

Wheel Operated Cylinder Valve in O-ring Seal Design for Acetylene

Detailed Series Catalogue



SWN-12/D



TWN-12/D



Your safety is valued

ISO 9001 & TPED certified valve manufacturer



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Series SWN-12/D & TWN-12/D

Identifying features

SWN-12/D & TWN-12/D is new generation handwheel operated O-ring seal valve using two-piece spindle construction suitable for Acetylene gas service. 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.

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://drive.google.com/file/d/1E0H1B_Z4rBb7ddQJ6R897duZPmFSzHCH/view?usp=sharing)

Recommended filling procedure

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

⚠ CAUTION

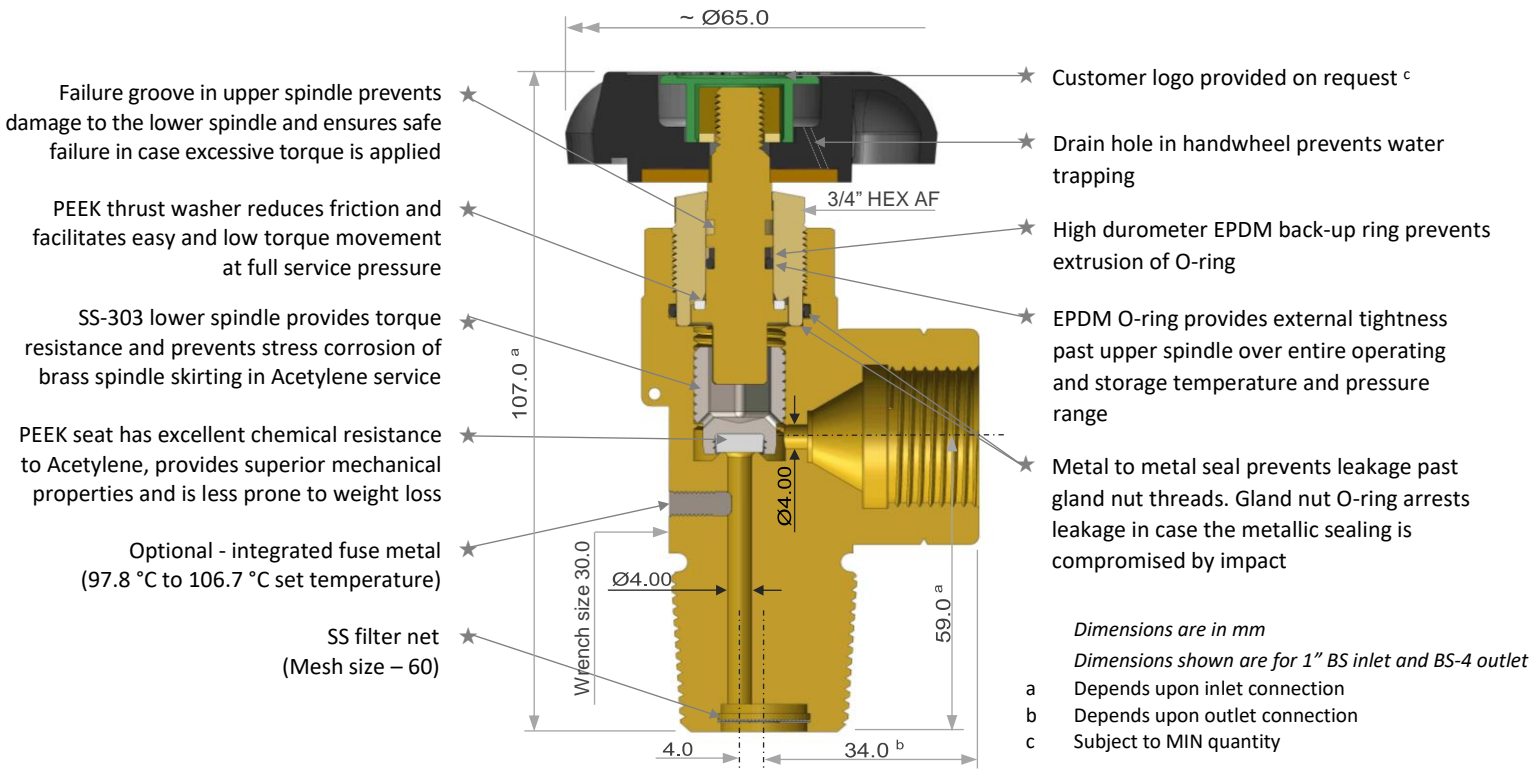
1. NEVER use wrenches or other persuaders to operate the valve.
2. Valving tools (e.g. sockets or jaws) used to screw the valve into the cylinder must only make contact with the flats provided in the valve body.
3. Over-torquing the valve into the cylinder must be avoided as they cause high stresses in the cylinder neck, leading to overload failures. Over-torquing also leads to irreparable damage to the valve inlet thread.
4. Proper connectors should be used for filling & discharge, ensuring contact only at the intended sealing surface.
5. As upper spindle is non-rising, do not over torque the valve in open direction.
6. Repair & maintenance should be carried out by trained personnel.



