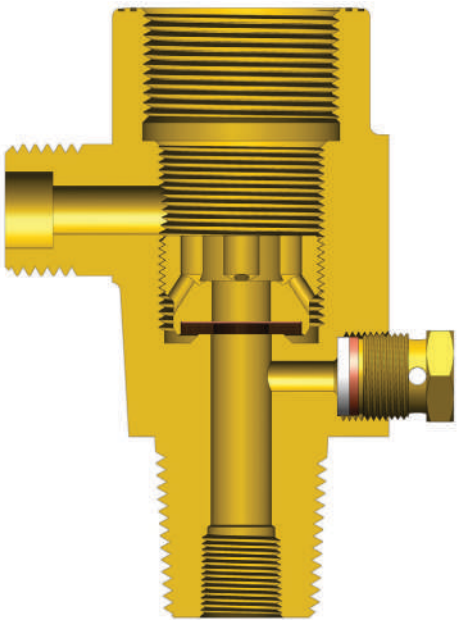
For features & dimension, refer detailed catalogue

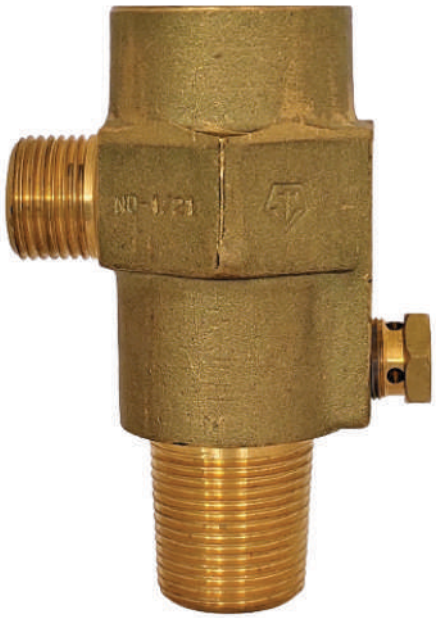
FSV-08

Puncture Type Valves

tekno valves
50 YEARS OF EXCELLENCE

Quick Release Cylinder Valves for Fire Fighting (Carbon Dioxide)





Design Specifications	
Maximum working pressure (WP)	158 kgf/cm^2
Pressure relief device (PRD)	Bursting disc type
PRD burst pressure	200-220 kgf/cm2
Rupture disc holder installation torque	11 Nm
PRD installation torque	12 Nm
Internal thread for puncturing device	1 1/4" BS Conduit – 16 TPI
Flow coefficient (C_v)	1.38

Material of Construction	
Part	**Material**
Valve body	Forged brass
Rupture disc holder & Retainer plug	Free cutting brass
Rupture & Bursting disc	Copper
Rupture disc washer	Bakelite
Bursting disc washer	PA 6

Compliance & Certification
• Valves meet IS 3224:2002
• Valves approved by PESO & supplied under BIS inspection

For features & dimensions, refer detailed catalogue

Gas Cylinder Valves for Compressed Natural Gas (CNG)

