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Wheel Operated Chlorine Cylinder Valve in
Compression Packed Design with O-ring Seal

Detailed Series Catalogue



SWN-22/V



Your safety is valued

ISO 9001 & TPED certified valve manufacturer



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Series SWN-22/V

Identifying features

The handwheel operated packed valve uses non-metallic seat and its sealing mechanism is designed to seal by hand. The design uses 4 x PTFE self-adjusting, spring loaded bevel packings. O-rings provide sealing in case of leakage through packing. This eliminates gland leakage associated with packed valves. The design employs two-piece spindle in which the non-threaded non-rotating lower spindle is connected by T-slot to the threaded upper spindle. The lower spindle assembly seals against the Monel seat without rotating which reduces wear and particle generation. This sealing motion and soft seating allows the valve to be operated using hand torque, thereby eliminating the need for special wrenches to operate the valve. Leakage through gland nut threads is protected by metallic sealing with protection provided by O-ring below gland nut thread. Lock nut prevents loosening of gland nut and unscrewing of operating mechanism.

No threads are in wetted gas area. The external tightness sealing mechanism provides very high seal integrity compared to packed valves.

Recommended opening procedure

The T-slot interface of the upper and lower spindle creates a free play of about 1/4 turn. The handwheel rotates approximately two turns in anti-clockwise direction from closed to fully open position. It is advisable to open the valve fully and then rotate the handwheel clockwise about 1/2 turn. This position provides maximum flow and prevents the valve to backseat.

Recommended closing procedure

Close the cylinder valve tightly in clockwise direction using a gloved hand.

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)

Valving tools (e.g. sockets or jaws) used to screw the valve into the cylinder must make contact with the flats in the valve body. The tools should fit the valve properly without causing damage.

Valves should not be over-torqued into the cylinder to avoid high stresses in the cylinder neck, leading to overload failures. Over-torquing may also lead to irreparable damage to the valve stem.

