



Operation and Maintenance Manual

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REVISION CHANGE/RECORD

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01	Document initiated for use
02	Updated doc codes
03	General Update
04	Added info regarding pairing receptacle and stab with different number of ports not possible. Info regarding optional weak link feature included.
05	Added info regarding parking receptacle BA3054
06	Added info regarding disconnection of VStab, section 9.2



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1. INTRODUCTION

The Blue Logic Valve Stab™ is a patented hydraulic connector system combining technology from standard Hot Stab connectors and Ball Valves into a very compact and lightweight subsea connector system. The unique features obtained allows for 100% leakage free subsea connection with full system pressure. Since the system includes built-in valve functionality both in the stab and receptacle side, subsea valve and connector panels can be designed extremely compact compared to alternative solutions.

1.1. Purpose and Scope

The objective of this document is to present a comprehensive operation and maintenance manual of the Blue Logic Ø60 Valve Stab System. Relevant technical aspects for information and familiarization are covered as well as detailed technical data.

1.2. Abbreviations

ROV	=	Remotely Operated Vehicle
HPU	=	Hydraulic Power Unit
FAT	=	Factory Acceptance Test
BL	=	Blue Logic AS
EFR	=	Equipment Failure Report

1.3. Symbols

The following symbols applies to operation and maintenance of a Valve Stab System.



General Warning

The equipment to which this manual applies must only be used for the purpose for which it was designed. Improper use or maintenance may cause damage to the equipment and/or injury to personnel. All users must be familiar with the contents of the appropriate manuals before attempting to install, operate, maintain or in any other way work on the equipment. Blue Logic AS disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of the equipment.



*Pressurized
cylinder*

The equipment to which this manual applies will at times be pressurized in proximity to personnel.



Operation and Maintenance Manual

1.4. Warranty conditions and Guarantees

Refer to agreed Blue Logic AS Terms and Condition.

1.5. References

Latest version of the following drawings:

Id.	Doc. No	Originator	Document Title
1.	BA8490	Blue Logic	Ø60 DP VStab 345Bar Interv 70deg BSP 3/4"
2.	BA1135	Blue Logic	Ø60 TP VStab 250Bar Interv 70deg BSP 3/4"-1/2"
3.	BA1390	Blue Logic	Ø60 SP VStab Rec 5k Perm Man BSP 3/4"
4.	BA1738	Blue Logic	Ø60 DP VStab Rec 5k Perm Man BSP 3/4"
5.	BA1121	Blue Logic	Ø60 TP VStab Rec 250Bar Interv Man BSP 3/4"-1/2"
6.	BA6542	Blue Logic	Ø60 TP VStab Rec 250Bar Interv Man BSP 3/4"-1/2" WeLi
7.	BB1202	Blue Logic	Ø60 DP Prot VStab Vented Perm
8.	BA1965	Blue Logic	Ø60 TP Prot VStab Vented Perm
9.	BA1972	Blue Logic	Ø60 DP Press VStab 345Bar Interv
10.	BA3054	Blue Logic	Ø60 TP Park VStab Rec Interv

1.6. Codes and Standards

The Blue Logic Ø60 Valve Stab System is designed in accordance with API6A

Standard/Code Organization	Standard/Code Number
API	6A
ISO	10423
NS-EN	13445

2. HEALTH, SAFETY AND ENVIRONMENT

Safety must always be the highest priority when performing operations, maintenance and tests in the project.

Personnel involved in the test/work operation shall be familiar with the contents of this document.

2.1. Personal Protective Equipment

The following PPE must be worn when operating the Valve Stab System on land during maintenance or other activities.

Personal Protective Equipment
Protective glasses
Protective shoes
Protective gloves, oil resist gloves if applicable
Hard hats, if applicable

2.2. Qualifications and Training

It is essential that all operating personnel have been given training and education, in how to operate and maintain equipment described in this manual.

It is also essential that the operating personnel have general ROV operating, inspection, maintenance and repair experience.



2.3. Safety Notes

Visually inspect condition of the system. Consider the matrix below before every activity.

Action		LOGISTICS	MOBILIZATION	DE-MOBILIZATION	PRE DIVE PREP.	POST DIVE PREP.	OPERATION	MAINTENANCE
1	Wear recommended PPE		X	X	X	X		X
2	Perform SJA before operation if relevant						X	
3	Visually inspect the System for mechanical damage.		X	X	X	X		X
4	Verify the System to be properly secured under transport.	X						
5	Inspect that all hydraulic hoses, connectors are plugged/sealed to prevent hydraulic oil contamination.		X	X		X	X	

3. TECHNICAL INFORMATION

The Ø60 Valve Stab program includes versions ranging from 1-6 hydraulic ports, and consists typically of a male valve stab and a female receptacle.

The operating principle for a standard Ø60 Valve Stab System is independent of the number of ports in the system. In this user manual a 3-port stab and receptacle is used for illustration purposes.

The Valve Stab System can be delivered for either long-term use or intervention purposes. The main differences between two such systems are the materials and lifetime.



Figure 1: 3 port Ø60 Valve Stab System



Caution!

Please note that a stab can only be mated with a receptacle with corresponding number of ports, i.e. a dual port stab can only be mated with a dual port receptacle. Distance between ports are different for the 1-6 port types. Mating of stab and receptacle with different number of ports may cause injuries, damages to equipment and spill of fluid.



3.1. Technical Description Valve Stab

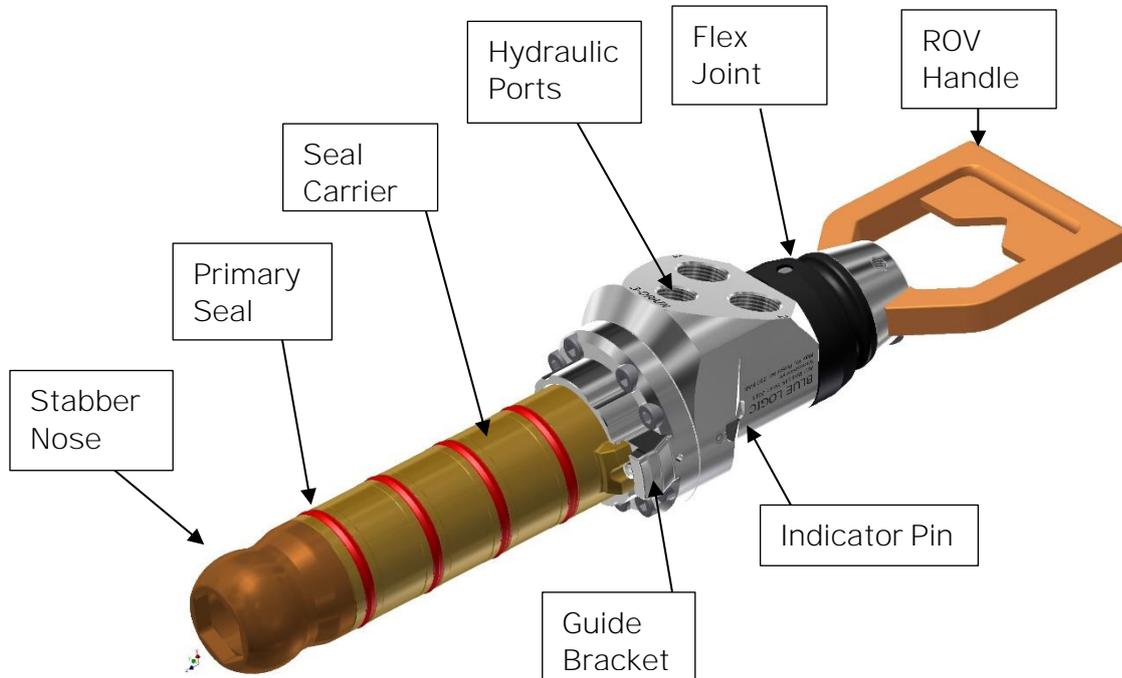


Figure 2: Valve Stab



3.1.1. Technical Data

Table 1: Mechanical Data

Description	Specifications	Comment
Stab diameter	Ø60	
Weight in air	See product drawing	Varies
Weigh submerged	See product drawing	Varies
Depth rating	3000m	Typical
Operating temperature	-4 to 60°C	Other ranges on request
Design pressure (DP)	Standard 5k to 10k psi *	Other rating on request
Test pressure	1.5 · DP	

