

IOM_Subsea_Valves
Effective: January
2021
ECO-0353118



Installation and Operation Manual

Subsea Valves

(SNV and S2BS Series)



Installation and Operation Manual Subsea Valves

Parker Hannifin

Parker Hannifin (IPDE)
Riverside Road, Barnstaple, Devon, EX31 1NP United Kingdom
Telephone: (01271) 313131
E-mail: ipde_technical@parker.com

IDENTIFICATION OF HAZARDS

NEVER adjust valves under pressure.
NEVER slacken or remove any valve parts under pressure.
NEVER use any mechanical aids (not including suitable ROV actuation) i.e. wrenches, extensions to operate handles.
NEVER carry ball valves by the handle.
NEVER obscure valve body marking.
NEVER remove end connectors.
NEVER use valves outside of rated operating conditions.
PROTECT valve against vibration
PROTECT valve against incompatible media (refer to subsea valve catalogue for full identification of materials used in valve)

HANDLING AND STORAGE

Handling

Ensure that local manual handling requirements are followed. Do not lift or carry by the operating handles, as this may cause damage.

Storage

- Boxed products should be stored in a covered area, preferably indoors, and away from excessive moisture, heat, or environmental contaminants. The ends of the valves should always be adequately protected from ingress of environmental contaminants.
- The use of desiccant or corrosion inhibitors is not required during normal storage periods.



Installation and Operation Manual Subsea Valves

INSTALLATION

Wear suitable PPE before installation and follow appropriate site safety procedures.

Before installation, ensure that all valves are in the closed position.

Valve installation should only be performed by experienced and competent technicians. All users/technicians should be thoroughly trained in the normal operation and assembly of the connections.

Media compatibility at the discretion and responsibility of the end user.

Cathodic protection at the discretion and responsibility of the end user.

CONNECTIONS

Parker Subsea Valves are supplied with 3 different connection types as standard and should be installed into suitably rated pipe/tube work using standard practices associated with the type of fitting used:

- **Autoclave Cone and Thread:** See separate installation manual for Autoclave Tools, Installation, Operation, Maintenance Low Pressure "Speedbite", Cone & Thread: Manual and Machine, Quick Set (QSS) Tooling (this may be downloaded from www.autoclave.com).

Note - Valve installation must ensure that the bleed holes are visible on at least one side.

- **NPT:** Use standard practice for NPT taper threads. Use an appropriate thread tape or sealant to prevent galling.
- **Butt Weld:** Please refer to API 6A and API 17D (latest versions) for welding requirements as well as following local regulatory requirements. Please note it is imperative that a suitable heat sink (or other method) be used to prevent the valve bodies and internals from being exposed to temperatures greater than 120°C (248°F)

Installation and Operation Manual Subsea Valves

BALL VALVE PANEL MOUNTING

Position ball valve on panel and fasten in place with four M6x1 Socket Cap Head Screws (not supplied) - please note screw length

