

OPERATION AND MAINTENANCE MANUAL

DOCUMENT TITLE: Operation & Maintenance Manual for Ø63/Ø65 VStab
PROJECT TITLE: 3.08. Ø63/Ø65-Valvestab
PROJECT: 600188
DOCUMENT NUMBER: 600188-TD-0007
REV: 01
NUMBER OF PAGES: 34

DATE: 24.02.2023
CLIENT:
CLIENT PO:
CLIENT DOC NO:
CLIENT CONTACT:

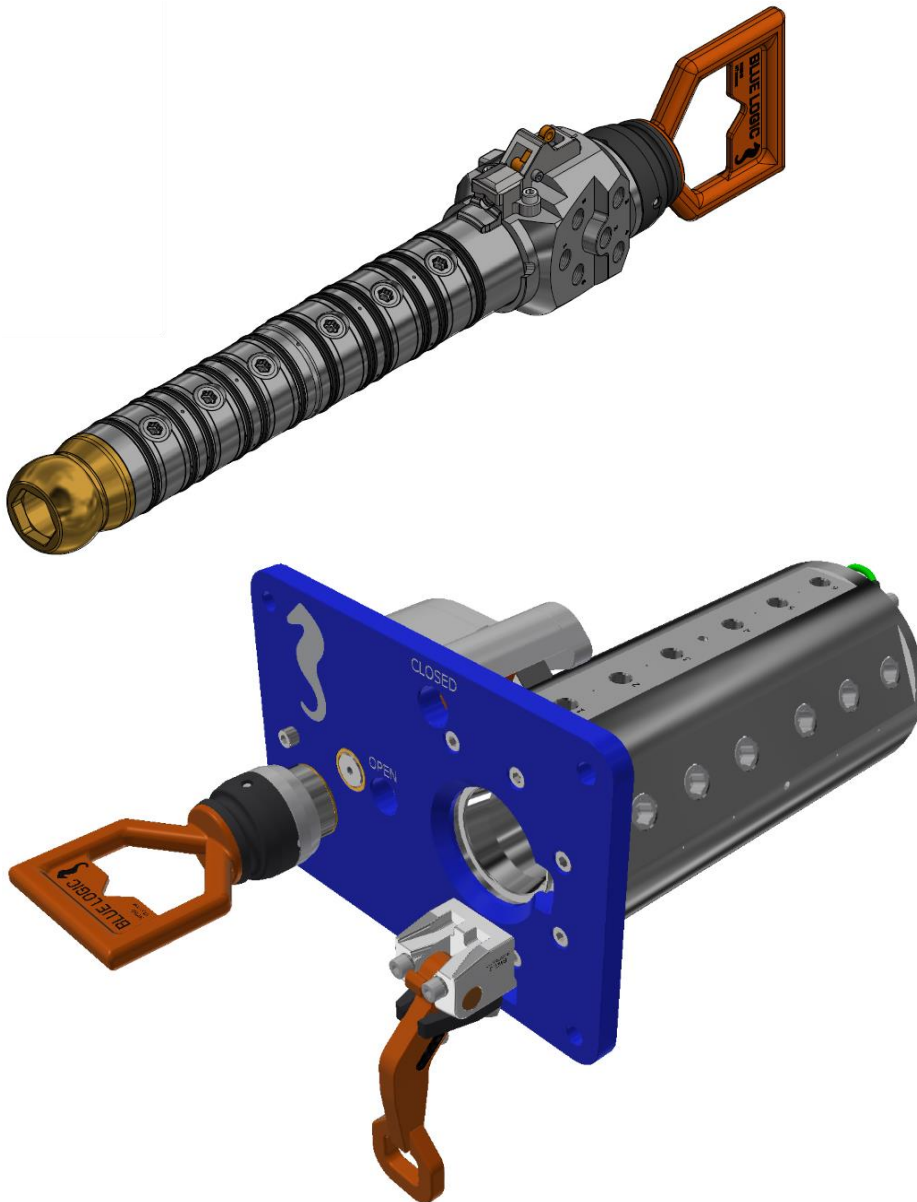


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REVISION CHANGE/RECORD

REV	REASON FOR REVISION/ DESCRIPTION OF CHANGES
01	First issue

1. INTRODUCTION

The purpose of this document is to present a comprehensive Operation and Maintenance manual for the Blue Logic designed Ø63/65mm 15K Valve Stab System with double seals. All relevant aspects with regards to safe and correct use, installation, operation, maintenance, and storage are covered.

The Blue Logic Valve Stab system combines the functionality and quality of a ball valve and a pressure balanced Hot Stab thus forming a reliable, field proven, leakage free, high flow ROV stab connector system.

The ValveStab system includes the following general main components:

- Male Valve Stab
- Female Valve Stab Receptacle
- Protection Stab
- Parking Receptacle
- Flushing VStab
- Valve Stab Flushing Receptacle

In general, the Valve Stab System is connected and operated as a standard API/ ISO pressure balanced Hot Stab system. The stab is simply pushed into the receptacle to connect and pulled out to disconnect. The main difference between the Valve Stab and the standard Hot Stab with regards to operation is that the Valve Stab must be inserted into receptacle with correct alignment. After insertion, the valve function is easy operated by use of the manipulator thus locking the stab into the receptacle for increased safety and control during operation.

All operation is performed directly by use of ROV manipulator.

1.1. DOCUMENT USE

This document shall be used as general information for all aspects related to safe use, installation, removal, maintenance and storage of the Valve Stab System. Included in this Operation and Maintenance Manual are sequential step-by-step procedures for typical offshore operations which can be used for establishing detailed specialized offshore/subsea procedures. These lists can also be used for documentation of performed work and sequences if required.

1.2. ABBREVIATIONS

ROV	Remotely Operated Vehicle
HPU	Hydraulic Power Unit
FAT	Factory Acceptance Test
MOB	Mobilisation
DEMOB	Demobilisation
SOW	Scope of Work
VStab	ValveStab
BL	Blue Logic
HP	High Pressure

1.3. REFERENCES

Latest version of the following documents

Id	Doc. No/Rev/	Originator	Document Title
1.	BB2899	BL	Drawing, Ø63/Ø65 HP VStab Semi Perm Double Seal
2.	BB2916	BL	Drawing, Ø63/Ø65 HP VStab Rec Semi Perm Double Seal
3.	BB5537	BL	Drawing, Ø63/Ø65 HP Flushing VStab
4.	BB5858	BL	Drawing, Ø63/Ø65 HP VStab Flushing Rec Assy
5.	BB5538	BL	Drawing, 6 Port Hot Stab Parking Receptacle
6.	BB5536	BL	Drawing, 6 Port Dummy Stab

2. TECHNICAL DESCRIPTION

2.1. GENERAL

The Blue Logic Valve Stab program includes versions ranging from 1-6 hydraulic ports. The system is also available in other sizes and with other port configurations. Dedicated technical documentation is available for different sizes and configurations although all Valve Stab Systems are based on the same core technology and will be operated using the same principles.

It is the responsibility of the end user to make sure that the product is used in such a manner for which it is designed. This includes accounting for material/fluid compatibility, sour service, temperature, pressure rating etc. Refer to specific product drawing which includes all relevant information. If product drawing is lacking information/unclear, please contact Blue Logic for assistance.

2.1.1. Stab

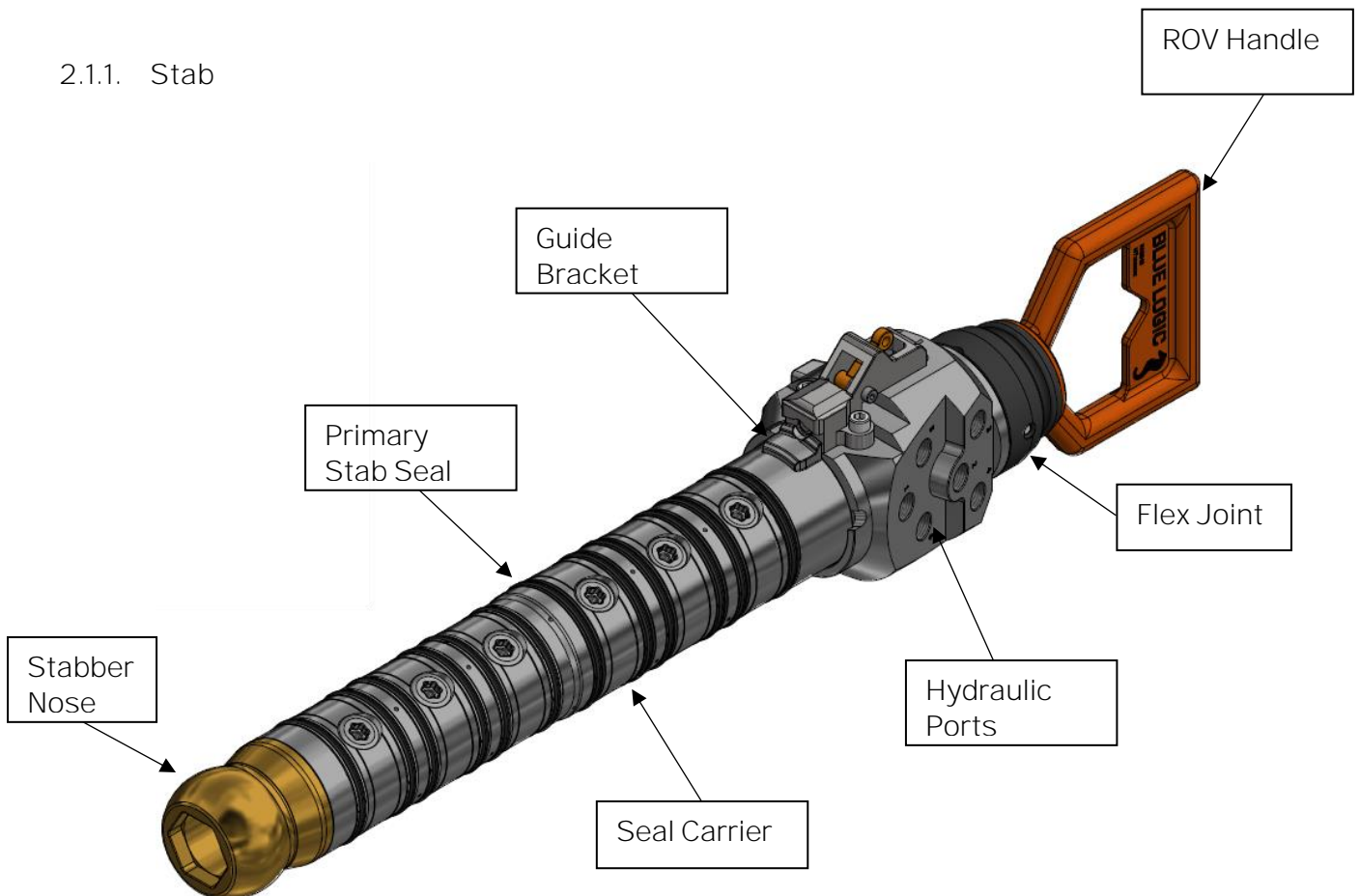


Figure 1 Valve Stab Main Parts

2.1.1.1. Stabber Nose

The stabber nose ensures gentle guiding of the stab into the receptacle. It is constructed in Aluminum-Bronze alloy to protect the receptacle internals. The stabber nose is connected to the stabber by a threaded connection and can be unscrewed using a 30mm hex key. The stabber nose also retains the seal carrier onto the stab.

2.1.1.2. Primary Stab Seal

The primary stab seals separate the different hydraulic ports and seals toward the receptacle. Different alternative seal profiles and materials are available depending on application and fluid. Seal material is RU4/PEEK1 on this delivery, compatible with most relevant fluids and have excellent mechanical properties ensuring long service life without need for replacement. The primary stab seals can be replaced offshore without need for any disassembly of the stab. Please see following sections for details with regards to seal replacement.

2.1.1.3. Seal Carrier

All stabber seals are placed in the Valve Stab, both the internal core seals and the outer primary seals.

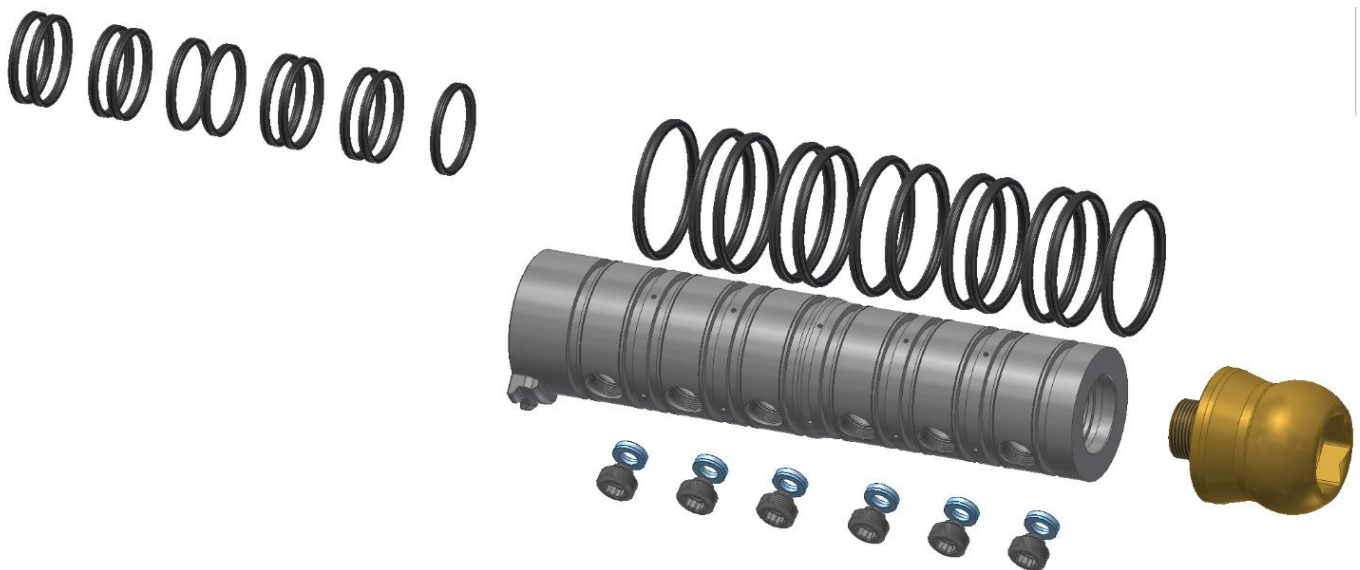


Figure 2, Valve Stab Seal Carrier with internal and external seals

2.1.1.4. Seal Cartridges

The Seal Cartridges includes the Spherical Core Seal which seals toward the Valve Stab Core placed inside the Seal Carrier.