* Depending on the model

Table 2: Hydraulic Data

Description	Specifications	Comment
Hydraulic fluid*	Client specification	For special fluids, contact Blue Logic
Hydraulic connections	See product drawing	

* The Valve Stabs can be configured for different types of fluid. Contact BL for assessment and advice. Standard configuration is compliant with normally used hydraulic fluids

Table 3: Corrosion Control

Description	Specifications	Comment
Coating	No coating	Special coating on request



3.1.2. Interface Description

3.1.2.1. Mechanical Interface

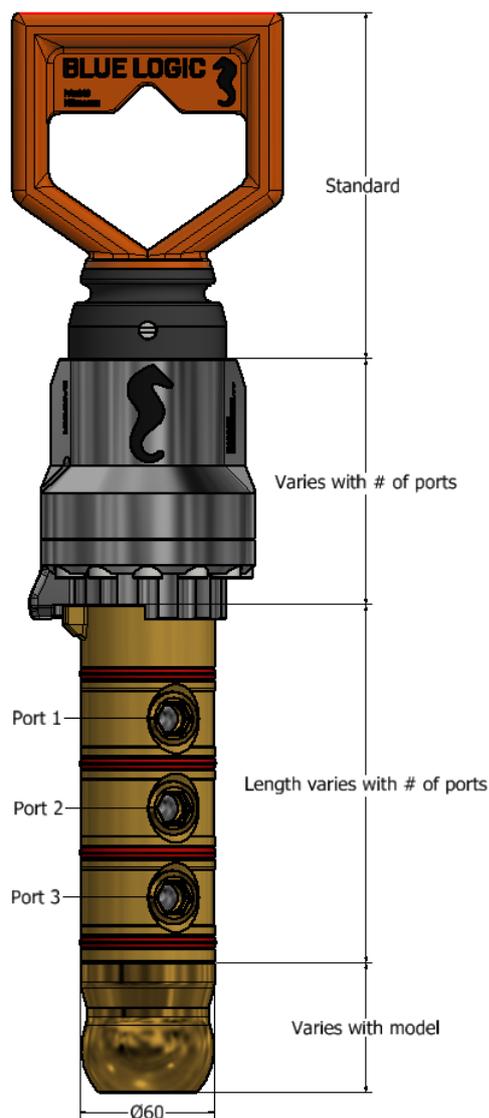
Table 4: Mechanical Interface

Interface to	Interface Type
Stab to Receptacle	Ø60

3.1.2.2. Hydraulic Interface

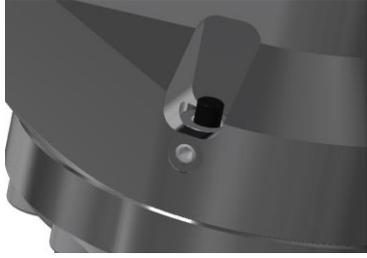
The hydraulic interface on the Valve Stab is subject to client specifications, see product drawing for details.

Valve Stab ports are numbered starting from 1 as indicated below. This is true regardless of number of ports.





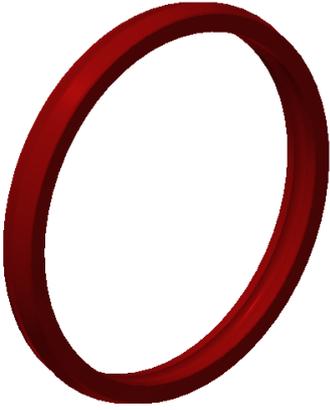
3.1.3. Indicator Pin

Ø60 Valve Stab	
Part	Description
	The purpose of the Indicator pin is to visually confirm correct mating of the Valve Stab into the Receptacle prior operation of the Valve Stab valve function. The Indicator pin will pop out approx. 4mm when the Stab is correctly mated as illustrated to the left.

3.1.4. Stabber Nose

Ø60 Valve Stab		
Part	Description	Material
	The Stabber Nose secures correct and gentle guiding of the Stab into the Receptacle. The Stabber nose is connected to the Stabber by use of threads and can be unscrewed by use of a Hex umbraco tool. Stab nose Hex key size is 34mm. The Stabber Nose secures and locks the Seal Carrier onto the Stab.	Standard material is an aluminum bronze alloy Other material on request

3.1.5. Primary Stab Seal

Ø60 Valve Stab		
Part	Description	Material
	<p>The Primary Stab Seals separates the different hydraulic ports and seals toward the receptacle.</p> <p>The Primary Stab Seals can easily be replaced offshore without need for any disassembly of the stab.</p>	<p>Standard Blue Logic seal material is HPUR.</p> <p>Different alternative seal profiles and materials are available depending on application and fluid.</p>

3.1.6. Core Seal

Ø60 Valve Stab		
Part	Description	Material
	<p>The Core Seals separates the different hydraulic ports and seals between the Seal Carrier and Stab Core.</p>	<p>Standard Blue Logic seal material is HPUR.</p> <p>Different alternative seal profiles and materials are available depending on application and fluid.</p>

3.1.7. Seal Carrier

Ø60 Valve Stab		
Part	Description	Material
	<p>All stabber seals are placed in the Seal Carrier, both Primary and Core Seals.</p>	<p>Standard material is XXXXX</p> <p>Other material on request</p>



3.1.8. Stab Core

Ø60 Valve Stab		
Part	Description	Material
	The stab core is the main structural part of the valve stab	Standard material is XXXXX Other material on request

3.1.9. Hydraulic Ports

Ø60 Valve Stab	
Part	Description
	The Ø60 Valve Stab is delivered with different port interfaces. See datasheets or product Assembly drawings for details with hydraulic connections and ports. Typically BSP or MP female threads

3.1.10. Flex Joint

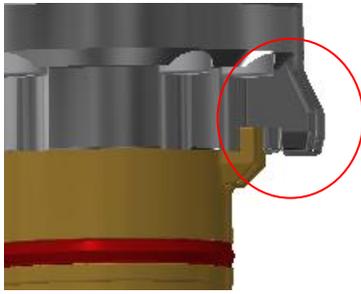
Ø60 Valve Stab	
Part	Description
	The Flex Joint connects the Valve Stab body to the ROV Handle. It consists of an outer flexible element and an inner mechanical connection. The Flex Joint allows for a smooth angle deviation of approx. 20 degrees in all directions between the ROV handle and Valve Stab. The flex joint is replaceable



