tekno valves

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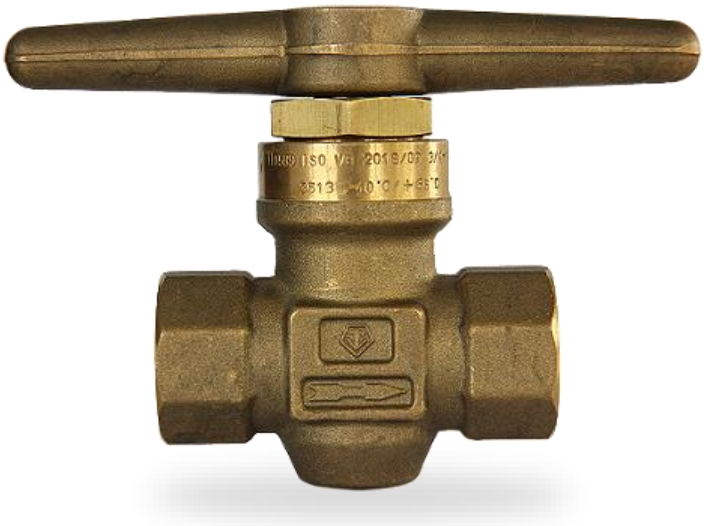
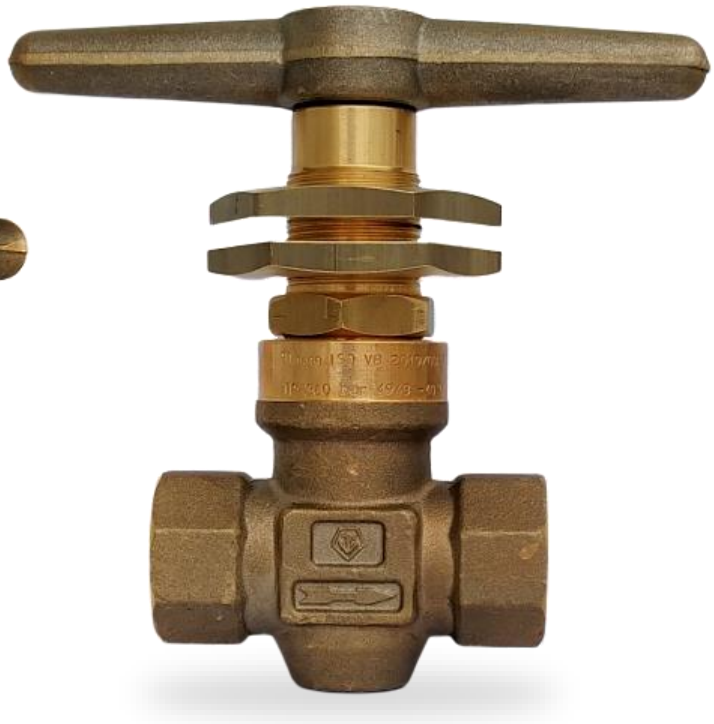
Handle Operated Master Shut-off Valves for Manifold & Bundles

Detailed Series Catalogue – BMV-09



Standard Valves



Panel Mounting Valves

BAM

TPED Certification by BAM as notified body: ID-0589

Your safety is valued

ISO 9001 & TPED certified valve manufacturer

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Series BMV-09

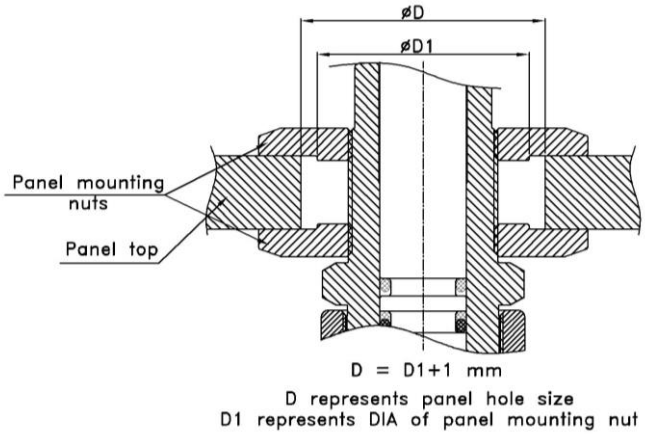
Identifying features

BMV-09 is high flow master shut-off (main) valve designed for high pressure compressed gas manifold and piping systems. It is suitable for use as a main valve for bundles, tube trailers and cylinder filling panels (filling, venting, vacuum).