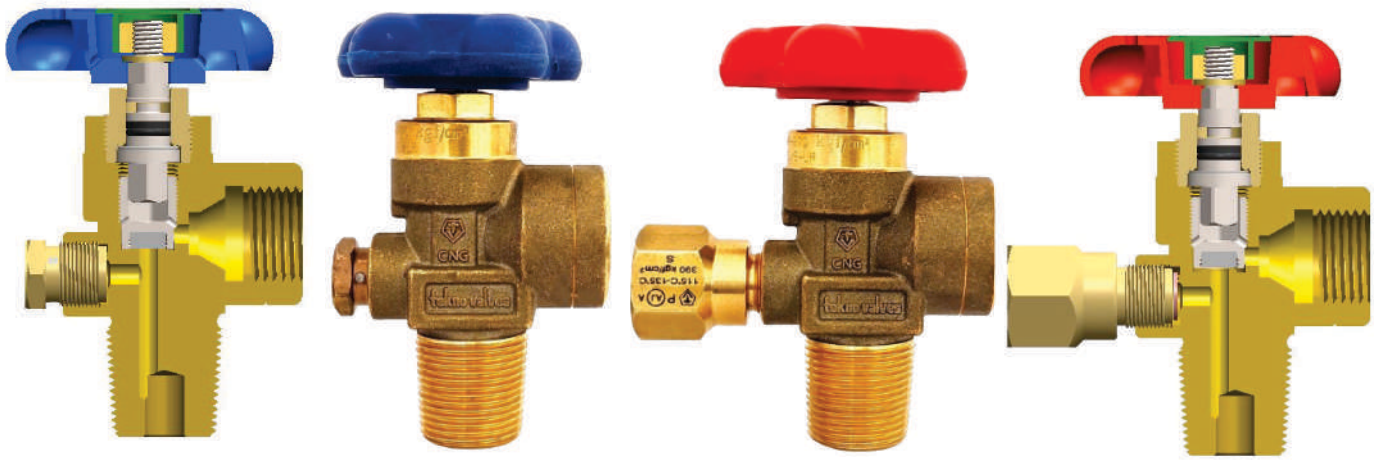
Series Name	Pg No.
BSWN-12	20.10.1

BSWN-12

Handwheel Operated Valves in O-ring Seal Design

tekno valves 50 YEARS OF EXCELLENCE

Cylinder Valves for Compressed Natural Gas (CNG)



Standard valve

Valve with vent arrangement

Design Specifications	
Pressure relief device (PRD)	Pressure & temperature combination device
Fusible alloy yield temperature	115 °C to 135 °C
Minimum closing torque	6 Nm
Gland nut installation torque	65 Nm
PRD installation torque	35 Nm
Flow coefficient (C_v)	0.56
Lubricant	Kluebertemp GR AR 555
PRD venting thread options	3/8-18 NPT
	1/4-18 NPT
	M16 X 1.5

Material of Construction	
Part	**Material**
Valve body	Forged Brass
Upper & Lower spindle	SS 303
Gland nut	Free cutting brass
Retainer plug	Free cutting / HT brass
O-ring & Back-Up ring	FKM
Seat insert	PA 66
Thrust washer	PEEK
Handwheel	Glass filled PA with brass insert - Blue for on-board - Red for cascade
Burst disc	Nickel
Burst disc sealing washer	Copper

Pressure Rating		
Application	**Working pressure**	**Bursting disc pressure range**
On-board	205 kgf/cm^2	295-325 kgf/cm^2
Cascade	260 kgf/cm^2	360-390 kgf/cm^2

Compliance & Certification
• Valves meet IS 3224:2021
• Valves approved by PESO & supplied under BIS inspection

For features & benefits, refer detailed catalogue

NOTES

Why Tekno Valves

YOUR SAFETY IS VALUED

Salient Design Features

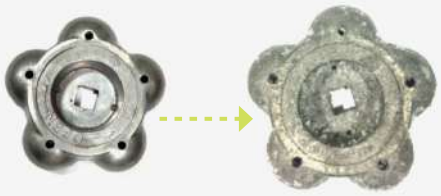
CED Coating

WHY: Aluminium handwheel is prone to atmospheric corrosion when exposed to natural elements. Corrosion leads to surface degradation involving pitting and flaking. Flaking is particularly risky in oxygen service and may act as fuel if it comes in contact with the gas.

HOW: CED (Cathodic Electro Deposition) coating is a process of painting using electrical current to deposit the paint on the surface of a part connected to the cathode. The paint primarily consists of epoxy resin with suitable pigment for colour.

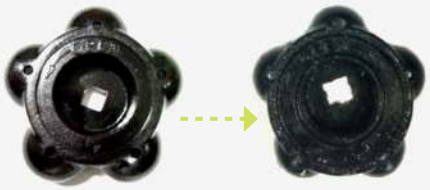
WHAT:

Non-Coated Handwheel



95 hours of salt spray test

CED Coated Handwheel



171 hours of salt spray test

Colour Coded Pressure Relief Device (PRD)

WHY: Cylinder valves with identical outlet connections are commonly equipped with PRDs whose rating depends upon the service pressure corresponding to the cylinder test pressure. The different rated PRDs (e.g., 3000 psig, 3360 psig) are not easy to distinguish visually, leading to a mix up of cylinders.

HOW: Each pressure rating is assigned a unique colour code for easy identification of cylinders with different test pressures.

