



TECHNICAL DOCUMENT

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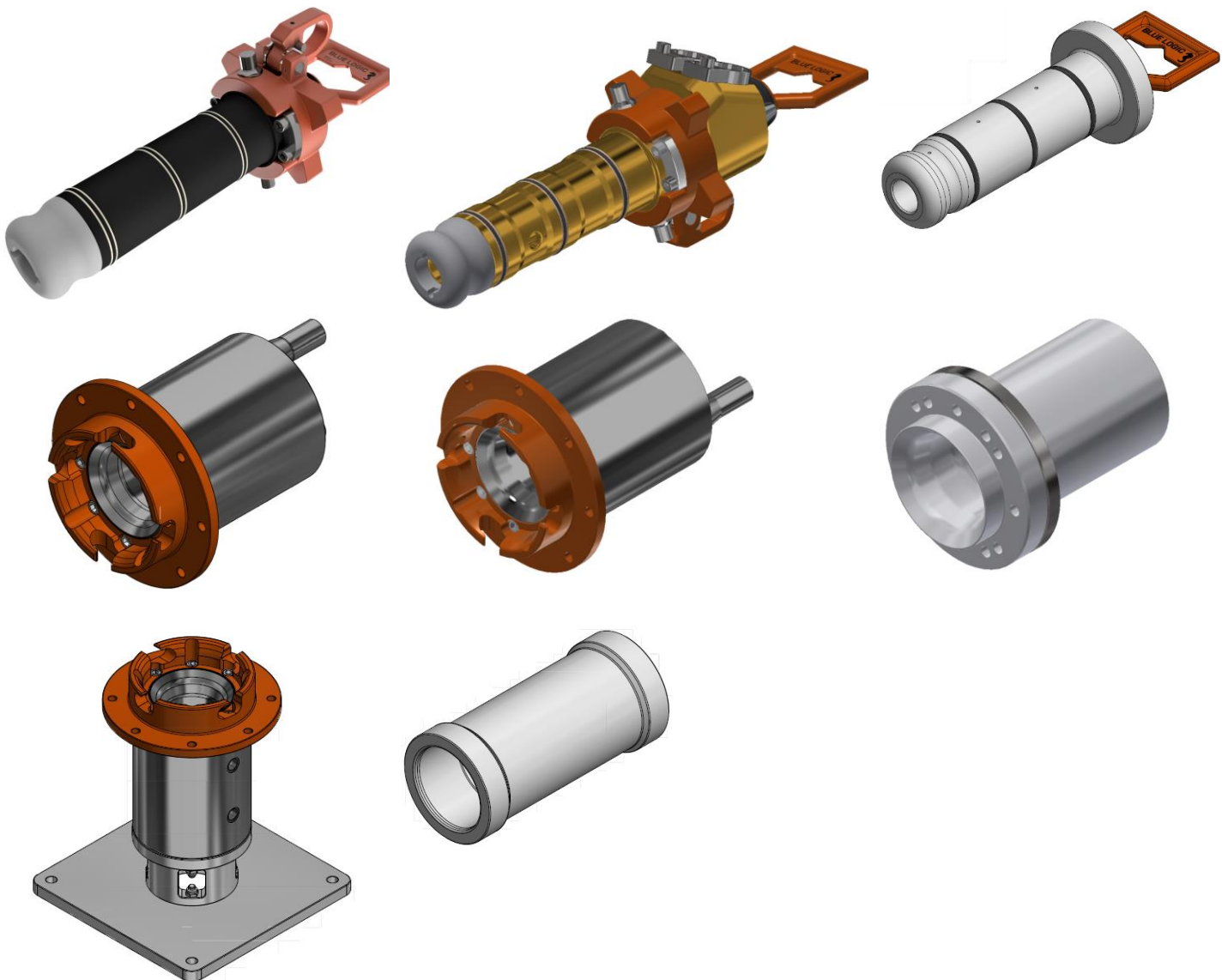




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REVISION CHANGE/RECORD

| REV | REASON FOR REVISION/ DESCRIPTION OF CHANGES |
|-----|---|
| 01  | First issue                                 |
| 02  | Instructions for replacing lock brick added |
|     |   |

## 1. INTRODUCTION

The purpose of this document is to present a comprehensive Operation and Maintenance manual for the Blue Logic designed Ø89 Hot Stab System.

All relevant aspects with regards to safe and correct use, installation, operation, maintenance, and storage are covered.

The Ø89 Hot Stab Program includes the following general main components:

- BB7746, Ø89 DP Stab 10k Interv MP 1" 90 deg. Interf wJ-Lock
- BB7598, Ø89 DP Stab 10k Interv MP 1" 15 Deg Interf wJ-Lock
- BB6432, Ø89 DP Stab 10k Interv MP 1" 65 Deg Interf wJ-Lock,
- BB8222, Ø89 DP Test Receptacle 10k MP 9/16" wJ-Lock
- BB6496, Ø89 DP Parking Receptacle 10Bar Long-term fit 6/8 holes J-Lock
- BB8388, Ø89 DP Receptacle 10k Long-term wJ-L 1" WN Sch 80 8 Holes Interf
- BB8195, Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 160 8 Holes Interf
- BB6465, Ø89 DP Press Stab 10k Long-term wJ-Lock
- BB8227, Ø89 DP Protection Stab Vented Long-term
- BB8226, Ø89 DP Stab Protection Sleeve

### 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 Ø89 Hot 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             |
| DP    | Dual Port                 |
| BL    | Blue Logic                |
| HP    | High Pressure             |
| CW    | Clockwise                 |
| CCW   | Counter Clockwise         |

## 1.3. REFERENCES

Latest version of the following documents.

| Id  | Doc. No/Rev/   | Originator | Document Title   |
|-----|----------------|------------|--|
| 1.  | BB7746         | BL         | Ø89 DP Stab 10k Interv MP 1" 90 deg. Interf wJ-Lock              |
| 2.  | BB7598         | BL         | Ø89 DP Stab 10k Interv MP 1" 15 Deg Interf wJ-Lock               |
| 3.  | BB6432         | BL         | Ø89 DP Stab 10k Interv MP 1" 65 Deg Interf wJ-Lock               |
| 4.  | BB8222         | BL         | Ø89 DP Test Receptacle 10k MP 9/16" wJ-Lock                      |
| 5.  | BB6496         | BL         | Ø89 DP Parking Receptacle 10Bar Long-term fit 6/8 holes J-Lock   |
| 6.  | BB8388         | BL         | Ø89 DP Receptacle 10k Long-term wJ-L 1" WN Sch 80 8 Holes Interf |
| 7.  | BB8195         | BL         | Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 160 8 Holes Interf       |
| 8.  | BB6465         | BL         | Ø89 DP Press Stab 10k Long-term wJ-Lock                          |
| 9.  | BB8227         | BL         | Ø89 DP Protection Stab Vented Long-term                          |
| 10. | BB8226         | BL         | Ø89 DP Stab Protection Sleeve                                    |
| 11. | BB7414         | BL         | Recommended Spares Ø89 Stab System                               |
| 12. | 600189-TD-0004 | BL         | FAT Procedure for Ø89 DP Hot Stab                                |
| 13. | 600189-TD-0003 | BL         | FAT Procedure for Ø89 Hot Stab Program                           |

## 2. TECHNICAL DESCRIPTION

### 2.1. GENERAL

The Ø89 Hot Stab System is designed according to API 17H Type 3 and based on Blue Logic's range of large bore hot stab program.

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.

2.2. Ø89 DP STAB, BB6432, BB7598 & BB7746

The Ø89 intervention hot stab is fabricated in Aluminium Bronze material type JM7 which have excellent lubrication properties and will ensure problem free use and protection of the receptacle through years of operation and connection/disconnections.

The Ø89 DP Stab is available in 3 configurations, i.e. with different angles for the hydraulic interface:

- BB6432: 65° exit
- BB7598: 15° exit
- BB7746: 90° exit

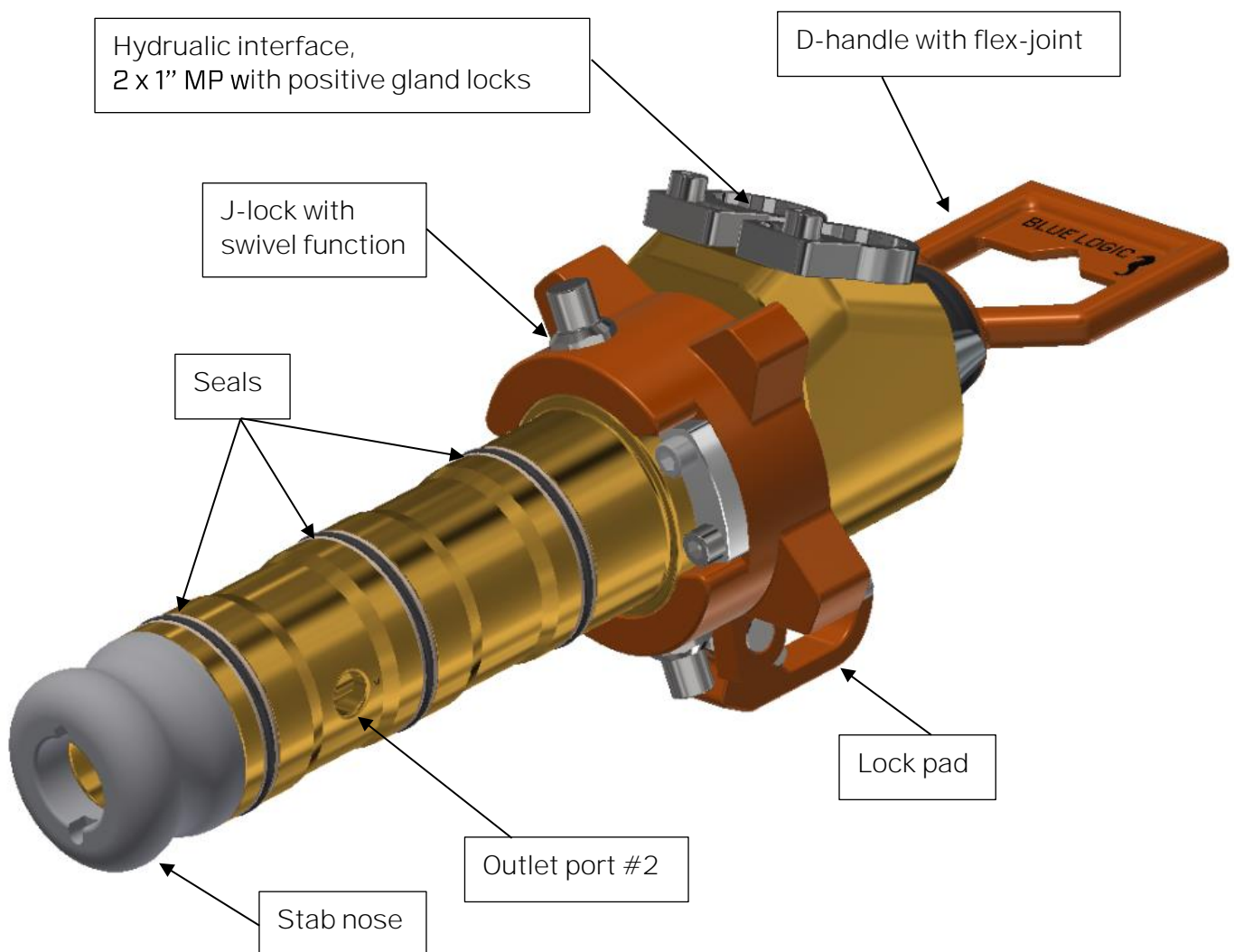


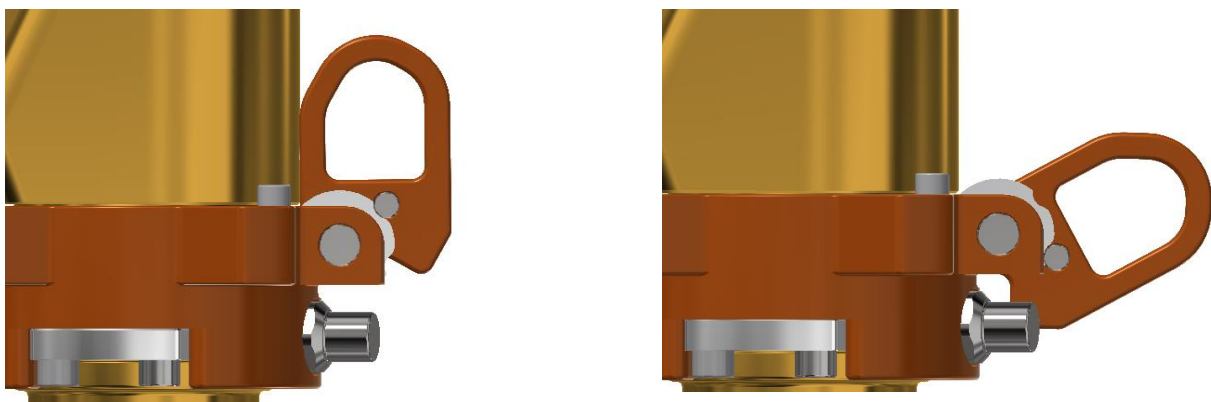
Figure 1, Ø89 Dual Port Stab

The stab nose is fabricated in PEHD 1000 to ensure easy entering and no damages to the receptacle.



The handle is designed for easy operation and handling using either parallel or 3-finger manipulator claw. It is connected to the stab with a Blue Logic standard flex joint system allowing for easy replacement of either handle or the flexible rubber element offshore if required.

The manipulator operated J-lock locking mechanism is designed to prevent undesired unlocking and removal from the receptacle. Note also that the inherent pressure balanced hot stab design ensures no pressure induced separation forces between the pressure stab and the receptacle.



*Figure 2, Locking mechanism, unlocked (left) and locked (right)*

Material for the stab seals is RU15/PEEK1, 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, see section 6.5 for instructions.

#### Technical Data – Ø89 DP Stab

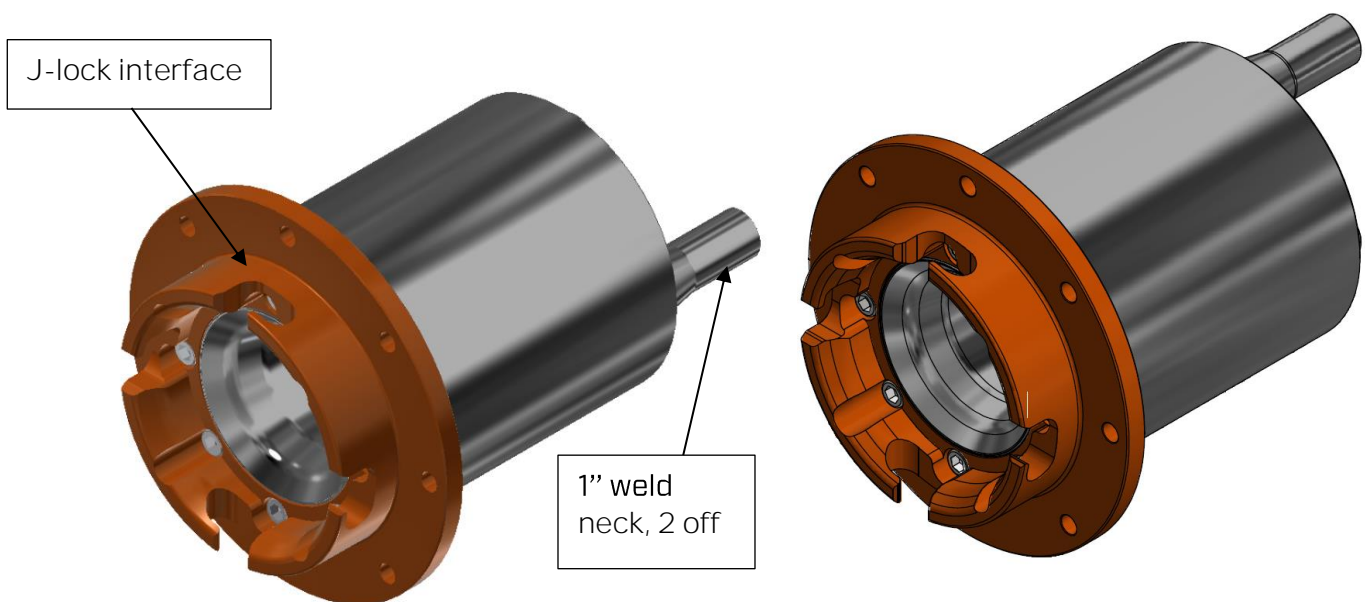
|                    |                      |
|--------------------|----------------------|
| Overall dimensions | Ø190 x 616 mm        |
| Weight in air      | 32,6 kg              |
| Weight in water    | 28,4 kg              |
| Material           | UNSC63200 (OM7)      |
| Working Pressure   | 10 000 Psi / 690 Bar |
| Test pressure      | 15 000 Psi/ 1035 Bar |
| Temperature range  | -18/+121°C           |
| Nominal bore       | Ø17,8 mm             |
| Design Standard    | 17H Type 3           |
| Hose interface     | 2 x 1" MP            |

**TECHNICAL DOCUMENT**
**2.3. Ø89 DP RECEPTACLE, BB8195 & BB8388**

The Ø89 receptacle is machined from one solid forged bolt in Super Duplex material intended for long-term subsea service. Integrated J-lock for locking the stab once inserted. Hydraulic interface represented by 2 off 1" weld necks.

2 configurations are available, main difference is schedule for weldneck, sch 80 & 160:

- BB8195, Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 160 8 Holes Interf
- BB8388, Ø89 DP Receptacle 10k Long-term wJ-L 1" WN Sch 80 8 Holes Interf



BB8195, Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 160 8 Holes Interf

BB8388, Ø89 DP Receptacle 10k Long-term wJ-L 1" WN Sch 80 8 Holes Interf

**Technical Data – Ø89 DP Receptacle**

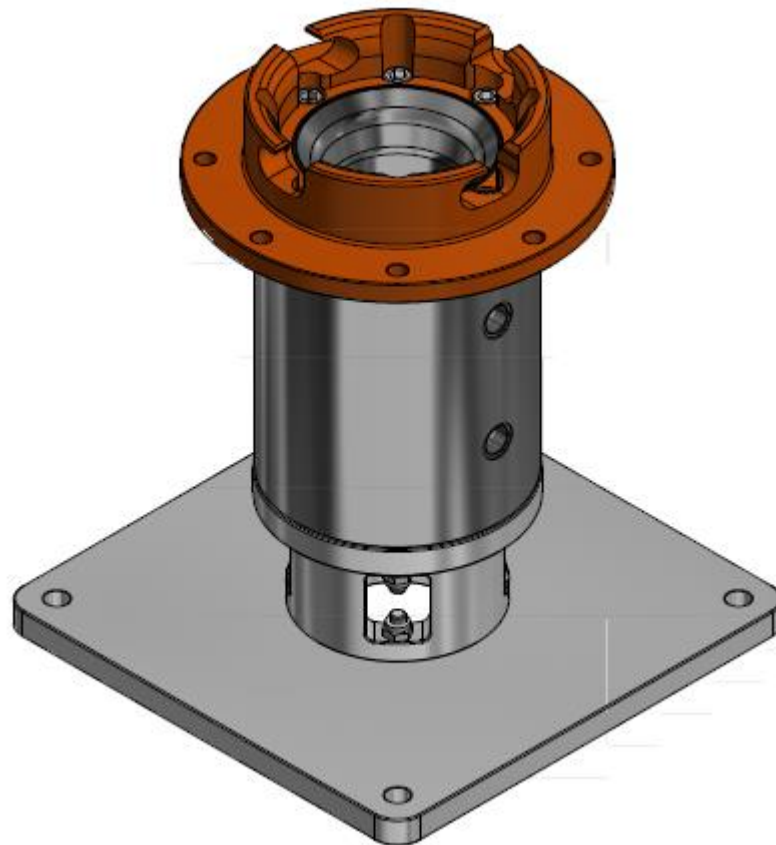
|                      | BB8195                     | BB8388                    |
|----------------------|----------------------------|---------------------------|
| Overall dimensions   | Ø270 x 300 mm              |                           |
| Weight in air        | 48,9 kg                    | 48,5                      |
| Weight in water      | 42,5 kg                    | 42,1                      |
| Material             | S32750 Super Duplex        |                           |
| Working Pressure     | 10 000 Psi / 690 Bar       |                           |
| Test pressure        | 15 000 Psi/ 1035 Bar       |                           |
| Temperature range    | -18/+121°C                 |                           |
| Nominal bore         | Ø20,7 mm                   | Ø24,3                     |
| Design Standard      | 17H Type 3                 |                           |
| Hydraulic interface  | 2 x 1" Weld Neck, Sch. 160 | 2 x 1" Weld Neck, Sch. 80 |
| Mechanical interface | 8 x Ø13 on PCD Ø240        |                           |

**TECHNICAL DOCUMENT**
**2.4. Ø89 DP TEST RECEPTACLE, BB8222**

The Ø89 DP Test Receptacle is designed for pressure testing of Ø89 Hot Stabs and/or Ø89 Pressure Stabs on deck prior to operation to verify pressure integrity.