It is available in standard as well as panel mounted version.

The O-ring gland seal valve operated by brass T-handle offers smooth operation under pressure. Metallic seating ensures positive shut-off and prevents ignition in oxygen atmosphere. The upper stem interfaces with lower stem assembly through a square drive. The threads are located on the lower stem while the upper stem is free-floating. The design uses O-rings to create a seal around the upper stem. Polyamide thrust washer makes contact with the collar of the upper stem and acts as anti-friction ring as the upper stem rotates to open and close the valve.

The Panel mounted valves have modified packing nut which acts as a frame to mount the panel mounting nuts to fix the valve with the panel. The design of panel mounting nuts (see figure below) depends upon the diameter of the hole in the panel to provide proper rigidity after fitment.



Recommended opening procedure

It is strongly recommended to fully open the valve gradually in anti-clockwise direction while ensuring the lower spindle does not back thrust against the upper stem collar.

As the valve in the fully open position can be mistaken as closed by inexperienced or untrained operators, operator should always check the position of the valve by attempting to close the valve, never by trying to open the valve.

Recommended closing procedure

Close the cylinder valve by rotating the T-handle in the clockwise direction.

Procedure to Install Panel Mounting Valve

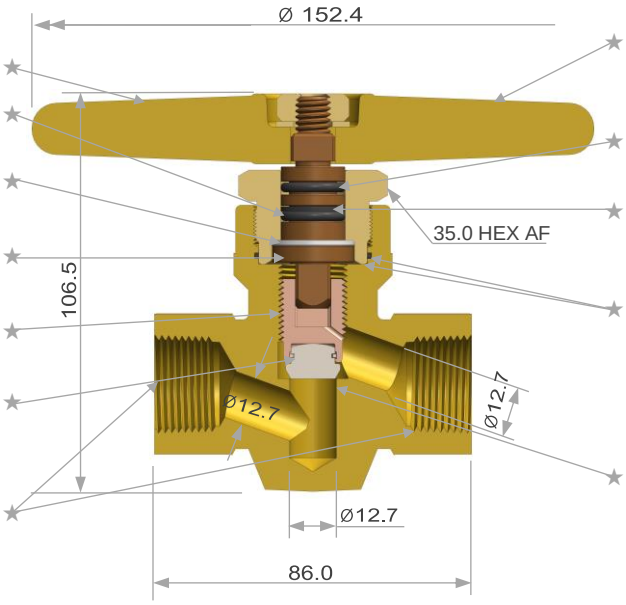
1. Unscrew the handle retaining nut using 17 mm (21/32”) HEX box spanner in counterclockwise direction.
2. Remove the T-handle and plain washer from the upper stem square.
3. Unscrew the upper panel mounting nut from the packing nut thread and insert the valve into the panel hole.
4. Tighten the filling pipes in the inlet and outlet connection.
5. Rotate the lower panel mounting nut in counterclockwise direction till it touches the lower face of the panel top.
6. Screw in the upper panel mounting nut from top of the panel and tighten both the nuts in clockwise direction.
7. Place the T-handle on the upper stem square. Place plain washer and tighten handle retaining nut to 15 Nm (11 ft.lb.) using a 17 mm (21/32”) HEX box spanner in clockwise direction.

⚠ CAUTION

1. Do not use the valves in Acetylene service.
2. NEVER use wrenches or other persuaders to operate the valve.
3. Do not degrease the valve in service without consulting the manufacturer as it may dry-off the lubrication provided in the valve.
4. Do not partially open the valve, e.g. one turn only. This will create thread mismatch between the used and unused threads of the valve body thereby restricting full thread movement and causing hindrance during disassembly for maintenance of the valve.