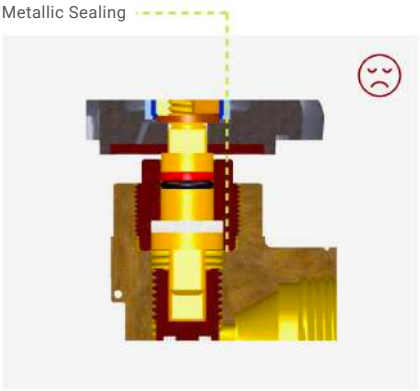
WHAT: A colour-coded cap corresponding to the pressure rating is fitted to the retainer nut of the PRD.

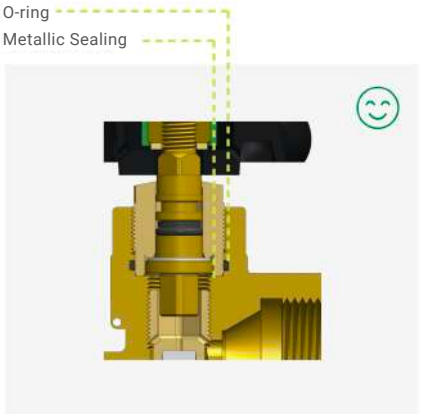
Gland Nut O-Ring

WHY: Some cylinder valve designs (e.g., O-ring seal) have a metal-to-metal seal between the gland nut and the valve body to prevent external leakage past the threads. The sealing works till there is no external damage to the gland nut. Any impact on the gland nut may lead to leakage through the threads, which the users generally struggle to arrest.

HOW: Secondary protection is provided by an O-ring in case the metallic seal is compromised.

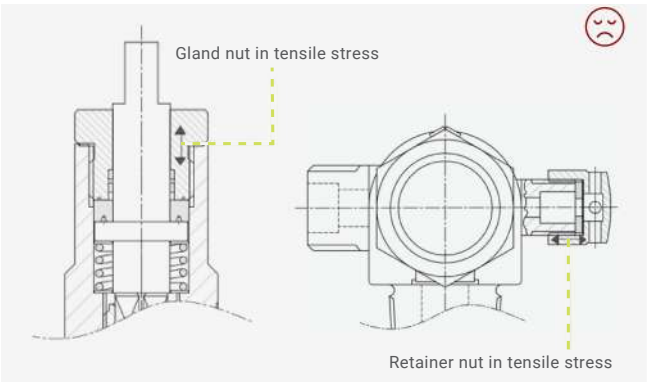
WHAT: Gland nut O-ring is introduced in the valve body below the gland nut threads to prevent leakage.





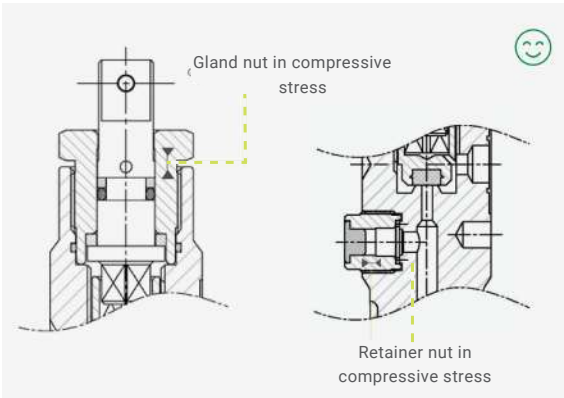
Compressive Stress

WHY: Parts of cylinder valves (e.g., retainer nut and gland nut) manufactured from Brass are susceptible to stress corrosion cracking or over-stressing, especially if installed in tensile stress.



HOW: Components are designed to be assembled in compressive stress and torque values optimized to limit stresses below the material strength.
Refer EIGA Safety Info 21/19

WHAT:



Nickel Chrome Plating

WHY: Plating on cylinder valves is done for aesthetics but carries the risk of flaking and particle generation, which is risky for oxidizing gases. Further, the plating and the substrate material may be incompatible with the gas content, and machining tolerances need to take plating thickness into account to ensure gauge compliance.

HOW: The inlet, outlet & the internal surface of the valve body & components are plugged during the plating process to ensure plating is only deposited on non-gas wetted areas to avoid any chance of plating contamination.

WHAT:

Electropolishing

WHY: Stainless steel valves are often used in corrosive environments making the surface prone to degradation and discolouration. Therefore, surface treatment of the valve body is critical to ensure corrosion resistance and aesthetics.

HOW: Electropolishing removes free iron, embedded contaminants and oxide scale from the surface of the submerged valve body forging in an electrolyte and passing an electric current. Electropolishing also reduces roughness by levelling micro-peaks and valleys and removes free iron to enhance chrome/nickel content, making the surface corrosion-resistant.