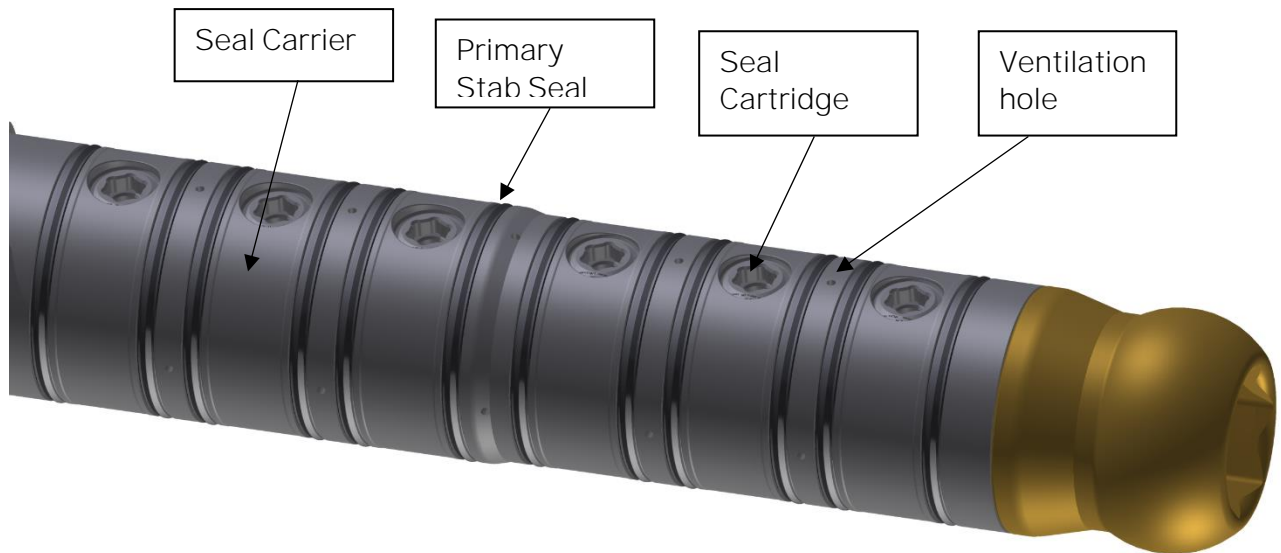


Figure 3, Seal Carrier and Seal Cartridges typical Valve Stab design

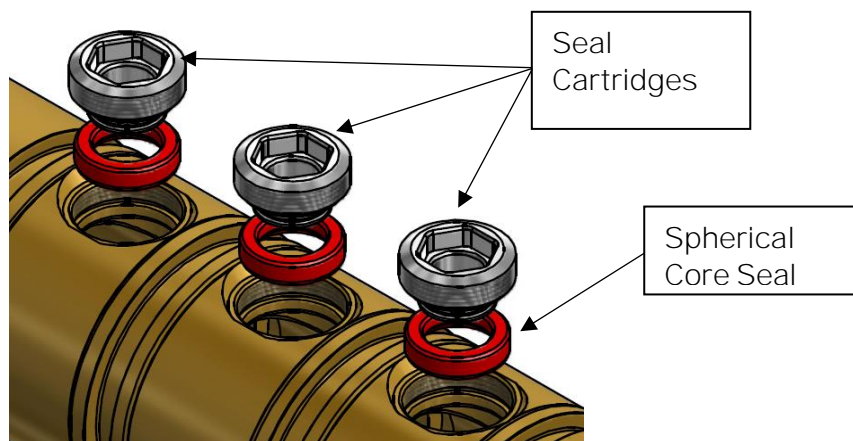


Figure 4, Seal Cartridges removed

2.1.1.5. Double Seal version

As shown in Figure 3 above this version of the Valve Stab system have 2 seals between each port. This is to prevent the possibility of pressure bleeding between ports. The double seal version has 2 seals and a ventilated cavity between each port, thus making it completely impossible to achieve any bleeding between them. The cavity in between the ports have each 4 ventilation holes 90° offset from each other so that fluid trapped inside will escape when stab is brought topside.

2.1.1.6. Flex Joint

The flex joint connects the Valve Stab body to the ROV handle. It consists of an outer flexible element and an inner mechanical connection. The flex joint allows for a smooth angle deviation of approx. 20 degrees in all directions between the ROV handle and Valve Stab. The flex element can easily be replaced, see maintenance section for details.

2.1.1.7. Guide Bracket

The guide bracket ensures that the Valve Stab is aligned correctly prior to connection into the Receptacle. The guide bracket fits into the machined orientation groove in the receptacle and once correct inserted triggered by the receptacle position lock system.

2.1.2. Receptacle

The Valve Stab receptacle consists of the following main parts:

1. Outer Housing
2. Inner Center Core
3. Geared open/close function with handle
4. Locking mechanism for VStab with ROV handle
5. Seal Cartridges
6. Internal seals
7. Bracket/ securing interface
8. Orientation Groove
9. Hydraulic Ports
10. Receptacle Top Plate

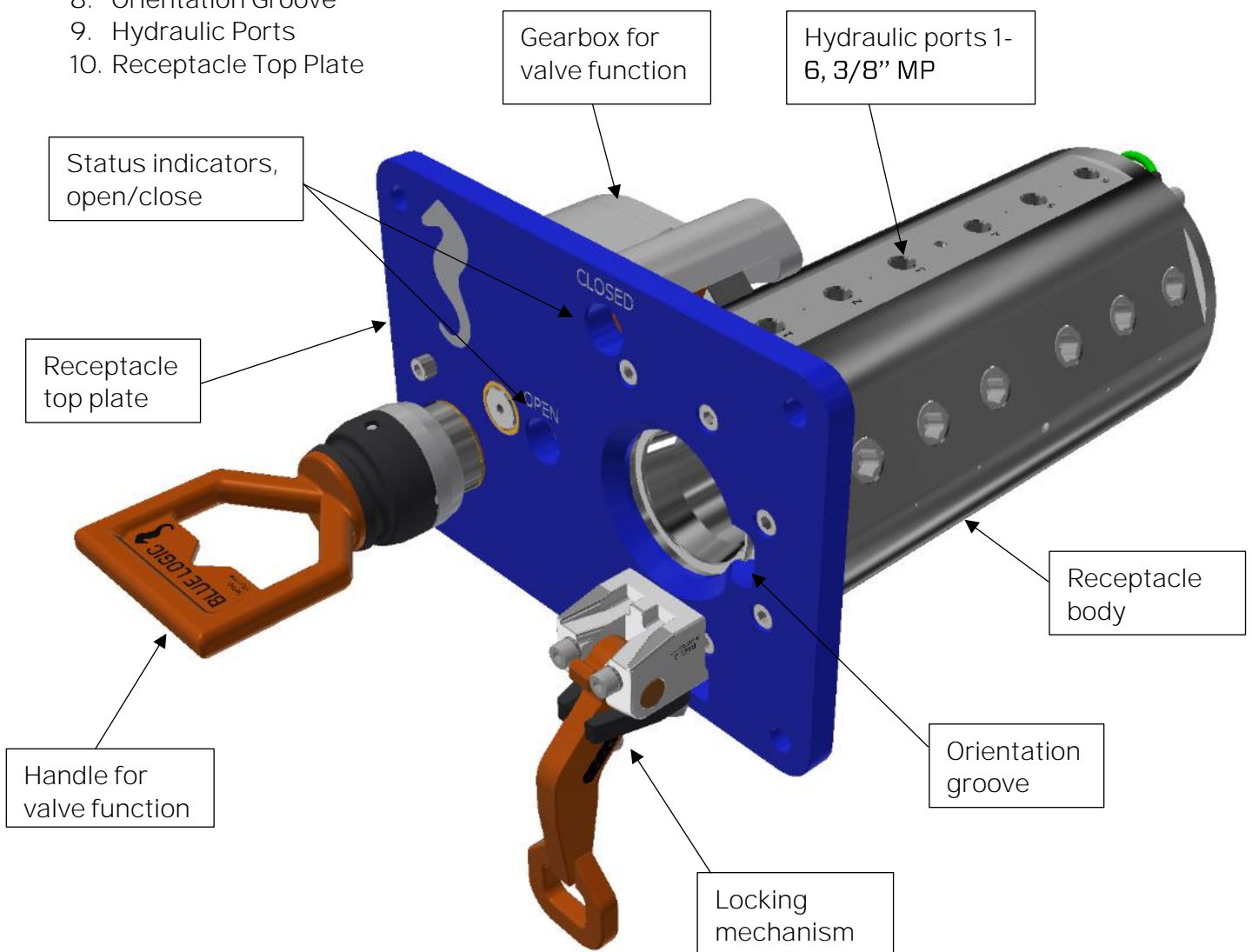


Figure 5, Valve Stab Receptacle

2.1.2.1. Outer Housing

The outer housing includes the hydraulic ports, interface for installation and interface for seal cartridges as described in following sections. All Valve Stab receptacle seals are placed inside the outer housing.

2.1.2.2.Center Core

The inner center core rotates inside the outer housing thus opening and closing the hydraulic ports. It is constructed in corrosion resistant and hardened high strength alloy to reduce wear and improve lifetime.

2.1.2.3.Seal Cartridges

Like the male Valve Stab, the seal cartridges contain the spherical core seals which seals towards the inner center core.

2.1.2.4.Double Seals

As for the stab the receptacle also has double seals between the different ports. A ventilated cavity between each port prevents any bleeding between them. The cavity in between the ports have several ventilation holes offset from each other so that fluid trapped inside will escape when receptacle is brought topside.

2.1.2.5.Open - Close Function

The receptacle has a square socket for open/close function via a geared connection. A dedicated ROV handle fits into the square socket for operation. Opening and closing the stab and receptacle valves is performed by inserting and rotating the handle in CCW and CW direction respectively.



Figure 6, Tool for operating open/close function

Operate ROV Handle Counterclockwise

The Valve Stab valve functions are OPEN and the stab is LOCKED in position into the receptacle.

Operate ROV Handle Clockwise

The Valve Stab valve functions are CLOSED and the stab can be inserted or retracted from the receptacle

NOTE:

The Valve Stab must be correct and fully inserted and locked into the Valve Stab receptacle to OPEN the Valve Stab valve functions.

2.1.2.6.Internal seals

Valve Stab receptacle internal seals are not shown on above figure. The seals are placed on the inside of the outer housing.

2.1.2.7. Mechanical Interface

The mechanical interface is used for bolting the receptacle onto the ROV or subsea equipment. See product assembly drawings for interface details. Ø13 bolt holes in top plate and/or threaded M10 holes in receptacle body may be used.

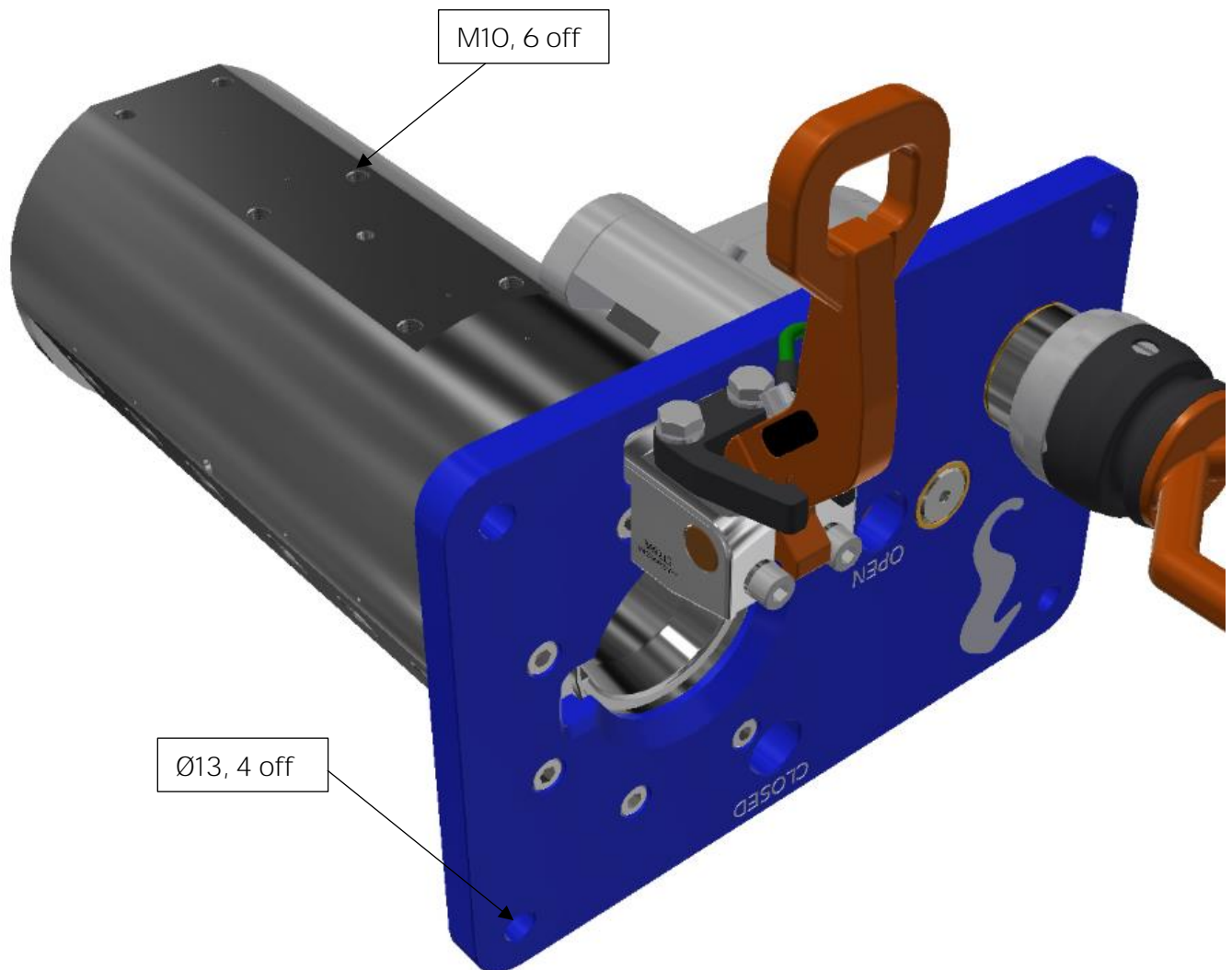


Figure 7, Bolt- interface

2.1.2.8. Orientation Groove

The orientation groove in the receptacle ensures correct orientation of the Valve Stab during mating. When the Valve Stab is fully inserted into the receptacle, the Valve Stab guide bracket activates a lock spring in the orientation groove thus allowing for operation of the Valve Stab and receptacle valve mechanisms.

2.1.2.9. Hydraulic Ports Receptacle

The hydraulic interface on this receptacle is 3/8" MP. All ports labelled 1-6.

2.1.2.10. Receptacle Top Plate

The receptacle top plate is bolted onto the receptacle's outer housing. It includes the orientation groove and white color marking for Valve Stab valve position.