3.1.11. ROV Handle

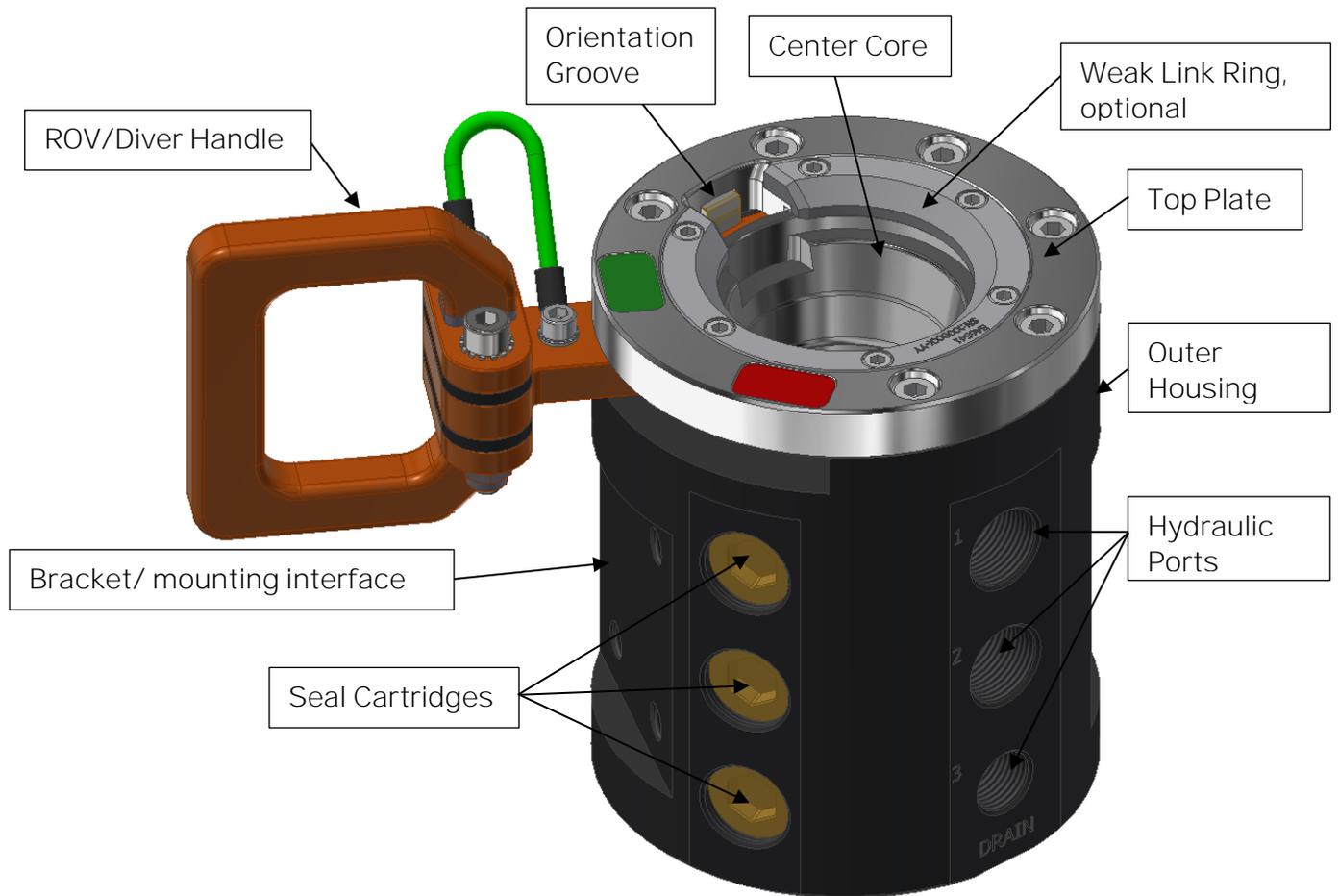
Ø60 Valve Stab	
Part	Description
	D-handle with flex joint

3.1.12. Guide Bracket

Ø60 Valve Stab	
Part	Description
	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 correctly inserted triggers the receptacle position lock system, also the Indicator Pin will pop up.



3.2. Technical Description Valve Stab Receptacle





3.2.1. Technical Data

Table 5: Mechanical Data

Description	Specifications	Comment
Size	See product drawing	
Weight in air	See product drawing	
Weigh submerged	See product drawing	
Depth rating	3000	
Operating temperature	-5 to 60°C	Other ranges on request
Design pressure	Standard 5k to 10k psi*	Other rating on request

* Depending on the model

Table 6: Hydraulic Data

Description	Specifications	Comment
Hydraulic fluid	Client specification	For special fluids, contact Blue Logic
Hydraulic connections	See product drawing	

Table 7: Corrosion Control

Description	Specifications	Comment
Coating	No coating	Special coating on request
CP	Receptacle must be connected to CP system	
The receptacle comes in two variants, <i>intervention</i> and <i>permanent</i> . The main difference being material selection and lifetime.		

3.2.2. Interface Description

3.2.2.1. Mechanical Interface

Table 8: Mechanical Interface

Interface to	Interface Type
Receptacle to structure/tool	See product drawing for details

3.2.2.2. Hydraulic Interface

The hydraulic interface on the Valve Stab Receptacle varies, see product drawing for details.



3.2.3. Outer Housing

Ø60 Valve Stab Receptacle		
Part	Description	Material
	<p>The Outer Housing includes the hydraulic ports, interface for installation (securing interface) and interface for seal cartridges.</p> <p>All Valve Stab receptacle seals are placed inside the Outer Housing.</p>	On Client specification

3.2.4. Center Core

Ø60 Valve Stab Receptacle		
Part	Description	Material
	<p>The Inner Center Core rotates inside the Outer Housing thus opening and closing the hydraulic ports.</p>	<p>It is constructed by corrosion resistant high strength alloy to reduce wear and improve lifetime.</p> <p>Material selection on Client specification.</p>



3.2.5. ROV/Diver Handle

Ø60 Valve Stab Receptacle	
Part	Description
	<p>The ROV handle operates the Valve Stab™ Open/Close function. It is to be rotated 65 degrees in order to operate the Valve Stab System.</p> <p>Operate ROV Handle Clockwise (green area)</p> <ul style="list-style-type: none">- The Valve Stab™ valve functions are CLOSED and the stab can be inserted or retracted from the receptacle <p>Operate ROV Handle Counter Clockwise (red area, “Hot”)</p> <ul style="list-style-type: none">- The Valve Stab™ valve functions are OPEN and the stab is LOCKED in position into the receptacle. <p>NOTE: The Valve Stab™ must be correct and fully inserted into the Valve Stab™ Receptacle in order to OPEN the Valve Stab™ valve functions.</p>



3.2.6. Internal Seals

Ø60 Valve Stab Receptacle		
Part	Description	Material
	The seals are placed on the inner side of the outer housing. The Center Core will need to be removed from the outer housing in order to replace the internal seals.	

3.2.7. Bracket/ securing interface

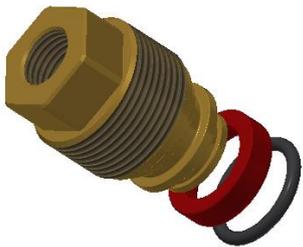
Ø60 Valve Stab Receptacle	
Part	Description
	The Bracket Securing interface is used to securing the Receptacle onto the ROV or subsea equipment. There are three equal interfaces placed in different orientations on the receptacle for optimal placement of the receptacle on the equipment.



3.2.8. Orientation Groove

Ø60 Valve Stab Receptacle	
Part	Description
	<p>The Orientation Groove in the Receptacle ensures correct orientation of the Valve Stab when inserting into the receptacle.</p> <p>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 Mechanism.</p>