Series BMV-09
(Standard Valve)

- Full flow is achieved at two full turns
- High durometer EPDM back-up ring prevents extrusion of primary O-ring
- PA 66 thrust washer reduces friction and provides external tightness at high pressure
- AlSi Bronze upper stem withstands high resistance against excessive torque
- Aluminium free high silicon bronze lower stem suitable for oxygen service
- Non-rotating Monel metal self-centring seat insert provides positive shut off and reduces seat wear
- Available in ¾-14 NPT (F), ½-NPT (F) and 1-11 BSP inlet and outlet sizes



- Forged brass T-handle provides adequate leverage to easily open and close the valve under pressure
- Secondary O-ring prevents moisture / contamination ingress
- Primary EPDM O-ring provides sealing over entire temperature and pressure range
- Metal to metal seal prevents leakage past gland nut threads. Gland nut O-ring arrests leakage in case the metallic sealing is compromised by impact
- Valve design is successfully tested for resistance to ignition in oxygen service via the filling as well as discharge connection

Dimensions are in mm

Dimensions shown are for 3/4-14 NPT (F) inlet and outlet

Design Specifications

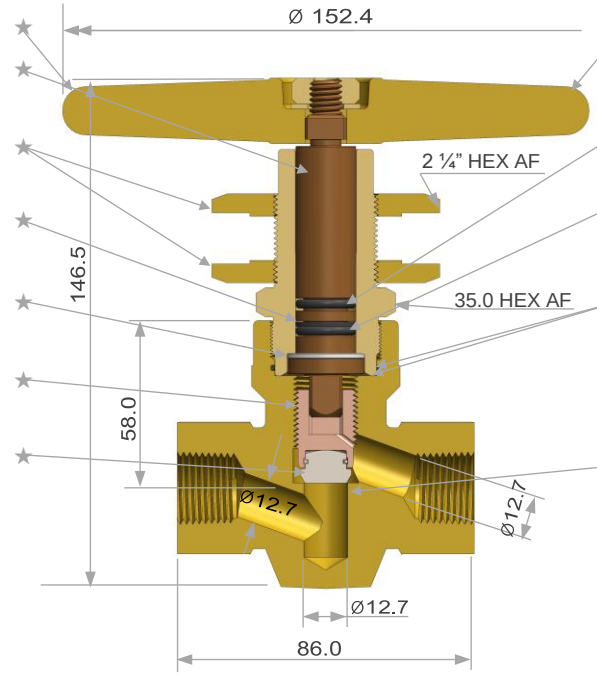
	Metric	English
Minimum life	2000 cycles	
Pressure rating	360 bar	5220 psig
Oxygen surge pressure test (tested via filling & inlet connection)	20 cycles at 360 bar	20 cycles at 5220 psig
Temperature range	-40 °C to +65 °C	-40 °F to +149 °F
Minimum closing torque	10 Nm	7.4 ft.lb
Packing nut installation torque	105 Nm	77 ft.lb
Handle retaining nut installation torque	15 Nm	11 ft.lb.
Flow coefficient (C_v)	3.16	
Lubricant	Gleitmo 599	
Oxygen cleaned	Yes	

Testing & Certification

- Valves meet EN ISO 10297:2017
- Valves are certified by BAM to European Transportable Pressure Equipment Directive (TPED) & available with ⚱ mark
- Production testing as per EN ISO 14246

Series BMV-09 (Panel Mounting Valve)

- Full flow is achieved at two full turns
- AlSi Bronze upper stem withstands high resistance against excessive torque
- Panel mounting nuts allow for easy height adjustment during installation
- High durometer EPDM back-up ring prevents extrusion of primary O-ring
- PA 66 thrust washer reduces friction and provides external tightness at high pressure
- Aluminium free high silicon bronze lower stem suitable for oxygen service
- Non-rotating Monel metal self-centring seat insert provides positive shut off and reduces seat wear



- Forged brass T-handle provides adequate leverage to easily open and close the valve under pressure
- Secondary O-ring prevents moisture / contamination ingress
- Primary EPDM O-ring provides sealing over entire temperature and pressure range
- Metal to metal seal prevents leakage past gland nut threads.
  Gland nut O-ring arrests leakage in case the metallic sealing is compromised by impact
- Valve design is successfully tested for resistance to ignition in oxygen service via the filling as well as discharge connection