The test receptacle consists of a standard Ø89 receptacle with J-lock interface and 2 off MP 9/16" ports for connection of pressure test unit.

The test receptacle is installed onto a plate to keep an upright position. The 350x350 mm foundation plate has 4 off Ø17 holes for bolting onto other equipment as required.



*Figure 3, Ø89 Test Receptacle*

|                      |                                  |
|----------------------|----------------------------------|
| Overall dimensions   | 350 x 350 x 404 mm               |
| Weight               | 49,1 kg                          |
| Material             | S32750 Super Duplex / Al 6082 T6 |
| Working Pressure     | 10 000 Psi / 690 Bar             |
| Test pressure        | 15 000 Psi/ 1035 Bar             |
| Temperature range    | -18/+121°C                       |
| Design Standard      | 17H Type 3                       |
| Hydraulic interface  | MP 9/16"                         |
| Mechanical interface | 4 x Ø17 at 300 x 300 mm          |



### 2.5. Ø89 DP PRESSURE STAB, BB6465

The Ø89 DP Pressure Stab is designed for long-term installation in the Ø89 receptacle to act as a pressure barrier. The test stab has a simplified design compared to the Ø89 DP Stab with no hydraulic ports.

All metallic parts are constructed in Super Duplex. Stab nose is in PEHD 1000 quality similar to the intervention stab.

The pressure stab's J-lock mechanism is identical to the intervention stab's J-lock.



Figure 4, Ø89 Pressure Stab

#### Technical Data – Ø89 DP Pressure Stab

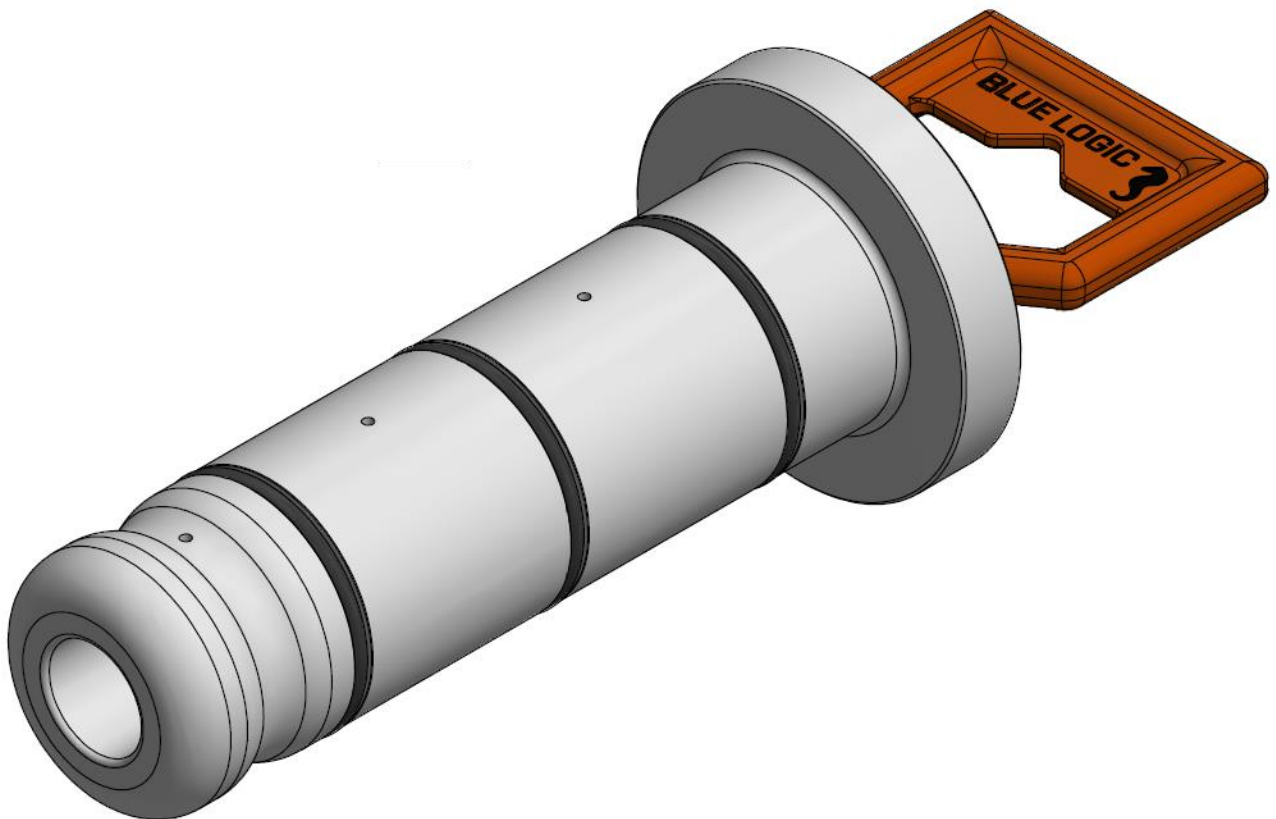
|                    |                      |
|--------------------|----------------------|
| Overall dimensions | Ø190 x 531 mm        |
| Weight             | 20,2 kg              |
| Weight in water    | 17,2 kg              |
| Material           | S32750 Super Duplex  |
| Working Pressure   | 10 000 Psi / 690 Bar |
| Test pressure      | 15 000 Psi/ 1035 Bar |
| Temperature range  | -18/+121°C           |
| Design Standard    | 17H Type 3           |

**TECHNICAL DOCUMENT**
**2.6. Ø89 DP PROTECTION STAB, BB8227**

The Ø89 DP Protection Stab is designed for long-term installation in the Ø89 receptacle to act as a protection against debris and marine growth. The protection stab is vented, thus not designed for pressure retaining.

All metallic parts are constructed in Super Duplex. Stab body made of PEHD 1000.

The protection stab has no J-lock, and is designed to be kept in position by friction between seals and receptacle seal surface.



*Figure 5, Ø89 Protection Stab*

**Technical Data – Ø89 DP Protection Stab**

|                    |                                 |
|--------------------|---------------------------------|
| Overall dimensions | Ø140 x 442 mm                   |
| Weight             | 3,2 kg                          |
| Weight in water    | 1,0 kg                          |
| Material           | PEHD 1000 & S32750 Super Duplex |
| Working Pressure   | NA                              |
| Test pressure      | NA                              |
| Temperature range  | -18/ +80°C                      |
| Design Standard    | 17H Type 3                      |

## 2.7. Ø89 PARKING RECEPTACLE, BB6496

The parking receptacle is constructed in PEHD 1000 and Super Duplex for long-term installation. The purpose is to act as parking and protection of the Ø89 DP Pressure Stab during operation. The parking receptacle is a designed for maximum 10 Bar pressure.

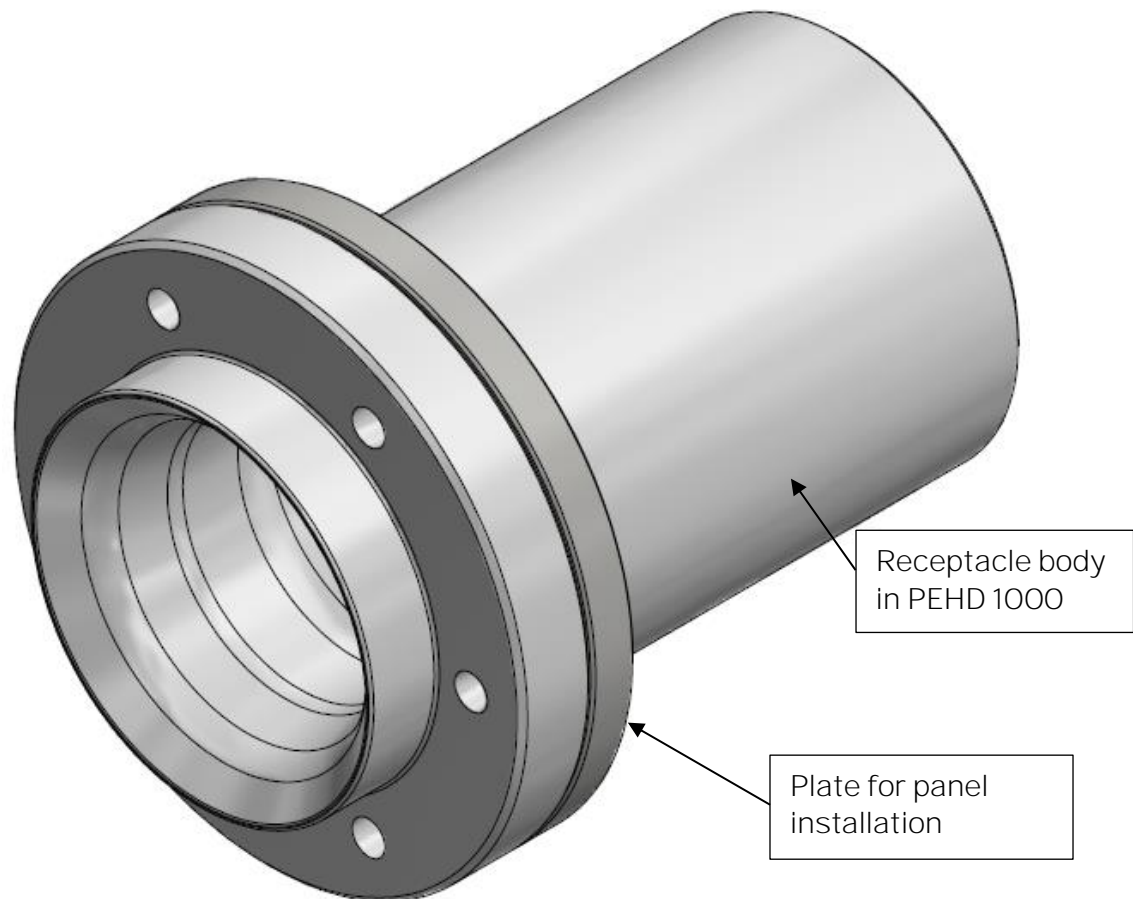


Figure 6, Ø89 Parking Receptacle

## Technical Data – Ø89 Parking Receptacle

|                    |                                |
|--------------------|--------------------------------|
| Overall dimensions | Ø195 x 245 mm                  |
| Weight             | 3,9 kg                         |
| Weight in water    | 1,4 kg                         |
| Material           | PEHD1000 & S32750 Super Duplex |
| Working Pressure   | 10 bar                         |
| Temperature range  | -18/+80°C                      |
| Design Standard    | 17H Type 3                     |

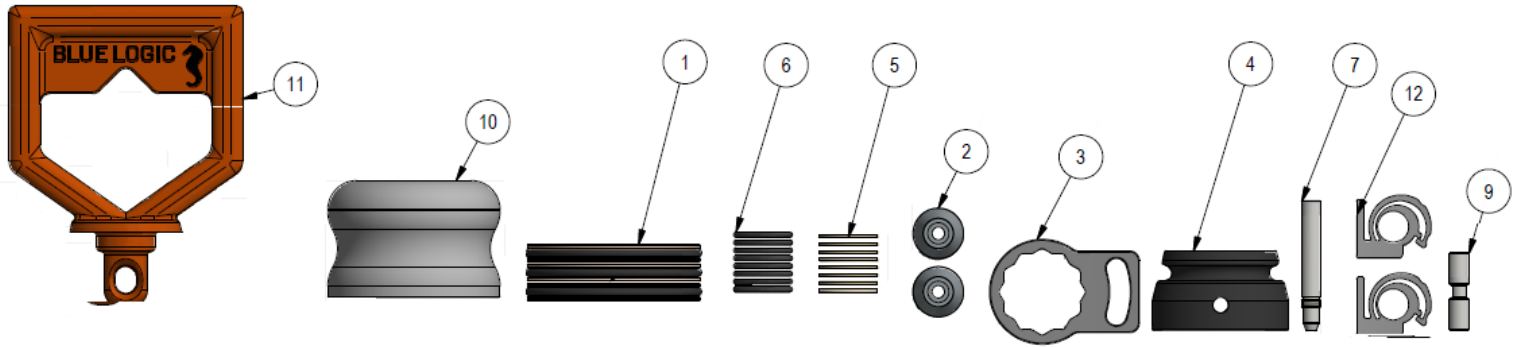


## 2.8. SPARE KIT

Typical recommended spare part kit will include the below listed items. The parts included in the spare kit is illustrated in Figure 7 next page. A spare kit drawing is included in APPENDIX 1

| ID  | Qty | Article No. | Description                               | Parent Equipment                 |
|-----|-----|-------------|---|----------------------------------|
| 1.  | 6   | 104589      | Ø89 Stab Seal RU15-PEEK                   | Ø89 DP Press Stab                |
| 2.  | 2   | 102091      | Zinc Anode Ø26 H=20mm                     | Ø89 DP Stab                      |
| 3.  | 1   | BB7745      | Lock Bracket V3                           | Ø89 DP Stab                      |
| 4.  | 2   | PA0050      | Flex Element Nitril 85/90 sh              | Ø89 DP Stab<br>Ø89 DP Press Stab |
| 5.  | 8   | 101050      | Back Up Ring Ø30xØ26x1.5 ST08-K Peek1 Cut | Ø89 DP Stab                      |
| 6.  | 8   | 104273      | O-Ring BS120 D1=25,07 D2=2,62 RU15        | Ø89 DP Stab                      |
| 7.  | 1   | PA0051      | Lock Bolt For Flex Handle                 | Ø89 DP Stab                      |
| 8.  | 1   | BA1581      | Lock Bolt For Flex Handle SD.             | Ø89 DP Press Stab                |
| 9.  | 2   | BB6468      | Ø10mm Bolt                                | Ø89 DP Stab<br>Ø89 DP Press Stab |
| 10. | 2   | BB6451      | Guide Nose Ø89                            | Ø89 DP Stab<br>Ø89 DP Press Stab |
| 11. | 2   | PA0049      | D-Handle SD                               | Ø89 DP Stab<br>Ø89 DP Press Stab |
| 12. | 4   | BB7527      | Lock Brick ver. 03                        | Ø89 DP Stab<br>Ø89 DP Press Stab |





Recommended spare parts for BB6432 Ø89 DP Stab 10k Interv MP 1" wJ-Lock

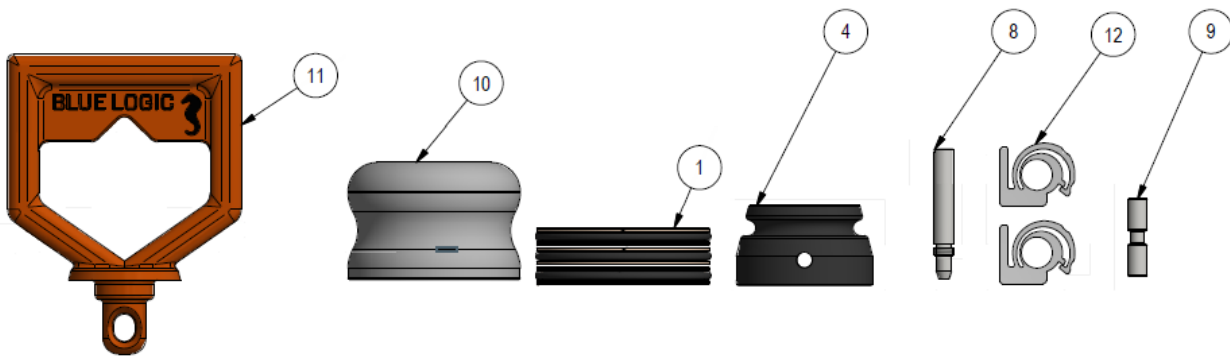


Figure 7, Spare part kit for Ø89 DP Stab (upper) and Ø89 DP Pressure Stab (lower)



### 3. INSTALLATION

#### 3.1. RECEPTACLE

##### 3.1.1. Mechanical Installation

The Receptacle shall be bolted onto the structure directly by use of the integrated installation interface as described in drawing BB8195 and BB8388, ref. APPENDIX 1. Blue Logic recommends installing the receptacle vertically. This will ease guidance of the stab and any debris or dirt will then fall through the receptacle. Make sure to allow free space for the stab nose underneath/behind the receptacle, minimum envelope  $\text{Ø}100 \times 150 \text{ mm}$ .

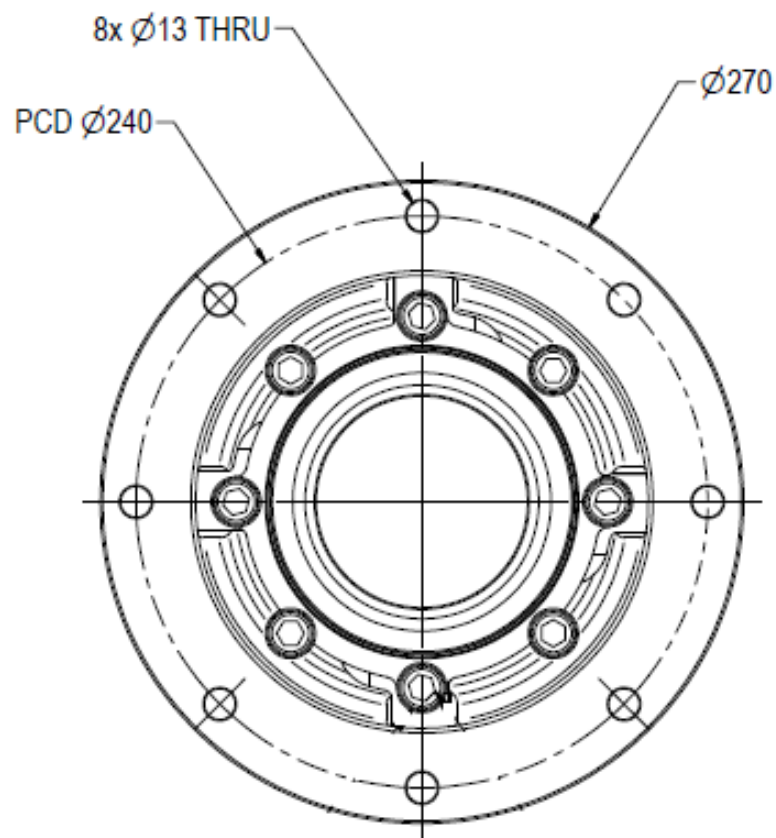


Figure 5, Interface details for receptacle installation, BB8195 & BB8388



### 3.1.2. Hydraulic Connection

The Receptacle is equipped with two 1" WN Sch 160 or Sch 80 weld necks for direct welding to piping. Reference is made to drawing BB8195 and BB8388, APPENDIX 1, for details and position. Beveling and welding in accordance with Client requirements.