WHAT:

Stainless Steel Lower Spindle

WHY: Brass soft seat retention skirts having high-stress concentrations are susceptible to stress corrosion cracking (SCC) [Refer EIGA Doc. 21/19]. SCC occurs when stresses, corrosive environment & time act together and is observable in gases like Carbon Dioxide and Acetylene in the presence of moisture.

HOW: The lower spindle material is constructed from 300 series Stainless Steel to eliminate the possibility of SCC.

WHAT:

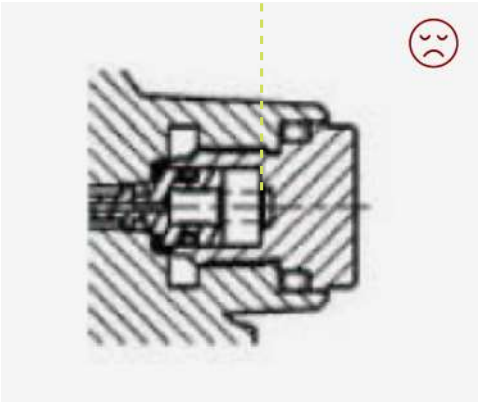
Fail Safe Design of RPVs

WHY: Failures in Residual Pressure Valves (RPVs) can result from design and operational issues and stress corrosion cracking.

HOW: Fail-safe design ensures that in case of failures, the valves would still function at a basic level (i.e., open and close safely), and no unsafe gas release or ejection of parts occurs.

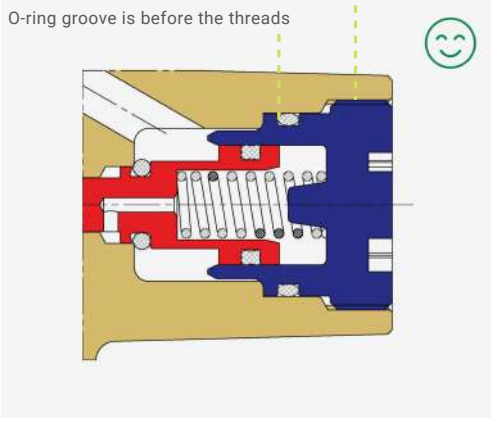
WHAT: The Residual Pressure Device (RPD) housing threads are placed after the O-ring groove, which is the critical area.

Weak point - In case of failure, the part of the cartridge outside the threads would fly away



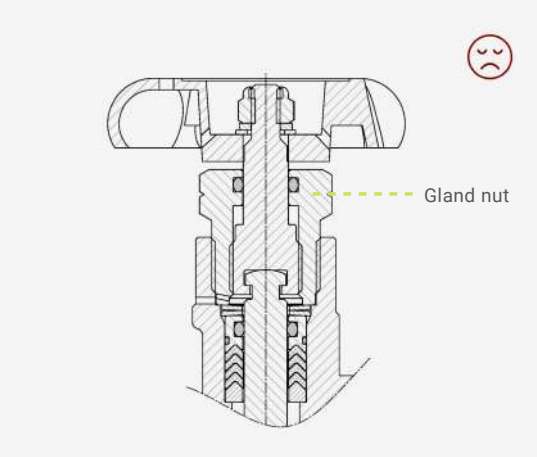
More wall thickness

O-ring groove is before the threads



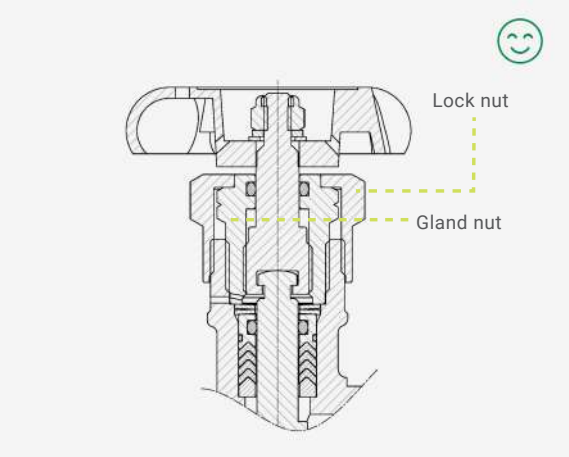
Lock Nut

WHY: Some cylinder valve designs (e.g., diaphragm, packed etc.) have a threaded upper spindle engaging with the gland nut internal threads. These designs may witness loosening of the gland nut due to the applied torque on the operating mechanism.