Dimensions are in mm

Dimensions shown are for 1/2-14 NPT (F) inlet and outlet

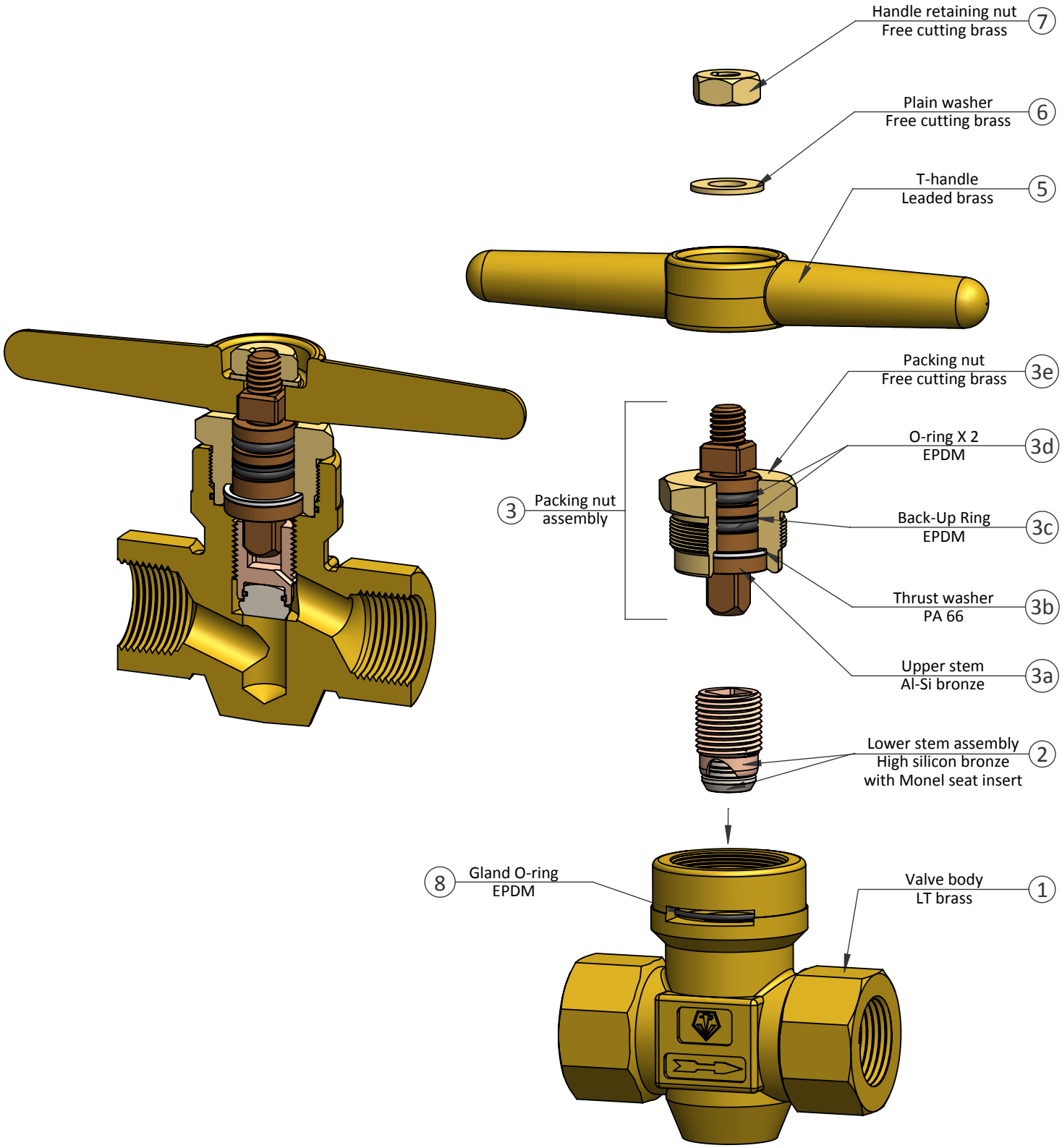
Design Specifications

	Metric	English
Minimum life	2000 cycles	
Pressure rating	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
Handle retaining nut installation torque	15 Nm	11 ft.lb.
Flow coefficient (C_v)	3.16	
Lubricant	Gleitmo 599	
Oxygen cleaned	Yes	
Panel hole size (to be specified by the customer)	ø31 - ø45 mm	ø1.22 - ø1.77 in