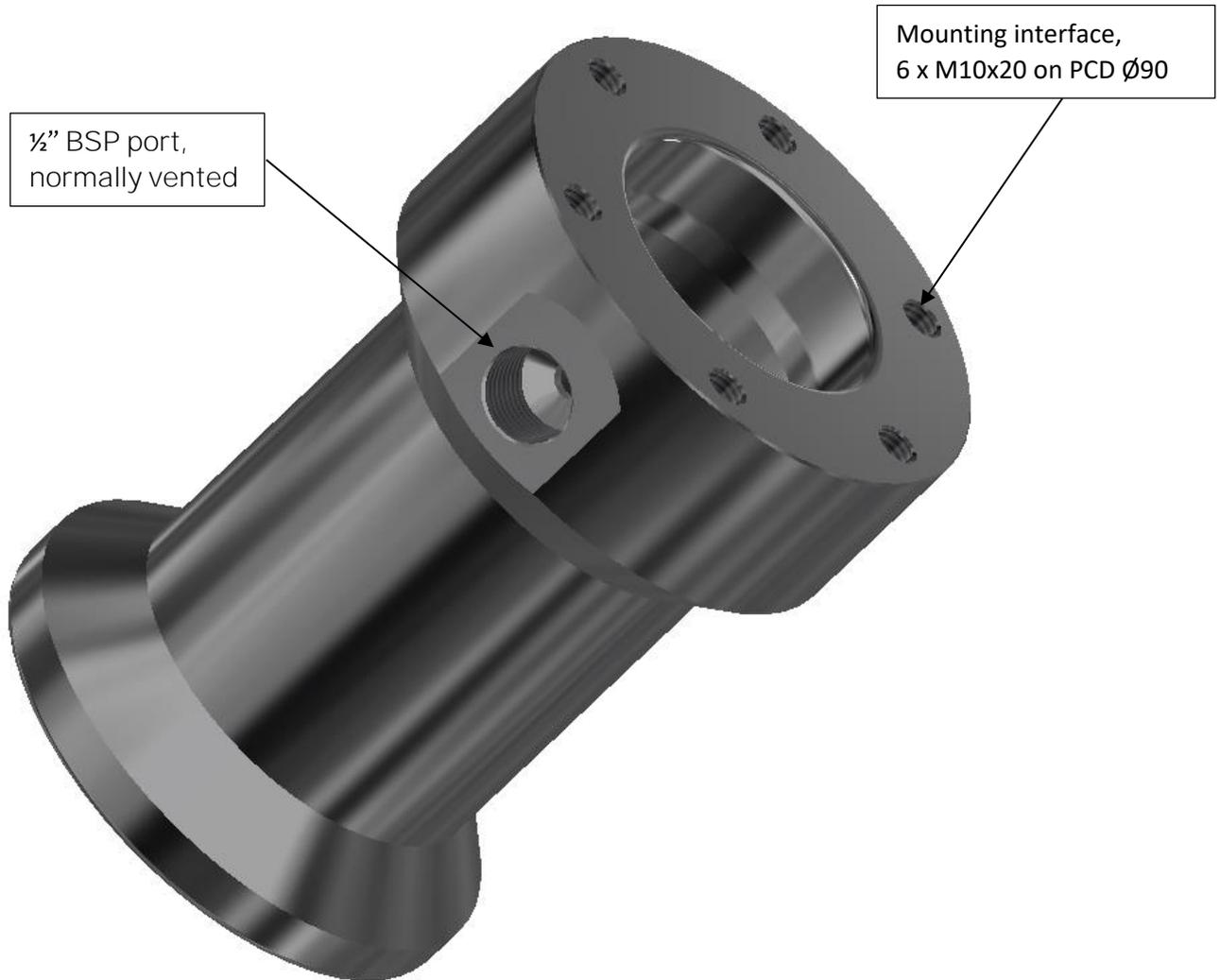
3.2.9. Hydraulic Ports Receptacle

Ø60 Valve Stab Receptacle	
Part	Description
	<p>See Product Assembly drawings or datasheets for hydraulic port details.</p>

3.2.10. Receptacle Top Plate

Ø60 Valve Stab Receptacle		
Part	Description	Material
	<p>The Receptacle Top Plate is bolted onto the Receptacle outer housing. It includes the Orientation Groove and color marking for Valve Stab Valve position</p>	<p>Typically made in steel</p> <p>Can be supplied as a weak link version, see chapter O</p>

3.3. Technical Description TP ValveStab Parking Receptacle



3.3.1. Technical Data

Table 9: Mechanical Data

Description	Specifications	Comment
Size	See product drawing	
Weight in air	See product drawing	
Weigh submerged	See product drawing	
Depth rating	3000	
Operating temperature	-5 to 60°C	Other ranges on request
Design pressure	N/A	

*Table 10: Hydraulic Data*

Description	Specifications	Comment
Hydraulic fluid	Client specification	For special fluids, contact Blue Logic
Hydraulic connections	See product drawing	

Table 11: Corrosion Control

Description	Specifications	Comment
Material	Aluminum, Al6082 T6	Other materials available upon request
Coating	Hard anodized	
CP	Receptacle must be connected to CP system	

3.3.2. Interface Description

3.3.2.1. Mechanical Interface

Table 12: Mechanical Interface

Interface to	Interface Type
Receptacle to structure/tool	6 x M10x20 on PCD \varnothing 90

Allow minimum \varnothing 60mm free space for stabber nose when mounted in panel, i.e. opening in panel to be equal or larger than the receptacle's inner diameter.

3.3.2.2. Hydraulic Interface

The hydraulic interface is represented by a $\frac{1}{2}$ " BSP port. The port can be left vented or equipped with double acting check valve and compensator for control of the volume between VStab and receptacle.

The receptacle is designed to seal against the outermost seals to seal off the total range of the triple port VStab's ports.

4. 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.

4.1. Receptacle

In general, Blue Logic recommends to install the Valve Stab Receptacle both on the supplier (typically 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.

4.1.1. Mechanical Installation

The Receptacle shall be bolted onto the ROV/structure/tool directly by use of the integrated installation interface. BL recommends installing the receptacle vertically. This will ease guidance of the stab. Any debris or dirt will then fall through the receptacle.

Note 1: If dedicated CP system is present, ensure that the receptacle is correctly earthed and connected to this. Use separate cable if required.

4.1.2. Hydraulic Installation

The hydraulic functions shall be connected to the Receptacle hydraulic ports by use of hoses or piping. Recommended seal system is Dowty rings between fitting and receptacle. Suitable protection plate or similar system for hoses is recommended

4.2. Valve Stab

4.3. Hydraulic Connection

Hydraulic connection to the receptacle is performed by use of hydraulic fittings (see product drawing). Recommended seal system is Dowty rings.

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



5. AUXILIARY EQUIPMENT

5.1. Equipment Matrix

Action	LOGISTICS	MOBILIZATION	DE-MOBILIZATION	PRE DIVE PREP.	POST DIVE PREP.	OPERATION	MAINTENANCE
Typical Tools or Equipment: <ul style="list-style-type: none"> • First Aid Equipment • Clean Rags • Allen Keys • Wrench • Umbraco Keys • Logging equipment 		X	X	X			X
Hydraulic Power Unit						X	
PPE		X	X	X	X	X	X
Lifting Strap	X					(X)	(X)
Transport box	X						X



6. LOGISTICS

Weights and sizes can be found in Table 1 under Technical Data.

Verify the following

1. Sender Name and Address clearly visible
2. Receiver Name and address clearly visible
3. Inventory list correct filled out

6.1. Handling and Lifting

Description	Onshore	Offshore
To be lifted in dedicated transportation box. (Fork lift pockets to be used for transportation boxes above 40 Kg).	X	X
Stab and receptacle can be carried by humans with correct PPE	X	X

6.2. Transportation

Correct packing preferably by use of aluminium transport box. Secure Transportation Box with straps to transportation basket/deck when transporting.

6.3. Storage

Store in a dry environment and not in direct sun light.

Description	Onshore	Offshore
Store the Valve Stab System in its dedicated transportation box	X	X
Thoroughly coat all exposed surfaces of the Valve Stab System with a preservation oil	X	X
Verify that all hydraulic ports are sealed with caps or plugs	X	X



7. MOBILISATION/DE-MOBILISATION

7.1. Mobilization Procedure

Table 13: Mobilization Procedure

Item	Procedure
1	Check the condition of the transport box. Repair any damage or replace if necessary.
2	Check all items to be present according to the inventory list.

7.2. De-mobilization Procedure

Table 14: De-mobilization Procedure

Item	Procedure
1	Perform preventive maintenance according to chapter 10
2	Check the condition of the transport box. Repair any damage or replace if necessary
3	Check all items to be present according to the inventory list.
4	Fill in EFR if necessary. (To be stored in transport box.)
5	Storage according to chapter 6.3

8. PRE/POST DIVE PREPARATION

8.1. Valve Stab Pre Dive Procedure

No.	Description	Chk/Verified
01	Perform a visual inspection <ul style="list-style-type: none"> - Seals - Seal Areas - Fittings - Hoses - ROV Handle - Flex Joint (if relevant) - Guide Bracket - Hose Tension Relief - Hose conditions, pressure rating, lengths and hose protection 	
02	Verify that the Valve Stab is closed and cannot be opened prior to insertion into receptacle	
03	Insert the Valve Stab into a Valve Stab receptacle.	
04	Open the Valve Stab System through the ROV/Diver handle. If a failsafe actuator or similar remote operation mechanism is installed, verify functionality of this.	
05	Close Valve Stab and disconnect from receptacle.	
06	Inspect Seals and seal areas.	