Features & Benefits for Best-in-Class Performance

Series SWN-12/D

(Valve shown with standard model)



Maximum Pressure Rating & Lubricant Detail

	Metric	English
Service/Test pressure *	60 bar	870 psig
Proof pressure test	900 bar	13050 psig
Hydraulic burst pressure test	909 bar	13181 psig
Lubricant	Klubertemp GR M30	

* Maximum service pressure of the valve may be restricted by the maximum pressure rating of the outlet connection and/or pressure relief device

Design Specifications

	Metric	English
Minimum life	2000 cycles	
Temperature range	-46 °C to +85 °C	-51 °F to +185 °F
Pressure relief device (PRD) ^a	CG-3	
Minimum closing torque	3 Nm	2.2 ft.lb
Gland nut installation torque	65 Nm	48 ft.lb
Flow coefficient (C _v)	0.36	
Valve inherent strength proven up to ^b - with HT brass valve body	83.3 kg	183.6 lb

^a Optional and restricted up to 500 psig service pressure

^b MAX cylinder package mass for which valve can be used without protection

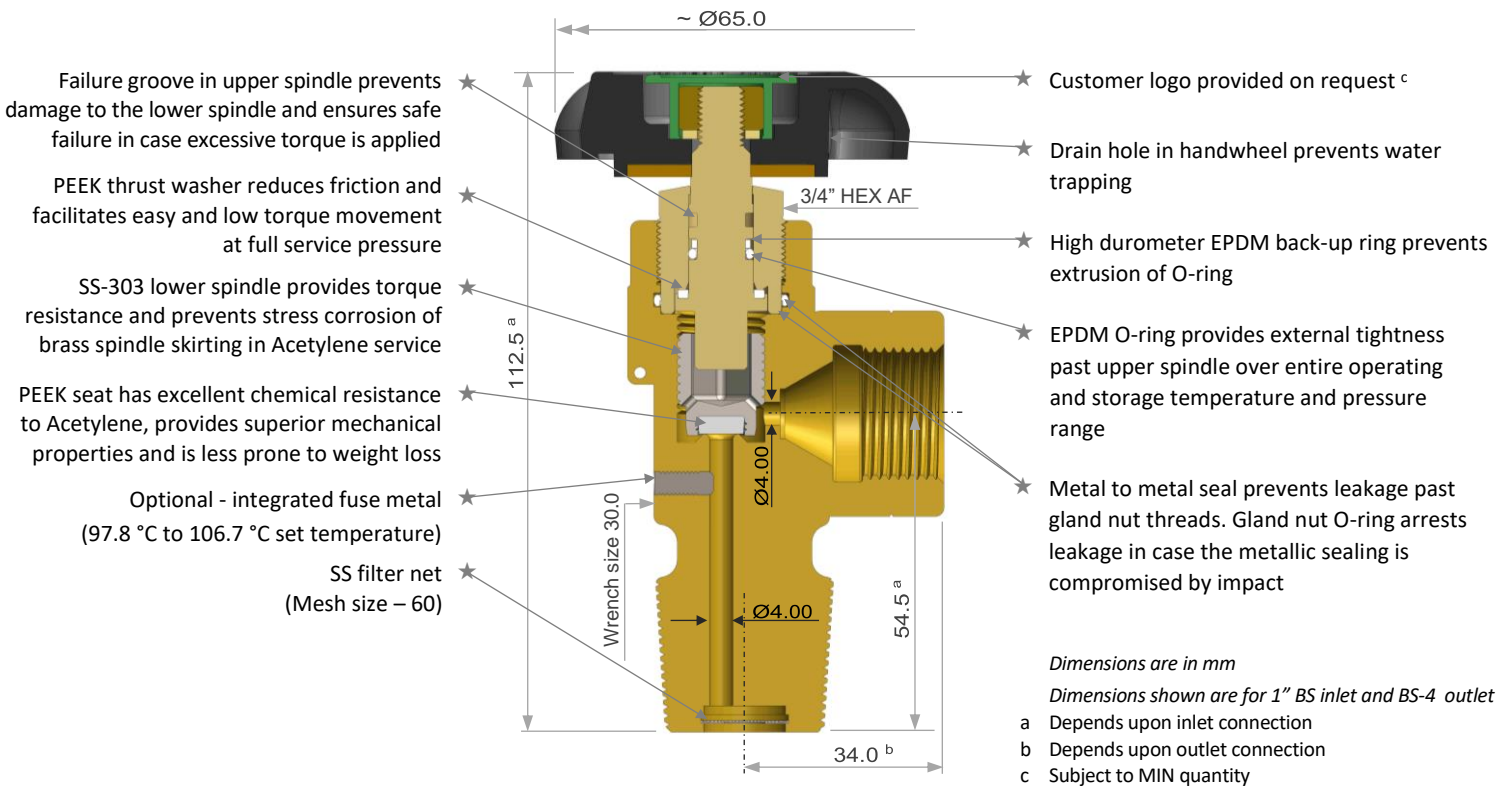
Testing & Certification

- Valves meet EN ISO 10297:2017 & CGA V-9:2019, tested by BAM
- Valves without fuse metal are certified by BAM to European Transportable Pressure Equipment Directive (TPED) & available with Π mark
- Fuse metal complies with CGA S-1.1
- Production testing as per EN ISO 14246



Series SWN-12/D

(Valve shown with heavy weight model)



MAX Pressure Rating & Lubricant Detail		
	Metric	English
Service/Test pressure *	60 bar	870 psig
Proof pressure test	900 bar	13050 psig
Hydraulic burst pressure test	909 bar	13181 psig
Lubricant	Klubertemp GR M30	

* Maximum service pressure of the valve may be restricted by the maximum pressure rating of the outlet connection and/or pressure relief device

Design Specifications		
	Metric	English
Minimum life	2000 cycles	
Temperature range	-46 °C to +85 °C	-51 °F to +185 °F
Pressure relief device (PRD) ^a	CG-3	
Minimum closing torque	3 Nm	2.2 ft.lb
Gland nut installation torque	65 Nm	48 ft.lb
Flow coefficient (C _v)	0.36	
Valve inherent strength proven up to ^b	100 kg	220.4 lb