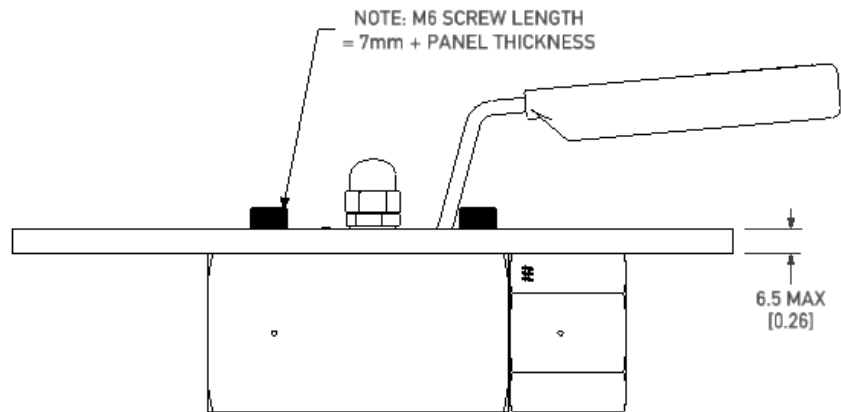


Figure 1 Panel mounted ball valve with diver handle

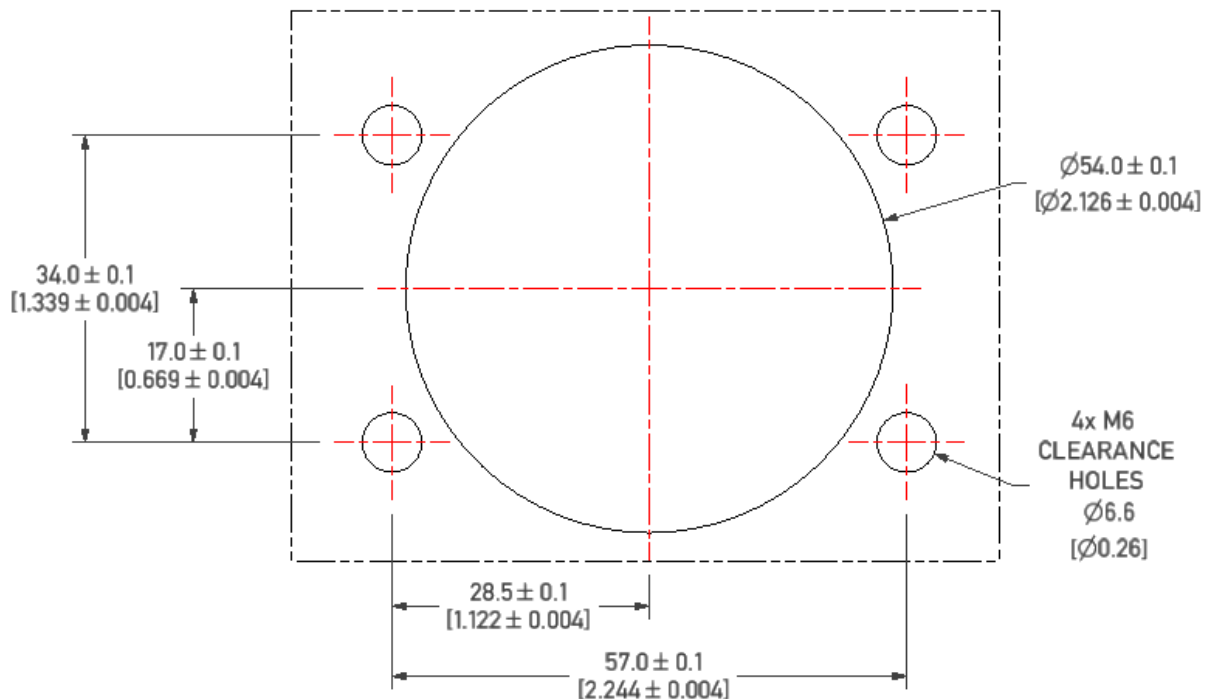


Figure 2 Panel cut-out for ball valve with diver handle

Installation and Operation Manual Subsea Valves

BALL VALVE ROV RECEPTACLE MOUNTING

Use below dimensions for preparing base of ROV receptacle selecting correct mounting screw length.