8.2. Receptacle Pre Dive Procedure

No.	Description	Chk/Verified
01	Visual inspect receptacle internal surface finish and entrance area.	
02	Verify access for ROV and stab into receptacle	
03	Inspect all hoses, piping and fittings for leakage. Pay special attention to seal system.	
04	Verify that the Receptacle valve function cannot be operated when the Male stab is not inserted into the receptacle.	
05	Insert a Valve Stab into the receptacle. Verify correct installation and access.	
06	Open the Valve Stab and receptacle valve function by use of the ROV/Diver Handle.	
07	If a fail-safe close system or a remote operation actuator is installed; inspect and verify all functions.	
08	Close Valve function and disconnect Valve Stab from receptacle	
09	Perform a visual inspection of the receptacle.	

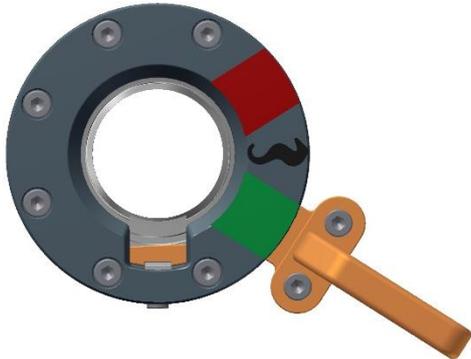
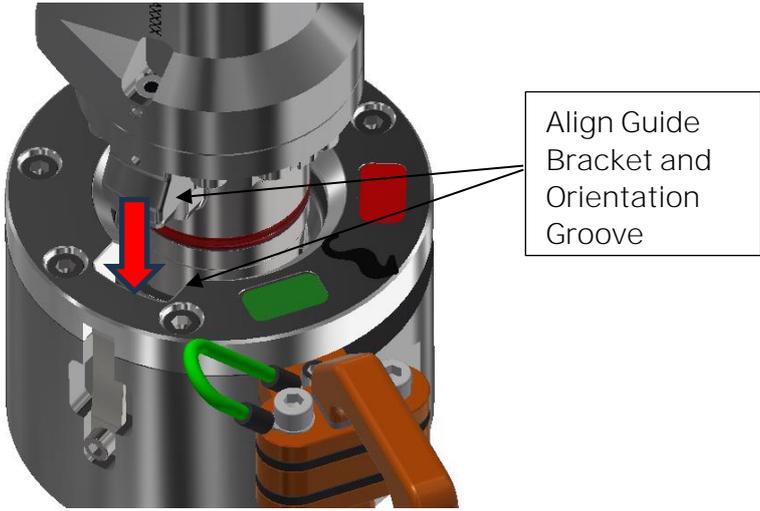
8.3. Post Dive Procedure

No.	Description	Chk/Verified
01	Recover Valve Stab equipment to deck.	
02	Perform a visual inspection <ul style="list-style-type: none">- Seals- Seal areas- ROV Handle- Flex Joint- Hoses and piping- Fittings- Surface treatment	
03	Flush all equipment thoroughly with fresh water	
04	Dry off equipment and apply protective oil prior to storage	

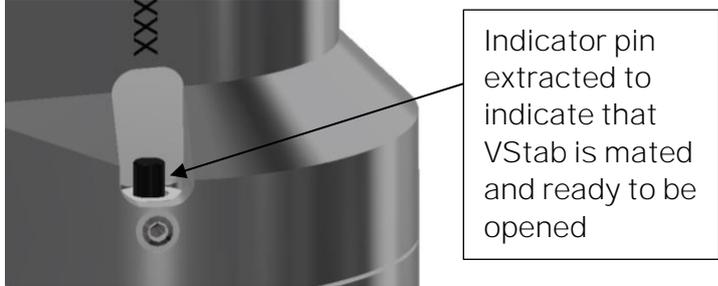
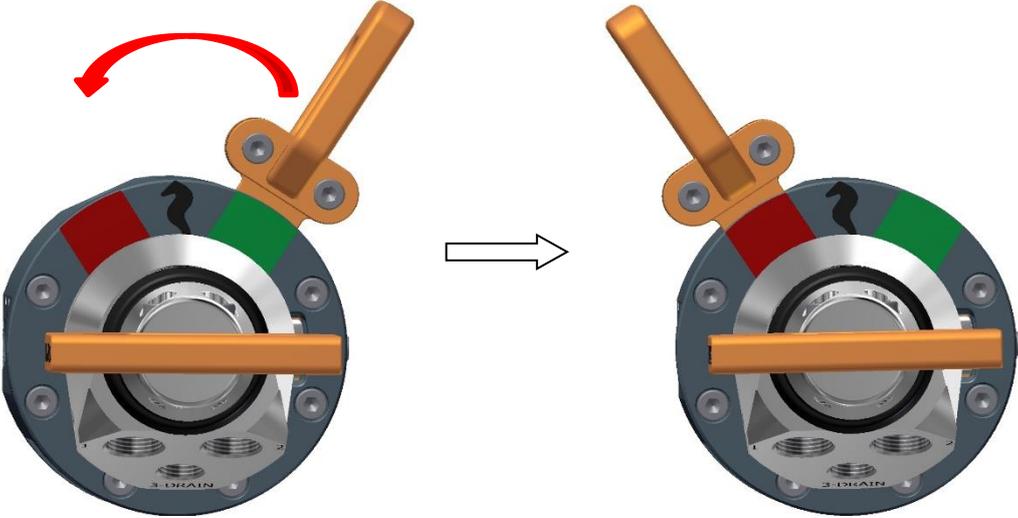


9. OPERATION

9.1. Subsea Connection

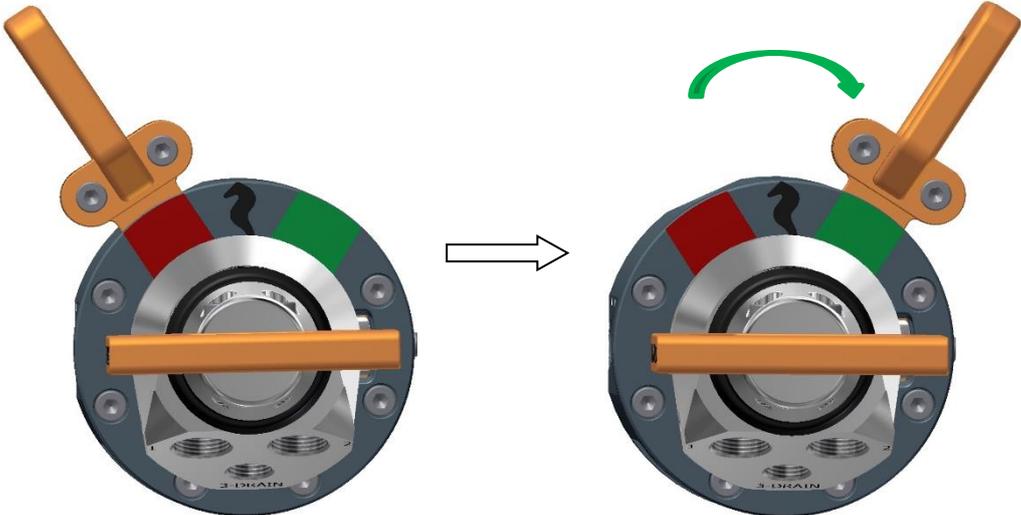
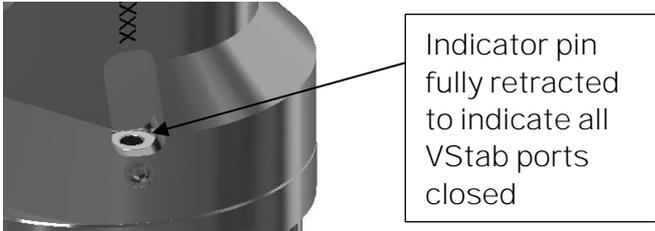
No.	Description	Chk/Verified
01	Visually inspect Valve Stab Receptacle prior to subsea connection. Verify ROV/ Diver access and general condition of the Valve Stab Receptacle in front of, and behind the panel.	
02	<p>Inspect Valve Stab ROV/ Diver handle. Verify that the Valve Stab™ position is Closed (Green Area) as indicated on figure.</p> 	
03	<p>Start inserting the Valve Stab (use a “loose” grip if possible, align stab into receptacle and gentle slide stab down. Rotate Valve Stab in order to align Stab Guide Bracket and Receptacle orientation groove. When correct aligned, push the stab down and fully into the Receptacle.</p>  <p>Note: For last push it is normally easier to just push on the top of the D-handle to avoid other forces (bending and rotating forces)</p>	



