



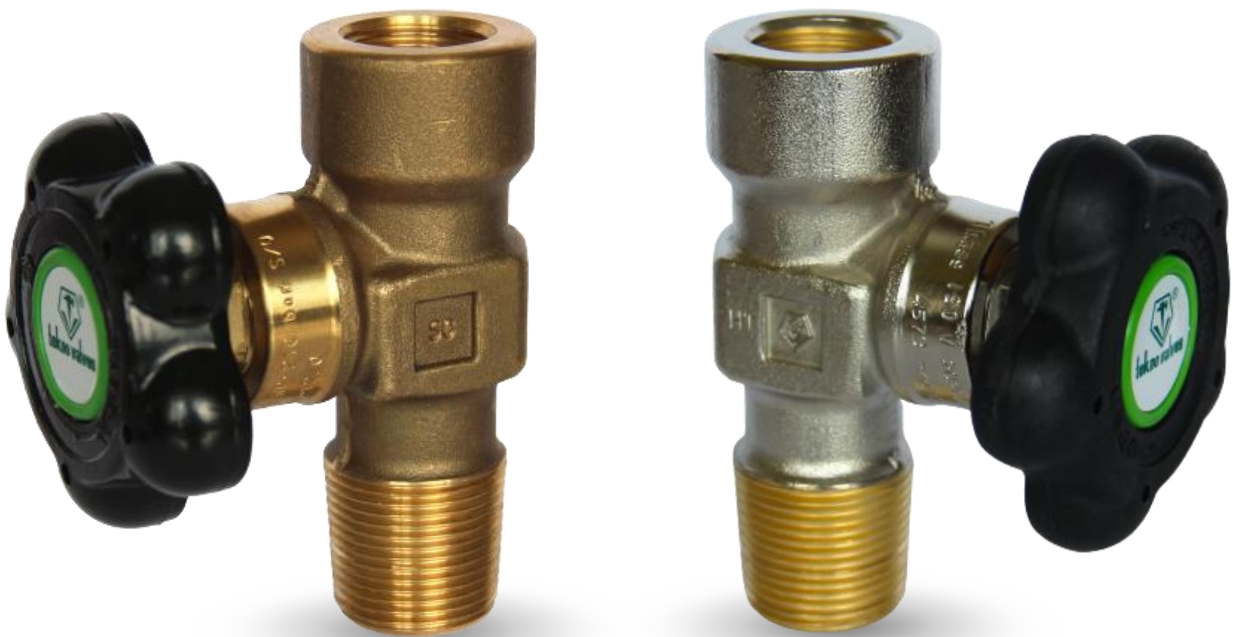
Beyond Compliance...Towards Excellence

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Wheel Operated Top Outlet Cylinder Valve in O-ring Seal Design for  
Industrial & Medical Gases

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Detailed Series Catalogue



TWN-12/O



***Your safety is valued***

ISO 9001 & TPED certified valve manufacturer



	Page
<b>1. Operating Principle &amp; Identifying Features</b>	2
<b>2. Features &amp; Benefits for Best-in-Class Performance</b>	3
<b>3. Material of Construction &amp; Assembly Arrangement</b>	4
<b>4. Disassembly, Inspection &amp; Assembly Instructions</b>	5
<b>5. Product Selection Guide</b>	6
<b>6. List of Approved Gases – Gas Annex S/O</b>	7



## Series TWN-12/O

### Identifying features

TWN-12/O is new generation top outlet handwheel operated O-ring seal valve using two-piece spindle construction suitable for high pressure industrial & medical gases. The upper & lower spindle interface with a square drive. The threads are located on the lower spindle & the upper spindle is free-floating. The design uses O-ring to create a seal around the upper spindle. PEEK thrust washer is capsuled with the upper spindle & acts as an anti-friction ring when the upper spindle rotates to open & close the valve under high pressure. Leakage past the gland nut metallic sealing is prevented by gland nut O-ring. The lower spindle has PA 66/PEEK seat insert to ensure low torque closure.

### Recommended opening procedure

It is recommended that the valves always be opened gradually in anticlockwise direction until the required flow is achieved. Opening the valve fully causes the lower spindle to ride upwards on its threads until it contacts the upper spindle. Valves in the fully open position can be mistaken as closed by inexperienced or untrained operators. The operator should always check the valve's position by attempting to close the valve, never by trying to open the valve.

### Recommended closing procedure

Close the cylinder valve by rotating the handwheel in the clockwise direction.

### Valve installation

Valving procedure & torque guidelines should be as per EN ISO 13341.

For NGT threads, we recommend hand tight + 3 turns wrench tight to install the valve in the cylinders.