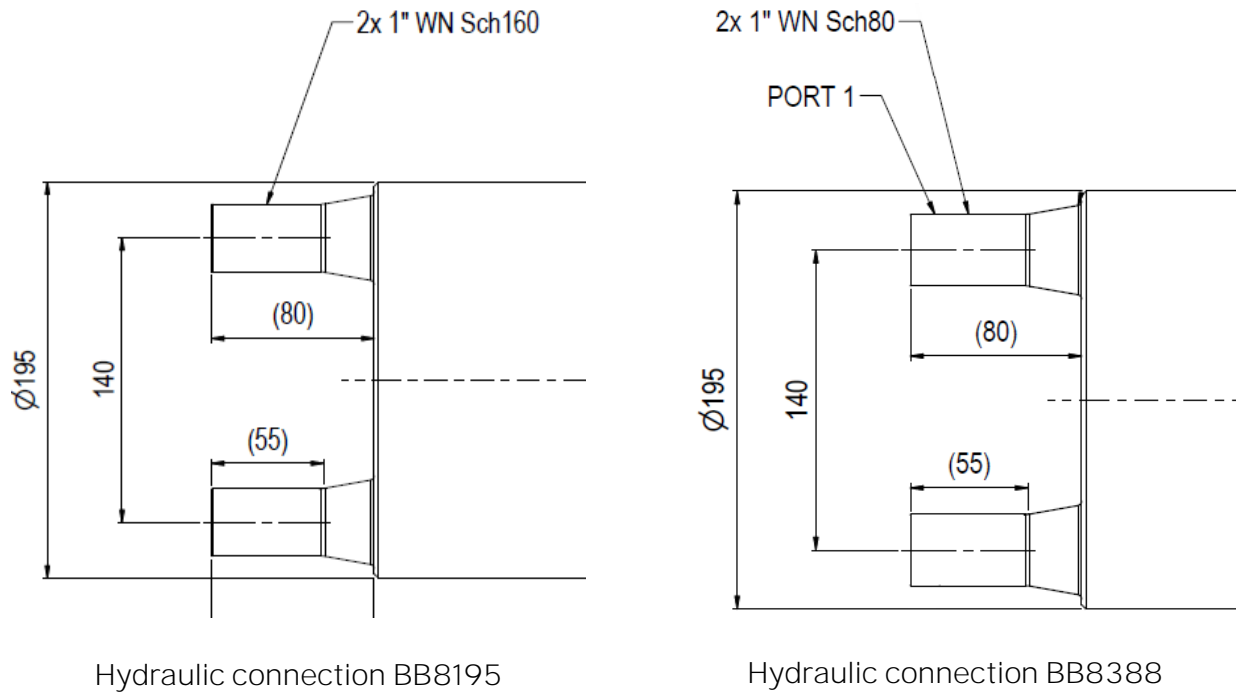


Figure 6, Receptacle hydraulic interface details.



### 3.2. STAB

#### 3.2.1. Hydraulic Connection

The Ø89 DP Stab have 2 off 1" MP interfaces for connection of hoses. Both ports are labelled with corresponding port number.

The fittings shall be secured by fastening the positive gland locks after torque-up:

- Unscrew the M10 socket head bolts to release the positive gland locks
- Put the hose through the positive gland locks, install and tighten the hydraulic fittings
- Put the positive gland locks into position, make sure to lock the fitting from anti clockwise rotation and tighten the M10 bolt, 39Nm. Repeat for the other port.

Further details can be found in drawings BB6432, BB7598 & BB7746, APPENDIX 1.

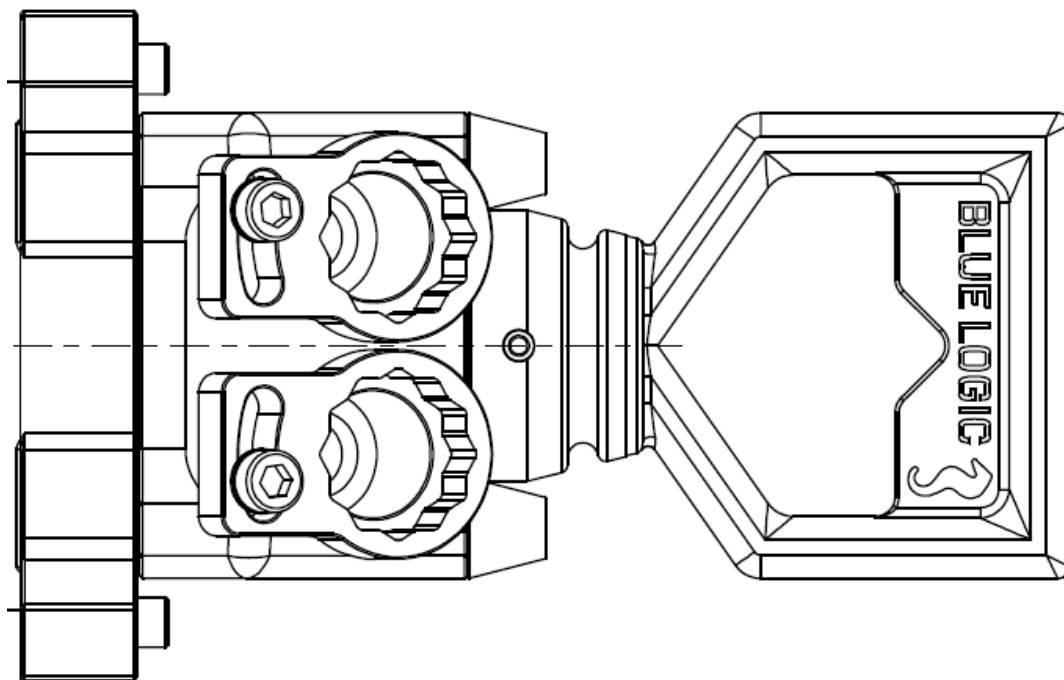


Figure 7, Hydraulic interface for Ø89 DP Stab.



#### 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 the following equipment visually: <ul style="list-style-type: none"><li>- Stabs and protection sleeves</li><li>- Receptacles</li><li>- Parking receptacles</li><li>- Pressure stabs</li><li>- Protection stabs</li></ul> |              |
| 2.  | Inspect surface treatment undamaged.   |              |
| 3.  | Inspect stab seals for damages. Replace if in doubt.   |              |
| 4.  | Inspect pressure stab seals for damages. Replace if in doubt.  |              |
| 5.  | Inspect receptacle seal areas undamaged and no scratches.  |              |
| 6.  | Verify correct packing and documentation available.  |              |



## TECHNICAL DOCUMENT

**5. OPERATION****5.1. PRE DIVE CHECK**

Prior to dive, the Ø89 Hot Stab System shall be inspected and function tested.

**5.1.1. Ø89 DP Stab Pre Dive Check List**

| No. | Description   | Chk/Verified |
|-----|---|--------------|
| 1.  | Perform a visual inspection <ul style="list-style-type: none"><li>- Seals</li><li>- Hoses and connection</li><li>- J-lock mechanism</li></ul> |              |
| 2.  | Verify smooth operation of J-lock mechanism and locking pad. Check that locking pad can be retained in upper and lower position.              |              |

**5.1.2. Ø89 DP Pressure Stab Pre Dive Check List**

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Perform a visual inspection <ul style="list-style-type: none"><li>- Seals</li><li>- J-lock mechanism</li></ul>                   |              |
| 2.  | Verify smooth operation of J-lock mechanism and locking pad. Check that locking pad can be retained in upper and lower position. |              |

**5.1.3. Ø89 DP Protection Stab Pre Dive Check List**

| No. | Description   | Chk/Verified |
|-----|---|--------------|
| 1.  | Perform a visual inspection <ul style="list-style-type: none"><li>- Seals</li><li>- Stab body</li></ul> |              |

**5.2. Ø89 DP STAB CONNECTION**

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Remove the pressure stab if installed in the receptacle and park in parking receptacle, ref section 5.7. |              |
| 2.  | Insert the Ø89 DP stab all the way into the receptacle. Align J-lock pins as required to enter slots.    |              |
| 3.  | Rotate the J-lock ring CW to lock the stab in position.  |              |
| 4.  | Pull the lock pad down into the J-lock's slot to prevent unintentional rotation of the locking system.   |              |
| 5.  | Perform flow operation according to procedure.   |              |

**5.3. Ø89 DP STAB DISCONNECTION**

| No. | Description   | Chk/Verified |
|-----|---|--------------|
| 1.  | Stop operations according to procedure.   |              |
| 2.  | Unlock the stab from the receptacle by putting the lock pad in upper position and rotate the J-lock ring CCW. |              |
| 3.  | Pull the stab out of the receptacle and park in parking position on ROV.                                      |              |
| 4.  | Reinstall pressure stab according to section 5.4  |              |

**5.4. Ø89 DP PRESSURE STAB CONNECTION**

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Insert the Ø89 DP pressure stab all the way into the receptacle. Align J-lock pins as required to enter slots. |              |
| 2.  | Rotate the J-lock ring CW to lock the stab in position.  |              |
| 3.  | Pull the lock pad down into the J-lock's slot to prevent unintentional rotation of the locking system.         |              |

**5.5. Ø89 DP PRESSURE STAB DISCONNECTION**

| No. | Description   | Chk/Verified |
|-----|---|--------------|
| 1.  | Unlock the pressure stab from the receptacle by putting the lock pad in upper position and rotate the J-lock ring CCW.  |              |
| 2.  | Pull the pressure stab out of the receptacle and park in parking receptacle. Verify that the parking receptacle is clean and no debris and/or foreign objects present prior to insertion. |              |

**5.6. Ø89 DP PROTECTION STAB CONNECT AND DISCONNECT**

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Insert the Ø89 protection stab all the way into the receptacle. The protection stab will be held in position due to seal-induced friction force. |              |
| 2.  | Disconnect by simply pulling the protection stab out of the receptacle.  |              |

5.7. POST DIVE CHECK

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Perform a visual inspection <ul style="list-style-type: none"> <li>- Seals</li> <li>- Hoses</li> <li>- Surface treatment</li> <li>- Verify smooth operation of J-lock mechanism</li> </ul> |              |
| 2.  | Clean all equipment with fresh water.  |              |
| 3.  | Dry off equipment and apply protective oil such as WD-40 or similar prior to storage.  |              |
| 4.  | Install stabs into dedicated protection sleeves if available and put assy into dedicated transport boxes.  |              |



## 6. MAINTENANCE

### 6.1. GENERAL

The Ø89 Hot 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 at a regular basis, 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 stab system.

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

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 5.7 for post dive.

6.2. WEEKLY MAINTENANCE

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Perform a visual inspection of stab. Inspect surface treatment and verify no corrosion issues.<br>Special attention should be made to the following: <ul style="list-style-type: none"> <li>- Seals</li> <li>- Seal areas</li> <li>- Stab nose</li> <li>- ROV handle</li> <li>- Fittings and hoses</li> <li>- Surface treatment</li> <li>- Anodes</li> </ul> |              |
| 2.  | Hose down the stab to remove any debris and/or foreign objects   |              |
| 3.  | Operate the J-lock and lock pad, verify correct function and smooth movement.  |              |
| 4.  | Ensure protective oil applied and no water/moisture entrapped on critical parts.   |              |

6.3. MONTHLY MAINTENANCE

No special activities required on a monthly basis. If the stab system has been extensively used and repeatedly exposed to dirt and aggressive fluids, all seals shall be inspected and replaced if required.



#### 6.4. YEARLY MAINTENANCE

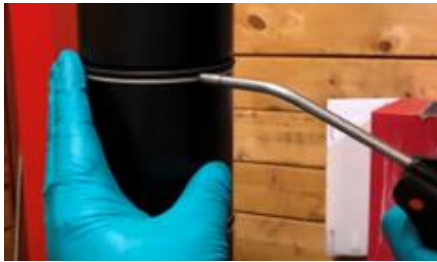


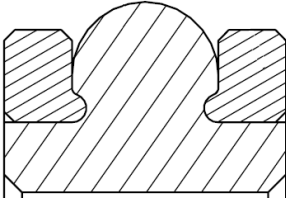
It is recommended to return the equipment to Blue Logic for full inspection, maintenance, and testing.

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Inspect all stab seals. Replace if required.   |              |
| 2.  | Check all mechanical functions, verify smooth operation. Inspect for scratches and general wear.             |              |
| 3.  | Function-test stab and receptacle, perform a full leakage test at working pressure to verify seal integrity. |              |



### 6.5. SEAL REPLACEMENT

Replacement of the stab seals is feasible to perform in field as described in the below section. The procedure covers both stab and pressure stab as the seals are identical.

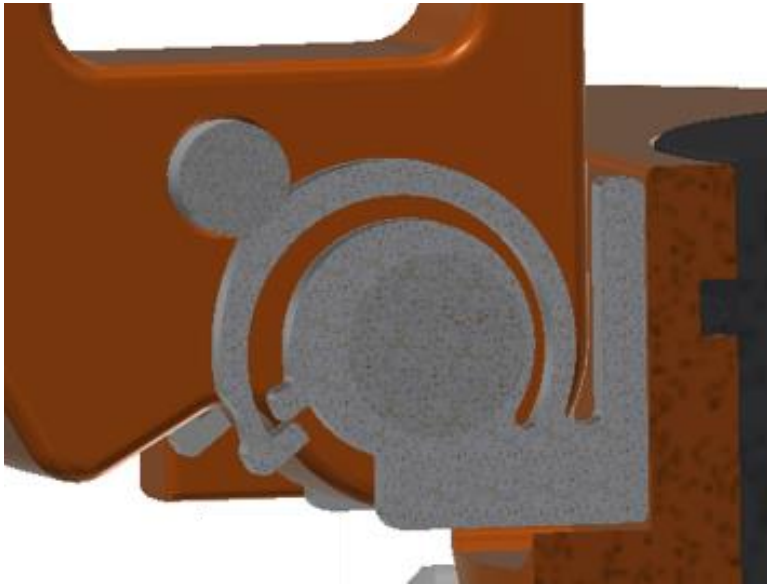
| No. | Description   | Chk/Verified   |  |
|-----|---|--|--|
| 1.  | Place the stab upside down in a vice or similar.  |  |  |
| 2.  | Gently remove the back-up rings in PEEK, avoid damage as they will be re-used. Blow the split of the ring with compressed air to ease removal.  |    |  |
| 3.  | Start with the seal closest to the D-handle. Use a long nose plier to grab the top of the seal and pull out of the seal groove.   |   |  |
| 4.  | Push the seal along the stab and over the other seals to remove from stab. If re-use not an option; cut the seal for quick removal.   |  |  |
| 5.  | Repeat until all seals have been removed. Clean stab and seal grooves thoroughly to remove all debris and foreign objects. Inspect seal groove surfaces for damage.                     |  |  |
| 6.  | Apply a thin layer of Vaseline or similar to seals and stab prior to installing the new seals.  |  |  |
| 7.  | Install the seals starting with the one closest to the stab-nose. The following seals can then be pushed over the first seal. The seals are bi-directional, thus installable both ways. |  |  |
| 8.  | Finally install two back-up rings per seal according to figure. The back-up rings <u>must</u> be installed as shown:  |  |  |

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



### 6.6. LOCK-BRICK REPLACEMENT

Replacement of the stab's lock-brick is feasible to perform in field as described in the below section. The replacement sequence is illustrated next page.

| No. | Description  | Chk/Verified |
|-----|--|--------------|
| 1.  | Remove the set screw using a 3mm Allen key.  |              |
| 2.  | Push out the hinge-bolt.   |              |
| 3.  | Remove old lock-bricks and insert new, article BB7527, between lock-pad and hinge brackets in this orientation:<br> |              |
| 4.  | Re-insert the hinge-bolt. <b>Make sure to position the bolt's lock-groove at the set screw position.</b>   |              |
| 5.  | Install the M6 set screw using a 3mm Allen key. Apply Loctite 243 to set screw to lock in position. Let the Loctite cure according to Loctite specification.   |              |