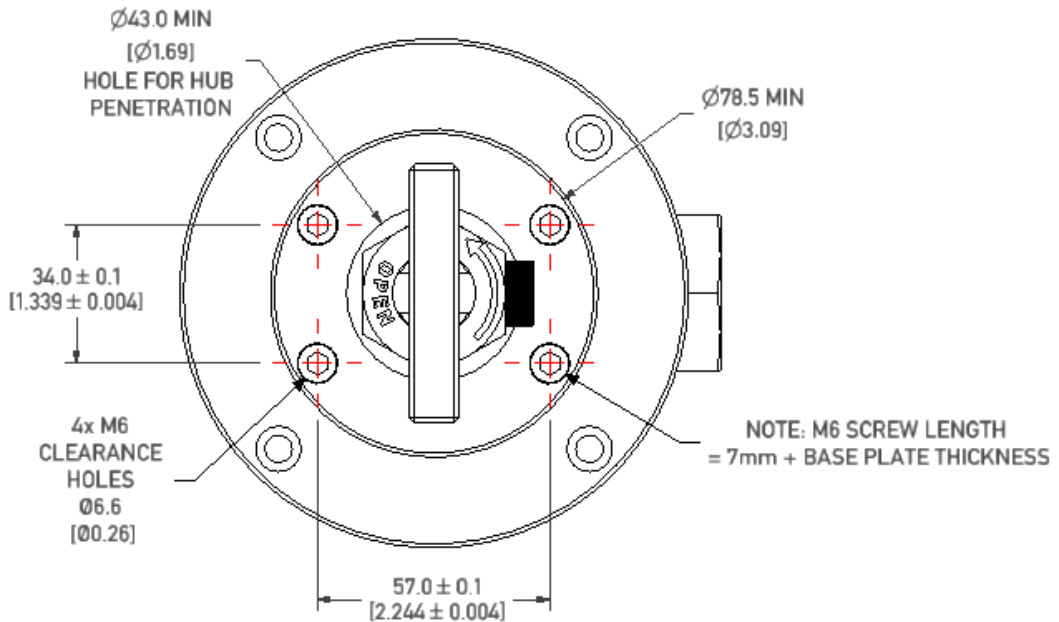


Figure 3 Ball valve ROV base dimensions

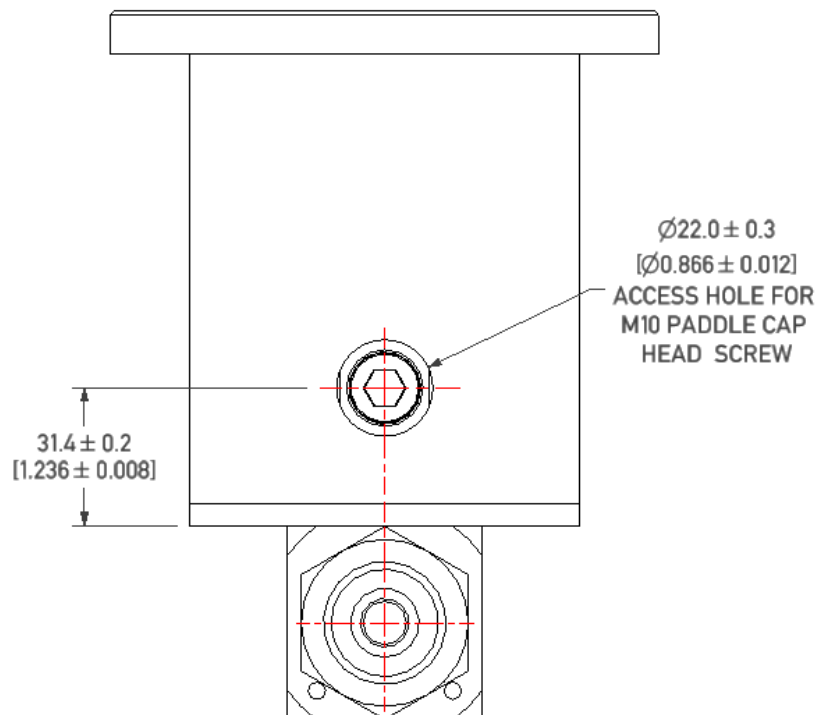


Figure 4 Ball valve paddle hub screw access port

Note: Access port for paddle hub screw detail in wall of ROV receptacle

Installation and Operation Manual Subsea Valves

The ROV paddle will need to be removed to mount the ROV receptacle as follow:

- Unscrew M10 cap head screw (item 1) from the paddle hub (item 2)
- Remove paddle (item 3) from the paddle hub
- Mount ROV receptacle (not shown here)
- Replace paddle in paddle hub
- Coat M10 thread with suitable high strength thread lock (note hub is threaded on both sides of the paddle).
- Screw M10 cap head screw into paddle hub, capturing the paddle and torque screw to 23Nm (17ft-lbf)