No.	Description	Chk/Verified
04	<p>Fully insert the Valve Stab into the Receptacle. Ensure correct engagement of Guide Bracket/Orientation Groove. Verify that the indicator pin has been pushed out.</p> <div data-bbox="576 477 1294 763"></div>	
05	<p>Operate Receptacle ROV/Diver handle from CLOSED (Green Position) COUNTER CLOCKWISE to OPEN position stab system.</p> <p>Note: Make sure to operate handle to end-stop.</p> <div data-bbox="284 1014 1302 1532"></div> <p>Close Position (Stab free for insertion)</p> <p>Open Position (Stab locked into receptacle)</p> <p>Note: It is always recommended to open or close without pressure and flow over the Valve Stab system.</p>	
06	<p>Verify hydraulic ports open and inspect Receptacle/ Stab for leakages. Operate desired hydraulic functions.</p>	



9.2. Subsea Disconnection

No.	Description	Chk/Verified
01	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.	
02	<p>Close the Valve Stab System Valve function by operating the ROV/ Diver handle CLOCKWISE.</p> <p>Note: Make sure to operate handle to end-stop.</p>  <p>Open Position (Stab Locked in Receptacle)</p> <p>Closed Position (Stab free for removal)</p> <p>Note: It is always recommended to open or close without pressure and flow over the Valve Stab system.</p>	
03	<p>Pull the ValveStab out from the receptacle. Verify that the ValveStab's indicator pin is fully retracted after pull-out.</p> 	
04	Verify no leakages and perform a visual inspection.	
05	Continue with operation	



10. MAINTENANCE

10.1. Preservation

To maintain the best condition of the unit, the following is recommended:

- Fresh water rinsing after every dive
- Hydraulic oil to be changed /flushed if required.
- Rinsing and re-lubrication of fastening bolts (Aqua Lube)

Table 15: Preservation Matrix

Action	LOGISTICS	MOBILIZATION	DE-MOBILIZATION	PRE DIVE PREP.	POST DIVE PREP.	OPERATION	MAINTENANCE
Fresh water rinsing of Valve Stab System. Completely immerse tool in fresh water.					X		X
Inspect the Valve Stab System for signs of galling.							X
For long-term storage completely disassemble the the Valve Stab System. Rinse and lubricate all components with preservation oil e.g. WD-40.							X
Inspect and replace Valve Stab System Seals, if necessary		X					X



10.2. Function Test

Complete a connection and disconnection according to chapter 9.

10.3. Periodic Maintenance

Typically, Valve Stab Systems connected to retrievable tooling requires periodic maintenance. Perform maintenance as described below.

10.3.1. Weekly

No.	Description	Chk/Verified
01	Perform a visual inspection of Stab and receptacle. Inspect Surface treatment and verify no corrosion issues. Special attention should be 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- Nose	
02	Insert the Valve Stab into receptacle. Verify correct engagement of orientation groove, guide bracket and Indicator Pin	
03	Operate the Valve Stab valve function by use of the ROV/Diver handle. Verify smooth movement	
04	Close the Valve Stab valve function, verify smooth movement	
05	Pull the Valve Stab out of the receptacle and verify that the valve function cannot be operated on either the Receptacle or Stab	
06	Ensure protective oil applied and no water/moisture entrapped on critical parts.	
07	Operate in dedicated aluminium transport box.	



10.3.2.Monthly

No special activities are required on a monthly basis. 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.

10.3.3.Yearly

No.	Description	Chk/Verified
01	Inspect all external and internal Valve Stab Seals. Replace if required.	
02	Inspect all external and internal Receptacle Seals. Replace if required.	
03	Check all mechanical functions, verify smooth operations. Inspect for scratches and general wear, lubricate all moving parts.	
04	Function test Stab and Receptacle and perform a full leakage test.	

10.4. Change of Parts

10.4.1. Primary Seals

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

10.5. Repair

If repair is necessary, contact Blue Logic AS



11. OPTIONS AND ALTERNATIVES

The standard product can be modified or delivered with the following options:

11.1. Pressure Stab

Pressure Stab	Description
	<p>The $\varnothing 60$ Pressure Stab is capable of holding full working pressure. The pressure stab is easily operated by simply stabbing it into the receptacle and is orientation independent.</p> <p>When used in a Valve Stab System the primary function of the pressure stab is to act as a second barrier. The receptacle acts as the first barrier and shall in principle hold the pressure on its own.</p>

11.2. Weak Link

Weak Link	Description
	<p>The receptacle top plate can be replaced by a weak link, i.e. top plate made in a polymer material designed to fail at approx.. 350kg pull force.</p> <p>The weak link enables emergency disconnection. If the weak link is broken while the system is in the open position fluid will no longer be contained.</p> <p>The weak link must be replaced if broken prior to further use of the receptacle.</p>

Prior to operation, a selection shall be made regarding selecting the weak link feature or not. Basically, the weak link shall be selected if unintentional lock of stab and receptacle is regarded as high risk.

Consequences for breaking the weak link:

- Receptacle must be recovered for weak link replacement.
- Full inspection and test of stab and receptacle required.
- Fluid spill after disconnection. All valves will be left as is, i.e. in open position.

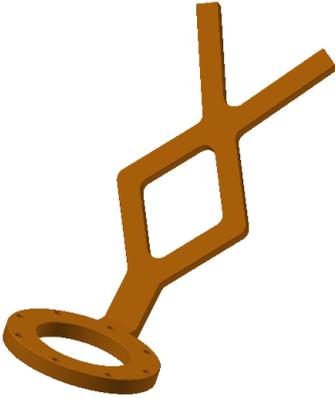


11.2.1. Replacement of Weak Link

The weak link ring shall be replaced after breakage as described below.

No.	Description	Chk/Verified
01	Put receptacle and stab in closed position.	
02	Remove the M5 bolts, 6 off, to remove the broken weak link ring.	
03	Inspect stab and receptacle for damages.	
04	Install the new weak link ring, 6 off M5 bolts, torque 6Nm.	
05	Verify correct function by performing function tests and inspection as described in section 8.1 and 8.2.	

11.3. Alternative ROV Handle

ROV Handle	Description
	A fishtail handle can be delivered on request



11.4. Receptacle with “L-Bore”

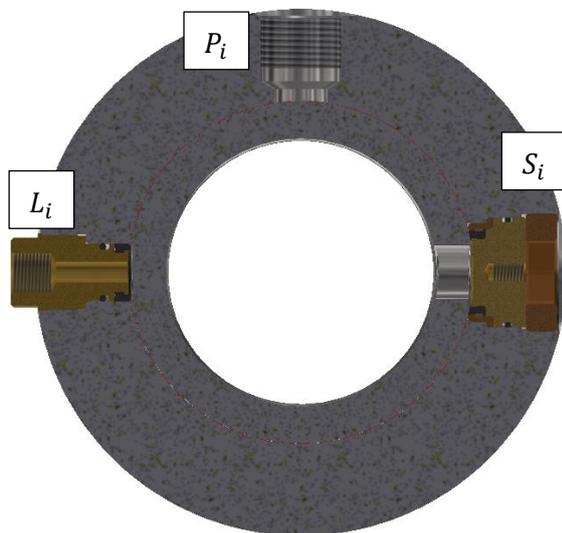
L-bore	Description
	L-bore is a feature that allows for compensation of a hydraulic system during submersion and recovery. The L-bore feature adds additional ports (L_i) to the receptacle.