^a Optional

^b MAX cylinder package mass for which valve can be used without protection

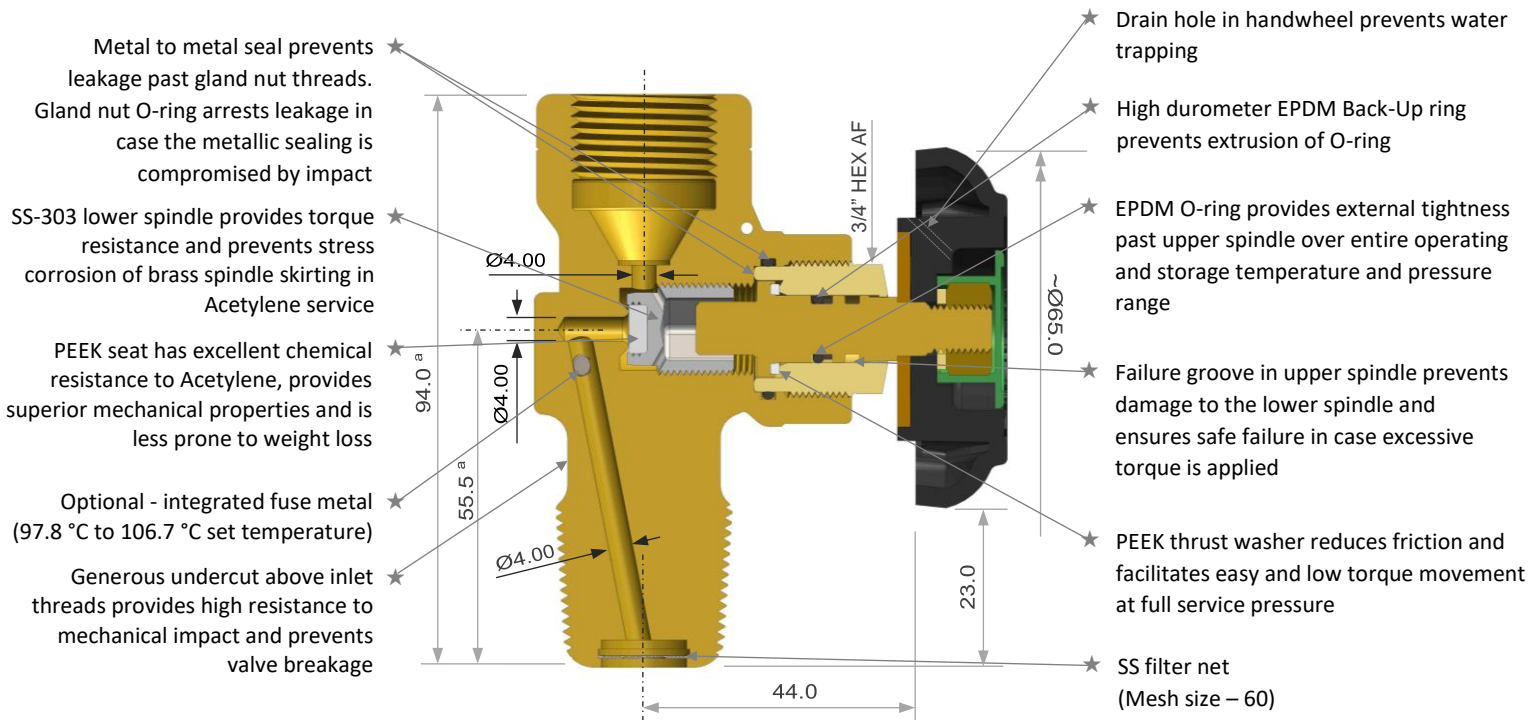
Testing & Certification

- Valves meet EN ISO 10297:2017 & CGA V-9:2019, tested by BAM
- Valves without fuse metal are certified by BAM to European Transportable Pressure Equipment Directive (TPED) & available with Π mark
- PRD complies with CGA S-1.1
- Production testing as per EN ISO 14246



Features & Benefits for Best-in-Class Performance

Series TWN-12/D (Valve with top outlet)



Dimensions are in mm

Dimensions shown are for 1" BS inlet and BS-4 outlet

- a Depends upon outlet connection
Wrench size 30.0

Design Specifications

Minimum life	2000 cycles
Valve test pressure (TP)	60 bar
Temperature range	-46 °C to +85 °C
Minimum closing torque	3 Nm
Gland nut installation torque	65 Nm
Lubricant	Kluebertemp GR M30
Flow coefficient (C _v)	0.36
MAX weight of cylinder package mass for which valve can be used without protection - HT Brass	100 kg