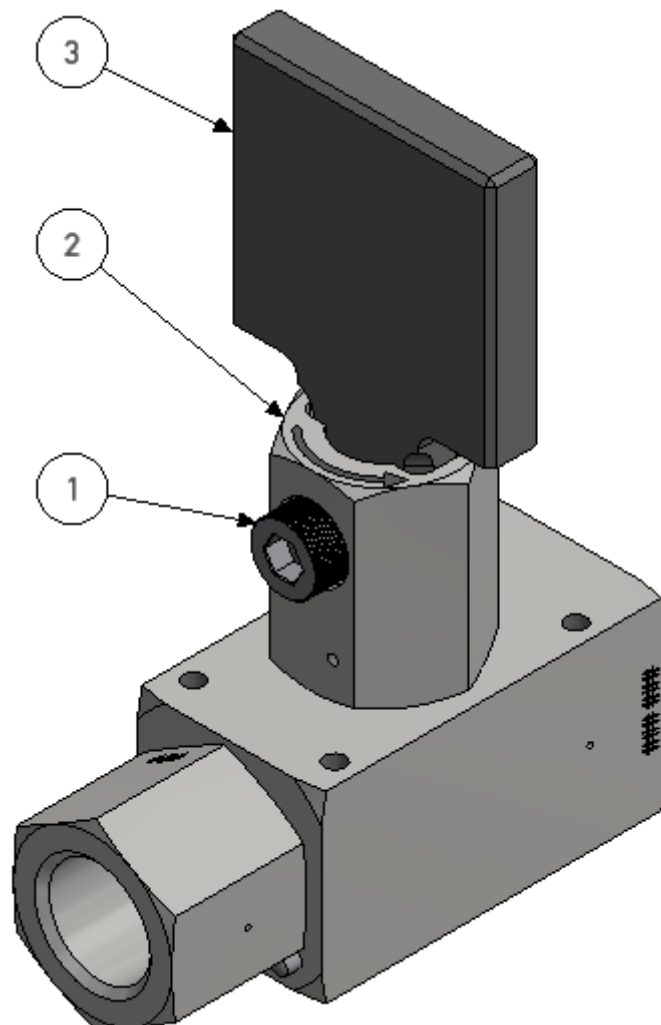


Figure 5 Ball valve paddle hub assembly

Installation and Operation Manual Subsea Valves

NEEDLE VALVE PANEL MOUNTING

Please note mounting screws are not supplied

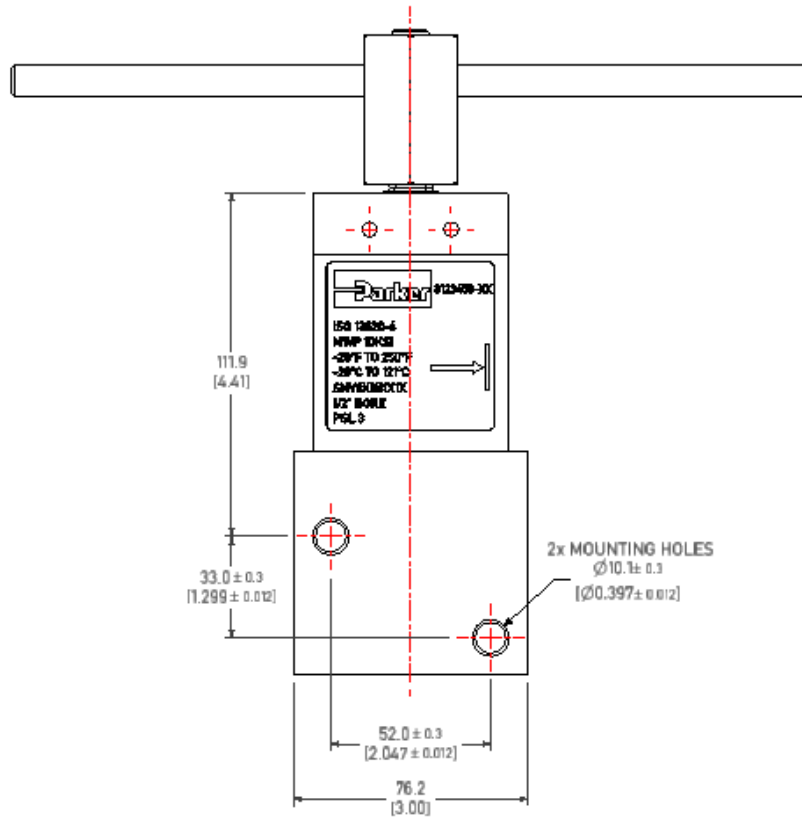


Figure 6 Mounting holes for needle valve

NEEDLE VALVE ROV RECEPTACLE MOUNTING

Use below dimensions for preparing base of ROV receptacle

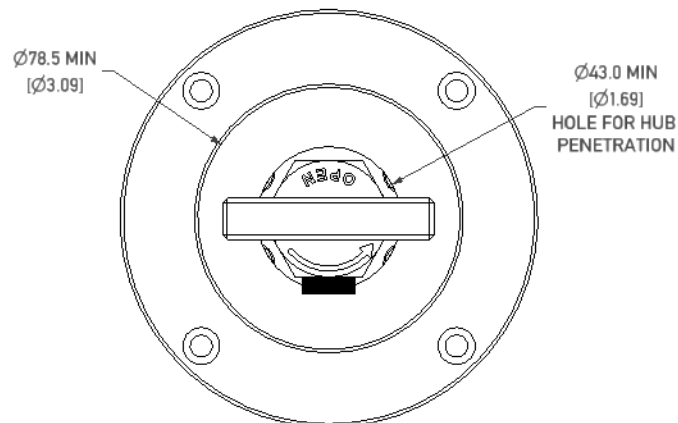