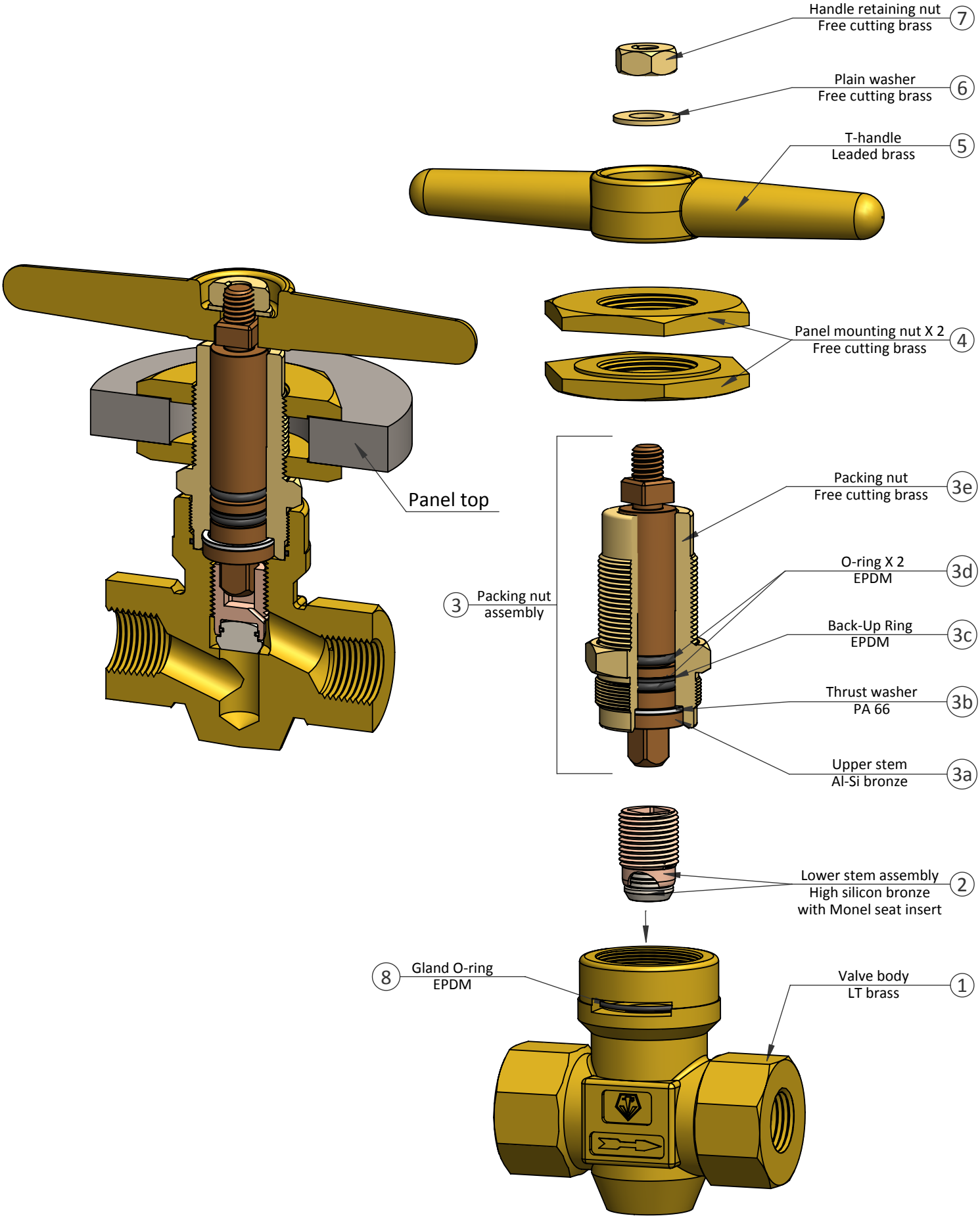
Testing & Certification

- Valves meet EN ISO 10297:2017
- Valves are certified by BAM to European Transportable Pressure Equipment Directive (TPED) & available with ⚱ mark
- Production testing as per EN ISO 14246