L_i = Service/compensation line connection (limited flow)

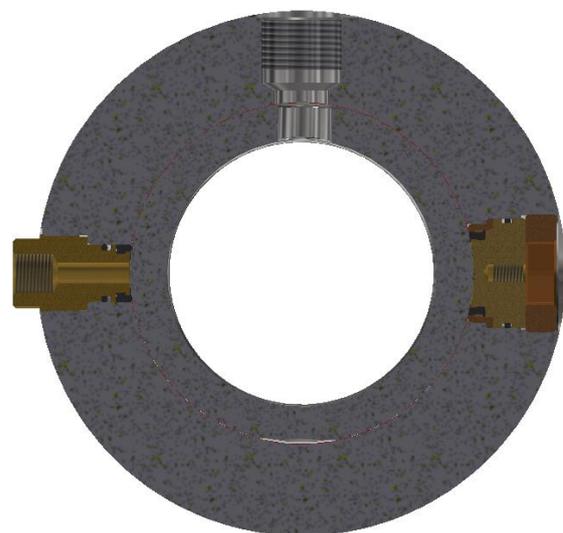
P_i = Main connection

S_i = Stab connection

The subscript “i” refers to the number of ports the Valve Stab System has, e.g. typically 1, 2 or 3.



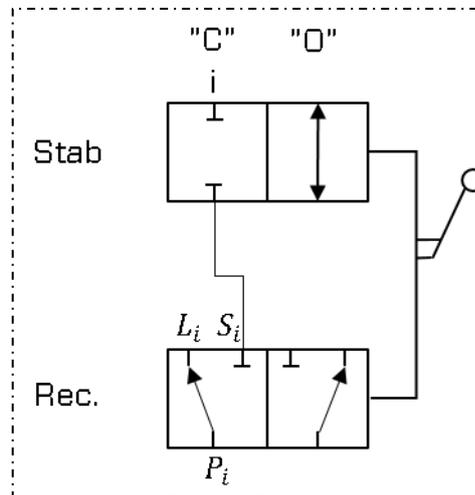
Vstab Rec in closed position



Vstab Rec in open position



A hydraulic schematic of a Stab and Receptacle can be seen in Figure 3. The subscript “i” refers to a specific port on Valve Stab System, e.g. typically 1, 2 or 3.



- “C” = Stab set in the open position
- “O” = Stab set in the closed position

Figure 3: Valve Stab System with L-bore hydraulic schematic

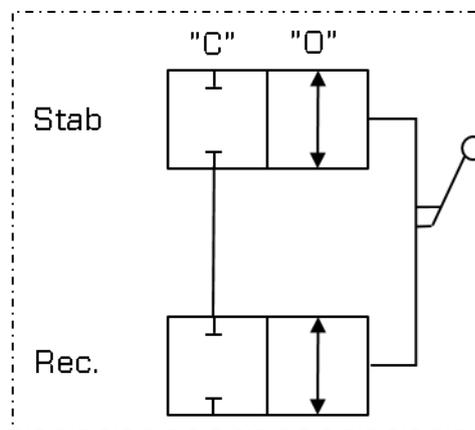
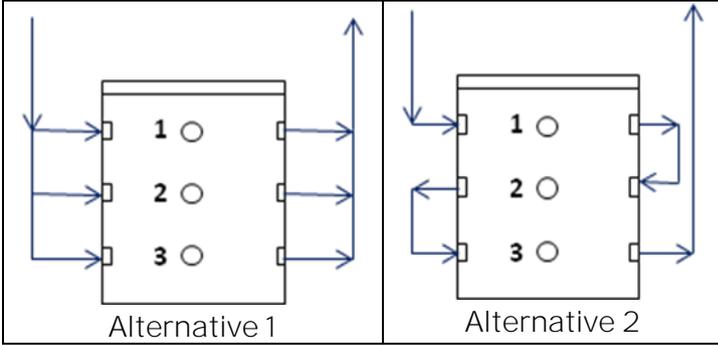


Figure 4: Standard Valve Stab hydraulic schematic

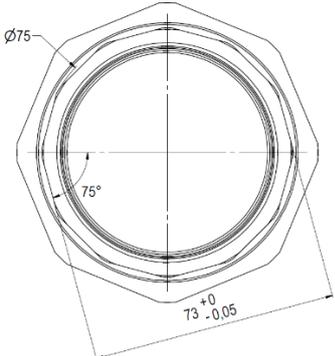


11.5. Connection Flushing System

Connection Flushing System	Description
 <p>Alternative 1</p> <p>Alternative 2</p>	<p>One of the unique features with the Valve Stab System is the ability to perform a 100% clean subsea multiport connection. The Ø60mm Valve Stab design results in only 7,5ml entrapped volume for each port during connection. This cavity volume can be flushed prior to opening the Valve Stab™ ports. There are different ways of performing this flushing process depending on the Stab/ Receptacle configuration. Blue Logic has developed optional special equipment to effectively perform this flushing process.</p>
 <p>Flushing manifold</p>	<p>Flushing manifolds will be mounted to the receptacle to enable flushing of the cavities-</p>

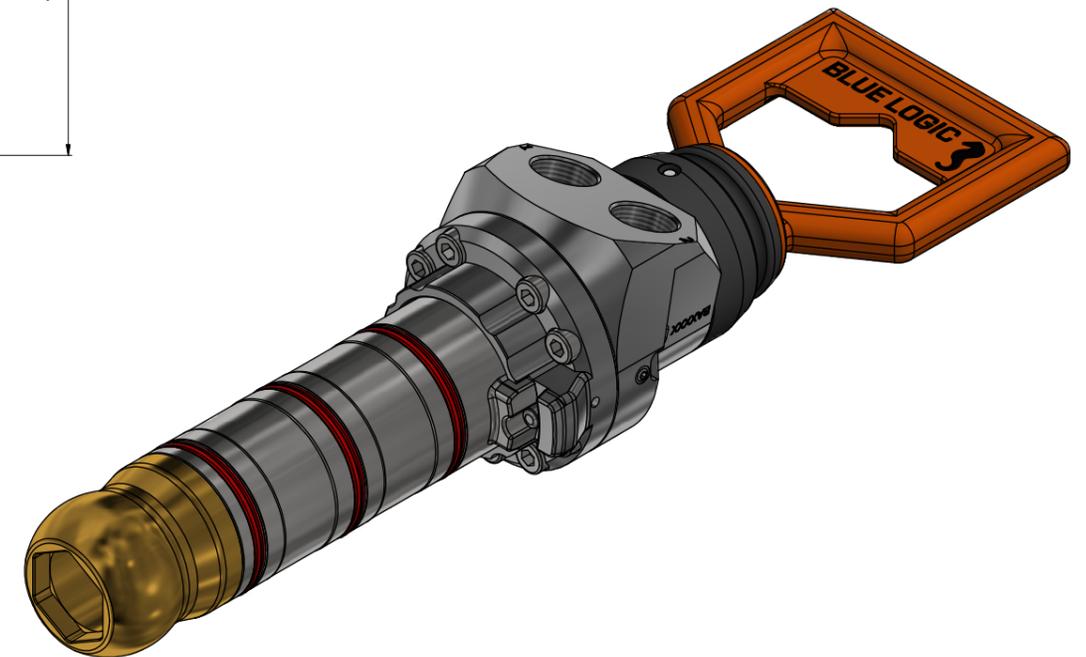
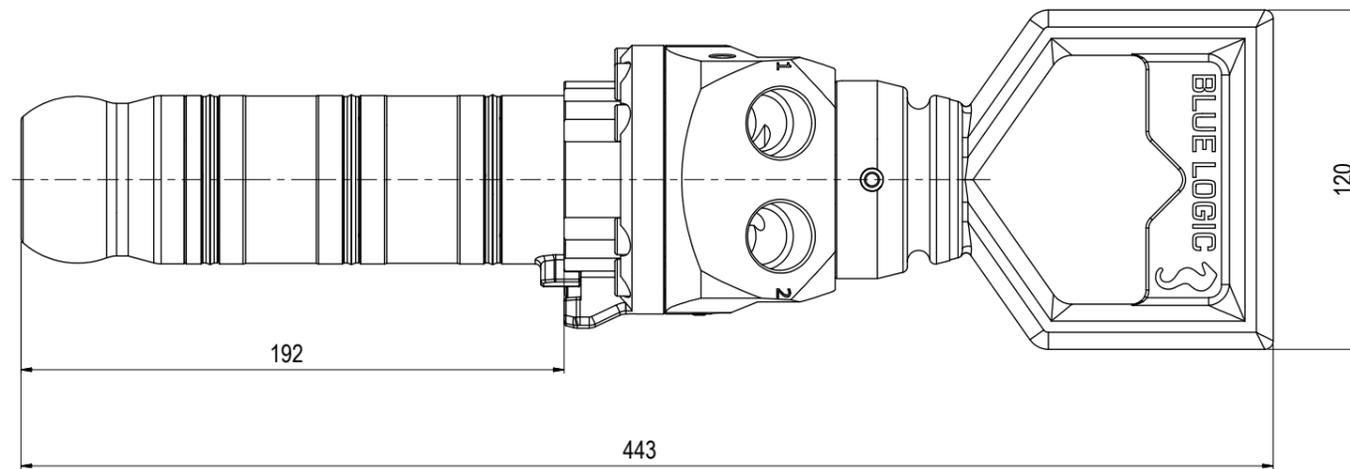
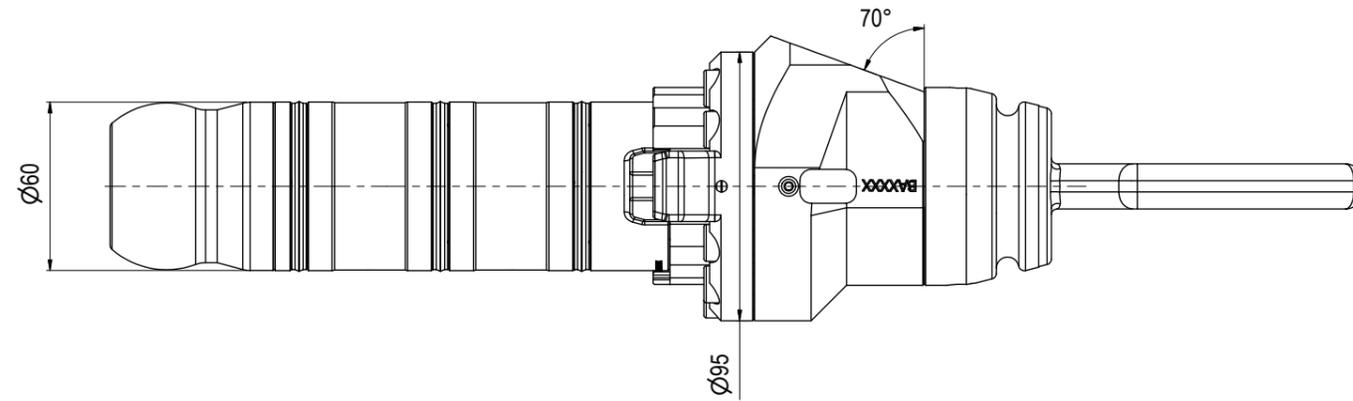