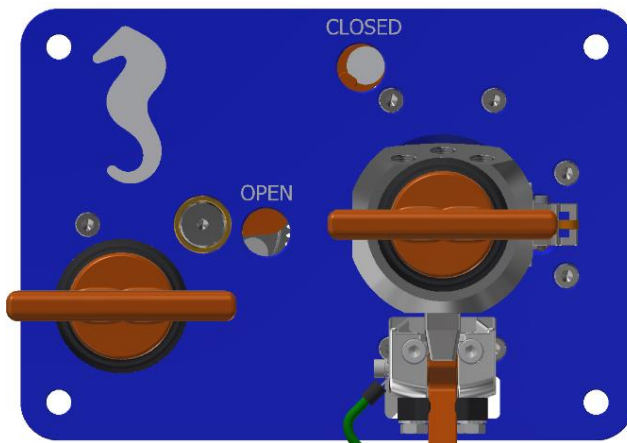


Figure 8, Valves closed

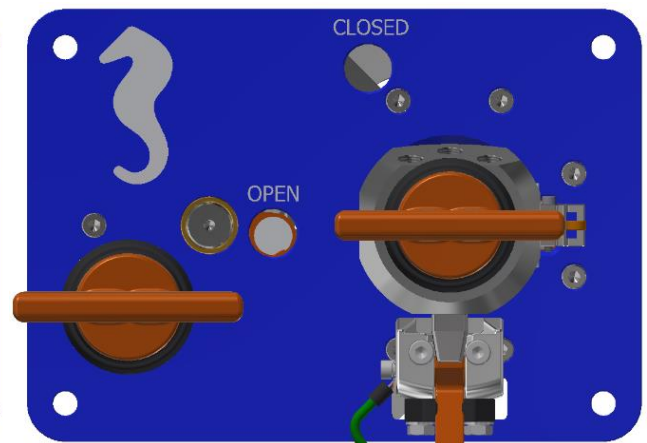


Figure 9, Valves open

2.1.2.11. Valve Stab Lock Mechanism

The lock mechanism shall assist ROV/personnel to fully mate/unmate the Valve Stab with Receptacle.

Force required to fully insert the stab is approximately 1000N, the handle acts like a lever and can be operated by personnel without mechanical assistance (approx. 300N).

When using ROV to operate the handle; be careful not to use excessive force or motion. Check alignment between the key on receptacle and valve stab prior to operation.

Note:

At disconnection, make sure the valve stab system is fully closed before removing the valve stab!

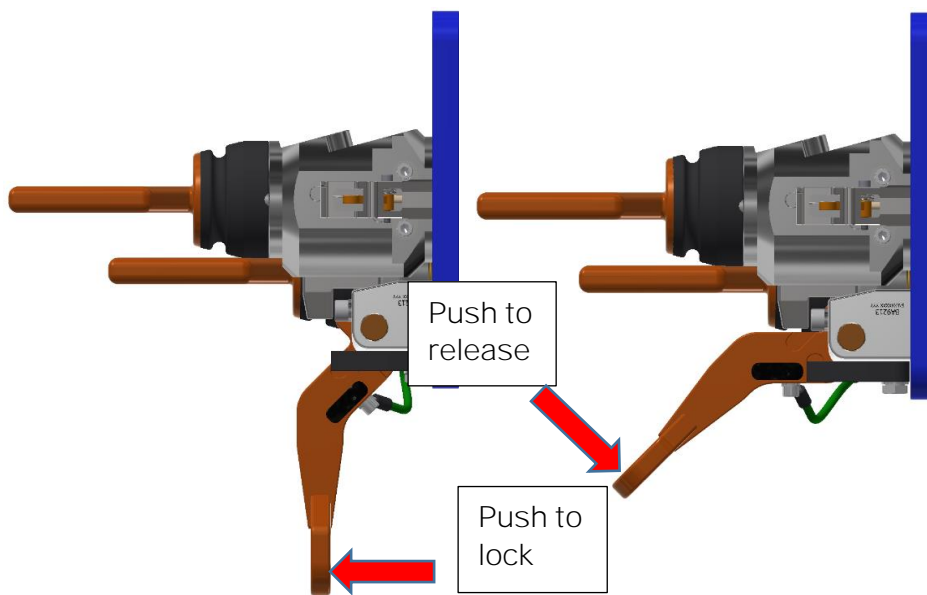


Figure 10, Locking mechanism, unlocked mode

Figure 11, Locking mechanism in locked mode

2.1.4. Protection Stab

The ventilated protection stab is designed to be inserted into the receptacle whenever the Valve Stab isn't. It protects the seal areas against growth and debris. Fabricated in PEHD and Super Duplex materials, it is suitable for long term subsea service. There is no lock function on this stab, it's held in place by friction alone. When used it is simply stabbed into the receptacle or extracted. The valve function in receptacle cannot be operated even if the protection stab is inserted.

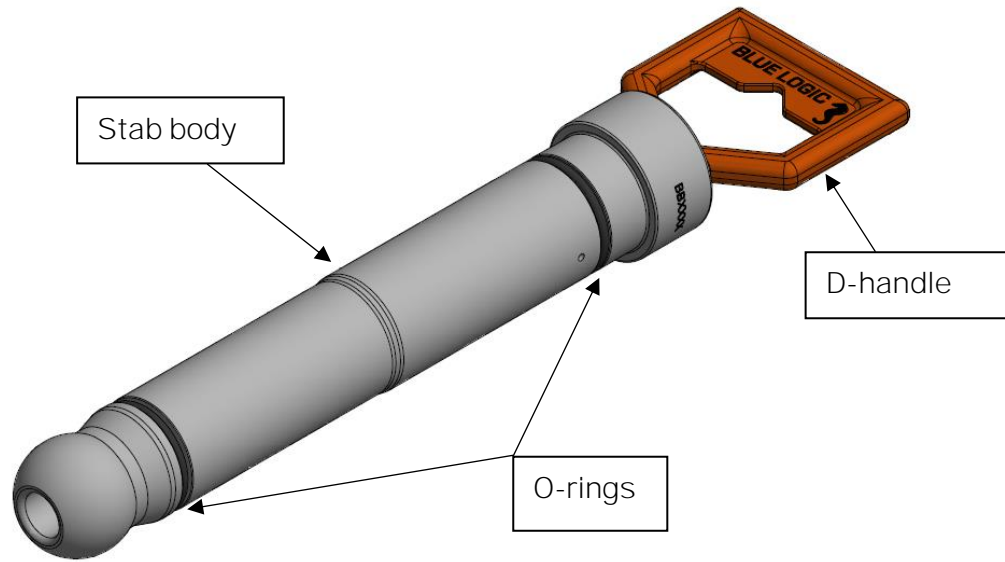


Figure 12, Protection Stab

2.1.5. Parking Receptacle

The parking receptacle is normally mounted close to Valve Stab receptacle and used for parking the Valve Stab whenever it is not stabbed into Valve Stab Receptacle. When the Valve Stab is placed in the parking receptacle it is protected against growth and debris that may damage stab or seals. The lock function is not activated on Valve Stab, simply insert / extract. For information regarding bolting interface, see product drawing.

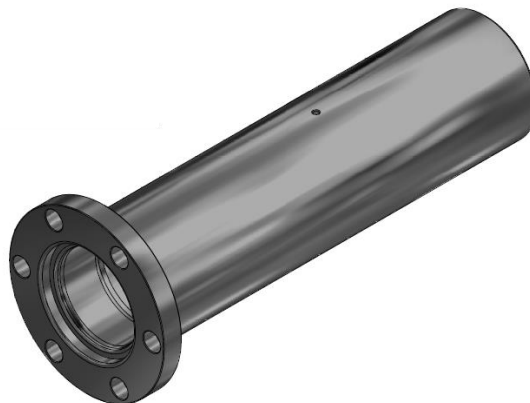


Figure 13, Parking Receptacle

2.1.6. Flushing Stab

The flushing stab is designed for flushing the valve stab receptacle's vent ports prior to storage of the valve stab system. A JIC O8 male fitting on top of the stab enable connection of a flushing hose on deck. Flushing is performed by inserting the flushing stab into the receptacle and flush for 3-5 minutes with fresh water, max. pressure 10 bar.

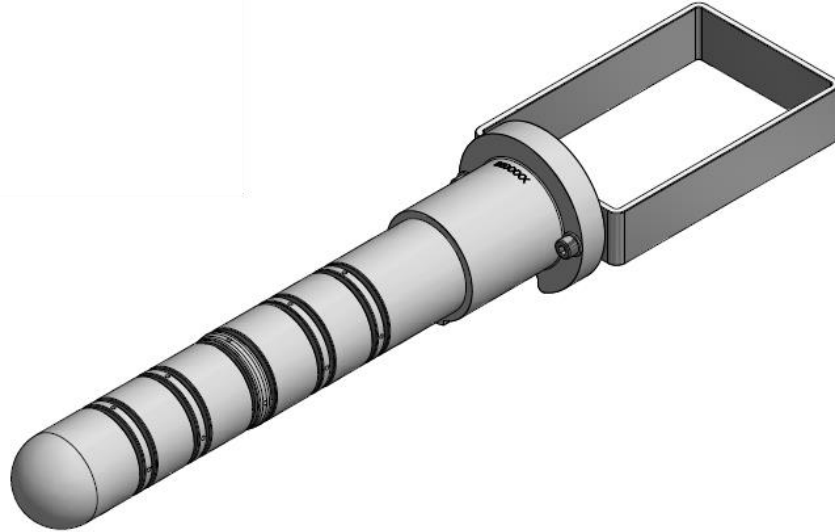


Figure 14, Flushing Stab

2.1.7. Valve Stab Flushing Receptacle

The purpose of the valve stab flushing receptacle is to allow flushing of the Valve Stab's vent ports prior to storage. The unit comes with a JIC O6 male fitting for connecting a water hose with maximum 10 bar pressure. With the Valve Stab installed and locked in the flushing unit, a 3-5 min flushing will ensure cleaning all vent ports.

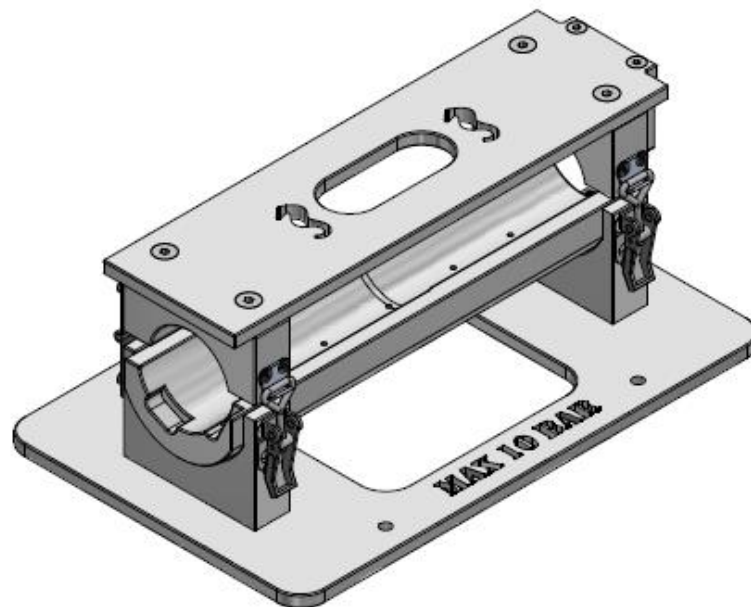


Figure 15, Valve Stab Flushing Receptacle

3. INSTALLATION

Caution!

ValveStabs and Receptacles cannot be interchanged, i.e. stab and receptacle must have same number of ports. Risk of injuries and/or damage to equipment if mating stab and receptacle with different number of ports.

3.1. RECEPTACLE

In general, Blue Logic recommend installing a Valve Stab receptacle both on the supplier (typical the ROV/ROT) and on the consumer (tool, structure etc). This allows for using separate hydraulic jumpers which can easily be replaced subsea in case of damages without the need for recovery of ROV or tools. This ability is achieved due to the excellent flow performance in the system.

3.1.1. Mechanical Installation

The Receptacle shall be bolted onto the ROV/structure/tool directly by use of the integrated installation interface as described in drawing BB2916, ref. APPENDIX 1. Blue Logic recommends installing the receptacle vertically. This will ease guidance of the stab. Any debris or dirt will then fall through the receptacle.

Note:

If dedicated CP system is present, ensure that the receptacle is correctly earthed and connected to the host system. Use separate cable if required. Max resistance 0,1 Ω .

3.1.2. Hydraulic Installation

The hydraulic functions shall be connected to the receptacle hydraulic ports by use of hoses or piping. Suitable protection plate or similar system for hoses is recommended. Reference is made to drawing BB2916, APPENDIX 1, for details regarding ports and position.

3.2. STAB

3.2.1. Hydraulic Connection

Hydraulic connection to the Valve Stab is performed by use of standard hydraulic 3/8" MP fittings. Details regarding ports and position can be found in drawing BB2899, APPENDIX 1.

It is recommended to use hose protection system/wrapping on the hose bundle. Hose strain relief wire can be connected to the dedicated M8 hole by use of a standard eye bolt.

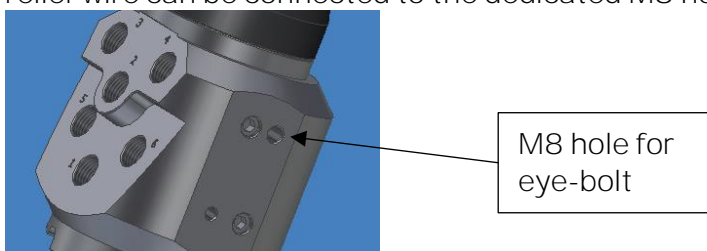


Figure 16, M8 hole for hose strain relief.

4. PREPARATION FOR USE

4.1. ONSHORE PREPARATIONS

Prior to shipping offshore, a mobilisation/ verification check shall be performed. All functions to be tested and verified. The below check list shall be used as a guideline for activities to be performed prior to offshore mobilisation.

4.1.1. Mobilisation Check List

No.	Description	Chk/Verified
1.	Inspect stab and receptacle visually.	
2.	Inspect surface treatment undamaged.	
3.	Inspect stab hydraulic port seal areas for damages.	
4.	Inspect receptacle hydraulic port seal areas for damages.	
5.	Inspect receptacle seal areas undamaged and no scratches.	
6.	Inspect stab guide bracket undamaged.	
7.	Inspect receptacle orientation groove and verify functionality of the guide/orientation system.	
8.	Verify that the stab and receptacle valve function cannot be operated prior to mating. Mate stab and receptacle.	
9.	Verify lock indicator in stab is aligned.	
10.	Verify that the Valve Stab valve function can be operated when connected. Verify smooth and correct movement of valve function.	
11.	Verify correct packing and documentation in the transport box. The transport box should include as a minimum Valve Stab system Operation and Maintenance Manual.	

5. OPERATION

5.1. PRE DIVE CHECK

Prior to dive, the Valve Stab System shall be inspected and function tested.