(Refer [https://teknovalves.com/Information\\_Center](https://teknovalves.com/Information_Center))

### Recommended filling procedure

Fully open the valve before commencing gas filling to avoid any pressure shock in the lower spindle assembly.

#### **⚠ CAUTION**

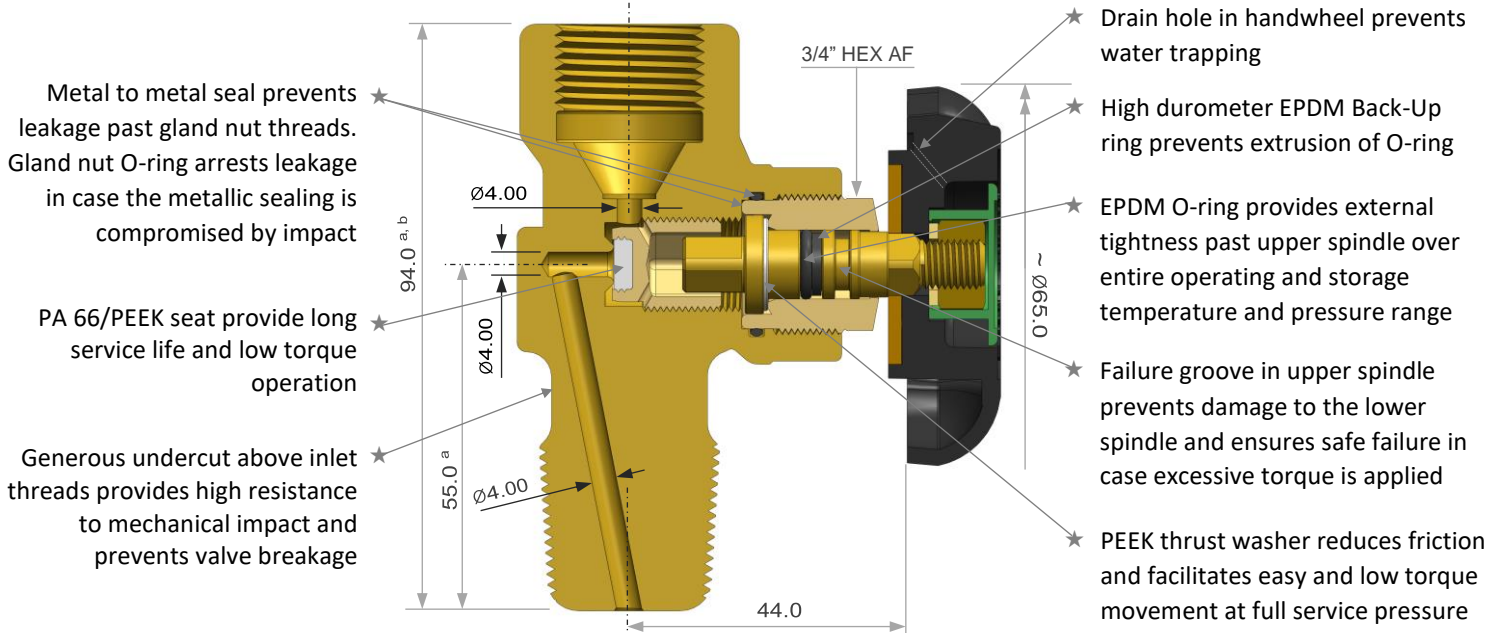
1. NEVER use wrenches or other persuaders to operate the valve.
2. Valving tools (e.g. sockets or jaws) used to screw the valve into the cylinder must only make contact with the flats provided in the valve body. The tools should fit the valve properly without causing damage.
3. Valves should not be over-torqued into the cylinder as it causes high stresses in the cylinder neck, leading to overload failures.
4. Proper connectors should be used for filling & discharge, ensuring contact only at the intended sealing surface.
5. As the upper spindle is non-rising, do not over-torque the valve in an open direction.
6. Repair & maintenance should be carried out by trained personnel.