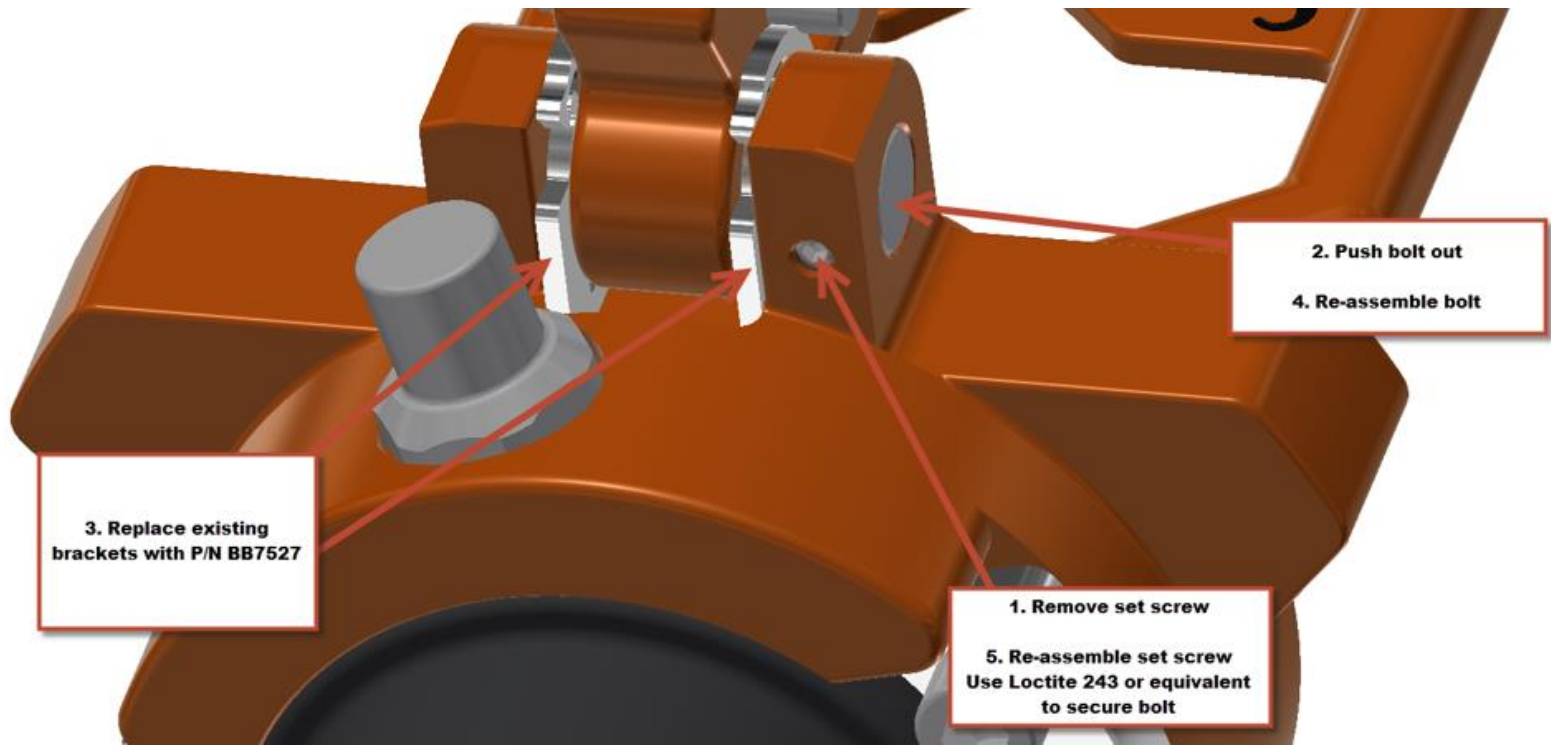


Figure 8, Replacement of Lock-Bricks



## 7. STORAGE AND TRANSPORT

### 7.1. 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 and secure in storage boxes.             |              |

### 7.2. TRANSPORT

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

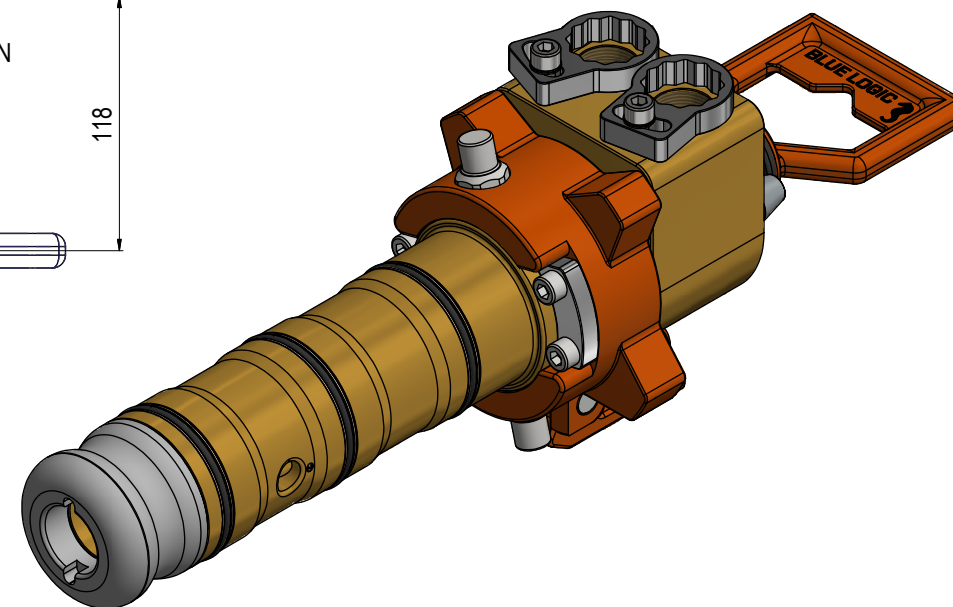
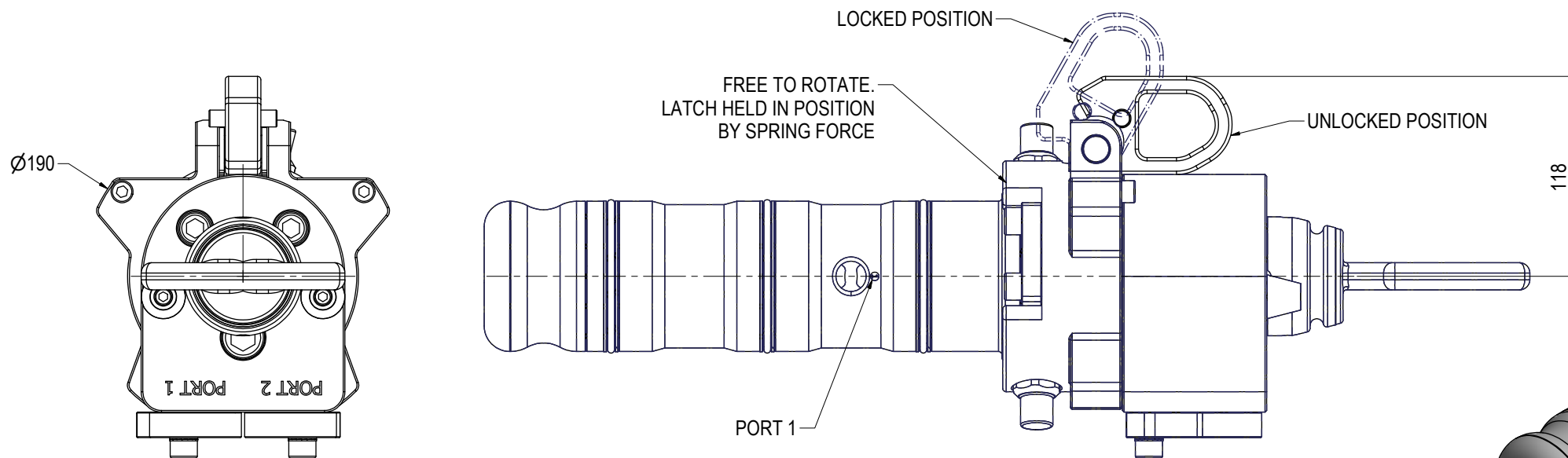
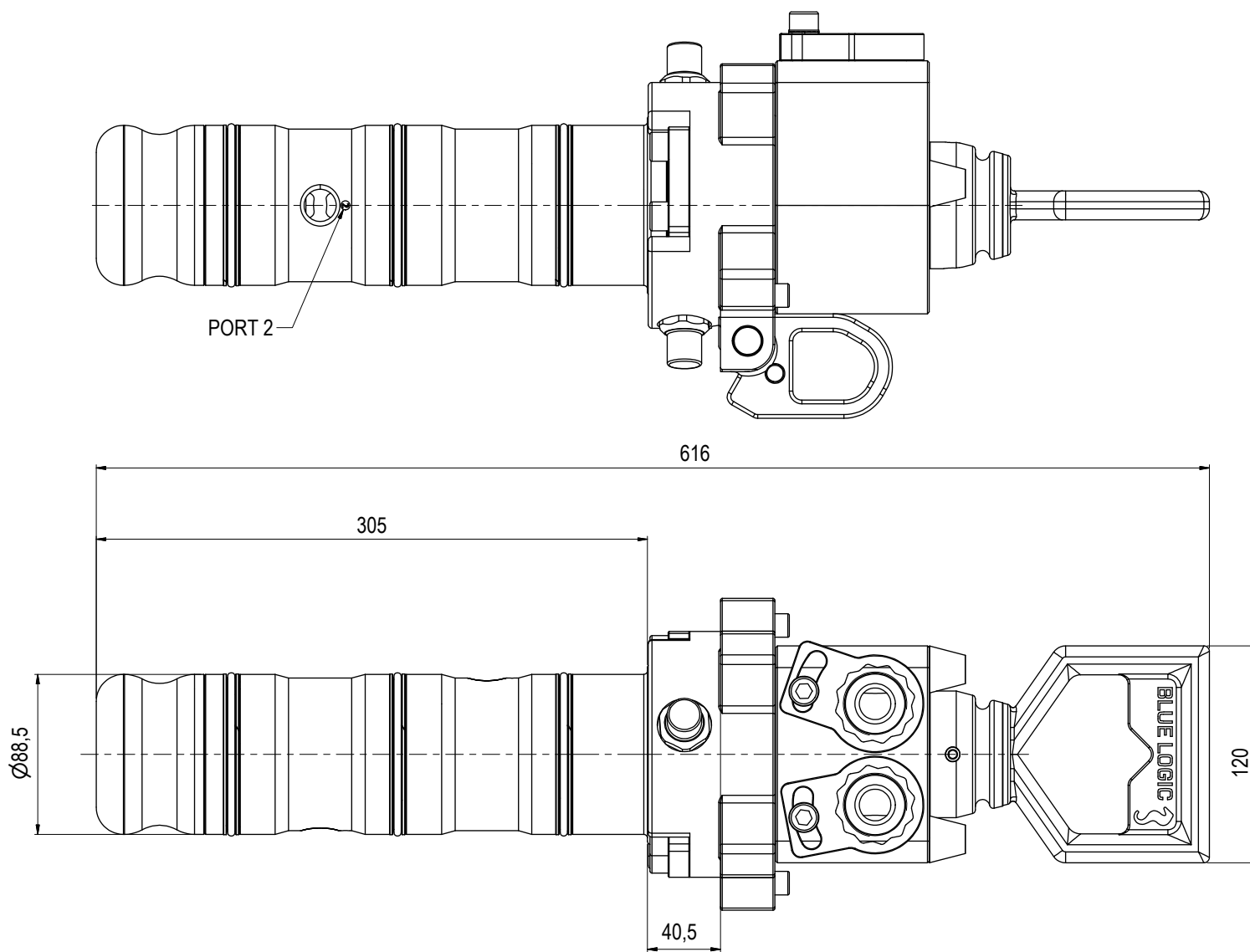
1. Packed in suitable packaging for sufficient protection during transport
2. Sender Name and Address clearly visible
3. Receiver Name and address clearly visible
4. Inventory list correct filled out



## APPENDIX 1 SYSTEM DRAWINGS

| Doc. No/Rev/ | Drawing Title  |
|--------------|--|
| BB7746       | Ø89 DP Stab 10k Interv MP 1" 90 deg. Interf wJ-Lock              |
| BB7598       | Ø89 DP Stab 10k Interv MP 1" 15 Deg Interf wJ-Lock               |
| BB6432       | Ø89 DP Stab 10k Interv MP 1" 65 Deg Interf wJ-Lock               |
| BB8222       | Ø89 DP Test Receptacle 10k MP 9/16" wJ-Lock                      |
| BB6496       | Ø89 DP Parking Receptacle 10Bar Long-term fit 6/8 holes J-Lock   |
| BB8388       | Ø89 DP Receptacle 10k Long-term wJ-L 1" WN Sch 80 8 Holes Interf |
| BB8195       | Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 160 8 Holes Interf       |
| BB6465       | Ø89 DP Press Stab 10k Long-term wJ-Lock                          |
| BB8227       | Ø89 DP Protection Stab Vented Long-term                          |
| BB8226       | Ø89 DP Stab Protection Sleeve                                    |
| BB7414       | Recommended Spares Ø89 Stab System                               |





NOTE: 1  
DESIGN CODE:  
API 17H Type 3

NOTE: 2  
TECHNICAL CLASSIFICATION:  
Article Type: 001-Hot Stabs  
Main Group: 1.10. Ø89 Hot Stab  
Intermediate Group: 1.89.01. Stab  
Sub Group: 1.89.422.02. Dual

NOTE: 3  
INTERFACE INFORMATION:  
Pressure Rating Bar: 690  
Design Water Depth: N/A  
Material: Intervention  
Weight in Air: 34 kg  
Volume: 4,25 dm<sup>3</sup>  
Submerged Weight: 29,62 kg  
Surface Area: 6050 cm<sup>2</sup>  
Hydraulic: Autoclave 1" MP x2  
Mechanical: N/A  
Electrical: N/A  
Com. & Protocol: N/A

NOTE: 4  
ADDITIONAL INFORMATION:  
Ø89 Dual Port Hot Stab designed according to API 17H Type 3.  
Fabricated in UNSC63200 (OM7) material and intended for short-term subsea service. Hydraulic bore 2 x Ø17,8mm for excellent flow capacity. Integrated, manipulator-operated J-lock mechanism to lock the Stab into the Receptacle after connection. Additional lock included to prevent unintentional rotation after installation. Stab nose in PEHD 1000 for gentle guiding of Stab into Receptacle. Seal material is RU15 (HNBR) with back up rings in PEEK. Positive Gland Lock on hydraulic ports. Autoclave fitting shall have antivibration gland. Available with different hose exit angles (15, 65 and 90 degrees)

NOTE: 5  
OPERATION & MAINTENANCE INFORMATION:  
OMM 500420-TD-0012

| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 02   | 23.9.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 01   | 28.2.2022 | 2-IFT (Issued for Tender)       |                 | WTJ  | HNJ   | WTJ   |

**BLUE LOGIC**

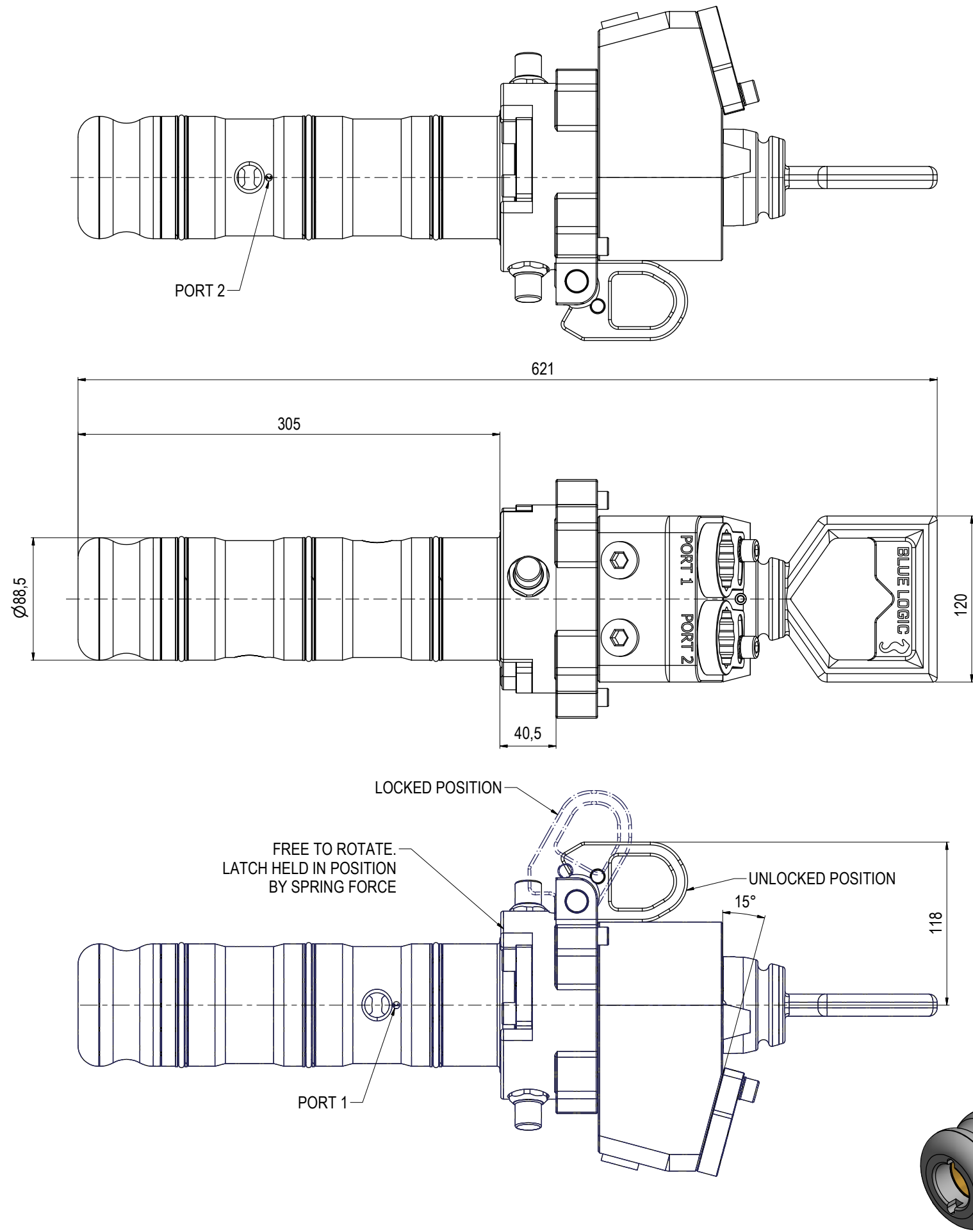
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Dwg Scale:  
NTS  
Dwg Proj:  
Dwg Format:  
A3

Drawing title:  
Ø89 DP Stab 10k Interv MP 1" 90 Deg Interf wJ-Lock

Drawing number:  
BB7746

Rev  
02



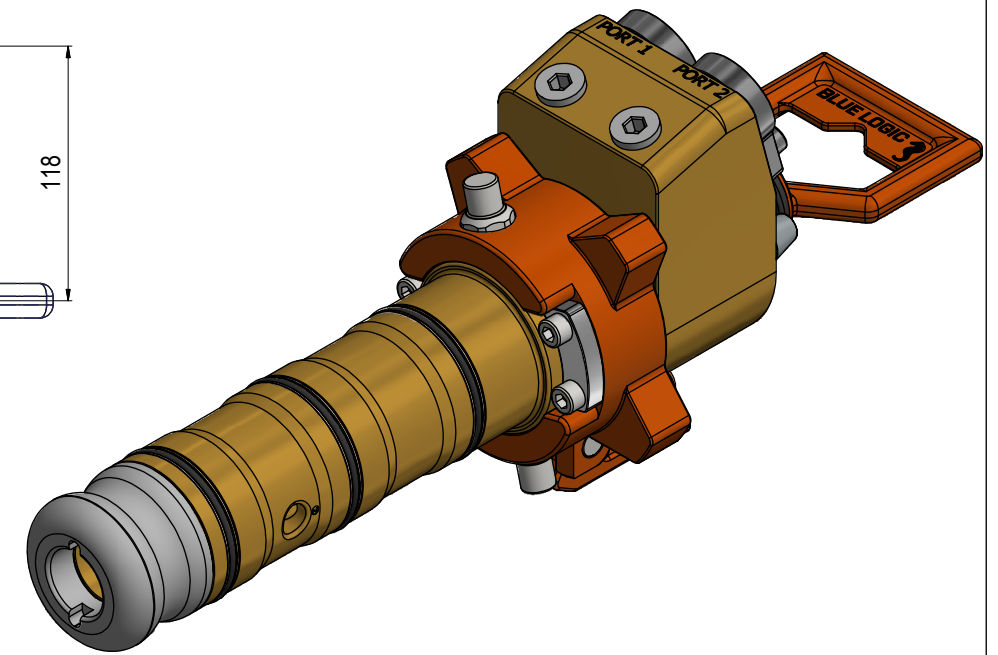
NOTE: 1  
 DESIGN CODE:  
 API 17H Type 3

NOTE: 2  
 TECHNICAL CLASSIFICATION:  
 Article Type: 001-Hot Stabs  
 Main Group: 1.10. Ø89 Hot Stab  
 Intermediate Group: 1.89.01. Stab  
 Sub Group: 1.89.422.02. Dual

NOTE: 3  
 INTERFACE INFORMATION:  
 Pressure Rating Bar: 690  
 Design Water Depth: N/A  
 Material: Intervention  
 Weight in Air: 37,1 kg  
 Volume: 4,62 dm<sup>3</sup>  
 Submerged Weight: 32,35 kg  
 Surface Area: 6335 cm<sup>2</sup>  
 Hydraulic: Autoclave 1" MP x2  
 Mechanical: N/A  
 Electrical: N/A  
 Com. & Protocol: N/A

NOTE: 4  
 ADDITIONAL INFORMATION:  
 Ø89 Dual Port Hot Stab designed according to API 17H Type 3.  
 Fabricated in UNSC63200 (OM7 ) material and intended for short-term subsea service. Hydraulic bore 2 x Ø17,8mm for excellent flow capacity. Integrated, manipulator-operated J-lock mechanism to lock the Stab into the Receptacle after connection. Additional lock included to prevent unintentional rotation after installation. Stab nose in PEHD 1000 for gentle guiding of Stab into Receptacle. Seal material is RU15 (HNBR) with back up rings in PEEK. Positive Gland Lock on hydraulic ports. Autoclave fitting shall have antivibration gland. Available with different hose exit angles (15, 65 and 90 degrees)