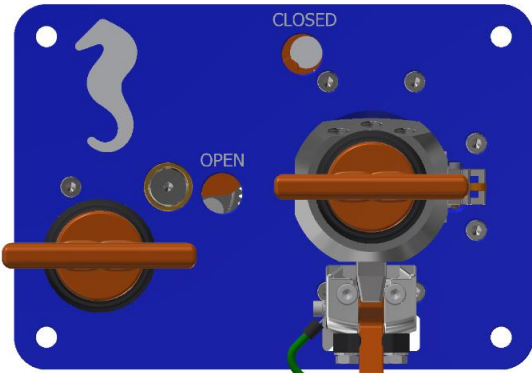
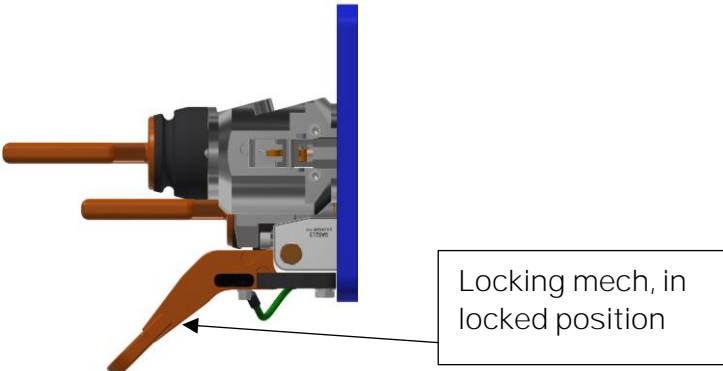
5.1.1. Stab Pre Dive Check List

No.	Description	Chk/Verified
1.	Perform a visual inspection <ul style="list-style-type: none"> - Seals - Seal Areas - Fittings - Hoses - ROV Handle - Flex Joint - Guide Bracket - Hose Tension Relief - Hose conditions, pressure rating, lengths and hose protection 	
2.	Check correct function for rotation-lock. Verify that the lock-pin moves smoothly, and spring-return is intact. Rinse and lubricate if required.	
3.	Verify that the Valve Stab is closed and cannot be opened prior to insertion into receptacle	
4.	Insert the Valve Stab into a Valve Stab receptacle, ensure smooth movement and observe friction force.	
5.	Open the Valve Stab system using the ROV/diver handle.	
6.	Close Valve Stab and disconnect from receptacle.	
7.	Inspect seals and seal areas.	

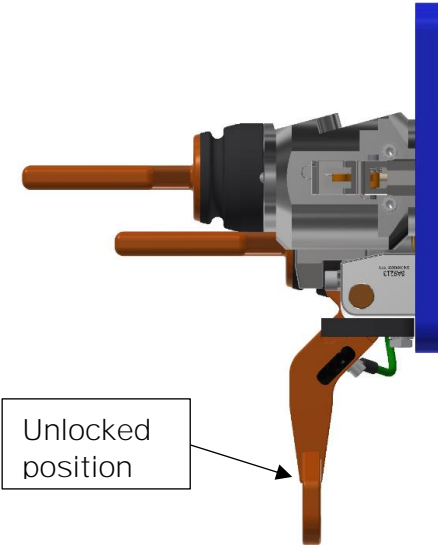
5.1.2. Receptacle Pre Dive Check List

No.	Description	Chk/Verified
1.	Visual inspect receptacle's internal surface finish and entrance area.	
2.	Verify access for ROV and stab into receptacle	
3.	Inspect all hoses, piping and fittings for leakage. Pay special attention to seal system.	
4.	Verify that the receptacle valve function cannot be operated when the male stab is not inserted into the receptacle.	
5.	Insert a Valve Stab into the receptacle. Verify correct installation and access.	
6.	Engage the stab locking mechanism, verify correct function.	
7.	Open the Valve Stab and receptacle valve function by use of the ROV/diver handle.	
8.	Close valve function and disconnect Valve Stab from receptacle	
9.	Perform a visual inspection of the receptacle.	

5.2. SUBSEA CONNECTION

No.	Description	Chk/Verified
1.	Visually inspect Valve Stab receptacle prior to subsea connection. Verify ROV/ diver access and general condition of the Valve Stab receptacle in front of, and behind the panel.	
2.	Verify that the receptacle is in closed position, ref indicator on receptacle's front panel. 	
3.	Start inserting the Valve Stab. Use a "loose" grip if possible, align stab into receptacle and gentle slide stab downwards. Rotate Valve Stab to align stab guide bracket with the receptacle's orientation groove. When correct aligned, push the stab down and f into the receptacle. Activate the locking mechanism for the final push and to lock stab in position. 	
4.	Insert the ROV/Diver handle into the receptacle's square socket. Rotate handle CCW from CLOSED to OPEN position stab. Note: It is always recommended to open or close without pressure and flow over the Valve Stab system.	
5.	Verify hydraulic ports open and inspect receptacle/ stab for leakages. Operate hydraulic functions as required.	

5.3. SUBSEA DISCONNECTION

No.	Description	Chk/Verified
1.	Visually inspect Valve Stab receptacle prior to subsea disconnection. Verify ROV/ Diver access and general condition of the Valve Stab receptacle in front of, and behind the panel.	
2.	<p>Close the Valve Stab System Valve function by operating the ROV/ Diver handle CW until end stop. Verify indicator CLOSED.</p> <p>Note: Bleed off pressure at the Valve Stab side prior to disconnect to avoid damages to seals. If feasible, it is beneficial to reduce pressure on the receptacle side also, but this is not critical.</p>	
3.	<p>Set the locking mechanism to unlocked position.</p> 	
4.	Pull the Valve Stab out from the receptacle. Verify no leakages and perform a visual inspection.	

5.4. POST DIVE CHECK

No.	Description	Chk/Verified
1.	Recover Valve Stab equipment to deck.	
2.	Perform a visual inspection <ul style="list-style-type: none"> - Seals - Seal areas - ROV Handle - Flex Joint - Hoses and piping - Fittings - Surface treatment 	
3.	Flush all equipment with fresh water, make sure to flush thru ventilation holes between ports using the flushing stab and flushing receptacle. See instructions in section 6.7.	
4.	Dry off equipment and apply protective oil prior to storage. Spray protective oil into ventilation holes between ports as well.	

6. MAINTENANCE

6.1. GENERAL

The Valve Stab system is a robust subsea connection system with few critical moving parts. If moving parts is not filled with salt and sand/ dirt particles but cleaned and lubricated, the only parts which will need to be routinely replaced is the seal system.

There are however a few important inspections points which shall be performed periodically to guarantee problem free use and operation of the Valve Stab system.

- Mob/Demob inspection and control
- Daily inspection during offshore operations
- Weekly inspection during offshore operations
- Yearly inspection and maintenance

It is highly recommended to return the Valve Stab system to Blue Logic for a yearly inspection and maintenance to ensure minimum 20 years of problem free service. By offshore operations we mean the time it is in use, not when it is stored.

For MOB/demob, please see above section 4.1.1

For Daily inspection during offshore operations; please see above section 5.1 for pre-dive activities and section 5.4 for post dive.

6.2. WEEKLY MAINTENANCE

No.	Description	Chk/Verified
1.	Perform a visual inspection of stab and receptacle. Inspect surface treatment and verify no corrosion issues. Special attention should be made to the following: <ul style="list-style-type: none"> - Seals - Seal areas - ROV Handle - Flex Joint - Hoses and piping - Fittings - Surface treatment - Stab Guide Bracket - Receptacle Orientation Groove 	
2.	Insert the Valve Stab into receptacle. Verify correct engagement of orientation groove and guide bracket.	
3.	Engage locking mechanism, verify correct function	
4.	Operate the Valve Stab valve function by use of the ROV/diver handle. Verify smooth movement	
5.	Close the Valve Stab valve function, verify smooth movement	
6.	Pull the Valve Stab out of the receptacle and verify that the valve function cannot be operated on either the receptacle or stab	
7.	Ensure protective oil applied and no water/moisture entrapped on critical parts.	
8.	Put the equipment in dedicated aluminium transport box.	

6.3. MONTHLY MAINTENANCE

No special activities are required monthly. If the Valve Stab system has been extensively used and repeatedly exposed to dirt and aggressive fluids, all stabber and receptacle seals should be inspected and replaced if required.

6.4. YEARLY MAINTENANCE

It is recommended to return the equipment to Blue Logic for full inspection, maintenance, and testing. In addition to the below listed actions, the cartridge seals will be disassembled and inspected, and cartridge seals replaced as required.

No.	Description	Chk/Verified
1.	Inspect all external and internal Valve Stab seals. Replace if required.	
2.	Inspect all external and internal receptacle seals. Replace if required.	
3.	Check all mechanical functions, verify smooth operations. Inspect for scratches and general wear, lubricate all moving parts.	
4.	Function test stab and receptacle, perform a full leakage test.	

6.5. SEAL REPLACEMENT

If replacement of cartridge seals for stab/receptacle is found required, the equipment must be returned to Blue Logic Service Department for replacement.

Replacement of the outer seals for the stab is feasible to perform in field as described in the below section.

6.5.1. Main Outer Seal (Stab)

Sequence for replacement of the main outer stab seals:

No.	Description	Chk/Verified
1.	Remove old seals by use of a sharp knife. Cut the seals but be very carefully not to damage seal surfaces.	
2.	Heat the new seals to 80-100 degrees using hot water.	
3.	Stretch the new seals gently by hand. Slide the seals over the outer stab body. Use water or oil to lubricate.	

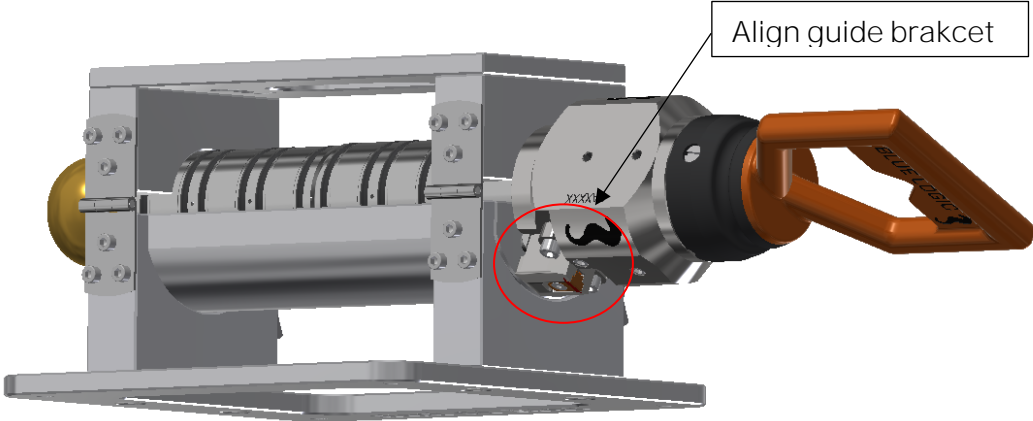
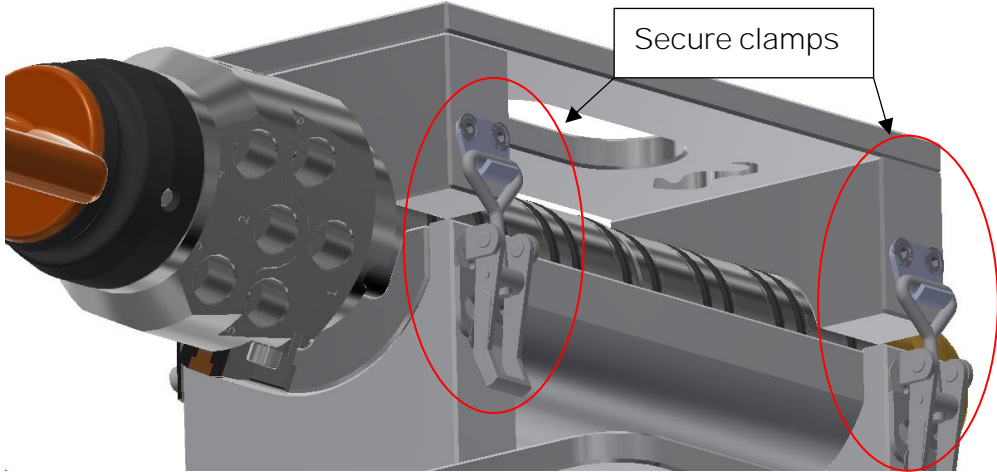
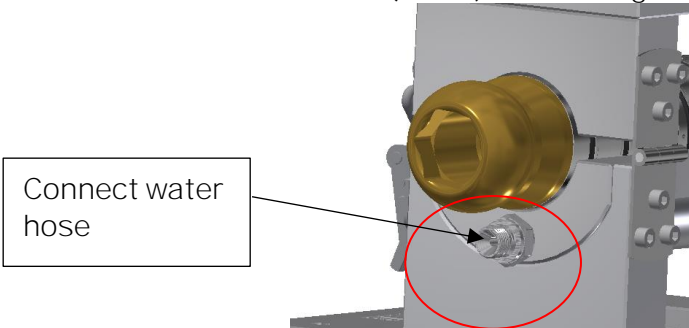
As an option, a dedicated Seal Replacement Tool is available. Please contact Blue Logic for further details.

6.5.2. Seal Replacement (Receptacle)

During normal use, the seal spherical core seals do not need to be replaced. They will be inspected and replaced if required during the recommended yearly service.

6.7. VENT HOLE FLUSHING UNIT PROCEDURE

6.7.1. Vent Hole Flushing Unit (Stab)

No.	Description
1.	<p>Place Valve Stab inside the flushing unit, align the guide bracket in corresponding groove.</p> 
2.	<p>Apply clamps to secure the valve stab</p> 
3.	<p>Connect water hose to the JIC O6 (9/16") Male fitting.</p> 

No.	Description
4.	Start flushing with water for 3-5min , max 10 bar.
5.	Blow with air to remove water
6.	Disconnect Valve Stab from Venting Hole Unit and let dry
7.	Apply WD40 to each vent hole on Valve Stab
8.	Store Valve Stab in a dry environment

6.7.2. Vent Hole Flushing Unit (Receptacle)

No.	Description
1.	Insert the flushing stab into the receptacle.
2.	Connect water hose to top of flushing stab fitting, JIC O8 (3/4"") Male
3.	Start flushing with water for 3-5min, max 10 bar
4.	Blow with air to remove water
5.	Disconnect flushing stab from receptacle and let dry
6.	Apply WD-40 to each vent hole on receptacle
7.	Store receptacle in a dry environment

7. SPARE PARTS

Id	Qty	Article No.	Description
BB2899 Ø63/Ø65 HP VStab Semi Perm Double Seal			
1.	10	104401	EXT SQ-RING K35 18 x16,5x1,4 RU15
2.	10	104293	O-Ring BS012 D1=9,25 D2=1,78 KB163-90
3.	24	104316	Stab Seal Int Ø36xØ42,2x7,2 RU4/PEEK1
4.	12	104232	Stab Seal Int Ø65xØ58,8x7,2 RU4/PEEK1
5.	12	104201	Stab Seal Int Ø56,8xØ63x7,2 RU4/PEEK1
BB2916 Ø63/Ø65 HP VStab Rec Semi Perm Double Seal			
6.	1	BB2873	D- Handle With Square 25mm Interface
7.	10	104294	O-Ring BS113 D1=13,94 D2=2,62 Parker KB 163-90
8.	10	104293	O-Ring BS012 D1=9,25 D2=1,78 KB163-90
9.	2	BA5456	BA5456 Earth Cable wCable Shoes L=100mm 6,0mm2
10.	24	104317	Stab Seal Int Ø90xØ96,2x7,2 RU4/PEEK1
BB5537 Ø63/Ø65 HP Flushing VStab			
11.	10	102820	O-Ring BS228 D1=56,74 D2=3,53
12.	10	101422	O-Ring BS227 D1=53,57 D2=3,53
BB5536 6 Port Dummy Stab			
13.	10	104175	O-Ring BS329 D1=50,17 D2=5,33 NBR
14.	10	104174	O-Ring BS330 D1=53,34 D2=5,33 NBR

8. STORAGE AND TRANSPORT

8.1. STORAGE

No.	Description	Chk/Verified
1.	Visual inspect the equipment for damages and wear.	
2.	Ensure correct post dive sequence followed (see above sections)	
3.	Apply preservation oil, WD-40, and secure in storage box.	