## Features & Benefits for Best-in-Class Performance

### Series TWN-12/O

*Valves are cleaned for Oxygen service*



*Dimensions are in mm*

*Dimensions shown are for 1" BS inlet and BS-3 outlet*

- a Depends upon inlet connection
  - b Depends upon outlet connection
- Wrench size 30.0

### Design Specifications

Minimum life	2000 cycles
Valve test pressure (TP)	360 bar
Temperature range	-46 °C to +85 °C
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
Lubricant	Gleitmo 599
Flow coefficient (C <sub>v</sub> )	0.36
MAX weight of cylinder package mass for which valve can be used without protection	100 kg

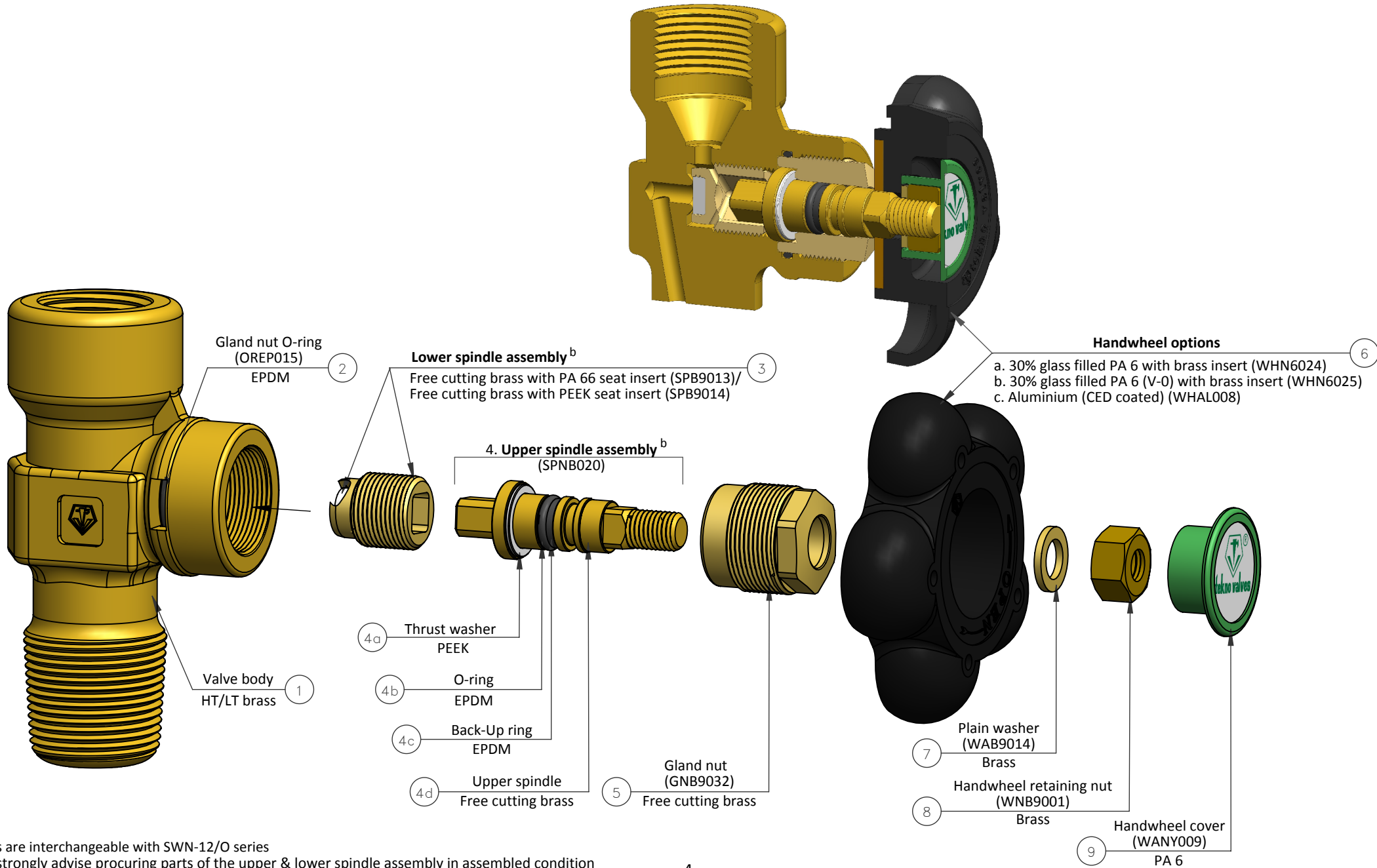
### Testing & Certification

- Valves meet EN ISO 10297:2017
- Valves are certified by BAM to European Transportable Pressure Equipment Directive (TPED) & available with  $\Pi$  mark



## Material of Construction & Assembly Arrangement

### Series TWN-12/O<sup>a</sup>



<sup>a</sup> Parts are interchangeable with SWN-12/O series

<sup>b</sup> We strongly advise procuring parts of the upper & lower spindle assembly in assembled condition