HOW: The gland nut is secured by a lock nut having threads in opposite direction to the gland nut threads to avoid the risk of loosening in service.

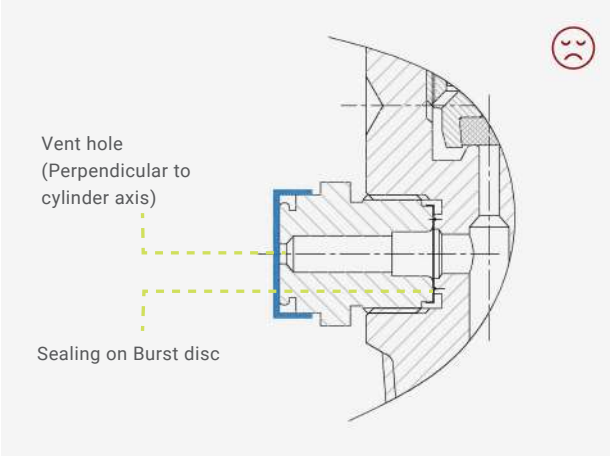
WHAT:



Pressure Relief Device (PRD)

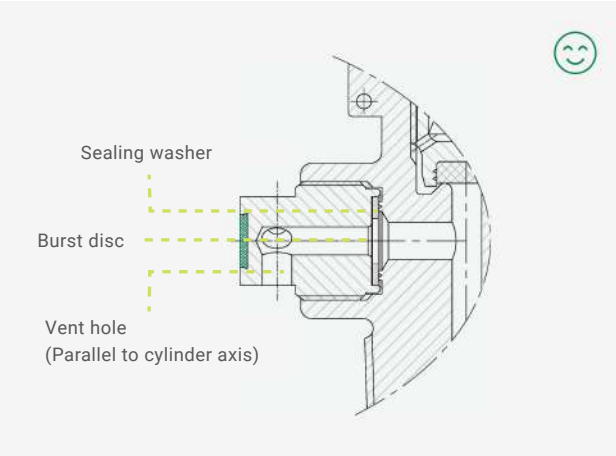
WHY:

Design issues may cause pressure-activated PRDs to actuate prematurely. The resultant thrust can lead to the cylinder getting propelled dangerously, causing safety issues and product loss.



HOW: Internal plug capsule design uses a washer for secure sealing, reducing torsional stress on the burst disc and preventing the PRD from loosening, damage or premature failure. Cross-flow design diverts the escaping gas in a plane parallel to the cylinder's longitudinal axis to balance the thrust forces and prevents cylinder tipping.

WHAT:



Beyond Compliance..
Valuing your Safety

Hot Forgings

Forging dies and Brass hot forgings are manufactured in-house to close tolerances. Induction heating of the slugs ensure better ductility, finer grains and superior resistance to Dezincification.

Stress Relieving

Brass valve body forgings are stress relieved to remove residual stresses to improve impact performance and resist stress corrosion cracking in the field.

Machining

Valve body and components are precision machined in-house in latest technology CNC machines in single set up for unparalleled accuracy.

Surface Treatment

Brass valve body is shot blasted and not acid pickled for surface treatment to avoid problems of stress corrosion cracking and, unsightly marking if exposed to rainwater.

Cleaning

Valve body and parts are cleaned to a much higher level of cleanliness than required by industry standards.

Packaging

Foam Trays used for packaging are eco-friendly reducing environmental footprint by cutting greenhouse gas emissions. The foam compacts to 10% of its original volume, is biostable and will not degrade to pollute air or ground water.

GLOSSARY

Abbreviation	Full Form
ADR	Agreement Concerning the International Carriage of Dangerous Goods by Road
Al-Si Bronze	Aluminium Silicon Bronze
ASTM	American Society for Testing & Materials
BAM	Federal Institute for Materials Research & Testing
BIS	Bureau of Indian Standards
BS	British Standard
BSB	British Standard Brass
BSP	British Standard Pipe
CED	Cathodic Electro Deposition
CGA	Compressed Gas Association, Inc.
EFV	Excess Flow Valve
EN	European Standards
EPDM	Ethylene Propylene Diene Rubber
European TPED	European Transportable Pressure Equipment Directive
FKM	Fluorocarbon Rubber
FR	Flame Retardant
ft.lb	Foot-Pound
HDPE	High Density Polyethylene
HEX	Hexagon
HT	High Tensile
in	Inch
IS	Indian Standard
ISO	International Organisation for Standardization
kgf/cm^2	Kilogram-Force Per Square Centimetre
L	Length
l	Litre
LH	Left Hand
LT	Low Tensile
mm	Millimetre
MRI	Magnetic Resonance Environment
NBR	Nitrile Butadiene Rubber
NGT	National Gas Taper
Nm	Newton-Meter
NPT	National Pipe Taper