NOTE: 5  
 OPERATION & MAINTENANCE INFORMATION:  
 OMM 500420-TD-0012



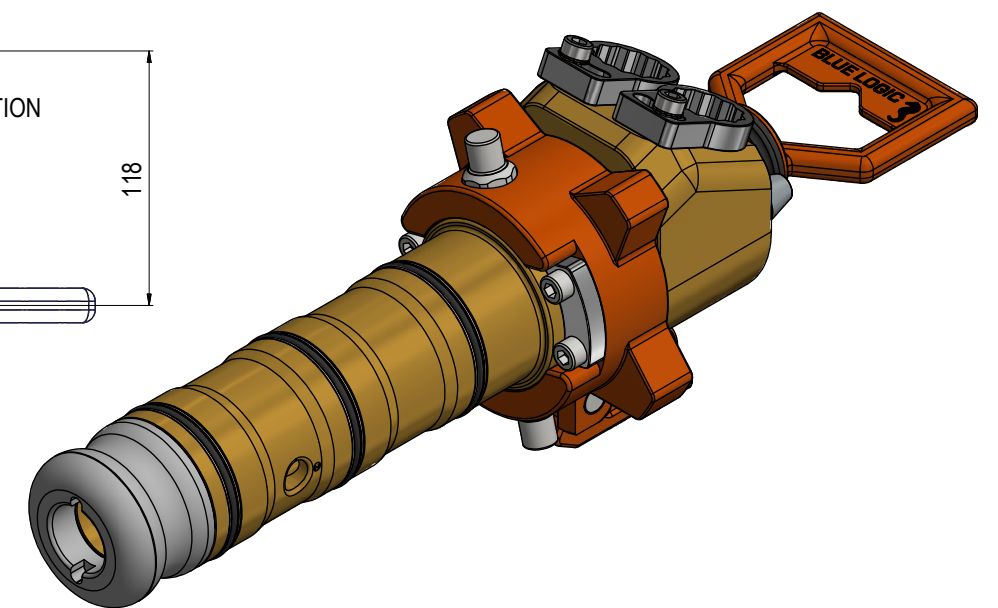
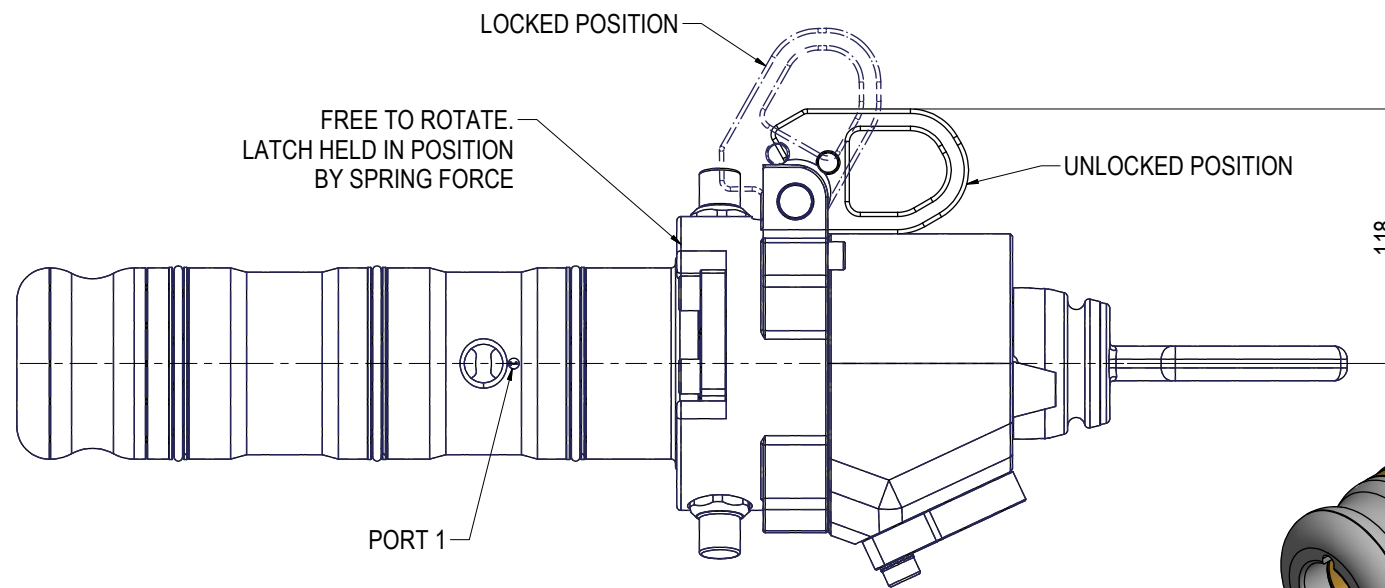
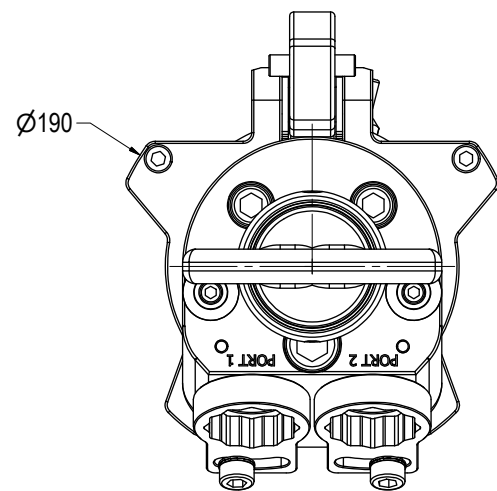
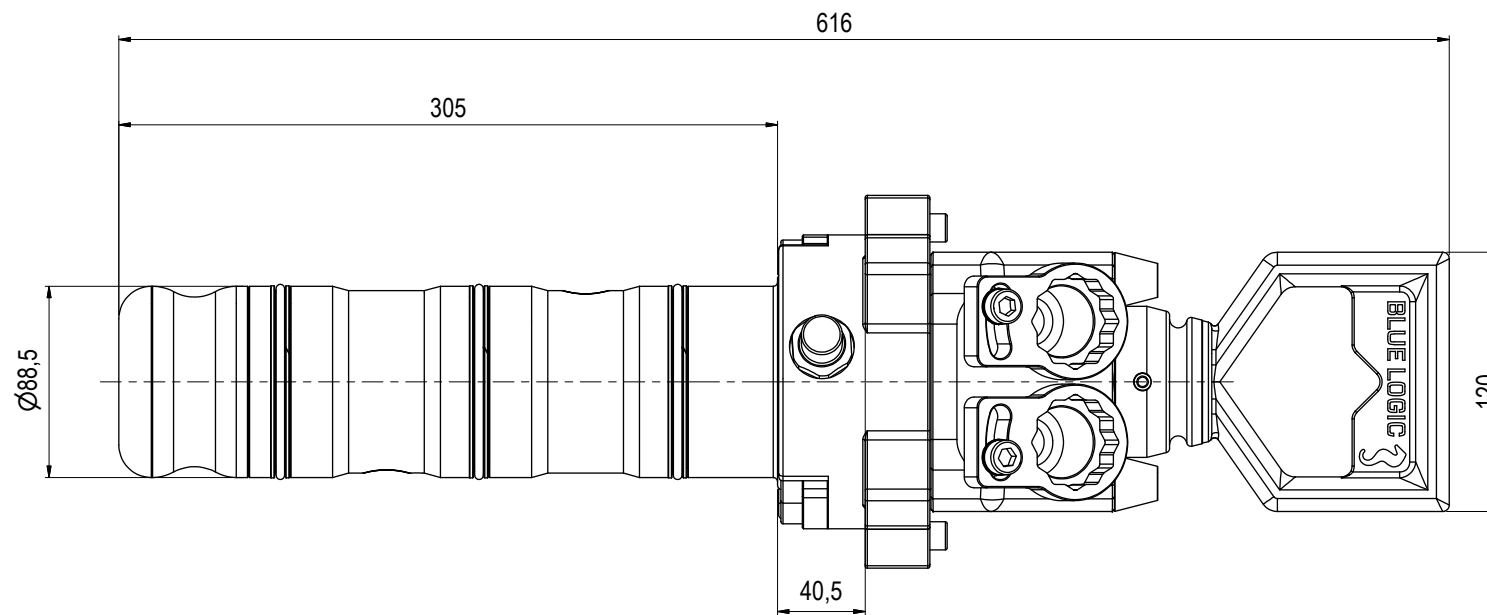
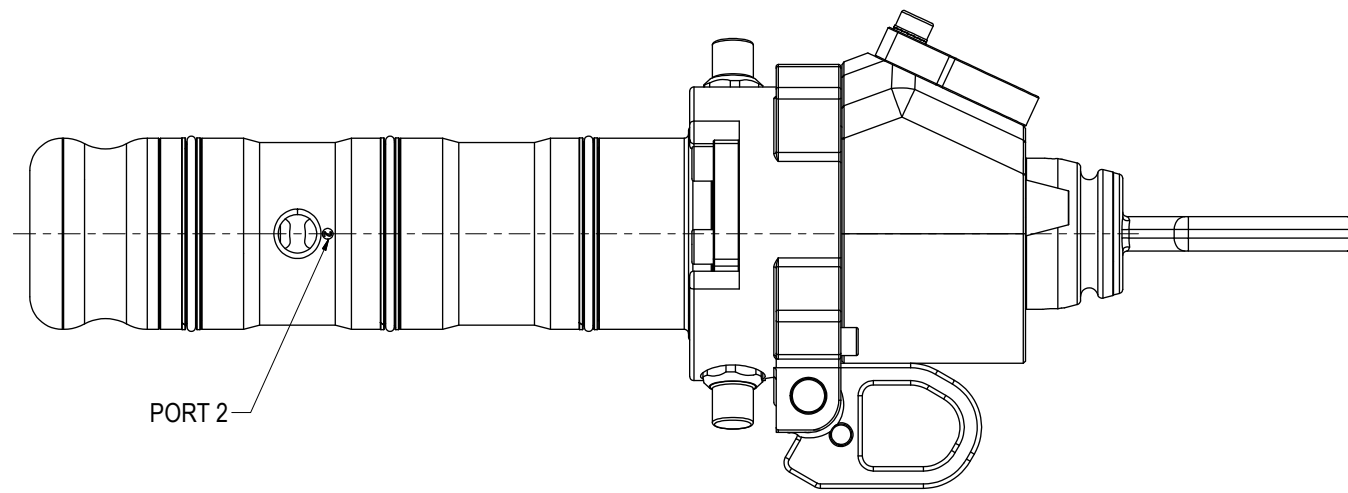
| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 02   | 23.9.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 01   | 28.2.2022 | 2-IFT (Issued for Tender)       |                 | WTJ  | HNJ   | WTJ   |

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|             |     |
|-------------|-----|
| Dwg Scale:  | NTS |
| Dwg Proj:   |     |
| Dwg Format: | A3  |

|                 |  |         |
|-----------------|--|---------|
| Drawing title:  | Ø89 DP Stab 10k Interv MP 1" 15 Deg Interf wJ-Lock |         |
| Drawing number: | BB7598   | Rev: 02 |



NOTE: 1  
DESIGN CODE:  
API 17H Type 3

NOTE: 2  
TECHNICAL CLASSIFICATION:  
Article Type: 001-Hot Stabs  
Main Group: 1.10. Ø89 Hot Stab  
Intermediate Group: 1.89.01. Stab  
Sub Group: 1.89.422.02. Dual

NOTE: 3  
INTERFACE INFORMATION:  
Pressure Rating Bar: 690  
Design Water Depth: N/A  
Material: Intervention  
Weight in Air: 32,9 kg  
Volume: 4,14 dm<sup>3</sup>  
Submerged Weight: 28,71 kg  
Surface Area: 5951 cm<sup>2</sup>  
Hydraulic: Autoclave 1" MP x2  
Mechanical: N/A  
Electrical: N/A  
Com. & Protocol: N/A

NOTE: 4  
ADDITIONAL INFORMATION:  
Ø89 Dual Port Hot Stab designed according to API 17H Type 3. Fabricated in UNSC63200 (OM7) material and intended for short-term subsea service. Hydraulic bore 2 x Ø17,8mm for excellent flow capacity. Integrated, manipulator-operated J-lock mechanism to lock the Stab into the Receptacle after connection. Additional lock included to prevent unintentional rotation after installation. Stab nose in PEHD 1000 for gentle guiding of Stab into Receptacle. Seal material is RU15 (HNBR) with back up rings in PEEK. Positive Gland Lock on hydraulic ports. Autoclave fitting shall have antivibration gland. Available with different hose exit angles (15, 65 and 90 degrees)

NOTE: 5  
OPERATION & MAINTENANCE INFORMATION:  
OMM 500420-TD-0012

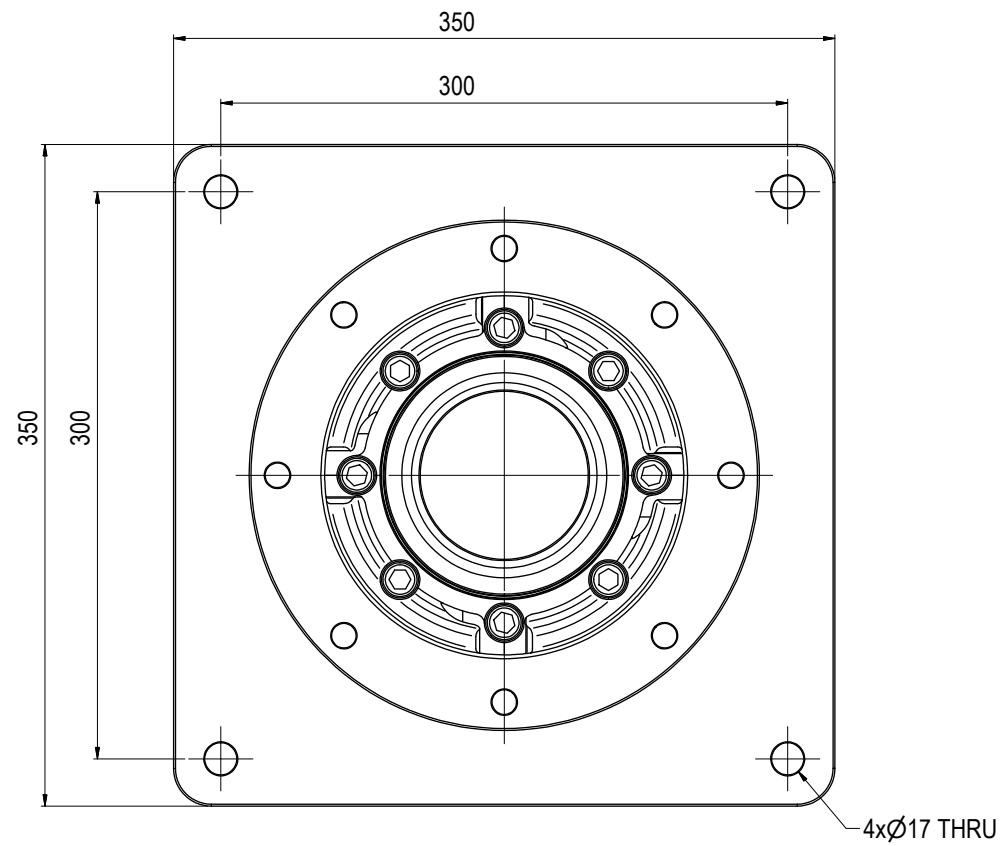
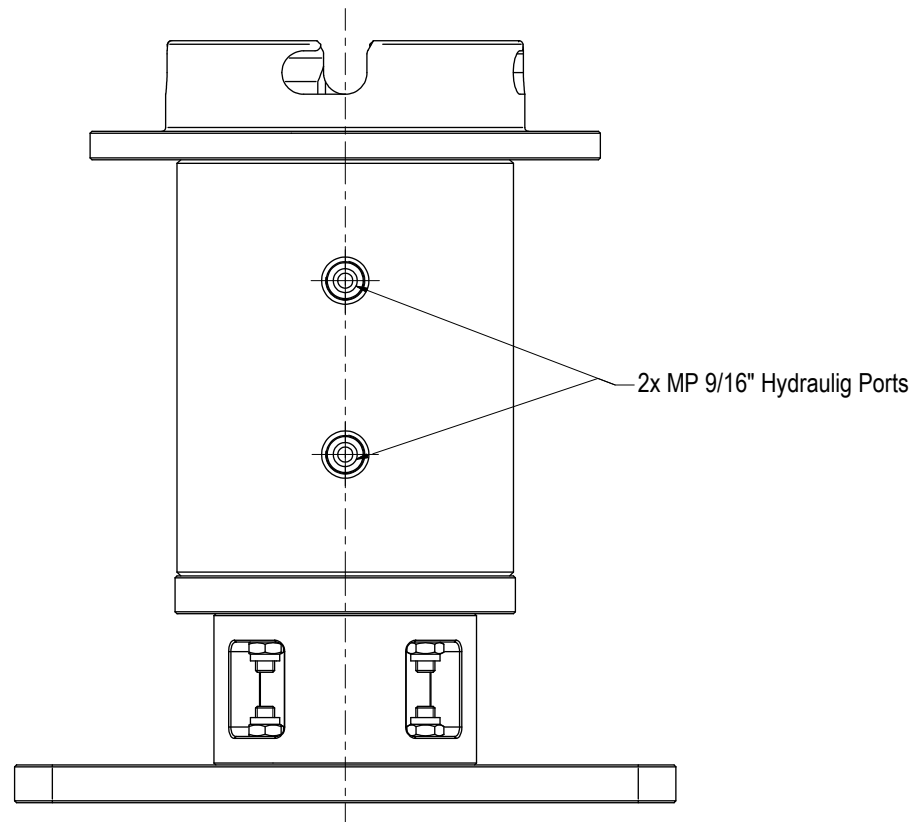
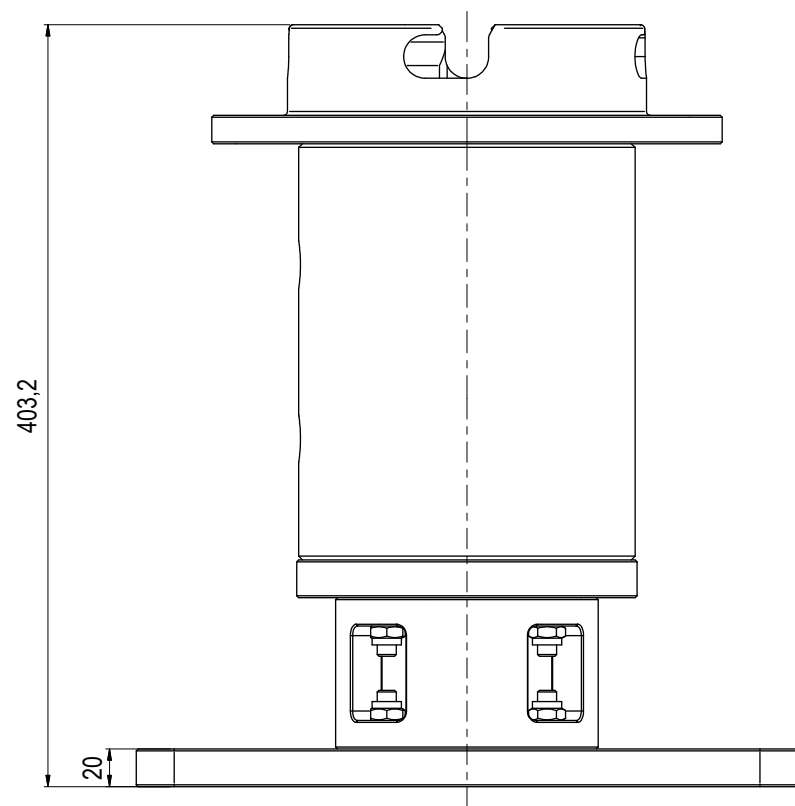
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|------|------------|---------------------------------|-----------------|------|-------|-------|
| 07   | 28.11.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 06   | 15.2.2022  | 7-IFC (Issued for Construction) |                 | HNJ  | LGH   | HNJ   |
| 05   | 3.11.2021  | 7-IFC (Issued for Construction) |                 | WTJ  | HNJ   | WTJ   |
| 04   | 6.10.2021  | 7-IFC (Issued for Construction) |                 | WTJ  | LGH   | WTJ   |
| Rev. | Date       | Reason for issue                | Revision change | Made | Chk'd | Appr. |

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| Dwg Proj:   |     |
| Dwg Format: | A3  |