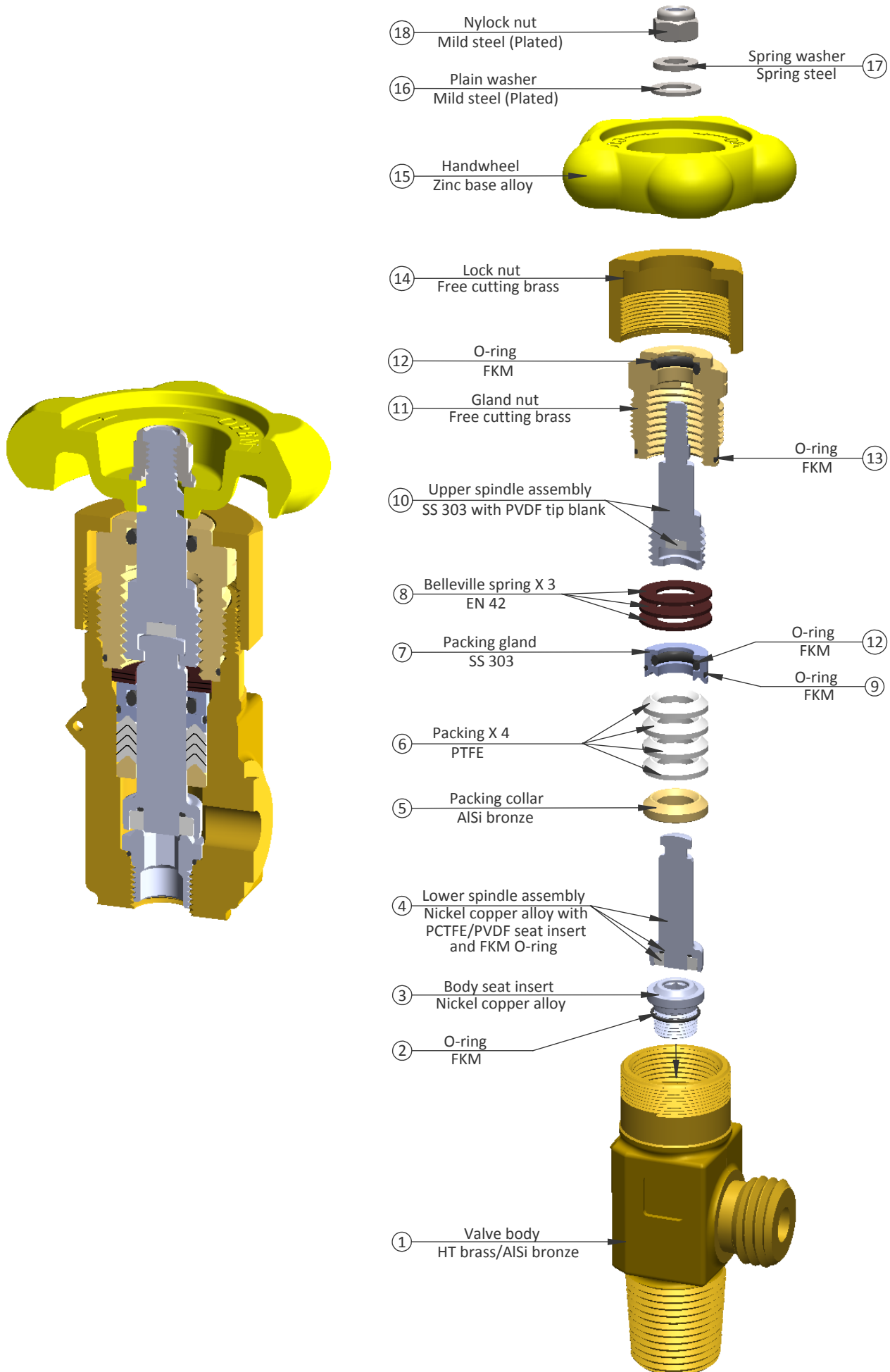
CAUTION

1. NEVER use wrenches or other persuaders to operate the valve.
2. Do not attempt to replace soft seat in the lower spindle.
3. Repair and maintenance shall be carried out by trained personnel.
4. Proper filling connectors shall be used for filling and discharge ensuring contact only at the intended sealing surface.

Material of Construction & Assembly Arrangement



Series SWN-22/V





Disassembly, Inspection & Assembly Instructions

Series SWN-22/V

Disassembly of Valve

1. Place the valve assembly after removing from the cylinder in a vice or similar holding fixture. The holding fixture should securely grip the valve body (1) on the wrench flats so that no damage is done to the internal bores, inlet & outlet threads.
2. Using an 11 mm socket, remove the handwheel nut (18) from the handwheel (15) by turning it counter clockwise.
3. Remove the handwheel from the spindle square.
4. Using a 35.0 mm socket wrench or hex box wrench, unscrew the lock nut (14) by turning it counter clockwise.
5. Using a 25.4 mm socket wrench or hex box wrench, remove the gland nut (11) by turning it clockwise. The entire operating mechanism will come out with the gland nut. Using the handwheel, rotate the upper spindle assembly (10) in clockwise direction till the lower spindle assembly (4) can be removed from the T-slot. Now remove the handwheel & unscrew the upper spindle from the gland nut by rotating it in clockwise direction.
6. Remove other parts as necessary.

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 body seat insert (3) for damage.
 - c. Do not attempt to repair the valve body and body seat insert, if it is damaged.
2. Components
 - a. Always discard the packing (6) once removed from the valve & use new packings.
 - b. Inspect all parts visually for wear / damage. Replace parts as necessary.
 - c. Handwheel (15) should only be reused if in good condition