Abbreviation	Full Form
OPST	Oxygen Pressure Surge Test
PA	Polyamide
PCTFE	Polychlorotrifluoroethylene
PEEK	Polyetheretherketone
PESO	Petroleum And Explosive Safety Organization
psig	Pounds Per Square Inch Gauge
PTFE	Polytetrafluoroethylene
PU	Polyurethane
PUR	Polyurethane Rubber
PVDF	Polyvinylidenefluoride
RH	Right Hand
SCBA	Self-Contained Breathing Apparatus
SS	Stainless Steel
TPI	Thread Per Inch
UK TPE	United Kingdom Transportable Pressure Equipment
UNF	Unified National Fine

TECHNICAL STANDARDS BIBLIOGRAPHY

Standard	Title
ISO 407	Small medical gas cylinders - Pin-index yoke-type valve connections
ISO 5145	Cylinder valve outlets for gases & gas mixtures - Selection & dimensioning
ISO 9001	Quality Managements Systems - Requirements
EN ISO 10297	Gas cylinders - Cylinder valves - Specification & type testing
IS ISO 11114-1	Transportable gas cylinders - Compatibility of cylinder & valve materials with gas contents - Part 1: Metallic materials
IS ISO 11114-2	Transportable gas cylinders - Compatibility of cylinder & valve materials with gas contents - Part 2: Non-metallic materials
EN ISO 11363-1	17E & 25E taper threads for connection of valves to gas cylinders - Part 1: Specification
ISO 12209	Gas cylinders - Outlet connections for gas cylinder valves for compressed breathable air
EN ISO 14246	Gas cylinders - Cylinder valves - Manufacturing tests & examination
EN ISO 15001	Anesthetic & respiratory equipment - Compatibility with oxygen
ISO 15245-1	Gas cylinders - Parallel threads for connection of valves to gas cylinders - Part 1: Specification
EN ISO 15996	Gas cylinders - Residual pressure valves - Specification & type testing of cylinder valves incorporating residual pressure devices
ISO 17025	General requirements for the competence of testing & calibration laboratories
IS 3224	Valve fittings for compressed gas cylinders excluding Liquefied Petroleum Gas (LPG) cylinder
IS 3745	Specification for yoke type valve connections for small medical gas cylinders
IS 5903	Recommendation for safety devices for gas cylinders
IS 7302	Valve fittings for Self Contained Breathing Apparatus (SCBA) & Self-Contained Underwater Breathing Apparatus (SCUBA) - Specification
IS 13497	Fusible plug for dissolved acetylene gas cylinder - Specification
CGA G-4.1	Cleaning equipment for oxygen service
CGA S-1.1	Pressure Relief Device standards - Part 1 - Cylinders for compressed gases
CGA V-1	Compressed Gas Association standard for compressed gas cylinder valve outlet & inlet connection
CGA V-9	Compressed Gas Association standard for compressed gas cylinder valve
EN 144-1	Respiratory protective devices - Gas cylinder valves - Thread connections for insert connector
EN 144-2	Respiratory protective devices - Gas cylinder valves - Outlet connections
ASTM F2052	Standard test method for measurement of magnetically induced displacement force on medical devices in the magnetic resonance environment
ASTM F2503	Standard practice for marking medical devices & other items for safety in the magnetic resonance environment
BS 341-1:1991	Transportable gas container valves - Specification for industrial valves for working pressure up to & including 300 bar
BS 341-3:2002	Transportable gas container valves - Valve outlet connection
ADR (Volume I & II)	European agreement concerning the international carriage of dangerous goods by road
AFNOR NF E 29-650	Gas cylinders - Valve outlet connections
AS 2473-2	Valves for compressed gas cylinders - Part 2: Outlet connections (threaded) & stem (inlet) threads
CI Pamphlet 17	Pamphlet 17 - Packaging plant safety & operational guidelines
DIN 477-1	Gas cylinder valves for cylinder test pressures up to 300 bar - Part 1: Valve inlet & outlet connections
JIS B 8246	Valves for high pressure gas cylinders
2010/35/EU	Transportable Pressure Equipment Directive (TPED)
UNI 11144	Transportable gas cylinders - Cylinder valves for working pressure ≤ 250 Bar - Outlet, Inlet valve connections & fittings: Shapes & dimensions