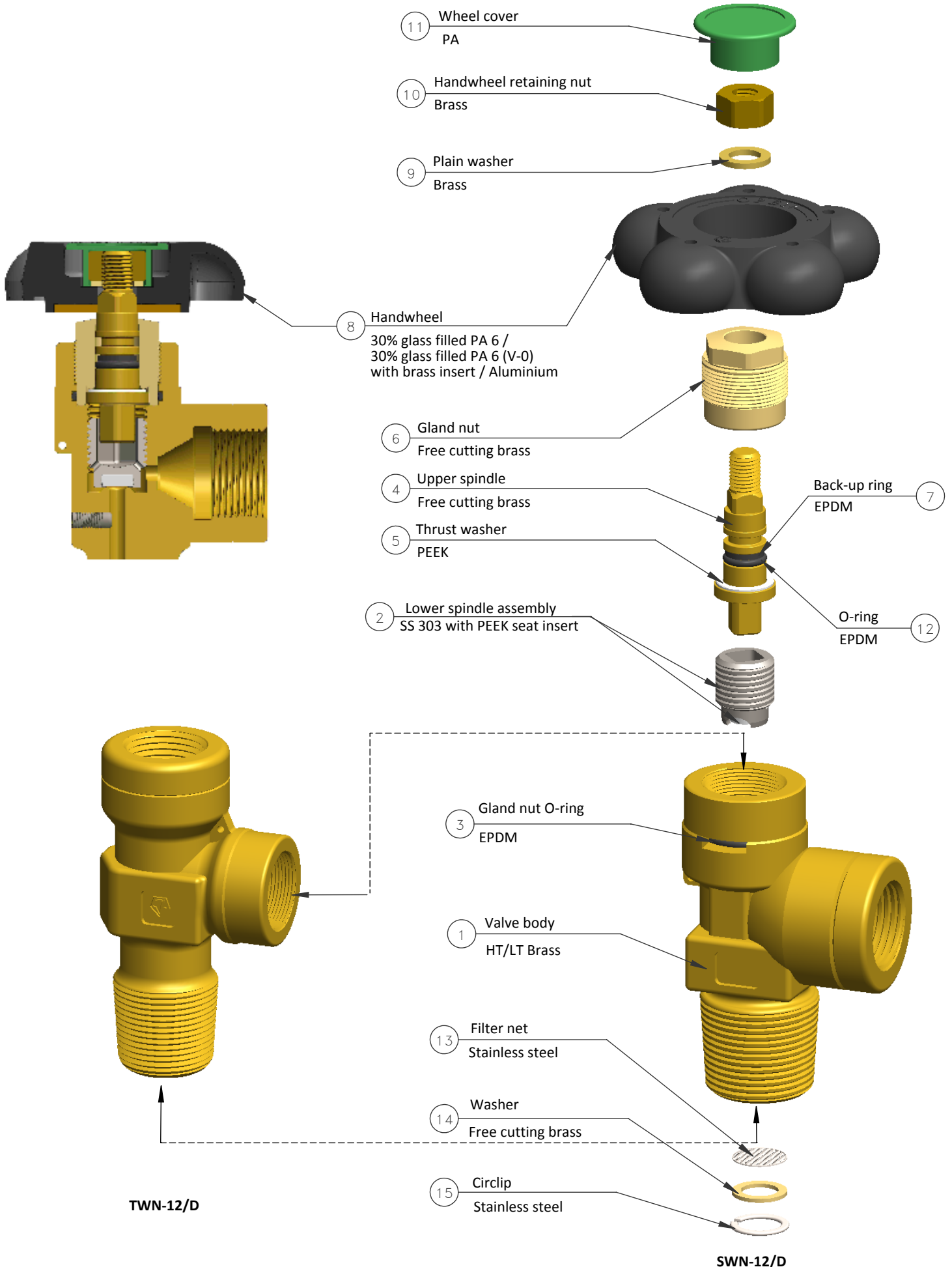
Testing & Certification

- Valves meet EN ISO 10297:2017, tested by BAM
- Valves without fuse metal are certified by BAM to European Transportable Pressure Equipment Directive (TPED) & available with **T** mark
- Fuse metal complies with CGA S-1.1
- Production testing as per EN ISO 14246



Material of Construction & Assembly Arrangement

Series SWN-12/D & TWN-12/D





Disassembly, Inspection & Assembly Instructions

Series SWN-12/D

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 (11) by pulling it away from the handwheel (8) using a screw driver or similar tool. Use 13 mm socket wrench or HEX box wrench to unscrew the handwheel retaining nut (10) by turning it counter clockwise.
3. Remove the handwheel from the upper spindle (4) square. The handwheel retaining nut & plain washer (9) will come out with the handwheel.
4. Using a 3/4" socket wrench or hex box wrench, unscrew the gland nut (6) in counter clockwise direction. The upper spindle assembly with O-ring (12), back-up ring (7) & thrust washer (5) 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 (2) 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 (3) 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 (4) & / or elastomers, replace with new upper spindle subassembly.
 - b. Inspect lower spindle (2) threads & soft seating for any sign of wear / damage. Inspect the thrust washer (5). Replace if necessary.
 - c. Inspect fuse metal (if integrated to valve body) for any damage/extrusion/porosity.
 - d. Handwheel (8) should only be reused if in good condition.