8.2. TRANSPORT

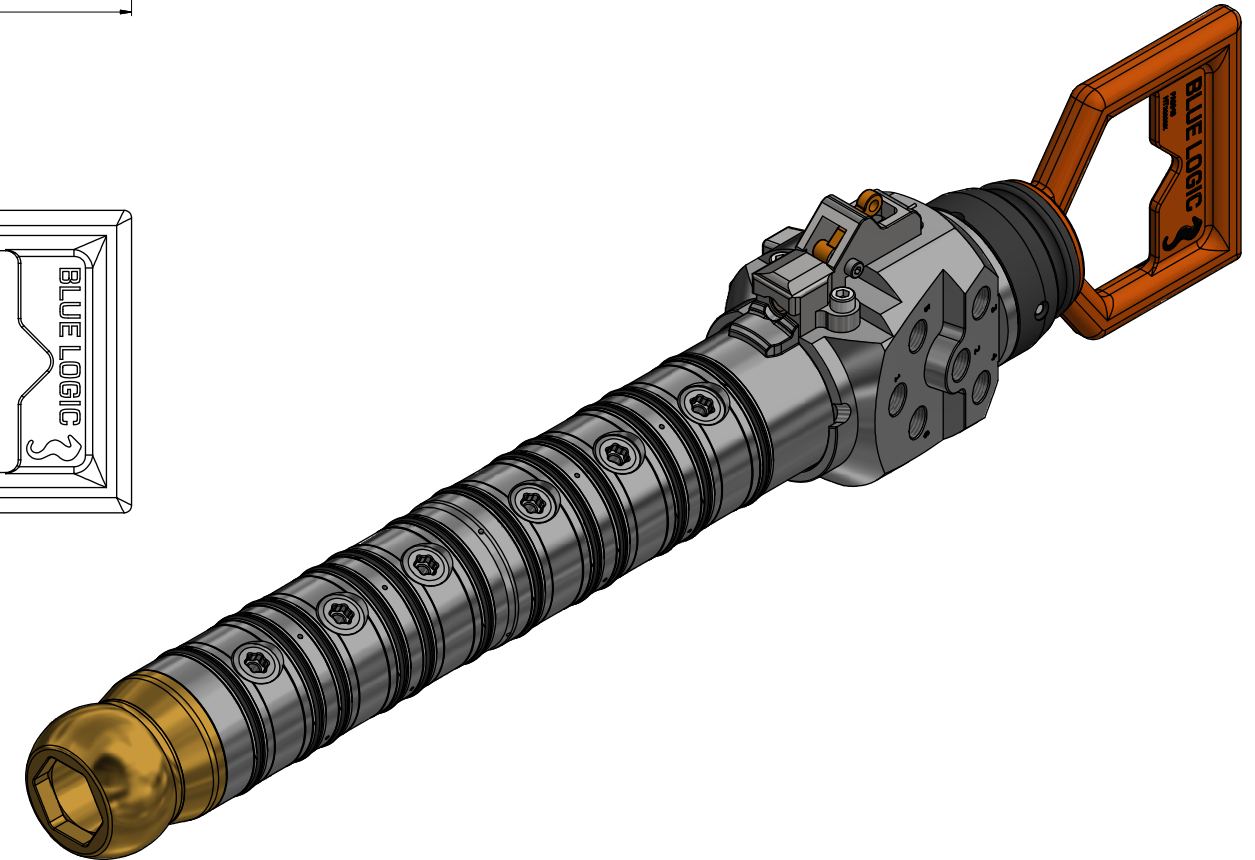
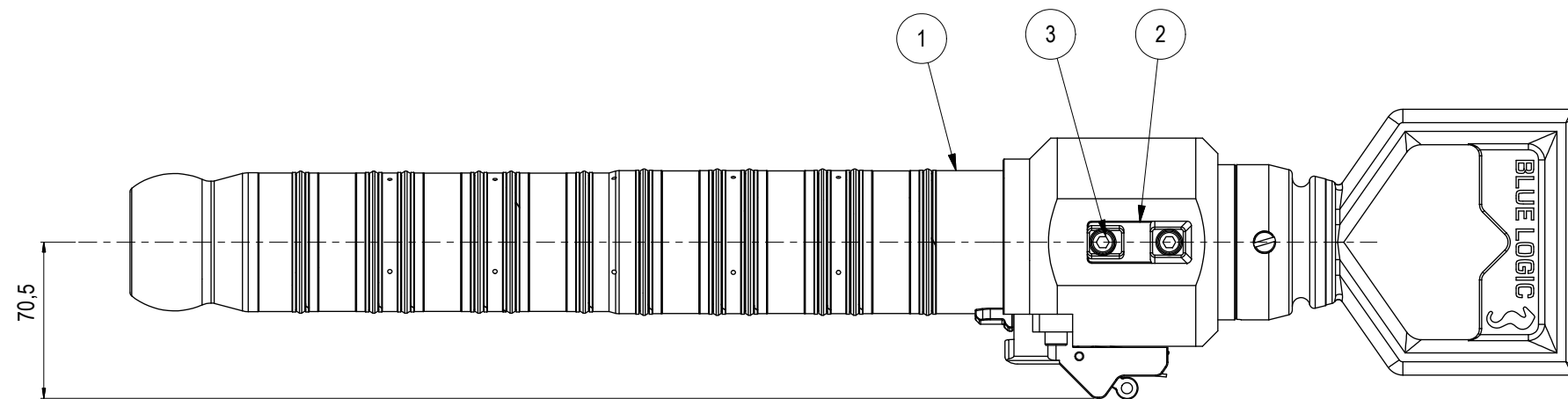
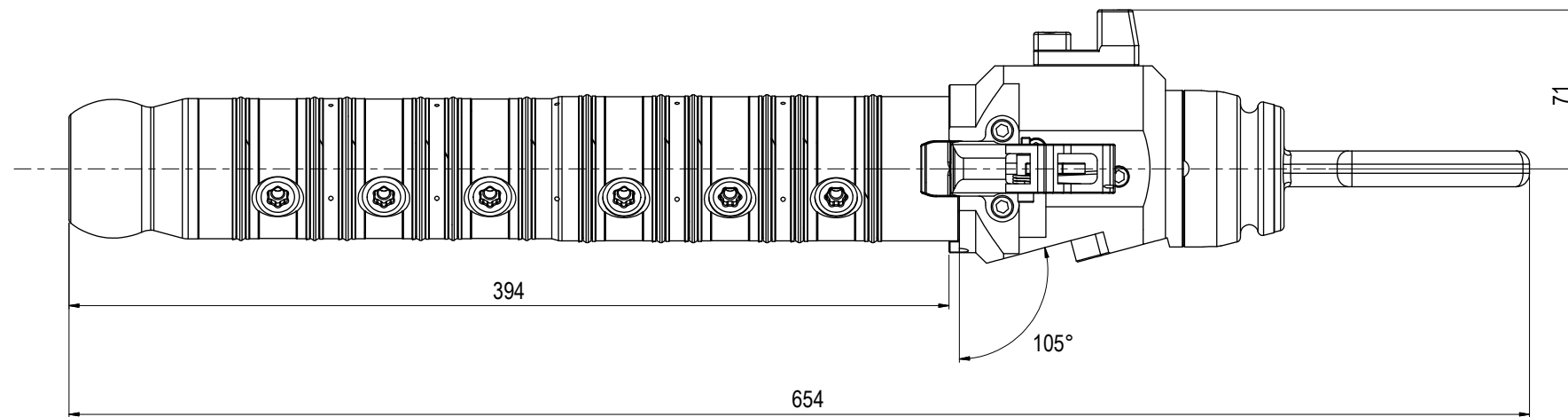
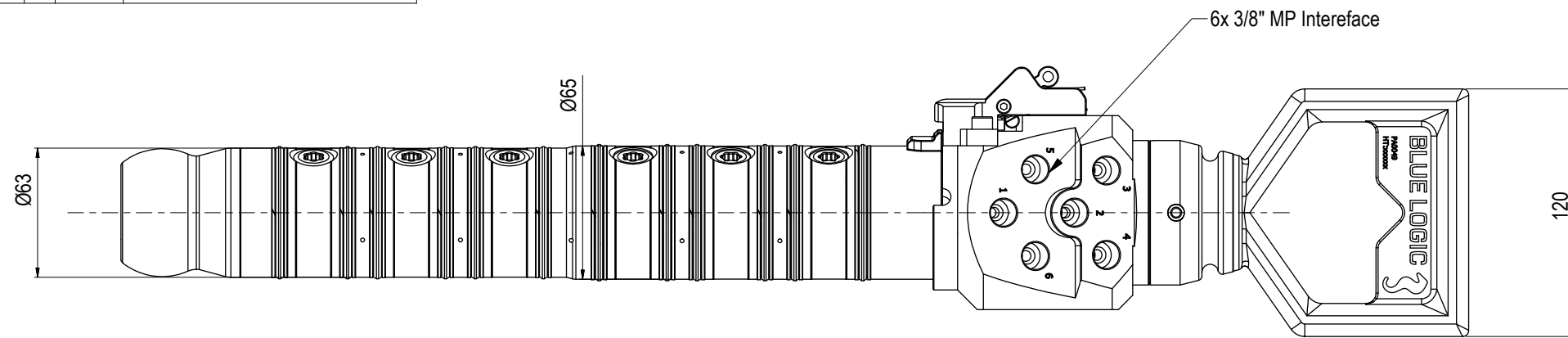
No special precautions are needed for transport. However, the following should be verified:

1. Equipment to be packed in suitable packaging for sufficient protection to prevent particle contamination during storage, testing, transport and while awaiting deployment. All critical surfaces to be adequately protected, ports to be plugged/capped.
2. Sender Name and Address clearly visible
3. Receiver Name and address clearly visible
4. Inventory list correct filled out

APPENDIX 1 SYSTEM DRAWINGS

Dwg. No	Document Title
BB2899	Drawing, Ø63/Ø65 HP VStab Semi Perm Double Seal
BB2916	Drawing, Ø63/Ø65 HP VStab Rec Semi Perm Double Seal
BB5537	Drawing, Ø63/Ø65 HP Flushing VStab
BB5858	Drawing, Ø63/Ø65 HP VStab Flushing Rec Assy
BB5538	Drawing, 6 Port Hot Stab Parking Receptacle
BB5536	Drawing, 6 Port Dummy Stab

Parts List			
ITEM	QTY	PART No.	TITLE
1	1	BB5839	Ø63/Ø65 HP VStab 15K Long-term MP 3/8"
2	1	BB0693	Key Universal for Slab wTool Interface V2
3	2	100119	Bolt



NOTE: 1
DESIGN CODE:
API 6A

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.08. Ø63/Ø65-Valvestab
Intermediate Group: 3.88.01 Stab
Sub Group: 3.88.418.06 Hexa

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 1035
Design Water Depth: N/A
Material: Long-term
Weight: 14,7 kg
Volume: 1,98 dm³
Submerged Weight: 12,72 kg
Surface Area: 5157 cm²
Hydraulic: 6x 3/8" MP
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

09	23.08.202	7-IFC (Issued for Construction)		WTJ	LGH	WTJ
08	2.12.2021	7-IFC (Issued for Construction)		WTJ	LGH	WTJ
07	16.9.2021	7-IFC (Issued for Construction)		WTJ	HNJ	WTJ
06	27.5.2021	7-IFC (Issued for Construction)		WTJ	LGH	WTJ
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.

BLUE LOGIC

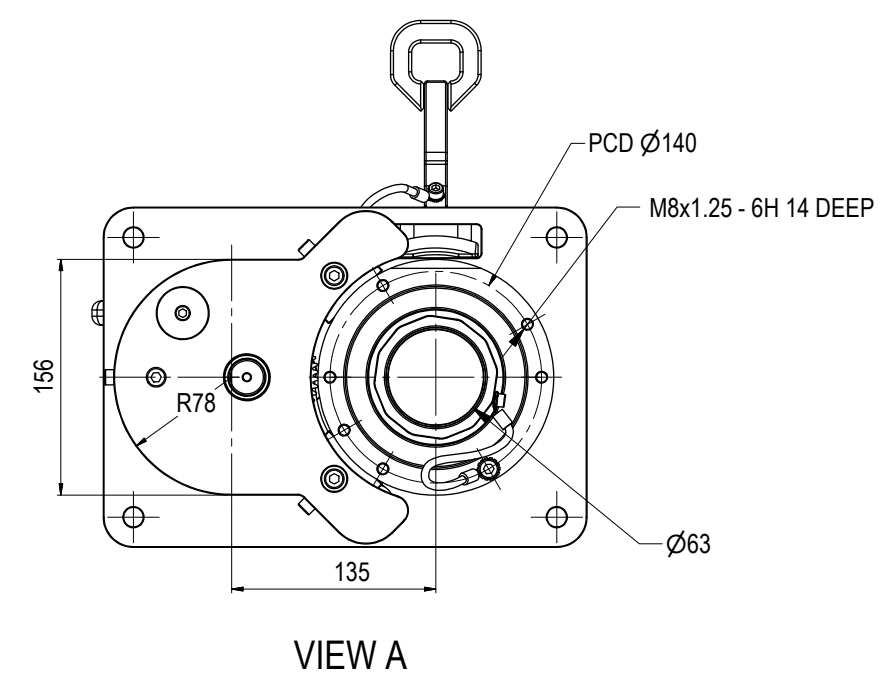
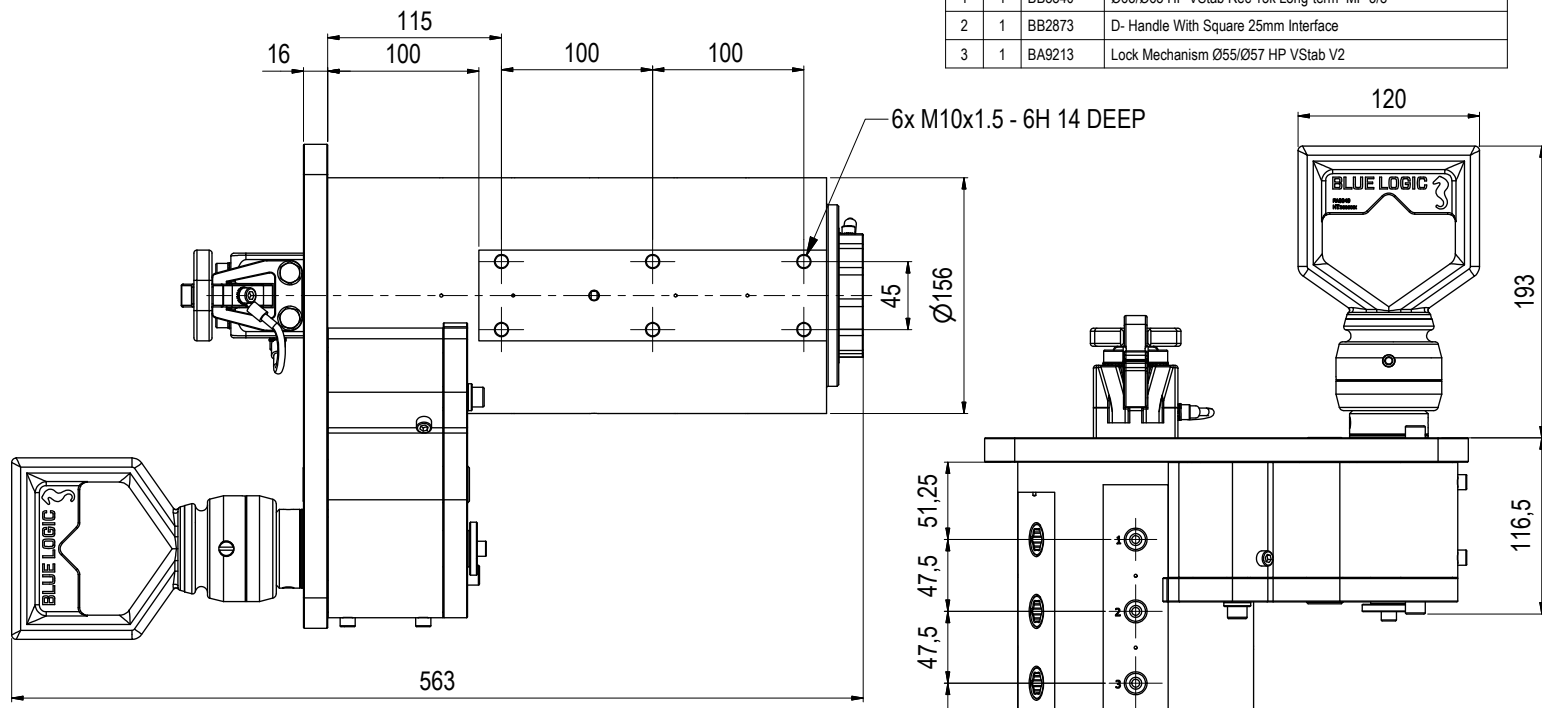
Dwg Scale:
NTS
Dwg Proj:
Dwg Format:
A3