Figure 7 Needle valve ROV base dimensions

Installation and Operation Manual Subsea Valves

Use below dimensions for preparing suitable mounting arrangement for ROV receptacle and for selecting correct mounting screw length.

Note: Access port for paddle hub screw detail in wall of ROV receptacle

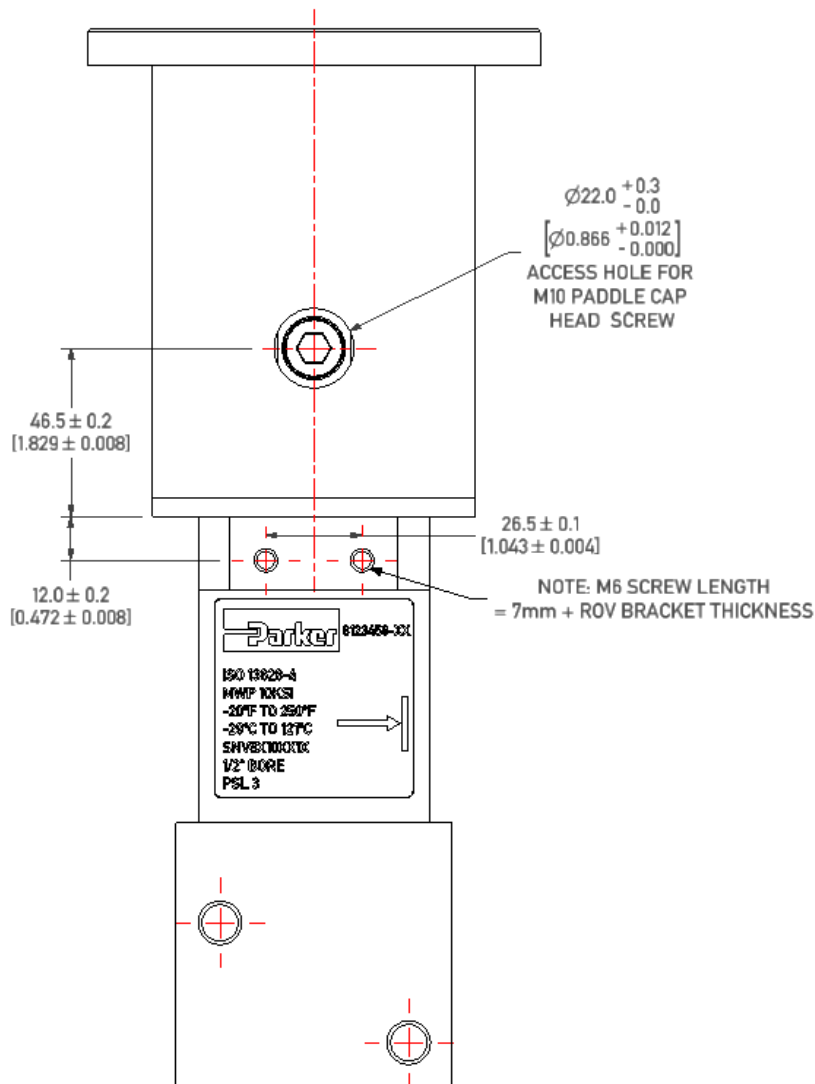


Figure 8 Needle valve ROV receptacle mounting points and paddle hub screw access port