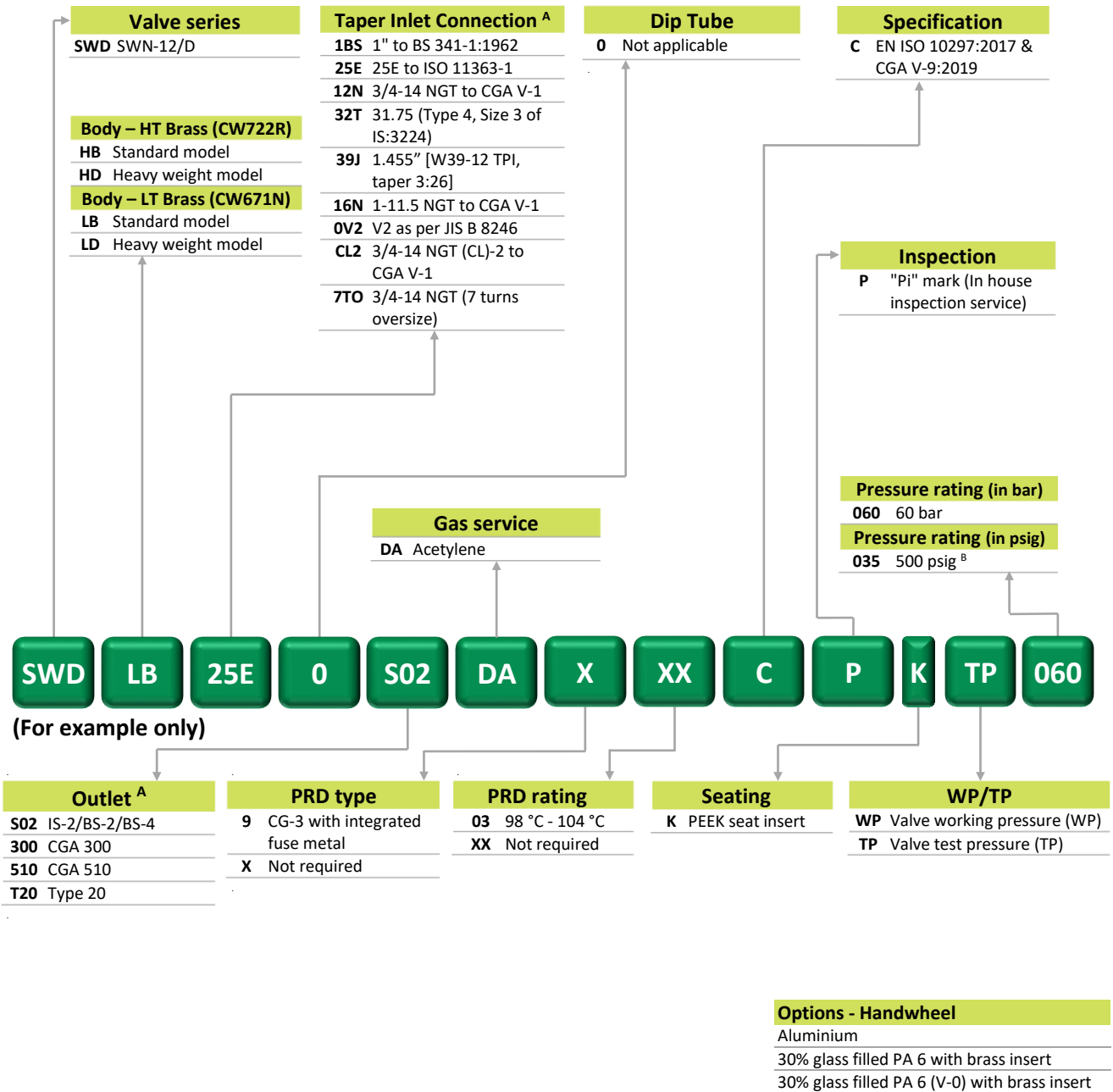
Assembly of Valve

1. Lubricate parts as per GA drawing.
NOTE Customer will receive parts / spare kits in lubricated condition.
2. Push thrust washer (5) to rest inside the upper spindle (4) collar groove.
3. Use special tools to fit O-ring (12) & back-up ring (7) in upper spindle groove. Care should be taken to place the back-up ring above the O-ring in the lower groove.
4. Fit gland nut O-ring (3) inside the groove provided in the valve body (1) just below the gland nut threads.
5. Insert upper spindle subassembly inside gland nut (6) with a twisted motion to avoid damage to elastomers & insert till the spindle collar rests on gland nut counter bore.
6. Place the lower spindle assembly (2) 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.
7. Clamp valve body in bench vice between nylon clamps. Tighten gland nut using a 3/4" socket wrench or hex box wrench at 65 ± 2 Nm in clockwise direction.
8. Place handwheel (8) on the upper spindle square.
9. Fit handwheel by tightening handwheel retaining nut (10) over plain washer (9) using a 13 mm socket wrench or HEX box wrench at 9 ± 1 Nm in clockwise direction.
10. Push fit wheel cover (11) in the handwheel.
11. Place the filter net (13) inside the groove provided in the inlet.
12. Then fit the circlip (15) below the filter net by pressing it inside the inlet groove.