Drawing title:
Ø63/Ø65 HP VStab 15k Long-term MP 3/8"

Drawing number:
BB2899

Rev.
09

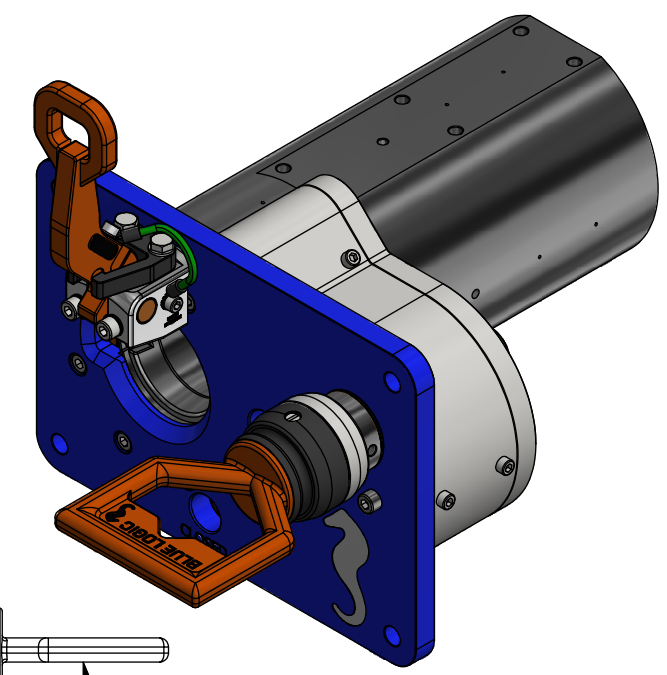
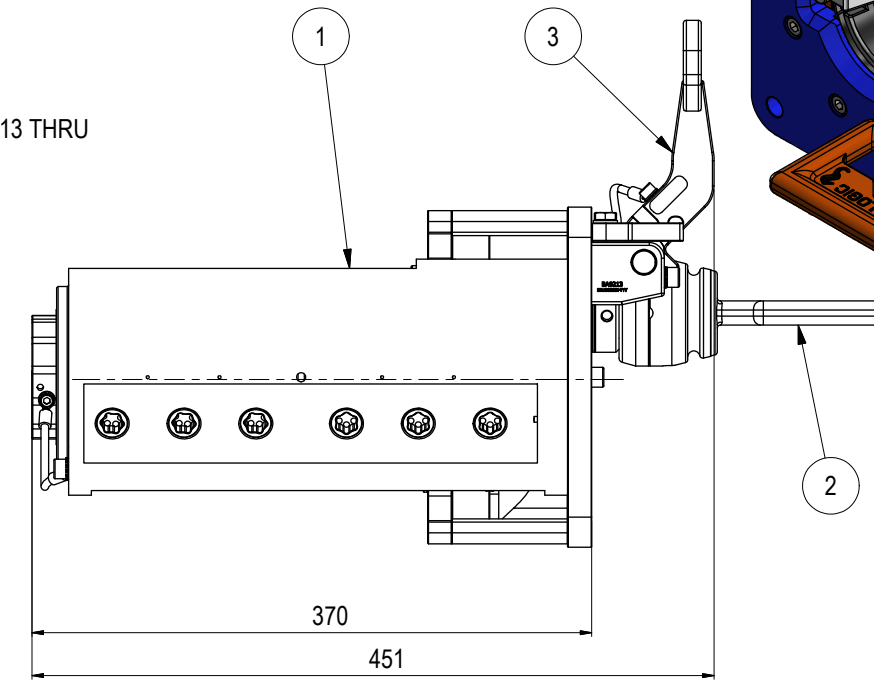
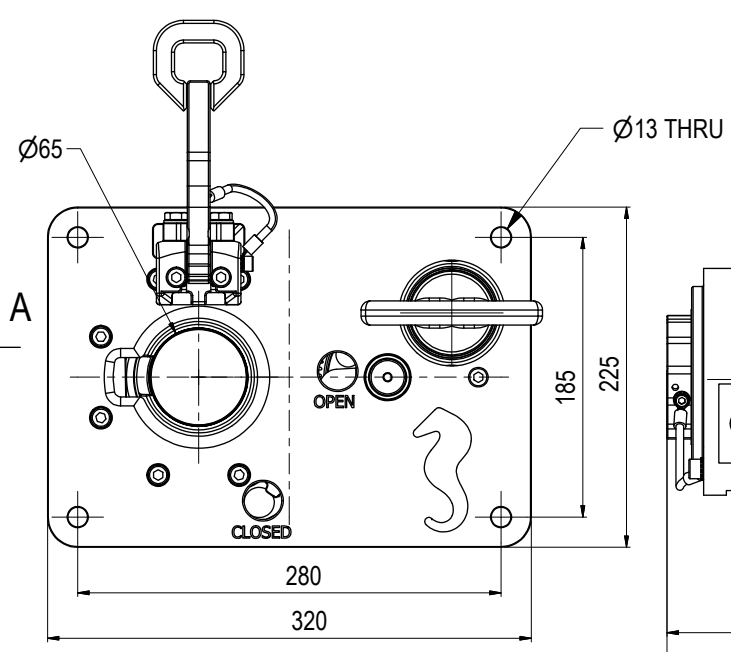
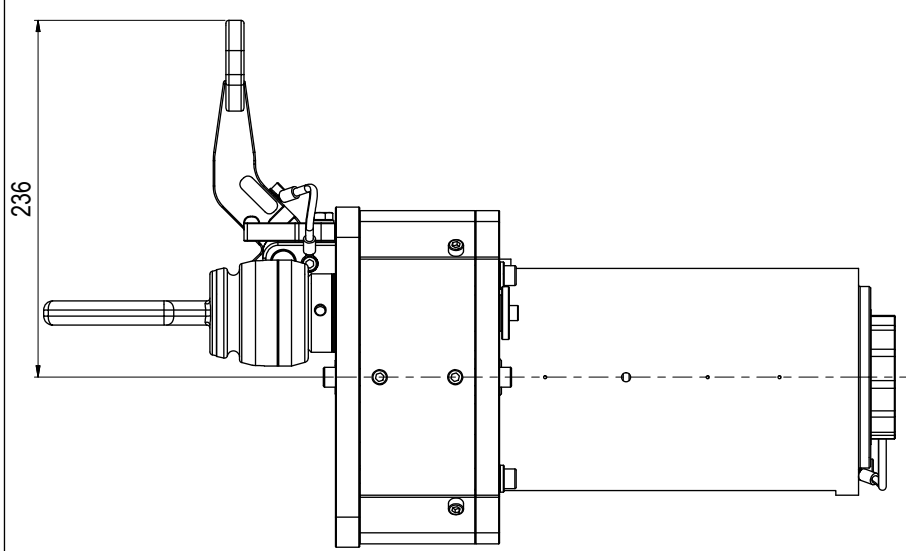
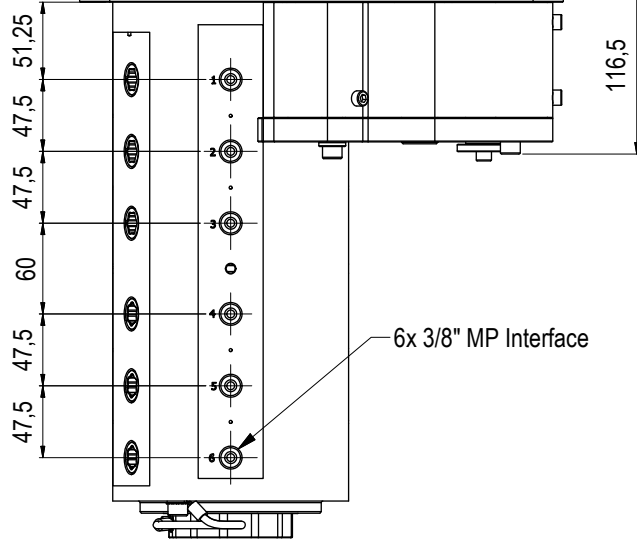
Parts List			
ITEM	QTY	PART No.	TITLE
1	1	BB5840	Ø63/Ø65 HP VStab Rec 15k Long-term MP 3/8"
2	1	BB2873	D- Handle With Square 25mm Interface
3	1	BA9213	Lock Mechanism Ø55/Ø57 HP VStab V2



NOTE: 1
 DESIGN CODE:
 API 6A

NOTE: 2
 TECHNICAL CLASSIFICATION:
 Article Type: 003-Valve Stabs
 Main Group: 3.08. Ø63/Ø65-Valvestab
 Intermediate Group: 3.88.02 Receptacle
 Sub Group: 3.88.419.06 Hexa

NOTE: 3
 INTERFACE INFORMATION:
 Pressure Rating Bar: 1035
 Design Water Depth: N/A
 Material: Long-term
 Weight: 57,9 kg
 Volume: 7,51 dm³
 Submerged Weight: 50,24 kg
 Surface Area: 13426 cm²
 Hydraulic: 6x 3/8" MP
 Mechanical: N/A
 Electrical: N/A
 Com. & Protocol: N/A



Rev.	Date	Reason for issue	Revision change
07	5.11.2021	7-IFC (Issued for Construction)	
06	5.8.2021	7-IFC (Issued for Construction)	
05	27.5.2021	7-IFC (Issued for Construction)	
04	20.5.2021	7-IFC (Issued for Construction)	

WTJ	LGH	TAN
HNJ	LGH	HNJ
WTJ	LGH	WTJ
WTJ	HNJ	LGH
Made	Chk'd	Appr.



Dwg Scale:	NTS
Dwg Proj:	
Dwg Format:	A3

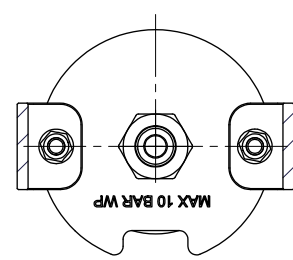
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Drawing number:	BB2916
Rev:	07