## Disassembly, Inspection & Assembly Instructions

### Series TWN-12/O

#### Disassembly of Valve

1. Place the valve assembly after removing from the cylinder in a vice or similar holding fixture. The holding fixture must securely grip the valve body (1) on the wrench flats so that there is no damage to the valve body plating, internal bores & inlet & outlet threads.
2. Remove handwheel cover (9) by pulling it away from the handwheel (6) using a screw driver or similar tool. Use 13 mm socket wrench or HEX box wrench to unscrew the handwheel retaining nut (8) by turning it counter clockwise.
3. Remove the handwheel from the upper spindle (4d) square. The handwheel retaining nut & plain washer (7) will come out with the handwheel.
4. Using a 3/4" socket wrench or hex box wrench, unscrew the gland nut (5) in counter clockwise direction. The upper spindle assembly with O-ring (4b), back-up ring (4c) & thrust washer (4a) will remove with the gland nut. Remove the upper spindle assembly from the gland nut by pushing the upper spindle from the top. Be careful not to scratch the gland nut sealing surface.
5. Use the upper spindle to remove the lower spindle assembly (3) from the valve chamber, by rotating it counter clockwise.

#### Inspection of Valve & Components

1. Valve body (1)
  - a. Inspect the valve body chamber for dirt, debris or damage. Where possible, blow out the valve body chamber using clean, dry, compressed Air or Nitrogen to remove any foreign particles.
  - b. Inspect the valve body for seat damage & thread wear.
  - c. Inspect if gland nut O-ring (2) is in place inside the valve body groove.
  - d. Do not attempt to repair the valve body if damaged.
2. Components
  - a. Inspect all parts visually for wear, damage. Replace parts as necessary. In case of damage to upper spindle (4d) & / or elastomers, replace with new upper spindle subassembly (4).
  - b. Inspect lower spindle (3) threads & soft seating for any sign of wear / damage. Inspect the thrust washer (4a). Replace if necessary.
  - c. Handwheel (6) should only be reused if in good condition.