Installation and Operation Manual Subsea Valves

The ROV paddle will need to be removed to mount the ROV receptacle as follow:

- Unscrew M10 cap head screw (item 1) from the paddle hub (item 2)
- Remove paddle (item 3) from the paddle hub
- Mount ROV receptacle (not shown here)
- Replace paddle in paddle hub
- Coat M10 thread with suitable high strength thread lock (note hub is threaded on both sides of the paddle).
- Screw M10 cap head screw into paddle hub, capturing the paddle and torque screw to 23Nm (17ft-lbf)

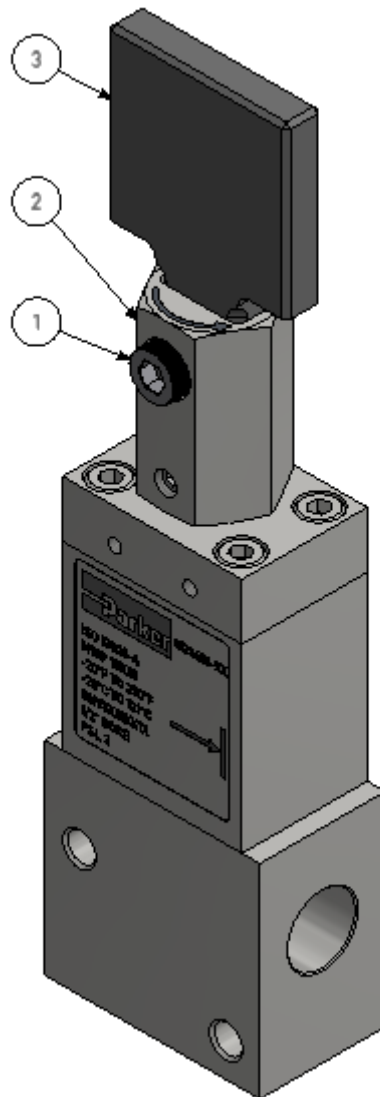


Figure 9 Needle valve paddle hub assembly

Installation and Operation Manual Subsea Valves

OPERATION

Warning

Rapid opening of the valve is to be avoided as it can potentially cause a pressure hammer effect in the system. This can result in damage to the system components.

Ball Valve:

- **To close:** Operate the handle until it is at 90° from the valve body centreline.
- **To open:** Operate the handle until it is in line with the centreline of the body and reaches the stop pin.
- Movement is limited to 90° (except for vent ball valves) by a mechanical stop pin.
- Ball valves should always be fully open or fully closed. Do not leave in a mid-position.

Breakout Torque (gas @ 10ksi)	
Normal	11 Nm (8 ft-lbf)
Maximum*	26 Nm (19 ft-lbf)