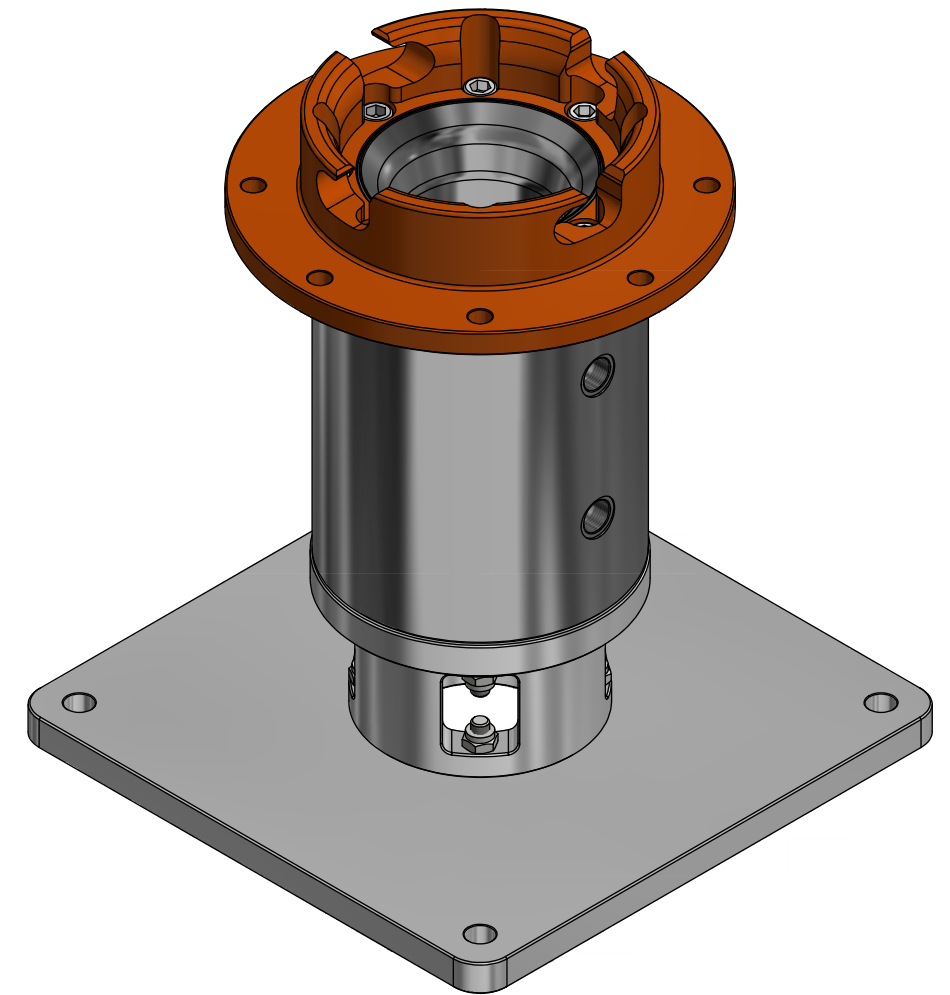
|                 |  |         |
|-----------------|--|---------|
| Drawing title:  | Ø89 DP Stab 10k Interv MP 1" 65 Deg Interf wJ-Lock |         |
| Drawing number: | BB6432   | Rev: 07 |



NOTE: 1  
 DESIGN CODE:  
 API 17H Type 3  
 API 6A

NOTE: 2  
 TECHNICAL CLASSIFICATION:  
 Article Type: 001-Hot Stabs  
 Main Group: 1.10. Ø89 Hot Stab  
 Intermediate Group: 1.89.02. Receptacle  
 Sub Group: 1.89.423.02. Dual

NOTE: 3  
 INTERFACE INFORMATION:  
 Pressure Rating Bar: 690  
 Design Water Depth: N/A  
 Material: Long-term  
 Weight in Air: 49,1 kg  
 Volume: 8,27 dm<sup>3</sup>  
 Submerged Weight: 40,62 kg  
 Surface Area: 8803 cm<sup>2</sup>  
 Hydraulic: MP 9/16"  
 Mechanical: N/A  
 Electrical: N/A  
 Com. & Protocol: N/A



| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 03   | 3.10.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 02   | 13.9.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 01   | 16.5.2022 | 2-IFT (Issued for Tender)       |                 | HNJ  | NA    | NA    |

**BLUE LOGIC**

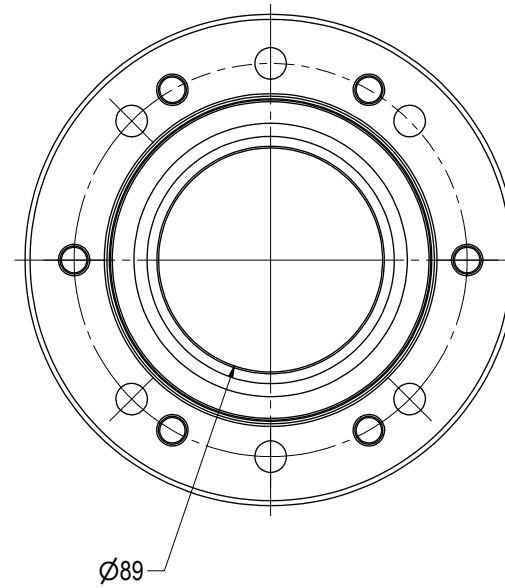
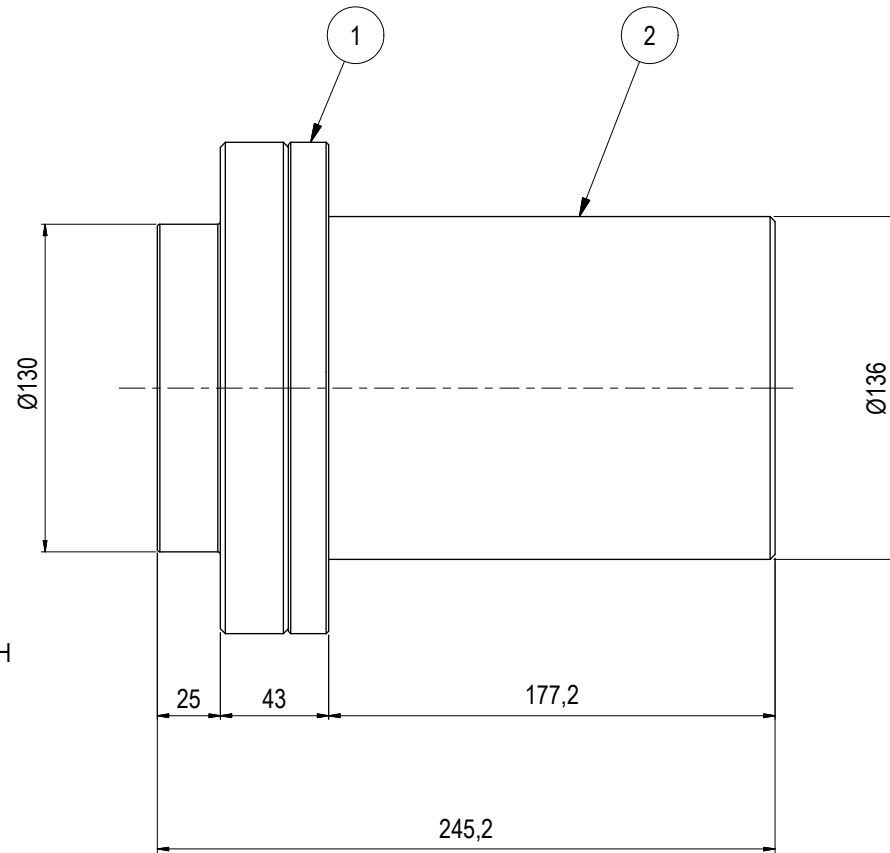
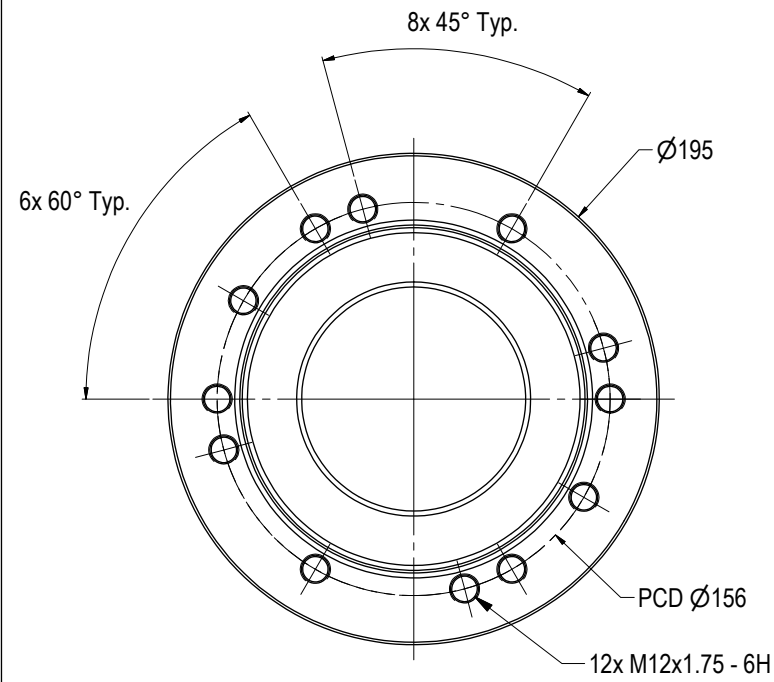
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|-------------|-----|
| Dwg Scale:  | NTS |
| Dwg Proj:   |     |
| Dwg Format: | A3  |

|                 |                                      |         |
|-----------------|--------------------------------------|---------|
| Drawing title:  | Ø89 DP Test Rec 10k MP 9/16" wJ-Lock |         |
| Drawing number: | BB8222                               | Rev: 03 |



| Parts List |     |          |                          |
|------------|-----|----------|--------------------------|
| ITEM       | QTY | PART No. | DESCRIPTION              |
| 1          | 1   | BB6495   | Ring for Ø89 Park Rec    |
| 2          | 1   | BB6494   | Body for Ø89 DP Park Rec |

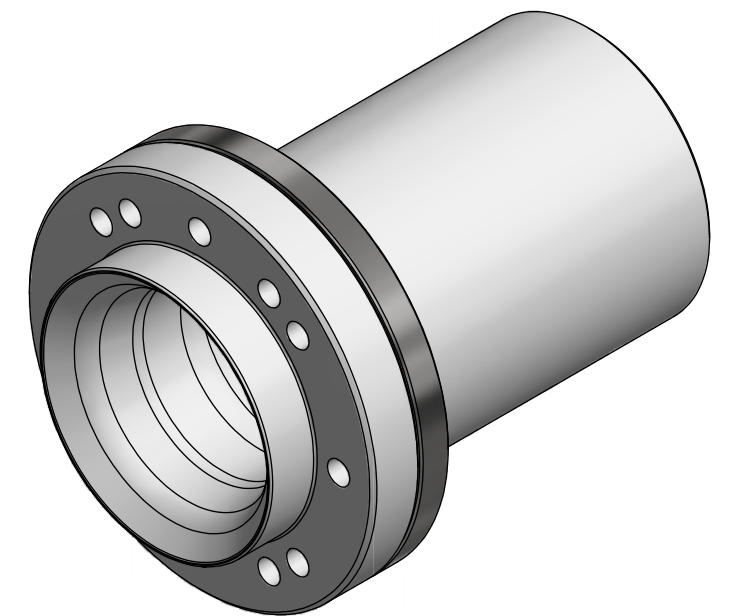


NOTE: 1  
 DESIGN CODE:  
 API 17H Type 3

NOTE: 2  
 TECHNICAL CLASSIFICATION:  
 Article Type: 001-Hot Stabs  
 Main Group: 1.10. Ø89 Hot Stab  
 Intermediate Group: 1.89.02. Receptacle  
 Sub Group: 1.89.423.02. Dual

NOTE: 3  
 INTERFACE INFORMATION:  
 Pressure Rating Bar: 10  
 Design Water Depth: N/A  
 Material: Long-term  
 Weight in Air: 3,9 kg  
 Volume: 2,43 dm<sup>3</sup>  
 Submerged Weight: 1,37 kg  
 Surface Area: 2812 cm<sup>2</sup>  
 Hydraulic: N/A  
 Mechanical: 12x M12 @ PCD Ø156  
 Electrical: N/A  
 Com. & Protocol: N/A

NOTE: 4  
 ADDITIONAL INFORMATION:  
 Ø89 Parking Receptacle for Ø89 Dual Port Stab designed in PEHD 1000 and Super Duplex material suitable for long-term installation.



| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 04   | 11.7.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 03   | 28.2.2022 | 7-IFC (Issued for Construction) |                 | WTJ  | HNJ   | WTJ   |
| 02   | 17.9.2021 | 7-IFC (Issued for Construction) |                 | HNJ  | WTJ   | LGH   |
| 01   | 20.4.2021 | 2-IFT (Issued for Tender)       |                 | HNJ  | N/A   | N/A   |

**BLUE LOGIC**

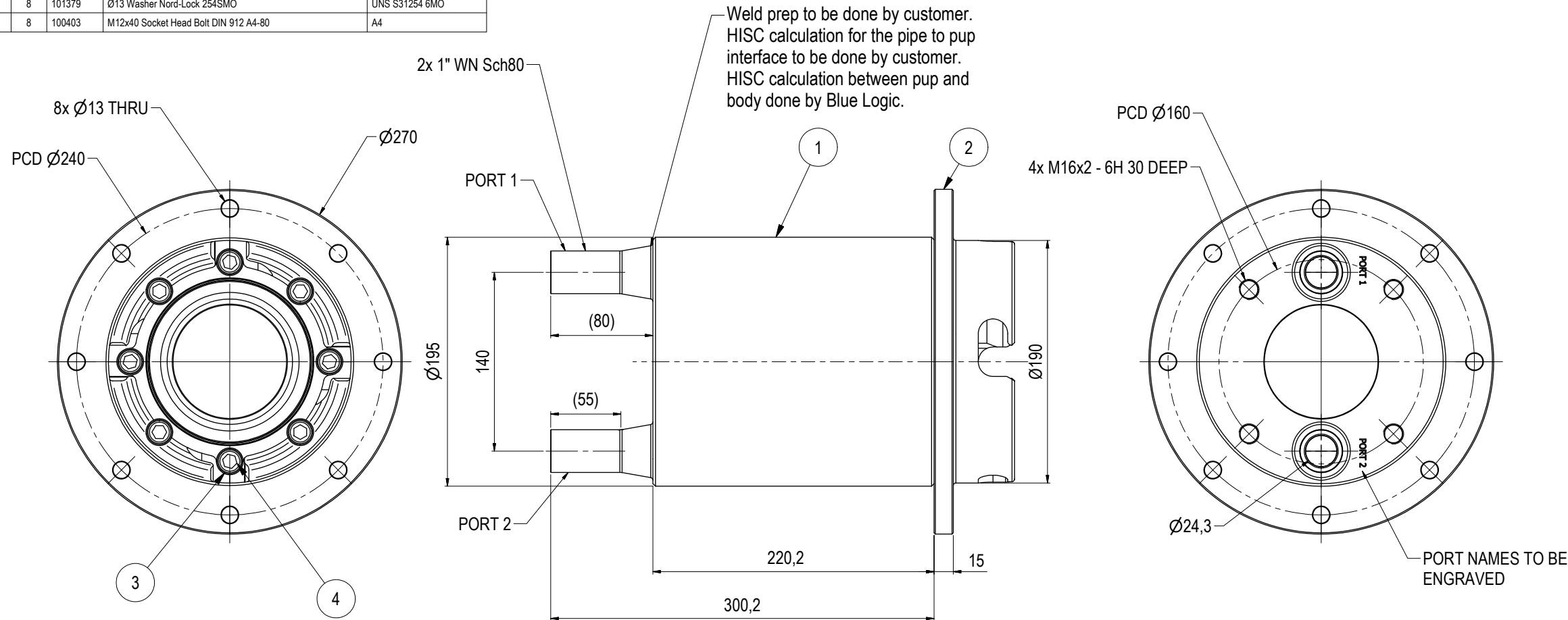
Dwg Scale:  
 NTS  
 Dwg Proj:  
 Dwg Format:  
 A3

Drawing title:  
 Ø89 DP Park Rec 10Bar Long-term fit 6/8 holes  
 J-Lock

Drawing number:  
 BB6496

Rev.  
 04

| Parts List |     |          |   |                     |
|------------|-----|----------|---|---------------------|
| ITEM       | QTY | PART No. | DESCRIPTION   | MATERIAL            |
| 1          | 1   | BB8389   | Body for Ø89 DP Rec 10k 2x 1" WN Sch80 8 Holes to Interface | S32750 SUPER DUPLEX |
| 2          | 1   | BB8202   | Ø89 Rec J-Lock Interface Version 8 Holes to Interface       | S32760 SUPER DUPLEX |
| 3          | 8   | 101379   | Ø13 Washer Nord-Lock 254SMO                                 | UNS S31254 6MO      |
| 4          | 8   | 100403   | M12x40 Socket Head Bolt DIN 912 A4-80                       | A4                  |



NOTE: 1  
DESIGN CODE:  
API 17H Type 3

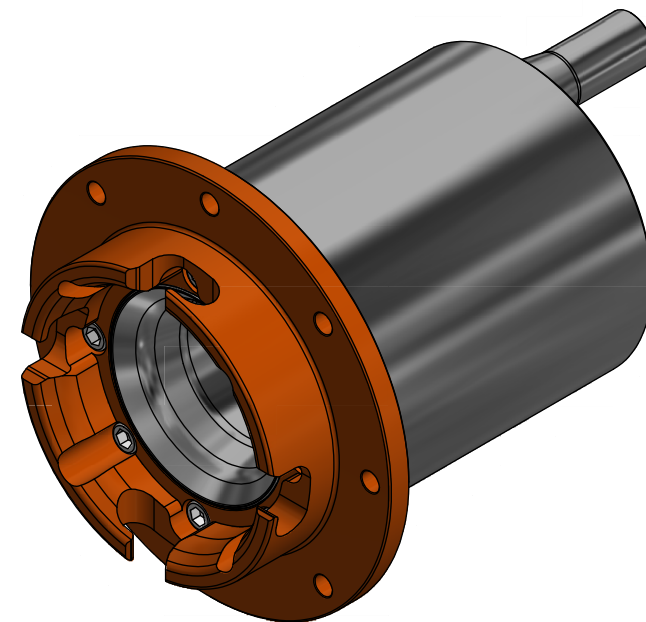
NOTE: 2  
TECHNICAL CLASSIFICATION:  
Article Type: 001-Hot Stabs  
Main Group: 1.10. Ø89 Hot Stab  
Intermediate Group: 1.89.02. Receptacle  
Sub Group: 1.89.423.02. Dual

NOTE: 3  
INTERFACE INFORMATION:  
Pressure Rating Bar: 690  
Design Water Depth: N/A  
Material: Long-term  
Weight in Air: 48,5 kg  
Volume: 6,18 dm<sup>3</sup>  
Submerged Weight: 42,16 kg  
Surface Area: 5128 cm<sup>2</sup>  
Hydraulic: 1" WN Sch 80  
Mechanical: N/A  
Electrical: N/A  
Com. & Protocol: N/A

NOTE 4  
NON SPECIFIED TOLERANCES TO BE IN ACCORDANCE WITH NS-ISO 2768-1M

|             |       |
|-------------|-------|
| 0,5-3mm     | ± 0,1 |
| 3-6mm       | ± 0,1 |
| 6-30mm      | ± 0,2 |
| 30-120mm    | ± 0,3 |
| 120-400mm   | ± 0,5 |
| 400-1000mm  | ± 0,8 |
| 1000-2000mm | ± 1,2 |
| 2000-4000mm | ± 2,0 |

NOTE 5  
RECEPTACLE TO BE CONNECTED TO CP SYSTEM



| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 02   | 23.9.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 01   | 27.6.2022 | 2-IFT (Issued for Tender)       |                 | HNJ  | NA    | NA    |