Series BMV-09 (Standard Valve)



Series BMV-09 (Panel Mounting Valve)



Disassembly of Panel Mounting Valve from Panel Top

1. Unscrew the handle retaining nut using 17 mm (21/32”) HEX box spanner in counterclockwise direction.
2. Remove the T-handle and plain washer from the upper stem square.
3. Unscrew the filling pipes from the inlet and outlet connection.
4. Unscrew the upper panel mounting nut from the packing nut thread in counterclockwise direction and remove the valve from the panel hole.

Disassembly of Valve

1. Unscrew the lower panel mounting nut (4), if applicable, from the packing nut (3e) thread in counter clockwise direction.
2. Using a 35 mm (1 3/8”) socket wrench or HEX box wrench, unscrew the packing nut assembly (3) in counterclockwise direction.
3. Use the upper stem to remove the lower stem assembly (2) from the valve chamber, by rotating it counterclockwise.

Inspection of Valve Body and 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 and thread wear.
   c. Do not attempt to repair the valve body if damaged.

2. Components
   a. Inspect all parts visually for wear, damage. In case of damage to upper stem and / or elastomers, replace packing nut assembly (3).
   b. Inspect lower stem threads and seat insert for significant signs of wear / damage. It is recommended to replace lower stem assembly (2), duly lubricated, after every 2000 cycles.
   c. Inspect if gland O-ring (8) is in place inside the valve body groove.