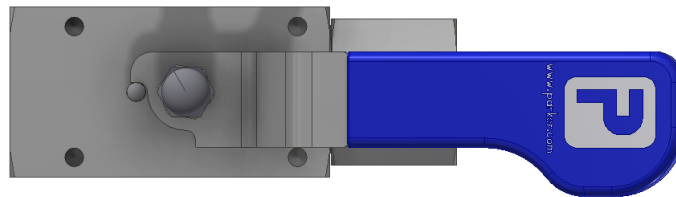


Figure 10 Ball valve in OPEN position

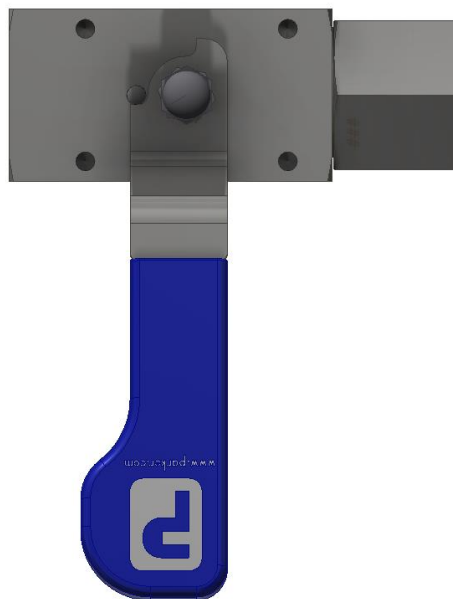


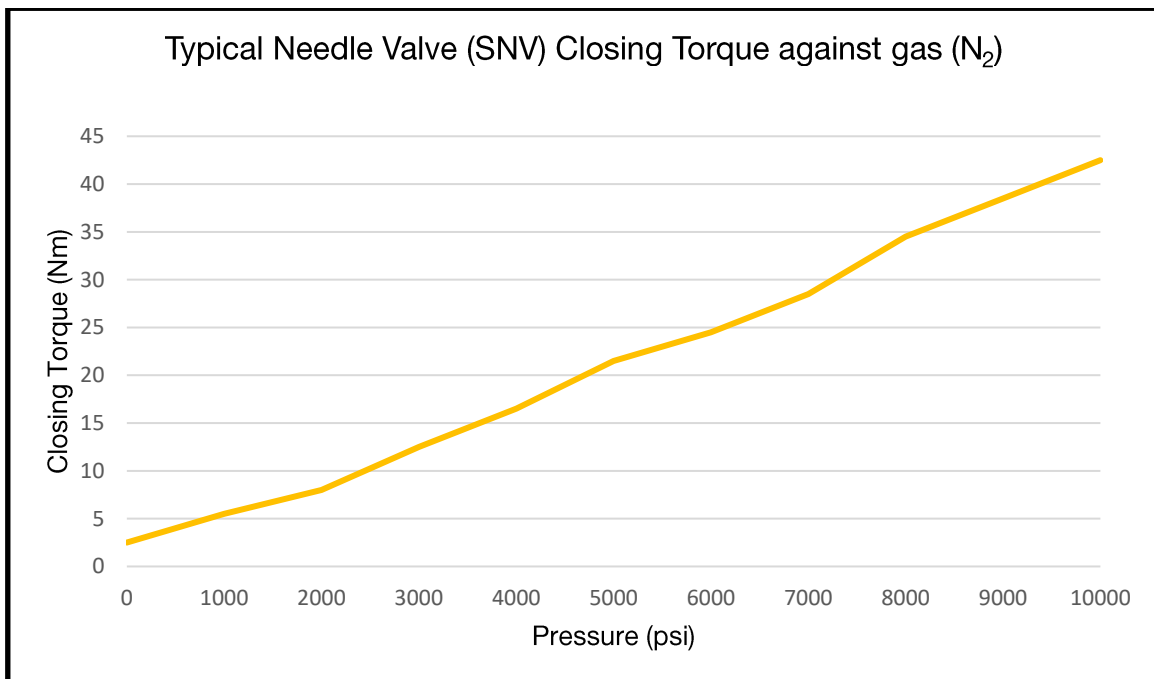
Figure 11 Ball valve in CLOSED position

Installation and Operation Manual Subsea Valves

Needle Valve:

- **To close:** Rotate handle clockwise until a stop is felt.
- **To open:** Fully rotate the handle anti-clockwise until a stop is felt.
- There are approximately five rotations between fully open and fully closed. Do not force rotation past the stop, as damage may occur.

Closing Torque (gas @ 10ksi)	
Normal	42.5Nm (31.3 ft-lbf)
Maximum*	65 Nm (48 ft-lbf)



* Maximum torque recorded under extreme test conditions.

Installation and Operation Manual Subsea Valves

MAINTENANCE

Parker Subsea Valves are supplied ready for service at its rated design pressure and have been validated in accordance with:

- API 6A (PR2F) 21st Edition November 2018, Errata 1 April 2019,
- API 17D (Section 5.1.7 Table 3 - Including Hyperbaric from Annex L) 2nd Edition May 2011, Addendum 1 September 2015, Addendum 2 September 2019, Errata 7 October 2015

Within the criteria of the above testing it is not expected that any adjustment would be required. However, during normal system maintenance it is recommended to:

- Check fastener tightness, please note:
 - the ball valve end adaptor and needle valve bonnet bolts use anti-seize/thread lubrication on all moving surfaces
 - ball valve end adaptor torques 298Nm (20ft.lb)
 - needle valve bonnet bolt torques 18Nm (13.3ft.lb)
- Check for signs of corrosion that could lead to impaired performance (replace valve if necessary)
- Check for any signs of damage that could lead to impaired performance (replace valve if necessary)