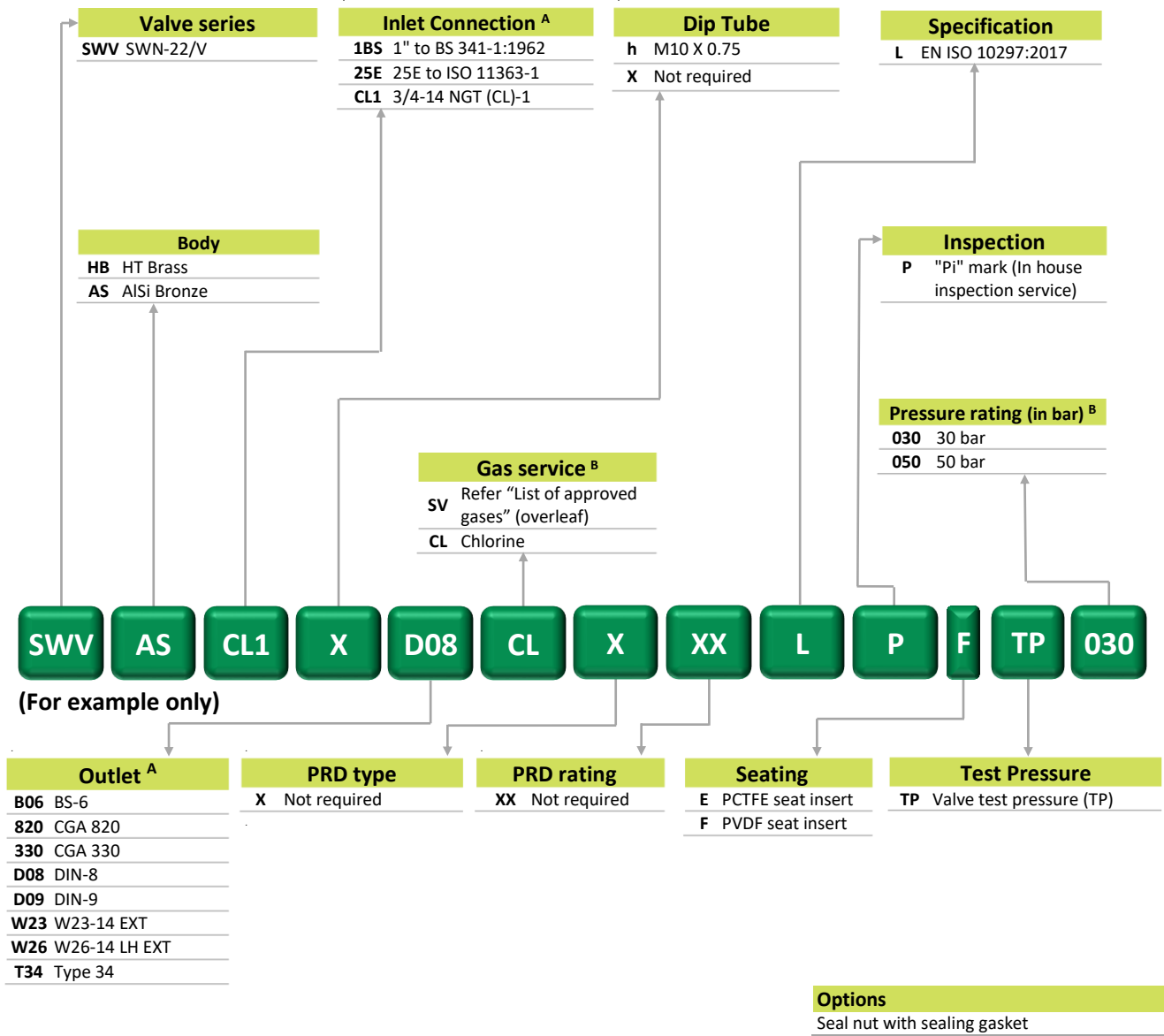
Assembly of Valve

1. Lubricate parts as per GA drawing.
NOTE Customer will receive parts in lubricated condition.
2. Insert O-ring (2) in body seat insert (3) and screw inside the thread provided in the valve body. Tighten at 16 ± 1 Nm using 1/4" Allen key in clockwise direction.
3. Insert O-ring (13) in gland nut (11) external groove. Insert O-ring (12) in gland nut internal groove.
4. Insert packing collar (5) in the lower spindle assembly (4) ensuring the flat face rests on the step.
5. Insert 4 x PTFE bevelled packing (6) in overlapping configuration.
6. Insert packing gland O-ring (9) in the external groove & spindle O-ring (12) in the internal groove of the packing gland (7).
7. Place packing gland on the PTFE packings ensuring the bevelled face rests on top of the packings.
8. Place 3 x Belleville springs (8) on top of the packing gland so that it properly loads the packings.
9. Screw in upper spindle in the gland nut up to 1 turns by rotating it in anticlockwise direction.
10. Insert lower spindle assembly with assembled parts in the T-slot of the upper spindle & fully rotate the upper spindle in anticlockwise direction.
11. Insert the assembled operating mechanism inside the valve body (1) & rotate the gland nut in anticlockwise direction.
12. Clamp the valve body in vice with Nylon clamp pads, ensuring no damage to the valve body & tighten the gland nut using 25.4 mm socket wrench or HEX box wrench at torque of 60 ± 2 Nm in anti-clockwise direction.
13. Screw the lock nut (14) on the gland nut by rotating it in clockwise direction. Using a 35.0 mm socket wrench or HEX box wrench, tighten the lock nut at torque of 30 ± 1 Nm so that the lock nut rests on the gland nut face.
14. Fit handwheel (15) by tightening handwheel retaining nut (18) over plain washer (16) & spring washer (17) at torque of 9 ± 1 Nm.