NOTE: 1
 DESIGN CODE:
 N/A

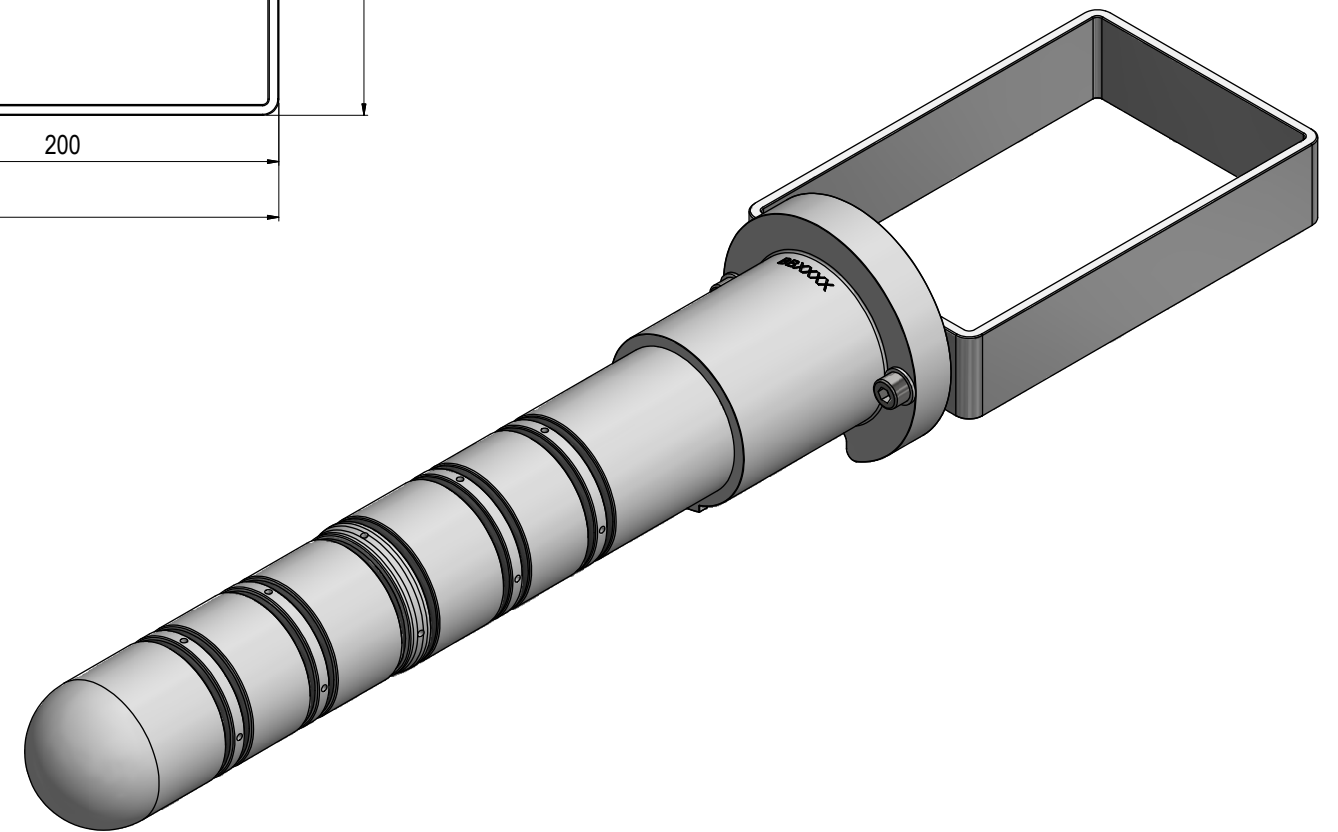
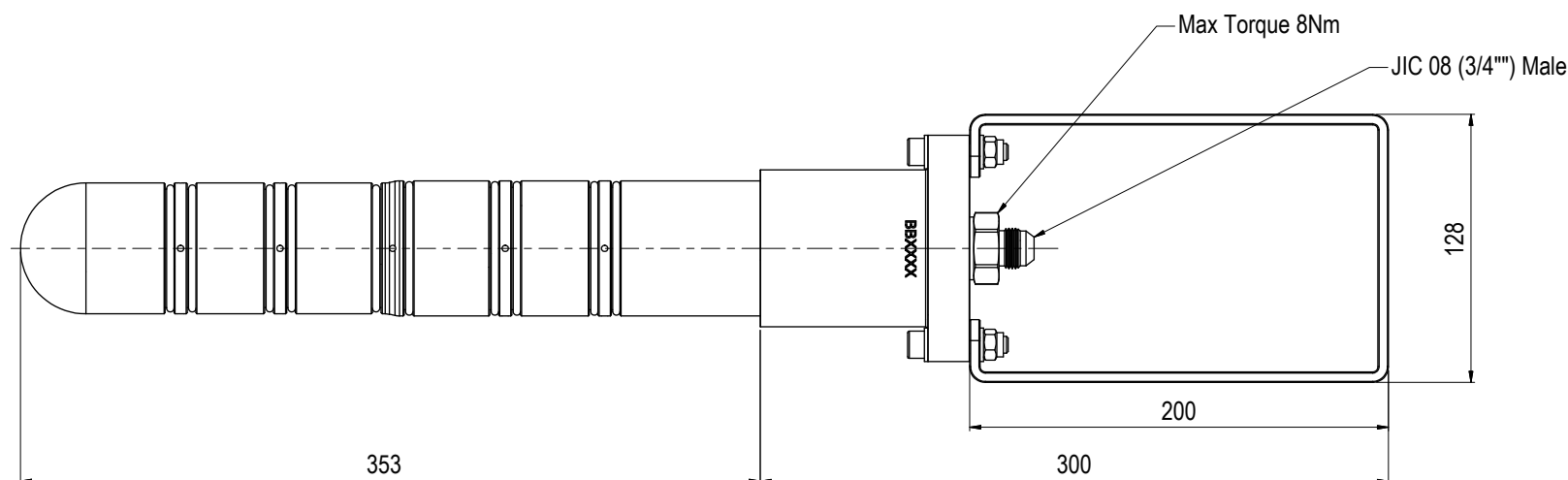
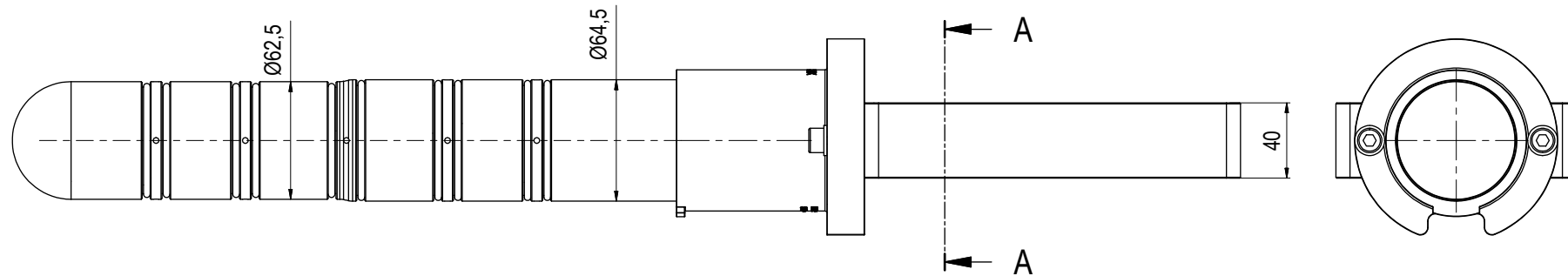
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 TECHNICAL CLASSIFICATION:
 Article Type: 003-Valve Stabs
 Main Group: 3.08. Ø63/Ø65-Valvestab
 Intermediate Group: 3.88.01 Stab
 Sub Group: 3.88.418.06 Hexa

NOTE: 3
 INTERFACE INFORMATION:
 Pressure Rating Bar: 10Bar
 Material: Intervention
 Weight: 3,3 kg
 Volume: 1,7 dm³
 Surface Area: 2212 cm²
 Hydraulic: JIC 08 (3/4") Male
 Mechanical: N/A
 Electrical: N/A
 Com. & Protocol: N/A

NOTE 4
 Receptacle Flushing Tool for use with BB2916 Ø63/Ø65
 HP VStab Rec 15k Semi Perm MP 3/8" Double Seal




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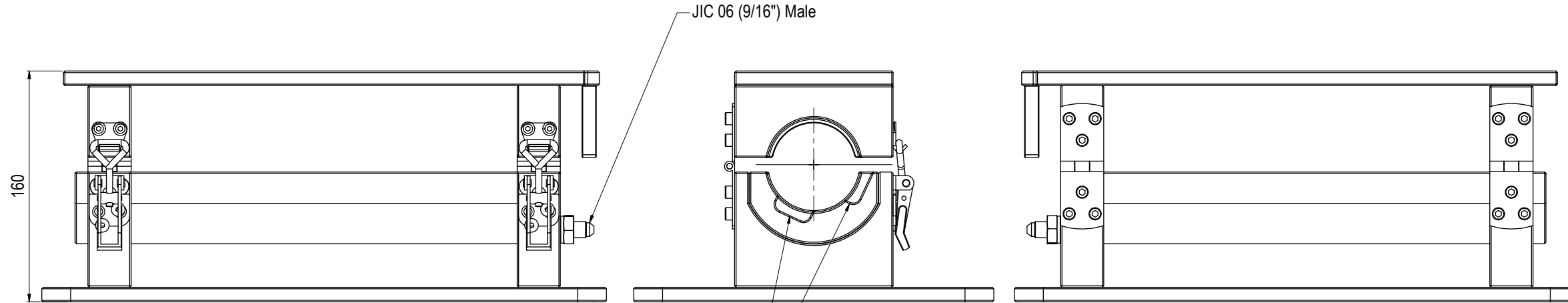


03	19.5.2021	7-IFC (Issued for Construction)		WTJ	HNJ	WTJ
02	12.5.2021	6-ICA (Issued for Client Approval)		WTJ	HNJ	WTJ
01	11.1.2021	2-IFT (Issued for Tender)		HNJ	N/A	N/A
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.

BLUE LOGIC 

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Dwg Proj: 	
Dwg Format: A3	
Drawing number: BB5537	Rev: 03



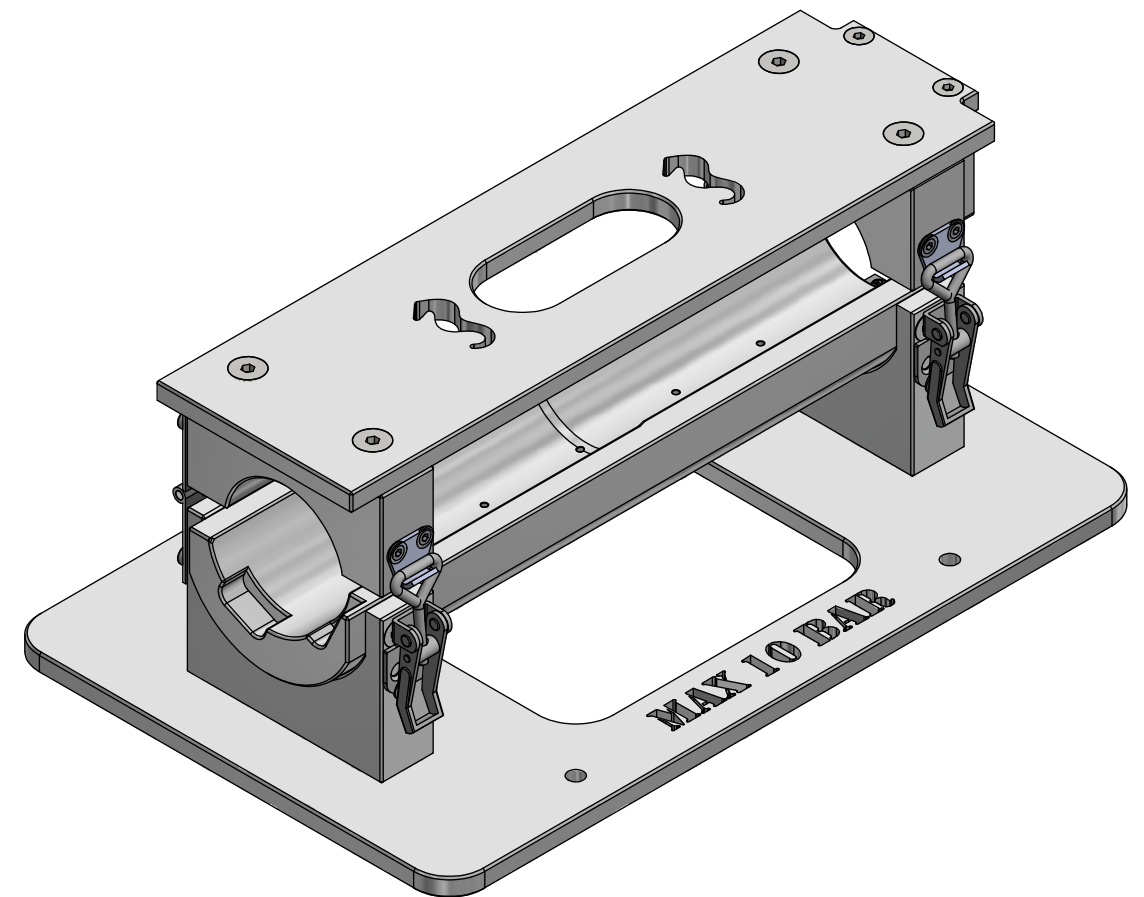
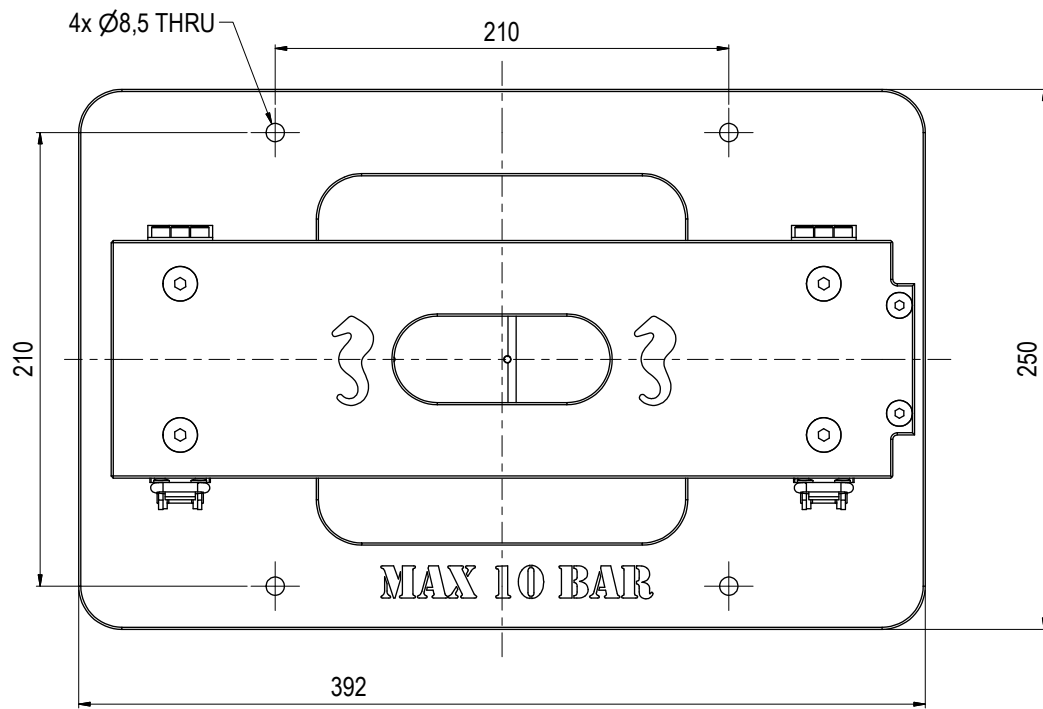
NOTE: 1
DESIGN CODE:
N/A

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.08. Ø63/Ø65-Valvestab
Intermediate Group: 3.88.02 Receptacle
Sub Group: 3.88.419.06 Hexa

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 10
Material: Intervention
Weight: 6,8 kg
Volume: 2,45 dm³
Surface Area: 4992 cm²
Hydraulic: JIC 06 (9/16") Male
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE 4
VStab Flushing Tool for use with BB2899 Ø63/Ø65 HP
VStab 15k Semi Perm Double Seal MP 3/8"