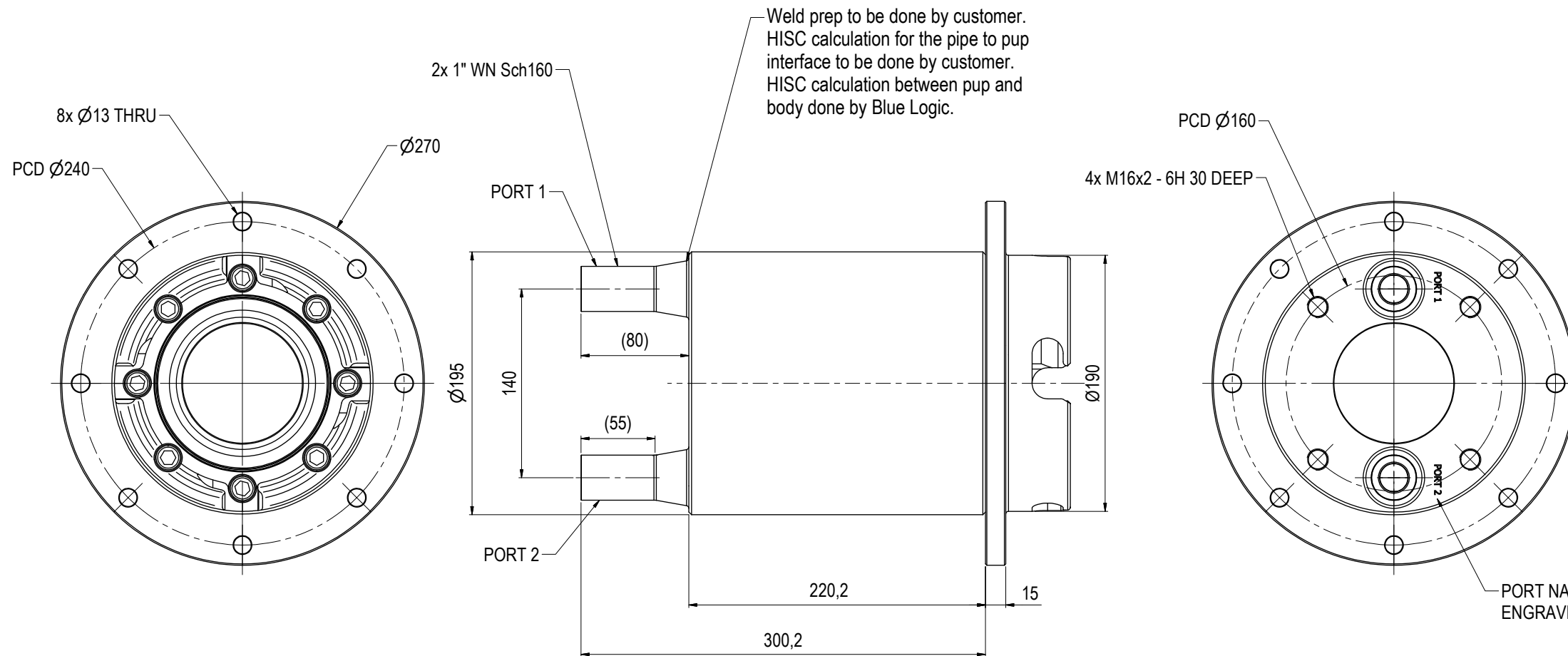


Dwg Scale: NTS  
Dwg Proj:   
Dwg Format: A3

Drawing title: Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 80 8 Holes Interf

Drawing number: BB8388

Rev: 02



NOTE: 1  
 DESIGN CODE:  
 API 17H Type 3

NOTE: 2  
 TECHNICAL CLASSIFICATION:  
 Article Type: 001-Hot Stabs  
 Main Group: 1.10. Ø89 Hot Stab  
 Intermediate Group: 1.89.02. Receptacle  
 Sub Group: 1.89.423.02. Dual

NOTE: 3  
 INTERFACE INFORMATION:  
 Pressure Rating Bar: 690  
 Design Water Depth: N/A  
 Material: Long-term  
 Weight in Air: 48,9 kg  
 Volume: 6,23 dm<sup>3</sup>  
 Submerged Weight: 42,52 kg  
 Surface Area: 5085 cm<sup>2</sup>  
 Hydraulic: 1" WN Sch 160  
 Mechanical: N/A  
 Electrical: N/A  
 Com. & Protocol: N/A

NOTE 4  
 NON SPECIFIED TOLERANCES TO BE IN ACCORDANCE WITH NS-ISO 2768-1M

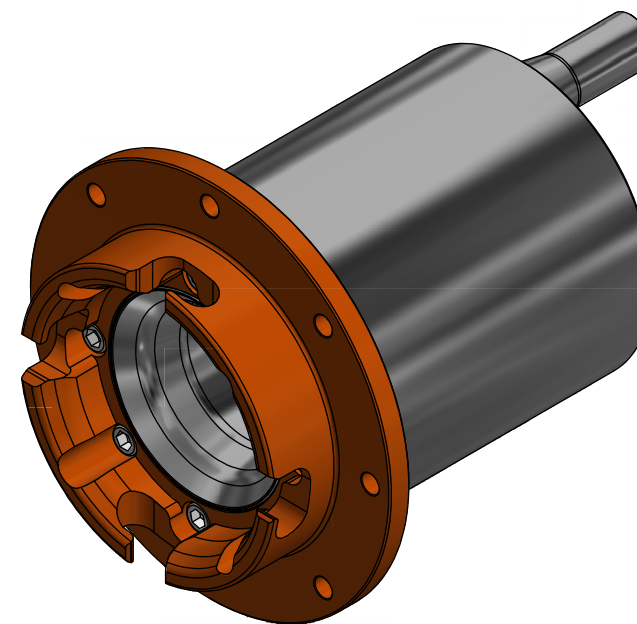
|             |       |
|-------------|-------|
| 0,5-3mm     | ± 0,1 |
| 3-6mm       | ± 0,1 |
| 6-30mm      | ± 0,2 |
| 30-120mm    | ± 0,3 |
| 120-400mm   | ± 0,5 |
| 400-1000mm  | ± 0,8 |
| 1000-2000mm | ± 1,2 |
| 2000-4000mm | ± 2,0 |

PORT NAMES TO BE ENGRAVED

NOTE 5  
 RECEPTACLE TO BE CONNECTED TO CP SYSTEM

NOTE: 6  
 ADDITIONAL INFORMATION:  
 Ø89 Dual Port Receptacle designed according to API 17H Type 3 in Super Duplex (32750) material suitable for permanent installation. The Receptacle is pressure rated to 690 Bar / 10 000 Psi and machined from a forged bolt inclusive the 1" weld necks. Integrated J-lock to lock the Stab in position.

NOTE: 7  
 OPERATION & MAINTENANCE INFORMATION:  
 OMM 500420-TD-0012

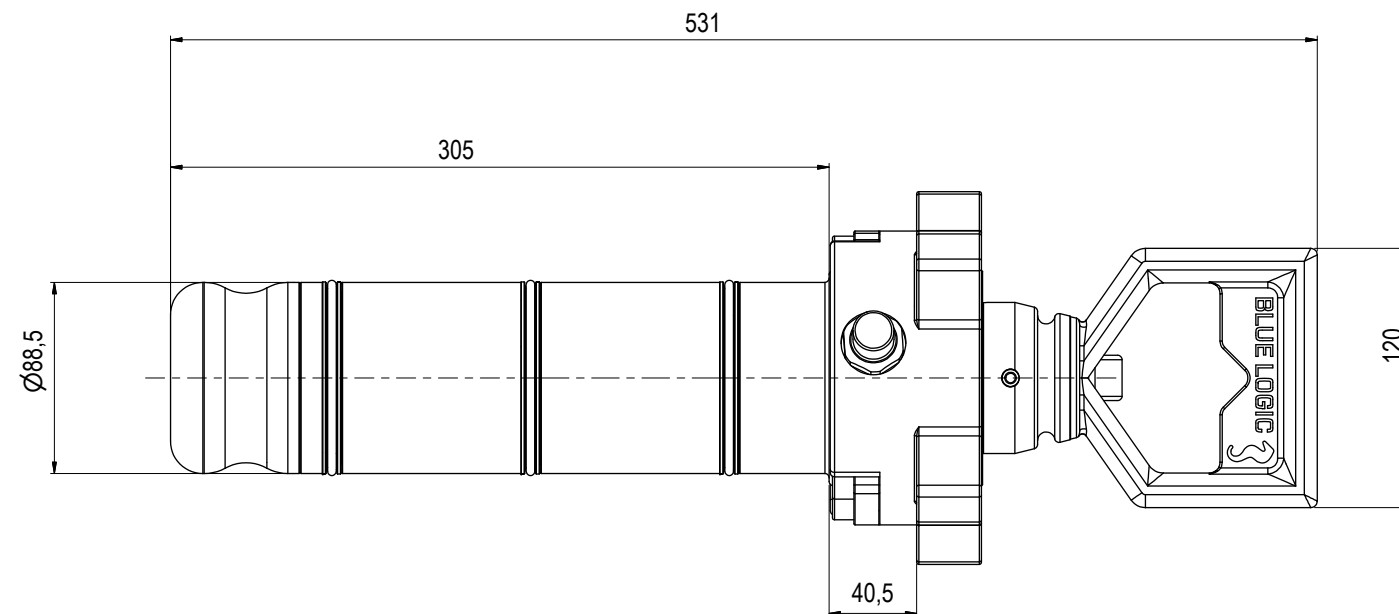


| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 01   | 16.5.2022 | 7-IFC (Issued for Construction) |                 | WTJ  | PIA   | HNJ   |

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|                |           |                |   |                        |         |
|----------------|-----------|----------------|---|------------------------|---------|
| Dwg Scale: NTS | Dwg Proj: | Dwg Format: A3 | Drawing title: Ø89 DP Rec 10k Long-term wJ-L 1" WN Sch 160 8 Holes Interf | Drawing number: BB8195 | Rev: 01 |
|----------------|-----------|----------------|---|------------------------|---------|



NOTE: 1  
 DESIGN CODE:  
 API 17H Type 3

NOTE: 2  
 TECHNICAL CLASSIFICATION:  
 Article Type: 001-Hot Stabs  
 Main Group: 1.10. Ø89 Hot Stab  
 Intermediate Group: 1.89.04. Pressure  
 Sub Group: 1.89.425.02. Dual

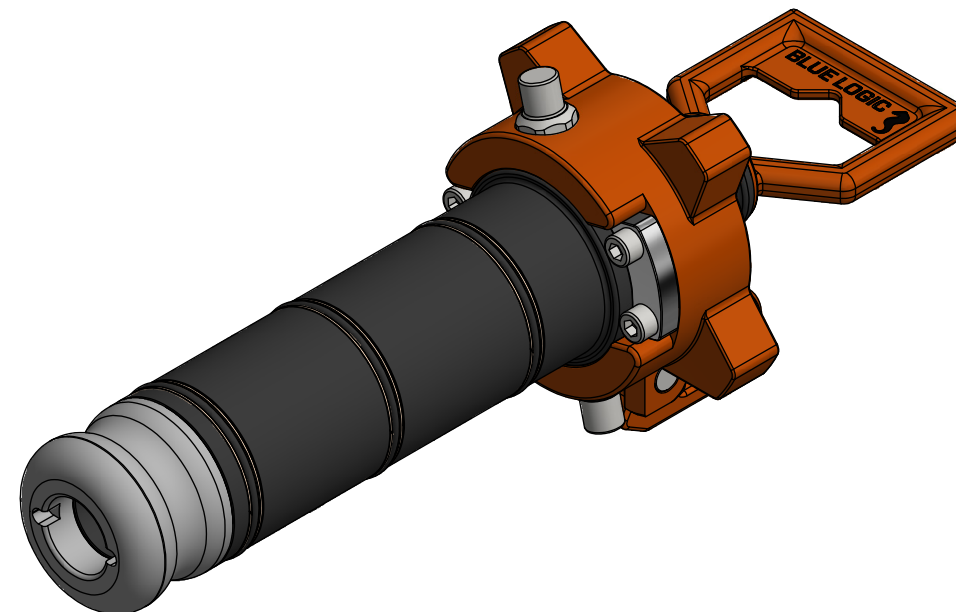
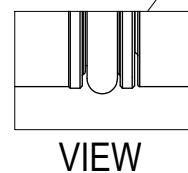
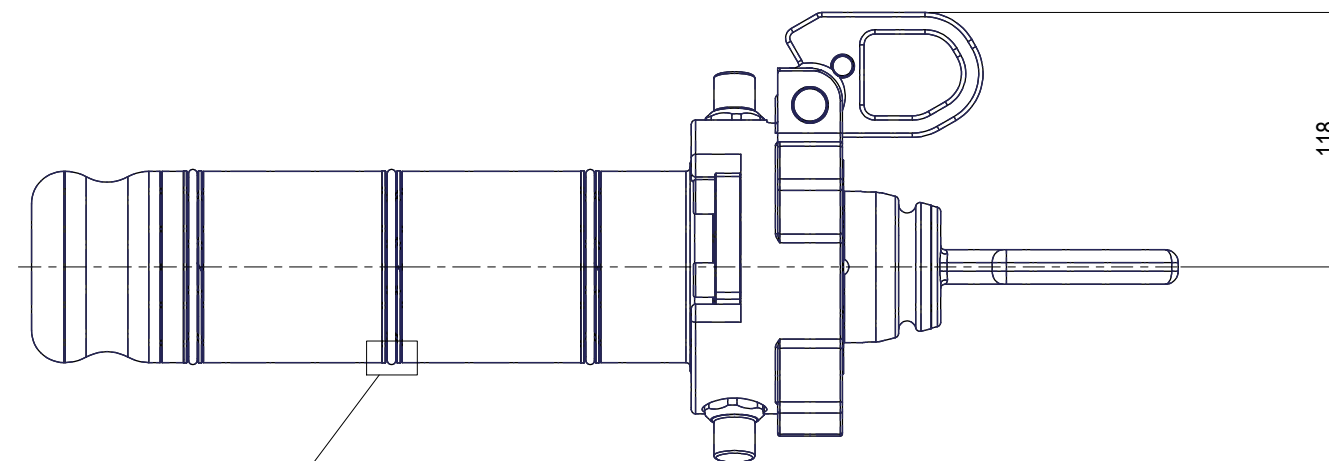
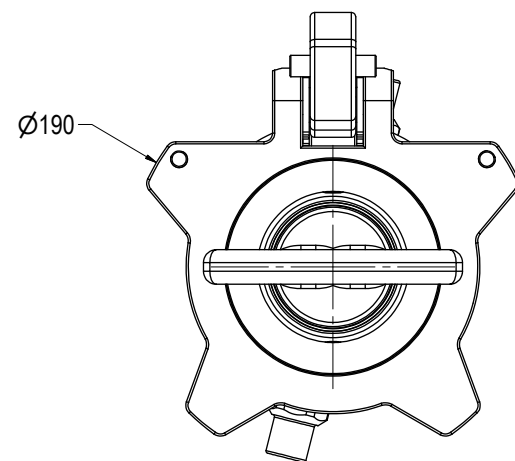
NOTE: 3  
 INTERFACE INFORMATION:  
 Pressure Rating Bar: 690  
 Design Water Depth: N/A  
 Material: Long-term  
 Weight in Air: 20,1 kg  
 Volume: 2,85 dm<sup>3</sup>  
 Submerged Weight: 17,23 kg  
 Surface Area: 4205 cm<sup>2</sup>  
 Hydraulic: N/A  
 Mechanical: N/A  
 Electrical: N/A  
 Com. & Protocol: N/A

NOTE 4  
 NON SPECIFIED TOLERANCES TO BE IN  
 ACCORDANCE WITH NS-ISO 2768-1M

|             |       |
|-------------|-------|
| 0,5-3mm     | ± 0,1 |
| 3-6mm       | ± 0,1 |
| 6-30mm      | ± 0,2 |
| 30-120mm    | ± 0,3 |
| 120-400mm   | ± 0,5 |
| 400-1000mm  | ± 0,8 |
| 1000-2000mm | ± 1,2 |
| 2000-4000mm | ± 2,0 |

NOTE: 5  
 ADDITIONAL INFORMATION:  
 Ø89 Dual Port Pressure Stab (blind stab) designed according to API 17H Type 3. Fabricated in Super Duplex (32750) material with Xylan coating and intended for long-term subsea service. Integrated, manipulator-operated J-lock mechanism to lock the Stab into the Receptacle after connection. Additional lock included to prevent unintentional rotation after installation.  
 Stab nose in PEHD 1000 for gentle guiding of Stab into Receptacle. Seal material is RU15 (HNBR) with back up rings in PEEK.

NOTE: 6  
 OPERATION & MAINTENANCE INFORMATION:  
 OMM 500420-TD-0012



|      |           |                                 |                 |      |       |       |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 07   | 17.2.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | LGH   | HNJ   |
| 06   | 15.2.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | LGH   | HNJ   |
| 05   | 10.1.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | LGH   | HNJ   |
| 04   | 3.11.2021 | 7-IFC (Issued for Construction) |                 | WTJ  | HNJ   | WTJ   |
| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |



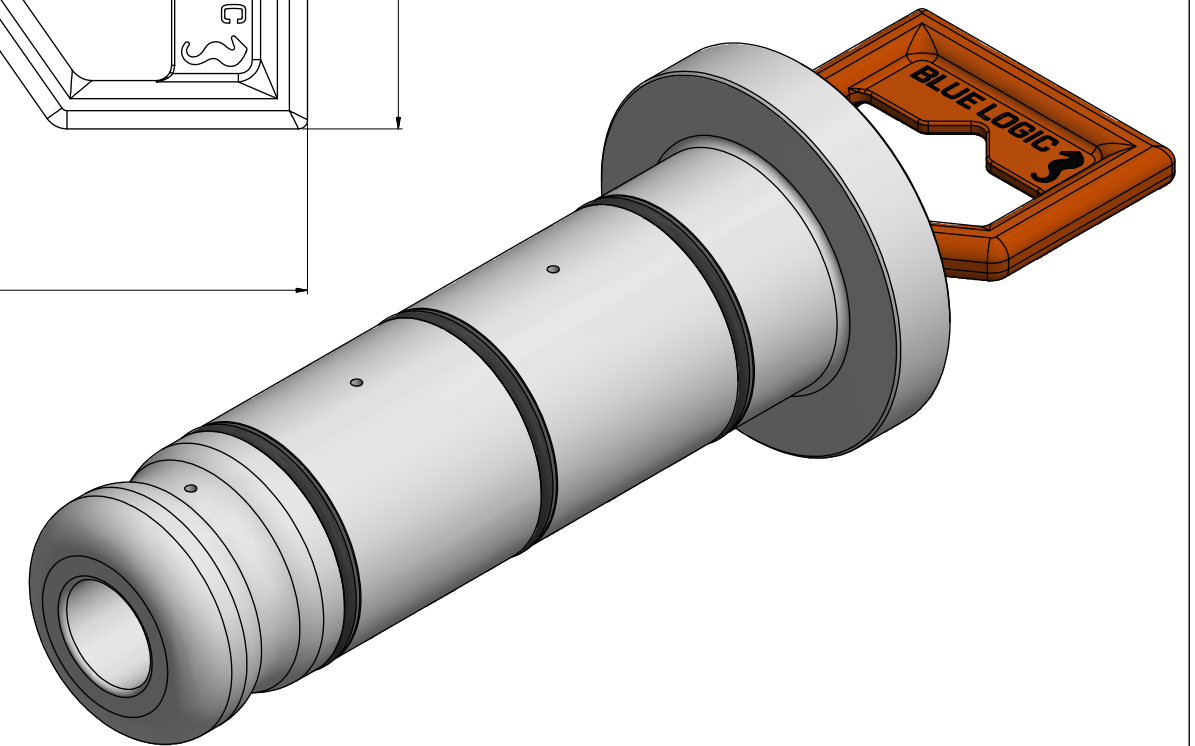
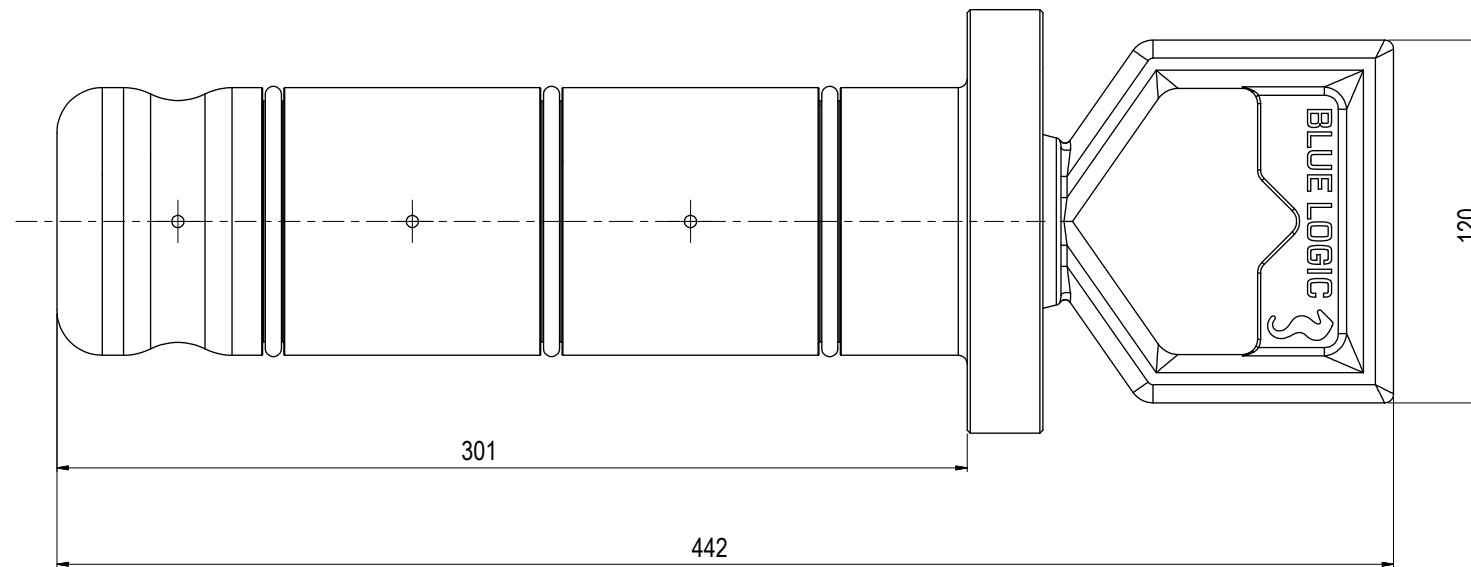
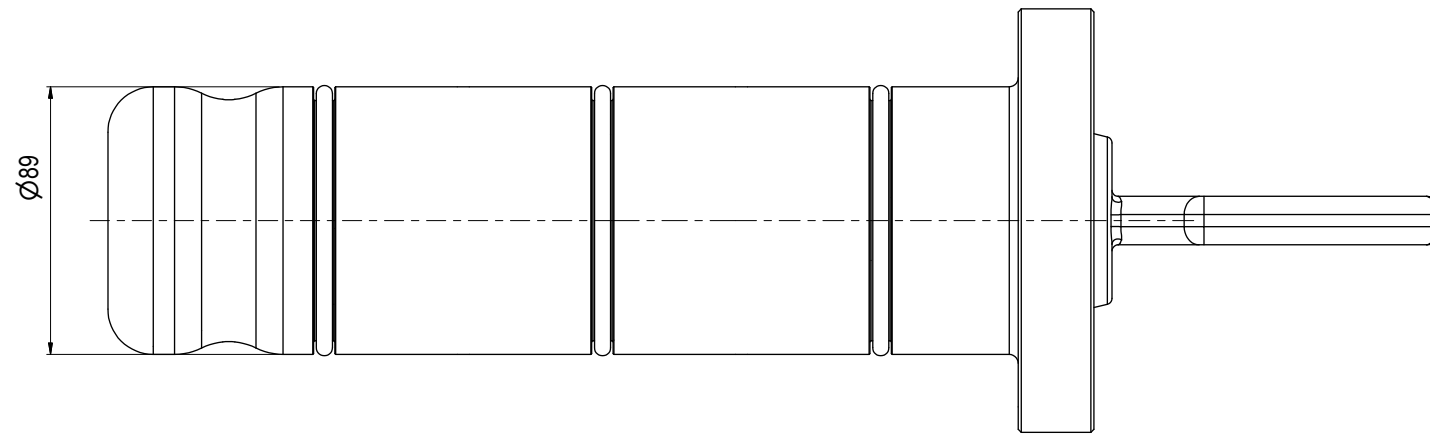
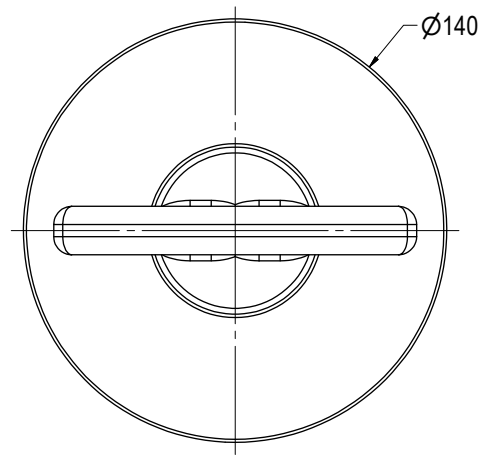
Dwg Scale:  
 NTS  
 Dwg Proj:  
 Dwg Format:  
 A3

Drawing title:  
 Ø89 DP Press Stab 10k Long-term wJ-Lock

Drawing number:  
 BB6465

Rev.  
 07






NOTE: 1  
DESIGN CODE:  
API17H Type 3

NOTE: 2  
TECHNICAL CLASSIFICATION:  
Article Type: 001-Hot Stabs  
Main Group: 1.10. Ø89 Hot Stab  
Intermediate Group: 1.89.03. Protection  
Sub Group: 1.89.424.02. Dual

NOTE: 3  
INTERFACE INFORMATION:  
Pressure Rating Bar: Vented  
Material: Long-term  
Weight: 3,2 kg  
Volume: 2,24 dm<sup>3</sup>  
Surface Area: 2079 cm<sup>2</sup>  
Hydraulic: N/A  
Mechanical: N/A  
Electrical: N/A  
Com. & Protocol: N/A

| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 02   | 13.9.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 01   | 18.5.2022 | 2-IFT (Issued for Tender)       |                 | HNJ  | NA    | NA    |

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Dwg Scale:  
NTS  
Dwg Proj:  
  
Dwg Format:  
A3

Drawing title:  
Ø89 DP Prot Stab Vented Long-term

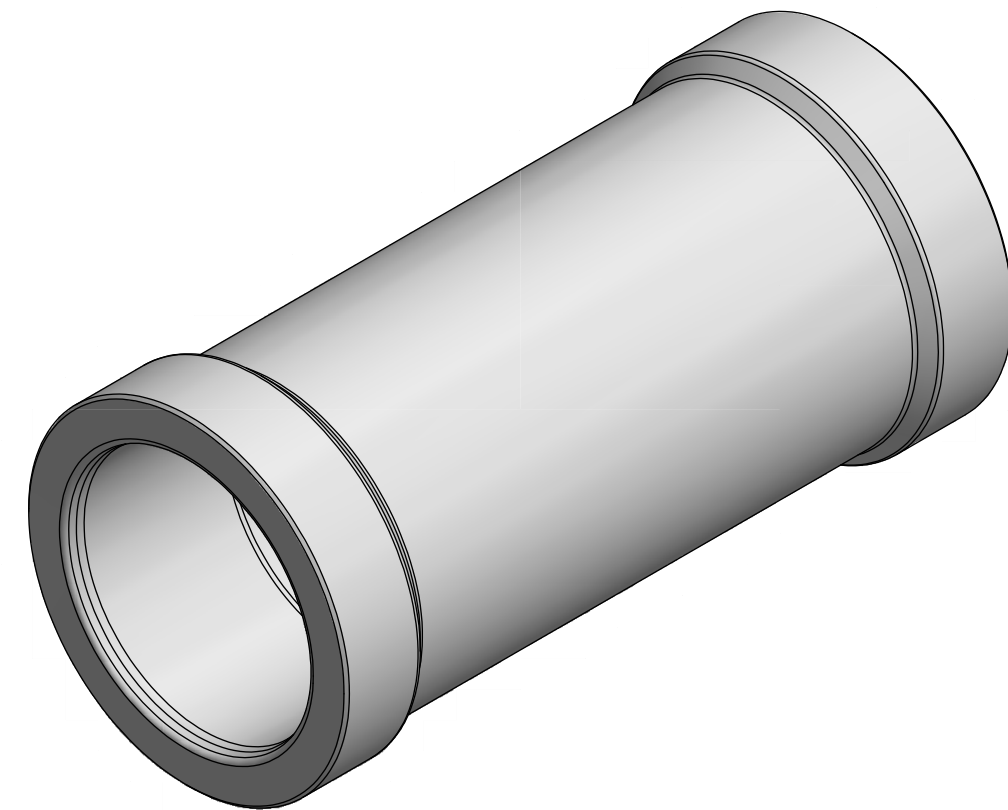
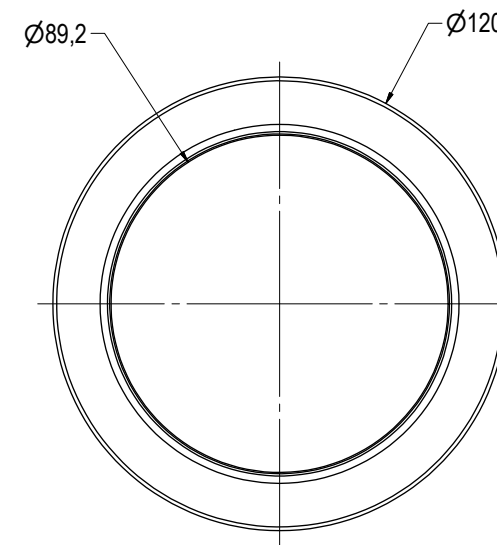
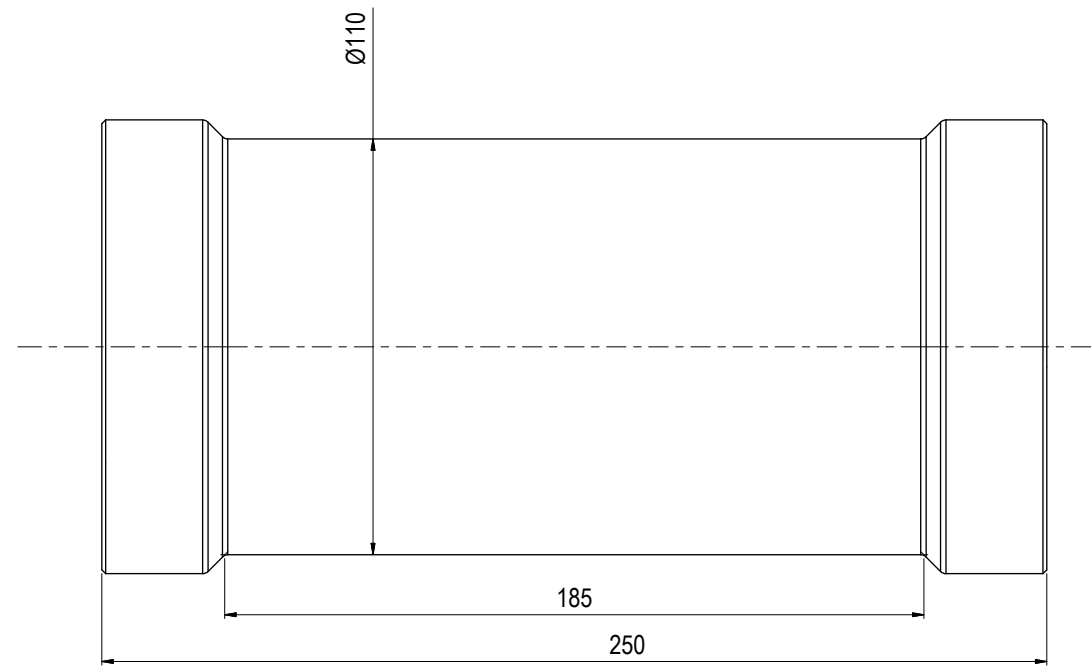
Drawing number:  
BB8227

Rev:  
02

NOTE: 1  
 DESIGN CODE:  
 API 17H Type 3

NOTE: 2  
 TECHNICAL CLASSIFICATION:  
 Article Type: 001-Hot Stabs  
 Main Group: 1.10. Ø89 Hot Stab  
 Intermediate Group: 1.89.01. Stab  
 Sub Group: 1.89.422.02. Dual

NOTE: 3  
 INTERFACE INFORMATION:  
 Pressure Rating Bar: N/A  
 Material: PEHD 1000  
 Weight: 0,8 kg  
 Volume: 0,87 dm<sup>3</sup>  
 Surface Area: 1696 cm<sup>2</sup>  
 Hydraulic: N/A  
 Mechanical: N/A  
 Electrical: N/A  
 Com. & Protocol: N/A



| Rev. | Date      | Reason for issue                | Revision change | Made | Chk'd | Appr. |
|------|-----------|---------------------------------|-----------------|------|-------|-------|
| 02   | 13.9.2022 | 7-IFC (Issued for Construction) |                 | HNJ  | TAN   | HNJ   |
| 01   | 18.5.2022 | 2-IFT (Issued for Tender)       |                 | HNJ  | NA    | NA    |



Unless Noted Otherwise:  
 Dim. Tol: NS-ISO 2768-1  
 Roughness: Ra  
 Fillet Rad:  
 Corner Rmax:

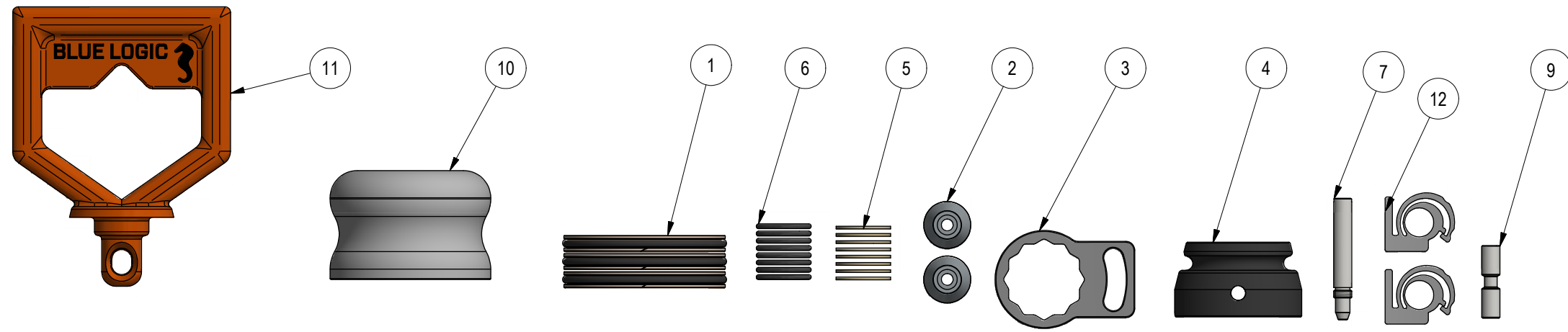
Dwg. Scale: NTS  
 Dwg. Proj:   
 Dwg. Format: A3  
 Break Edges: (R. Alt. 45°) R= 0,1-0,5

Drawing title:  
 Ø89 DP Stab Protection Sleeve

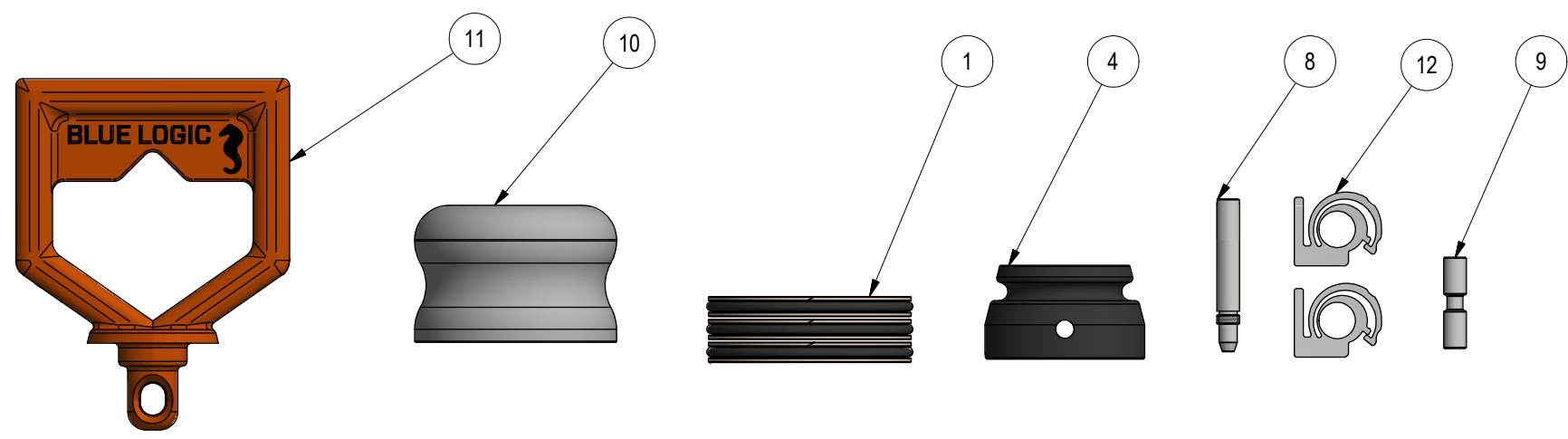
Drawing number:  
 BB8226

Rev.  
 02

| Parts List |     |          |   |
|------------|-----|----------|---|
| ITEM       | QTY | PART No. | DESCRIPTION                               |
| 1          | 6   | 104589   | Ø89 Stab Seal RU15-PEEK                   |
| 2          | 2   | 102091   | Zinc Anode Ø26 H=20mm                     |
| 3          | 1   | BB7745   | Lock Bracket V3                           |
| 4          | 2   | PA0050   | Flex Element Nitril 85/90 sh              |
| 5          | 8   | 101050   | Back Up Ring Ø30xØ26x1.5 ST08-K Peek1 Cut |
| 6          | 8   | 104273   | O-Ring BS120 D1=25,07 D2=2,62 RU15        |
| 7          | 1   | PA0051   | Lock Bolt For Flex Handle                 |
| 8          | 1   | BA1581   | Lock Bolt For Flex Handle SD.             |
| 9          | 2   | BB6468   | Ø10mm Bolt                                |
| 10         | 2   | BB6451   | Guide Nose Ø89                            |
| 11         | 2   | PA0049   | D-Handle SD                               |
| 12         | 4   | BB7527   | Lock Brick ver. 03                        |



Recommended spare parts for BB6432 Ø89 DP Stab 10k Interv MP 1" wJ-Lock



Recommended spare parts for BB6465 Ø89 DP Press Stab 10k Long-term wJ-Lock

FOR INFORMATION ONLY

|      |            |                                |                 |      |       |       |                             |  |   |  |
|------|------------|--------------------------------|-----------------|------|-------|-------|-----------------------------|--|---|--|
|      |            |                                |                 |      |       |       | Dwg Scale: NTS<br>Dwg Proj: |  | Drawing title: Recommended Spares Ø89 Stab System |  |
|      |            |                                |                 |      |       |       | Dwg Format: A3              |  | Drawing number: BB7414                            |  |
| 01   | 21.12.2021 | 3-IFI (Issued for Information) |                 | HNJ  |       |       |                             |  |   |  |
| Rev. | Date       | Reason for issue               | Revision change | Made | Chk'd | Appr. |                             |  |   |  |

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