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



Series SWN-12/D

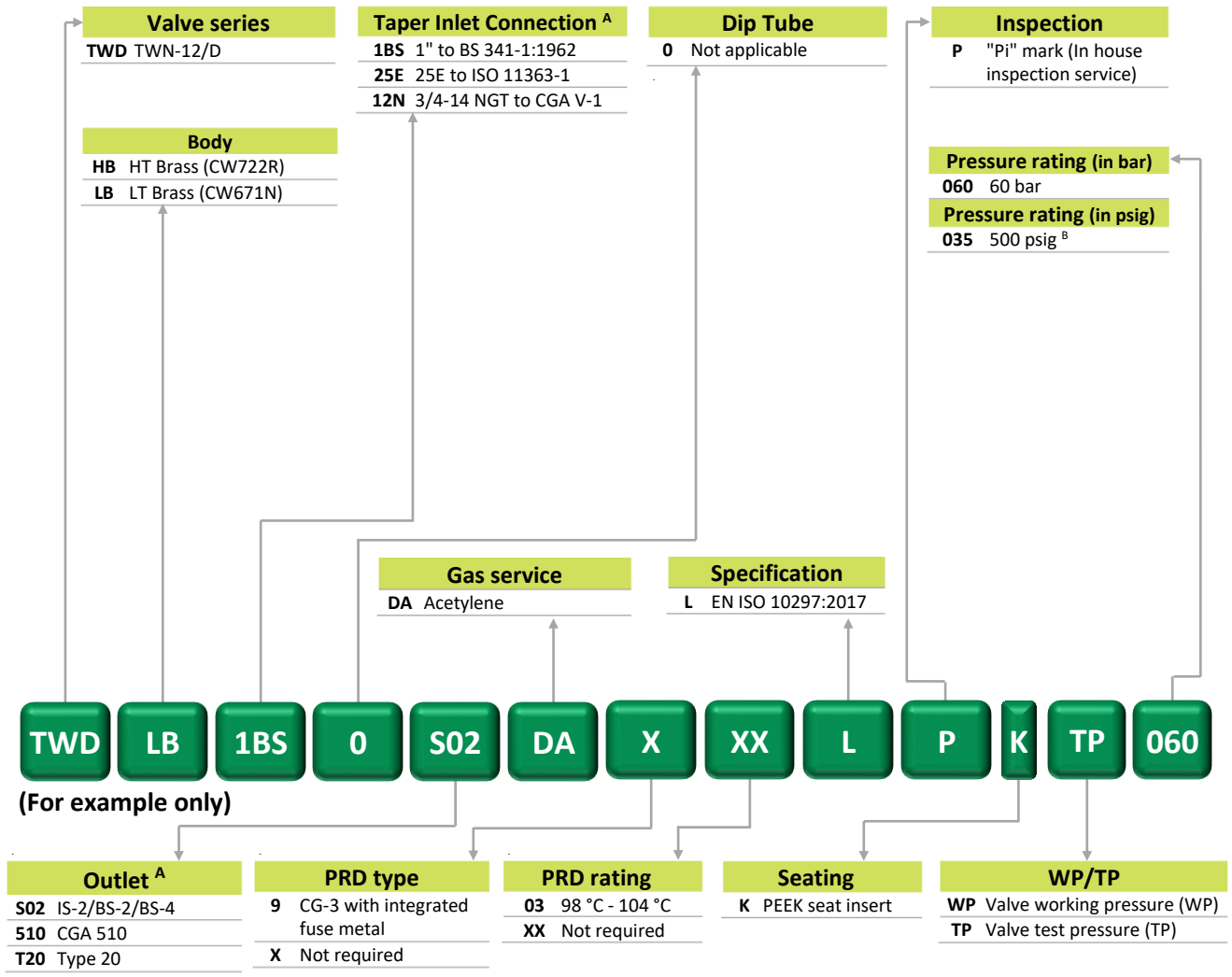


A - Other inlet & outlet connections are available as per customer requirement
B - This rating shall be provided for outlets given in CGA V-1 and for other outlets if valve is provided with integrated fuse alloy



Product Selection Guide – Valve Item Code Matrix

Series TWN-12/D



A - Other inlet & outlet connections are available as per customer requirement
B - This rating shall be provided for outlets given in CGA V-1 and for other outlets if valve is provided with integrated fuse alloy

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