Orientation Grooves for Stab
Use the most suitable

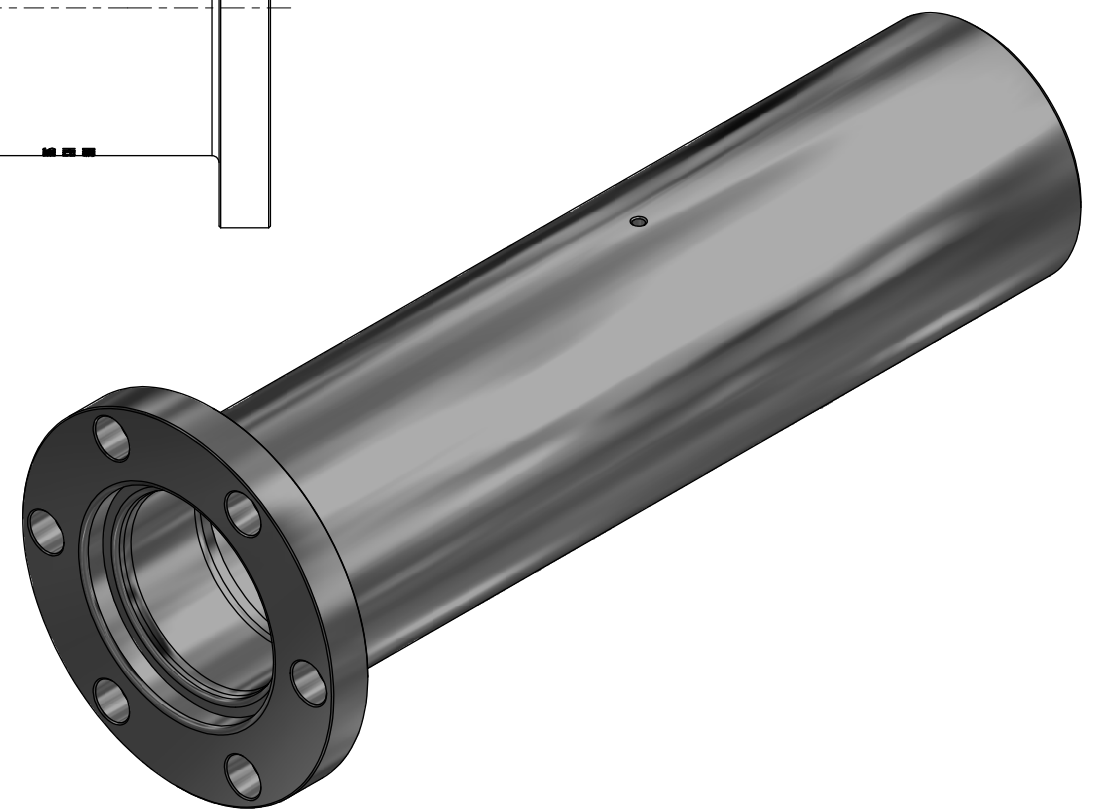
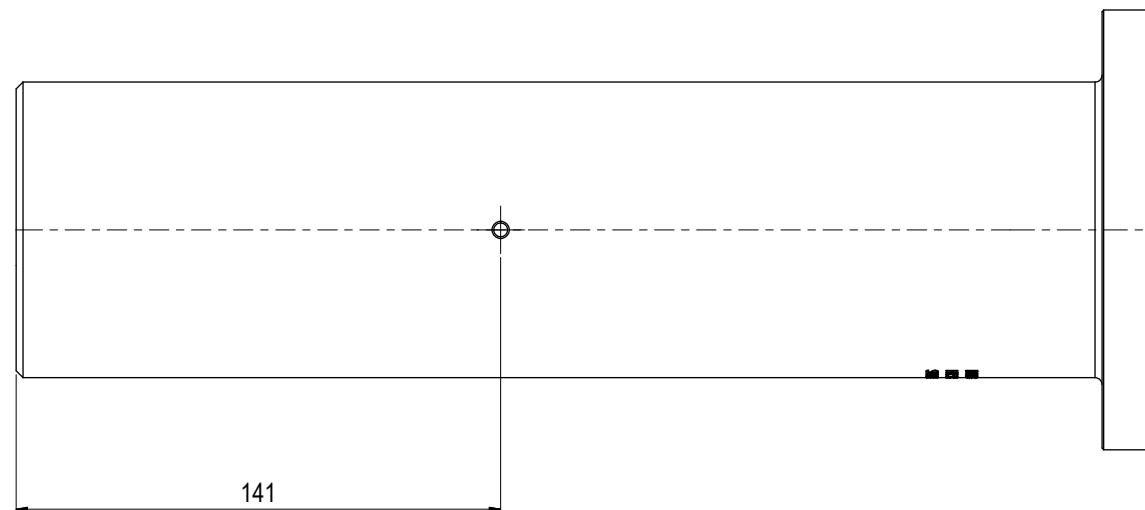
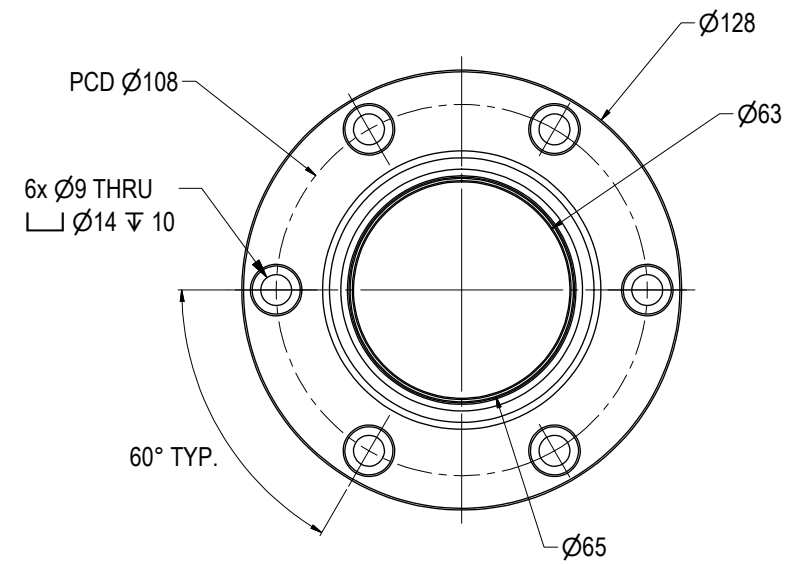


Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.
03	19.5.2021	7-IFC (Issued for Construction)		WTJ	HNJ	WTJ
02	12.5.2021	6-ICA (Issued for Client Approval)		WTJ	HNJ	WTJ
01	11.1.2021	2-IFT (Issued for Tender)		HNJ	N/A	N/A



Dwg Scale:	NTS
Dwg Proj:	
Dwg Format:	A3

Drawing title:	Ø63/Ø65 HP VStab Flushing Rec Assy	
Drawing number:	BB5858	Rev: 03



NOTE: 1
DESIGN CODE:
N/A

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.08. Ø63/Ø65-Valvestab
Intermediate Group: 3.88.02 Receptacle
Sub Group: 3.88.419.06 Hexa

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: Vented
Material: AISI 316L
Weight: 6,8 kg
Volume: 0,86 dm³
Surface Area: 1812 cm²
Hydraulic: N/A
Mechanical: 6xØ9 @PCD Ø108
Electrical: N/A
Com. & Protocol: N/A

Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.
03	19.5.2021	7-IFC (Issued for Construction)		WTJ	HNJ	WTJ
02	12.5.2021	6-ICA (Issued for Client Approval)		WTJ	HNJ	WTJ
01	03.3.2021	2-IFT (Issued for Tender)		HNJ	NA	NA



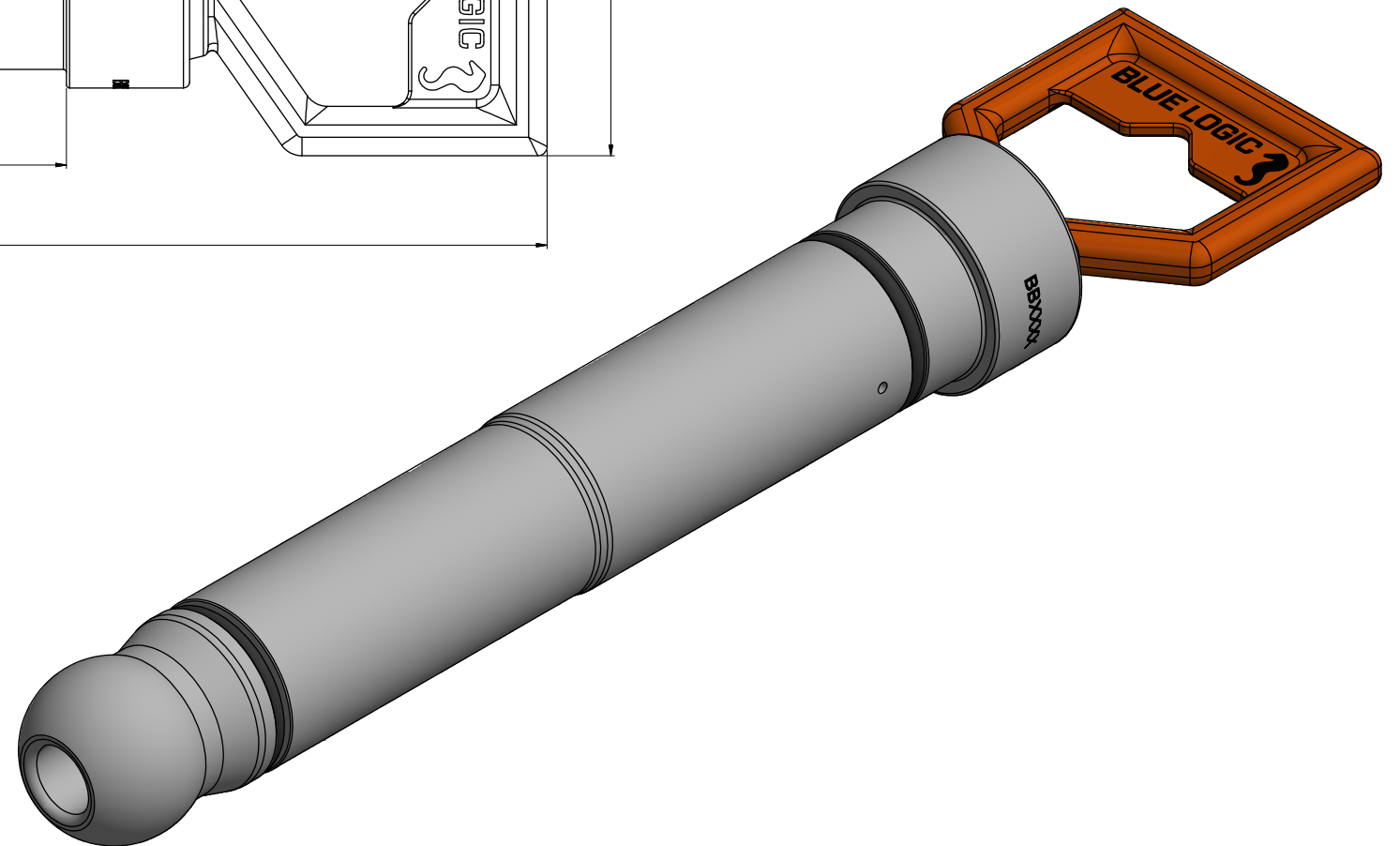
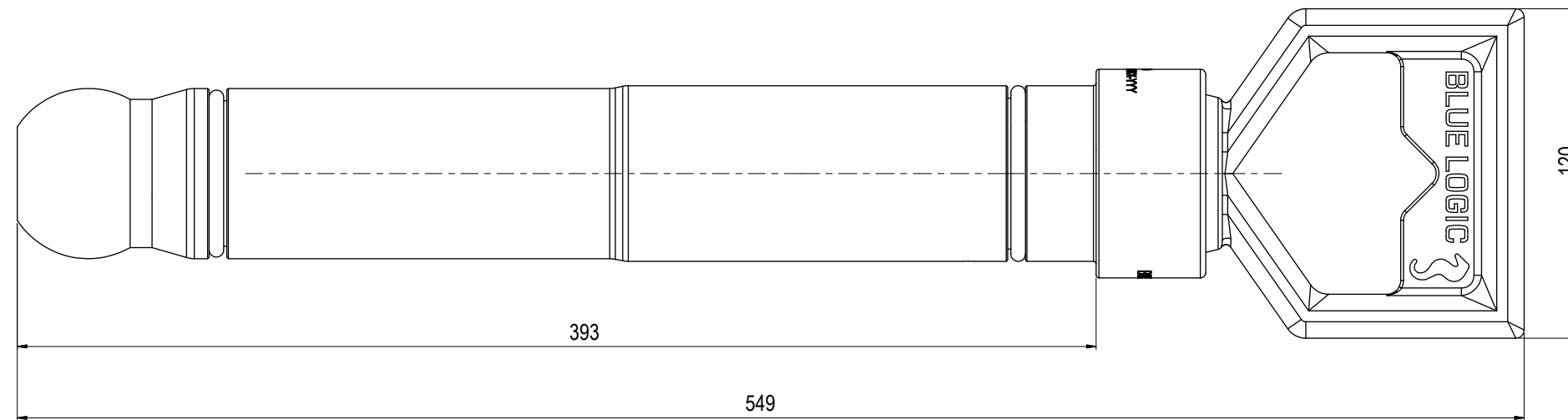
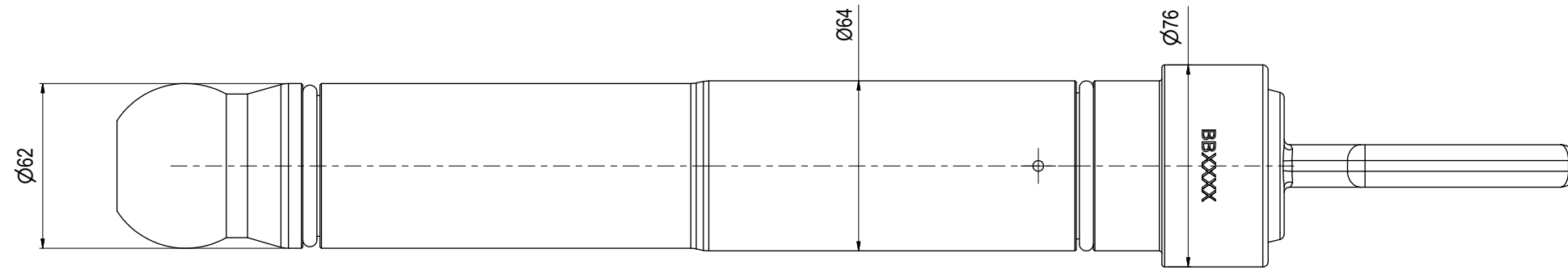
Dwg Scale:	NTS
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Dwg Format:	A3

Drawing title:	Ø63/Ø65 HP VStab Park Rec Vented Interv	
Drawing number:	BB5538	Rev: 03

NOTE: 1
 DESIGN CODE:
 N/A

NOTE: 2
 TECHNICAL CLASSIFICATION:
 Article Type: 003-Valve Stabs
 Main Group: 3.08. Ø63/Ø65-Valvestab
 Intermediate Group: 3.88.01 Stab
 Sub Group: 3.88.418.06 Hexa

NOTE: 3
 INTERFACE INFORMATION:
 Pressure Rating Bar: Vented
 Design Water Depth: N/A
 Material: Long-term
 Weight in Air: 2,5 kg
 Volume: 1,43 dm³
 Submerged Weight: 1,02 kg
 Surface Area: 1711 cm²
 Hydraulic: N/A
 Mechanical: D-Handle
 Electrical: N/A
 Com. & Protocol: N/A



Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.
03	19.5.2021	7-IFC (Issued for Construction)		WTJ	HNJ	WTJ
02	12.5.2021	6-ICA (Issued for Client Approval)		WTJ	HNJ	WTJ
01	11.1.2021	2-IFT (Issued for Tender)		HNJ	N/A	N/A



Dwg Scale:	NTS
Dwg Proj:	
Dwg Format:	A3

Drawing title:	Ø63/Ø65 HP Prot VStab Vented Long-term for Dbl Seal	
Drawing number:	BB5536	Rev: 03