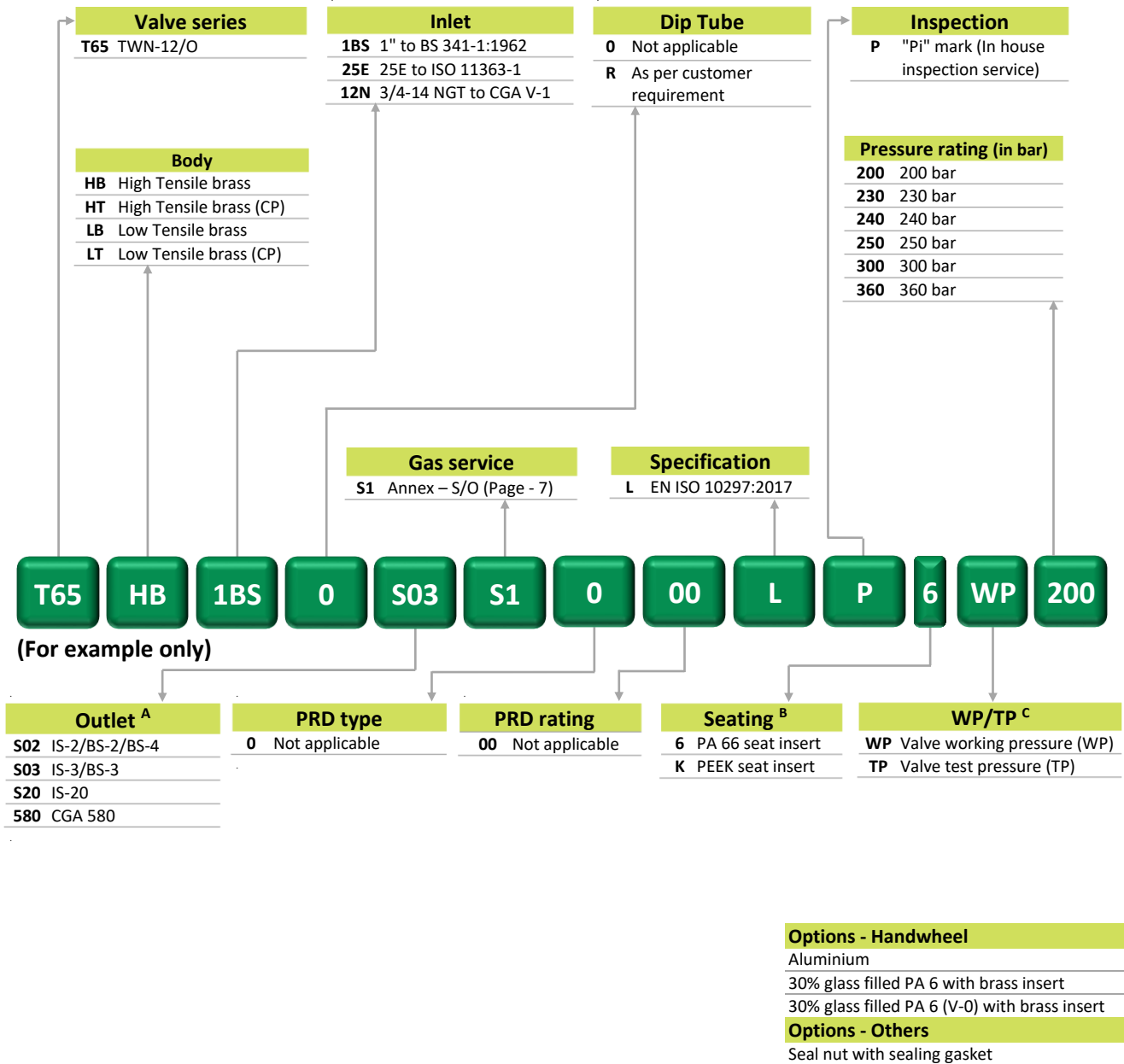
#### Assembly of Valve

1. Lubricate parts as per GA drawing.  
NOTE Customer will receive parts / spare kits in lubricated condition.
2. Fit gland nut O-ring (2) inside the groove provided in the valve body (1) just below the gland nut threads.
3. Insert upper spindle subassembly (4) inside gland nut (5) with a twisted motion to avoid damage to elastomers & insert till the spindle collar rests on gland nut counter bore.
4. Place the lower spindle assembly (3) into the valve body. Position the upper spindle to engage with the lower spindle square & screw in gland nut into the valve body by rotating the upper spindle square. This will also drive the lower spindle assembly to rest with the valve body seat.
5. Clamp valve body in bench vice between nylon clamps. Tighten gland nut using a 3/4" socket wrench or hex box wrench at  $65 \pm 2$  Nm in clockwise direction.
6. Place handwheel (6) on the upper spindle square.
7. Fit handwheel by tightening handwheel retaining nut (8) over plain washer (7) using a 13 mm socket wrench or HEX box wrench at  $9 \pm 1$  Nm in clockwise direction.
8. Push fit wheel cover (9) in the handwheel.

NOTE Refer "Material of construction & assembly arrangement" page to identify the part No. given in the bracket.



Series TWN-12/O



- A - Other outlet connections are available as per customer requirement
- B - PEEK seat insert is not available for valves used in oxygen and other oxidizing gases and their mixtures.
- C - As per EN ISO 10297, the term working pressure (WP) is only applicable for compressed gases and does not apply to liquefied gases.  
For compressed gas, test pressure = 1.2 x working pressure  
For liquefied gases, test pressure shall be at least equal to the minimum test pressure corresponding to the applicable filling ratio quoted in the relevant transport regulation (ADR) for that gas



## List of Approved Gases

### Gas Annex – S/O

Sl. No.	UN No.	Name of gas <sup>a</sup>	Chemical formula	Condition	Soft seat options	
					PA 66	PEEK
01	1002	Air	-	-	✓	✓
02	1006	Argon	Ar	-	✓	✓
03	1016	Carbon monoxide	CO	A	✓	✓
04	1957	Deuterium	D	-	✓	✓
05	1046	Helium	He	-	✓	✓
06	1049	Hydrogen	H <sub>2</sub>	-	✓	✓
07	1056	Krypton	Kr	-	✓	✓
08	1065	Neon	Ne	-	✓	✓
09	1066	Nitrogen	N <sub>2</sub>	-	✓	✓
10	1070	Nitrous oxide	N <sub>2</sub> O	-	✓	X
11	1072	Oxygen	O <sub>2</sub>	-	✓	X
12	1080	Sulphur hexafluoride	SF <sub>6</sub>	-	✓	✓
13	2036	Xenon	Xe	-	✓	✓
14	1013	Carbon dioxide	CO <sub>2</sub>	A	✓	✓

a - Valve may also be used for mixtures of the listed gases.

A - Anhydrous (Water content less than 0.01%)



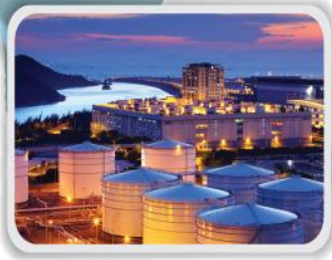
*Don't let your profit leak through your cylinders*



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65+ Countries



**tekno valves**  
*driven by excellence*



***Your safety is valued***

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*P. Halder*