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



Series SWN-22/V



A - Other inlet & outlet connections are available as per customer requirement
B - MAX valve test pressure is 30 bar for chlorine



List of Approved Gases

Series SWN-22/V

Sl. No.	UN No.	Name of gas ^a	Chemical formula	ASHRAE No.	Condition	Valve body MATL		Soft seat options	
						HT brass	AlSi bronze	PCTFE	PVDF
01	1010	Butadiene-1,2	H ₂ C:C:CHCH ₃	-	-	✓	✓	✓	✓
02	1010	Butadiene-1,3	H ₂ C:CHCH:CH ₂	-	-	✓	✓	✓	✓
03	1011	Butane	C ₄ H ₁₀	-	-	✓	✓	✓	✓
04	1017	Chlorine ^b	Cl ₂	-	A	✓	✓	✓	✓
05	1020	Chloropentafluoroethane	C ₂ ClF ₅	R115	A	✓	✓	X	✓
06	1021	Chlorotetrafluoroethane	C ₂ HClF ₄	R124	A	✓	✓	✓	✓
07	1027	Cyclopropane	C ₃ H ₆	-	-	✓	✓	✓	✓
08	1037	Ethyl Chloride	C ₂ H ₅ Cl	R160	A	✓	X	X	✓
09	1085	Vinyl Bromide	C ₂ H ₃ Br	R140B1	A	✓	X	X	✓
10	1086	Vinyl Chloride	C ₂ H ₃ Cl	R140	A	✓	X	X	✓
11	1858	Hexafluoropropylene	C ₃ F ₆	R1216	A	✓	X	X	✓
12	1063	Methyl Chloride (Chloromethane)	CH ₃ Cl	R40	A	✓	X	✓	✓
13	1969	Isobutane	C ₄ H ₁₀	-	-	✓	✓	✓	✓
14	1983	Chlorotrifluoroethane	CH ₂ ClCF ₃	R133A	A	✓	✓	X	✓
15	2035	Trifluoroethane	CH ₃ CF ₃	R143A	A	✓	✓	X	✓
16	2191	Sulphuryl Fluoride	SO ₂ F ₂	-	A	✓	✓	✓	X
17	2204	Carbonyl Sulphide	COS	-	A	✓	✓	✓	✓
18	2419	Bromotrifluoroethylene	C ₂ BrF ₃	-	A	✓	✓	X	✓
19	2424	Octafluoro Propane	C ₃ F ₈	R218	A	✓	✓	X	✓
20	2517	Chlorodifluoroethane	CH ₃ CClF ₂	R142b	A	✓	✓	X	✓
21	3220	Pentafluoroethane	C ₂ HF ₅	R125	A	✓	✓	✓	✓
	3296	Heptafluoropropane	C ₃ HF ₇	R227	A	✓	✓	✓	✓

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

b - Qualified for maximum valve test pressure (pvt) of 30 bar.

A - Anhydrous (Water content less than 0.01%)

Valve shall be fitted with pressure retaining gas-tight plugs or caps having threads that match those of the valve outlets and made of material not liable to attack by the contents of the pressure receptacle.

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Tekno Valves

Natun Rasta, Bilkanda, 24 Parganas (N), Kolkata

INDIA

+91 33 25956767

www.teknovalves.com

International Distributors

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Tekno Valves North America, Inc

+1 (225) 330 - 6590

www.tvnainc.com

MEXICO

Refind ING. Roberto Gonzalez Cruz Edificio

+52 (55) 5395 5832

www.refind.mx

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+024 37737565

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