Safety & Certifications

ISO 9001


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
Tekno Valves
Bilkanda Nalun Rasta, P.O. Kamra Madhabpur, Kolkata – 700 113, West Bengal, India

has been found to conform to the Quality Management System standard:
ISO 9001:2015

This certificate is valid for the following scope:
- Design, development and manufacture of cylinder valves and accessories for technical and medical gases
- Manufacture and supply of close die forgings up to 5 Kg capacity

QUALITY

ISO 45001


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
Tekno Valves
Bilkanda Nalun Rasta, P.O. Kamra Madhabpur, Kolkata - 700113, West Bengal, India

has been found to conform to the Occupational Health and Safety Management System standard:
ISO 45001:2018

This certificate is valid for the following scope:
Design, development and manufacture of cylinder valves and accessories for technical and medical gases

Manufacture and supply of close die forgings up to 5 Kg capacity

SAFETY

International homologation

(**'Pi'** mark/TPED Directive + **'Rho'** mark/TPE Directive) -

BAM
TPED Certification by BAM as notified body: ID-0589

Cylinder valve designs are tested to relevant ISO standard/s by an ISO 17025 accredited test laboratory, resulting in Type approval certificate issued by the European/UK notified body.

The combination of type approval and periodic audits form the basis of the Authorization Certificate, which lists all the type approval certificates covered under the scope of TPED / TPE directives. Our In-house Inspection agency, authorized by the Notified body, is responsible for the surveillance of manufacture and initial inspection and test for all valves.

National homologation

(**PESO** Approval)

The Petroleum and Explosives Safety Organization (PESO) is India's statutory body for approving gas cylinder valves. Valves for the Indian market are approved by PESO and duly inspected by BIS or Lloyds Register as per Indian or International standards.

Lloyd's Register

To Know more

NABL ACCREDITED LABORATORY

ISO 17025

TC-11058
Mechanical & Chemical Testing

CC-2617
Calibration

Membership & Affiliations

Members since **2019**

Members since **2008**

Members since **2017**

Members since **2004**

Member since **1975**

Member since **2019**

Approved Supplier since 2020

OUR JOURNEY OVER 50 YEARS

1971

Commenced business to manufacture Chlorine Cylinder Valves

1975

Expanded portfolio by developing Cylinder Valves for Industrial Gases

1978

Commenced production of Brass Forgings as backward integration

1980

Established Tool Room to manufacture In-house Forging Dies

1985

Y.K. Behani was awarded 'Udyog Patra' by the Vice President of India as recognition for being a self-made industrialist

1995

Started using 300 bar 3-stage reciprocating compressors for testing of Cylinder Valves

1996

Second generation joined the business (Rohit Behani)

2003

Received ISO 9001:1994 Certification from Lloyds Register

2004

Introduced CNC Machines for machining of Cylinder Valve Body & Components

2005

Entered North American market with export of Chlorine valves

2006

Introduced DC Nut Runner Torque Tools for Assembly and Testing

2007

Received EN ISO 10297:2006 certification for three valve designs by BAM

2008

Awarded ‘Pi’ mark in compliance with European Directives (TPED)

2009

Tekno Valves North America Incorporated

2010

Developed Residual Pressure Valves (RPV) as per EN ISO 15996:2007

2011

Established state-of-the-art integrated manufacturing unit

2012

Recognized as ‘One star Export house’ from Government of India

2014

Export footprint enlarged to 50+ countries

2018

Quality lab granted NABL certification as per ISO 17025

2019

Started testing of Cylinder Valves using Differential Pressure Technology

2020

Declared Essential Manufacturer for Medical Oxygen Cylinder Valves amidst COVID-19 pandemic

2021

Received ISO 45001:2018 Certification from DNV”

2022

Green Initiative - Solar Power Plant of 715 kW commissioned

2023

Awarded ‘Rho’ mark in compliance with UK TPE

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