Assembly of Valve

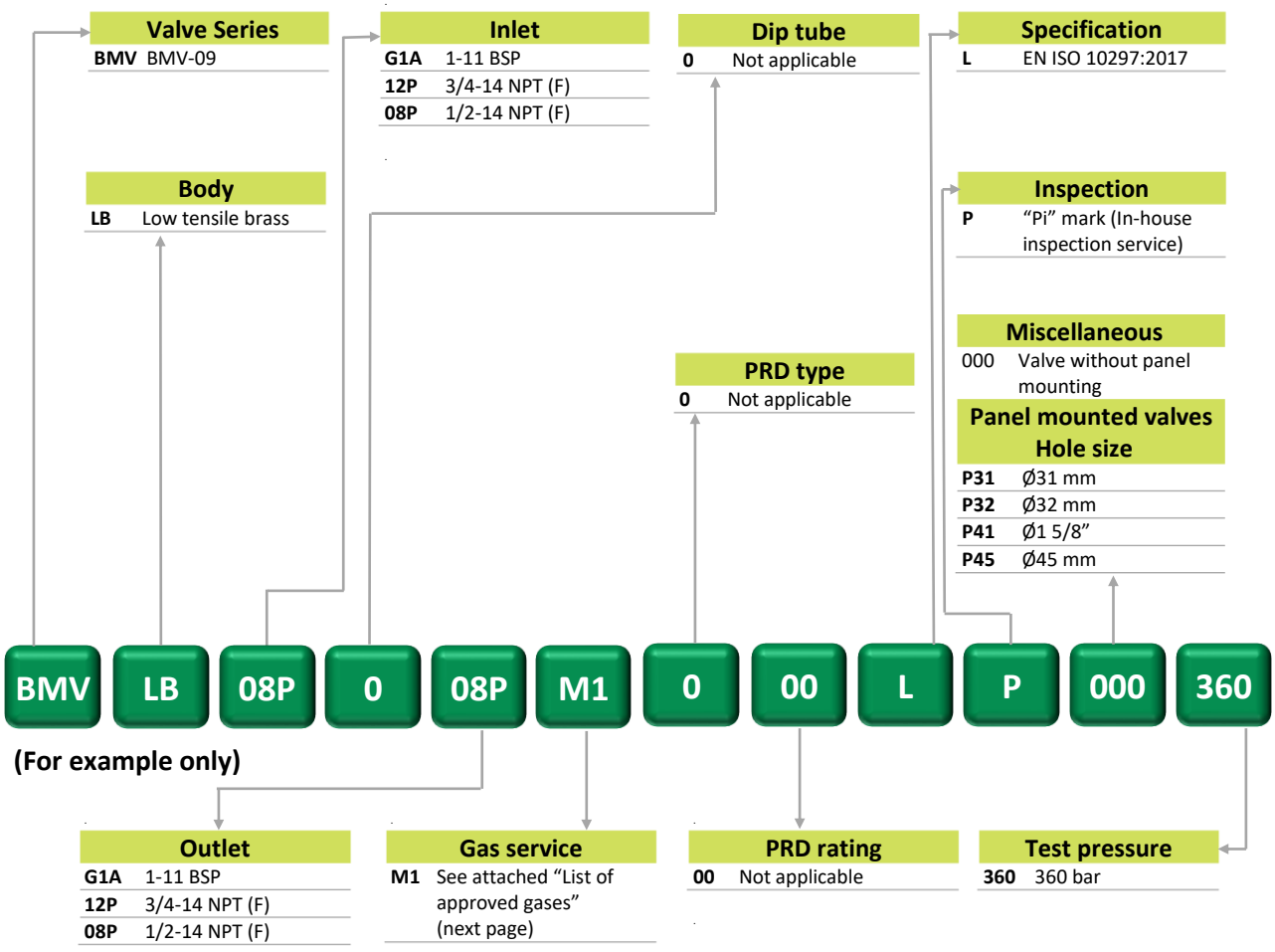
1. Fit gland O-ring (8) inside the groove provided in the valve body (1) just below the packing nut (3e) threads.
2. Place the lower stem assembly (2) into the valve body. Position the upper stem square to engage with the lower stem square and screw in packing nut assembly (3) into the valve body by rotating the upper stem square. This will also drive the lower stem assembly to rest with the valve body seat.
3. Tighten the packing nut assembly to 105 Nm (77 ft.lb.) in clockwise direction using a 35 mm (1 3/8”) socket wrench or HEX box wrench.
4. Screw the panel mounting nuts (4) in the packing nut thread by hand in clockwise direction, if applicable. It is not required to tighten panel mounting nuts during assembly as it needs to be unscrewed while installing in panel.
5. Place T-handle (5) on the upper stem square.
6. Place plain washer (6) and tighten handle retaining nut (7) to 15 Nm (11 ft.lb.) using a 17 mm (21/32”) HEX box spanner in clockwise direction.

Assembly of Panel Mounting Valve in Panel Top

Refer operating principle and identifying features page (Page No. – 2) for installation procedure.

NOTE Refer “Material of construction and assembly arrangement” page to identify the part No. given in the bracket.

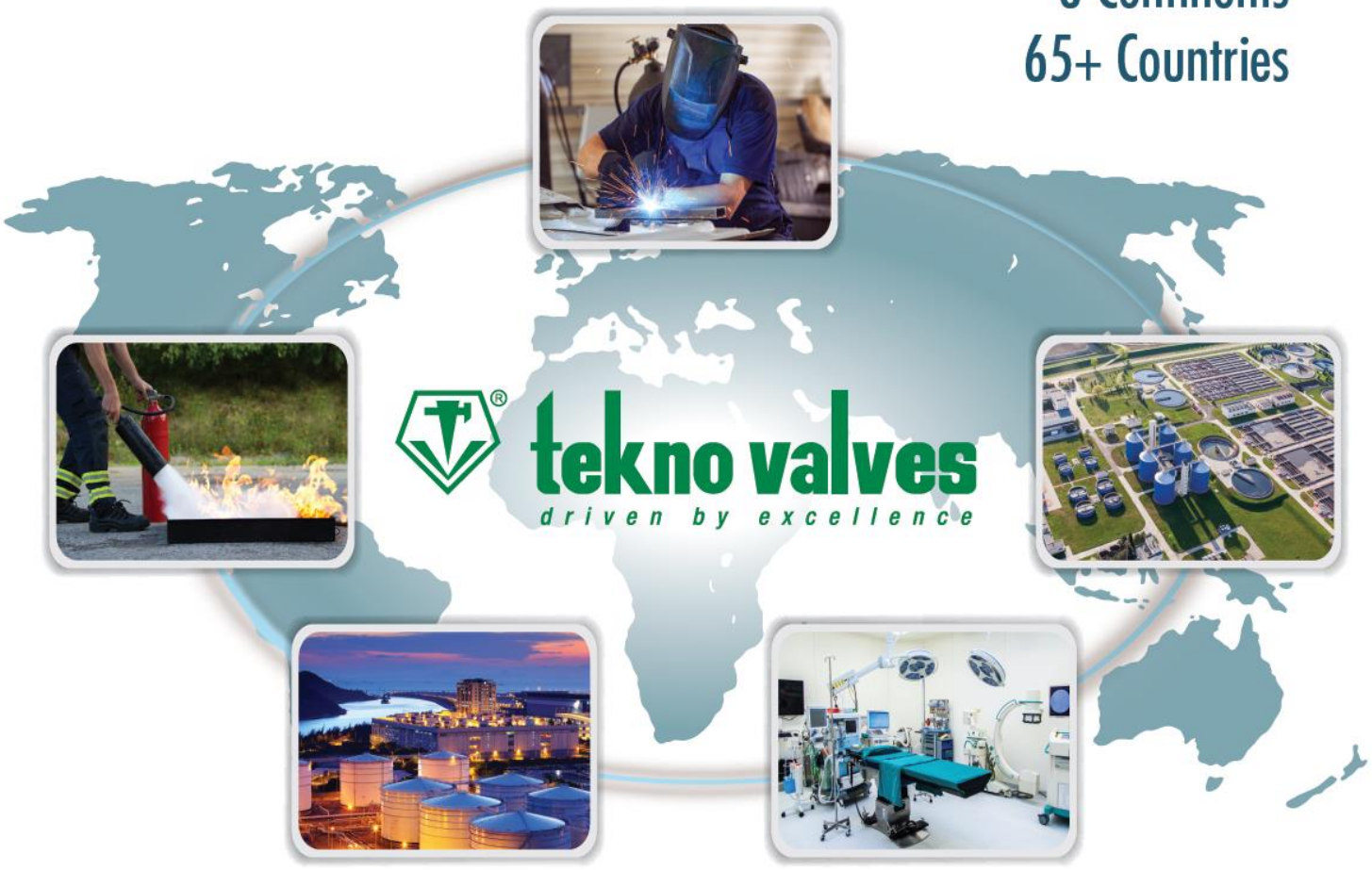
Series BMV-09



Sl. No.	UN No.	Name of gas	Chemical formula	ASHRAE No.
01	1002	Air	-	-
02	1006	Argon	Ar	-
03	1009	Bromotrifluoromethane	$CBrF_3$	R 13B1
04	1013	Carbon dioxide	CO_2	-
05	1016	Carbon monoxide	CO	-
06	2517	Chlorodifluoroethane	CH_3CClF_2	R 142 b
07	1018	Chlorodifluoromethane	$CHClF_2$	R 22
08	1020	Chloropentafluoroethane	C_2ClF_5	R 115
09	1022	Chlorotrifluoromethane	$CClF_3$	R 13
10	1957	Deuterium	D	-
11	1958	Dichlorotetrafluoroethane	$C_2Cl_2F_4$	R114
12	1030	Difluoroethane	$C_2H_4F_2$	R 152a
13	1046	Helium	He	-
14	1049	Hydrogen	H_2	-
15	1056	Krypton	Kr	-
16	1065	Neon	Ne	-
17	1066	Nitrogen	N_2	-
18	1070	Nitrous oxide	N_2O	-
19	1976	Octafluoro-Cyclobutane	C_4F_8	RC 318
20	2424	Octafluoropropane	C_3F_8	R 218
21	1072	Oxygen	O_2	-
22	1080	Sulphur hexafluoride	SF_6	-
23	1984	Trifluoromethane	CHF_3	R 23
24	2036	Xenon	Xe	-

Notes

6 Continents
65+ Countries



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