11.6. Fail Safe Actuator

Fail Safe Actuator	Description
	<p>The purpose of the Fail Safe Actuator is to close the Valve Stab™ Valve System in case of a defined system failure, typical loss of hydraulic power. The Actuator is closed by an active spring in the cylinder and need only one hydraulic function.</p>
	<p>The Receptacle Operation Interface is machined directly into the Inner Center Core and can thus be used for remote operation of the Valve Stab™ function. Typically, this can be achieved by installing a hydraulic, mechanical or electrical actuator.</p>

APPENDIX 1 DRAWINGS

BA8490	Ø60 DP VStab 345Bar Interv 70deg BSP 3/4"
BA1135	Ø60 TP VStab 250Bar Interv 70deg BSP 3/4"-1/2"
BA1390	Ø60 SP VStab Rec 5k Perm Man BSP 3/4"
BA1738	Ø60 DP VStab Rec 5k Perm Man BSP 3/4"
BA1121	Ø60 TP VStab Rec 250Bar Interv Man BSP 3/4"-1/2"
BA6542	Ø60 TP VStab Rec 250Bar Interv Man BSP 3/4"-1/2" WeLi
BB1202	Ø60 DP Prot VStab Vented Perm
BA1965	Ø60 TP Prot VStab Vented Perm
BA1972	Ø60 DP Press VStab 345Bar Interv
BA3054	Ø60 TP Park VStab Rec Interv



NOTE: 1
DESIGN CODE:
N/A

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.01. Stab
Sub Group: 3.34.74.2. Dual

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 345
Design Water Depth:
Material: Intervention
Weight: 8,3 kg
Volume: 1,15 dm³
Submerged Weight: 7,15 kg
Surface Area: 2982 cm²
Hydraulic: 3/4" BSP
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
BB1698

NOTE: 5
WEB LINK:
<http://e-sea.bluelogic.no/main.aspx?page=article&artno=BA8490>

09	15.9.2022	9-IFU (Issued for Use)		WTJ	LGH	WTJ
08	19.4.2022	9-IFU (Issued for Use)		WTJ	LGH	WTJ
07	9.12.2019	9-IFU (Issued for Use)		WTJ	LGH	WTJ
06	30.4.2018	9-IFU (Issued for Use)		WTJ	LGH	WTJ
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.

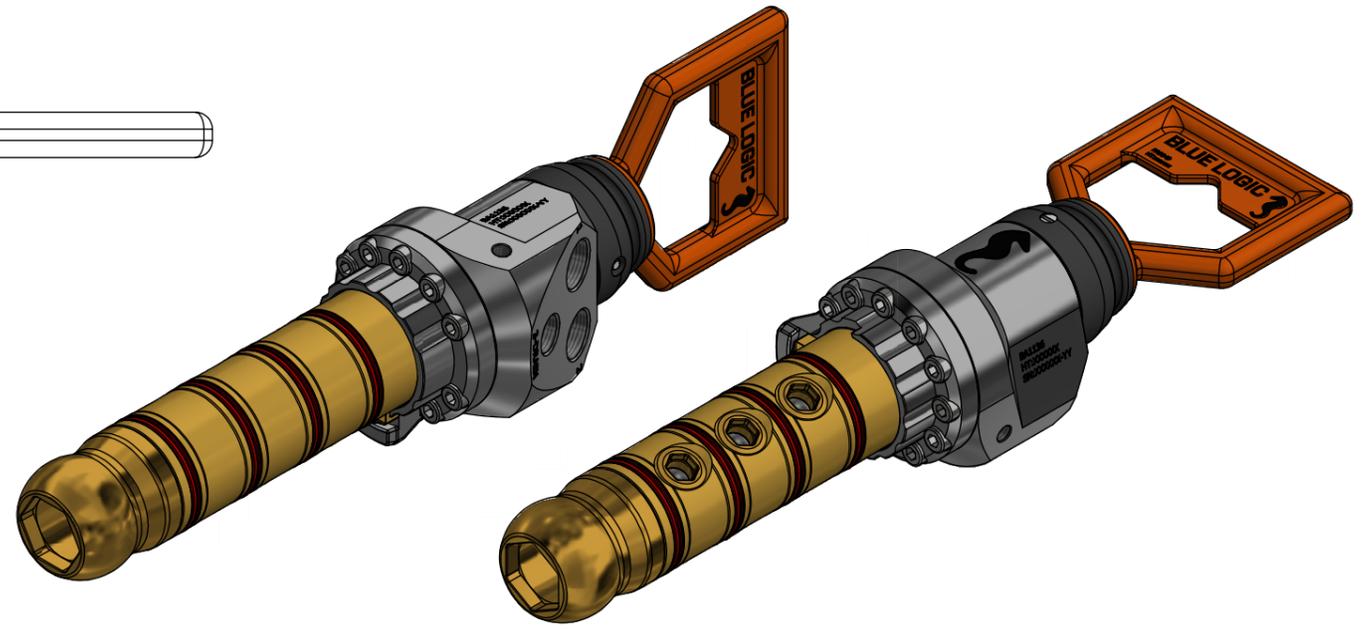
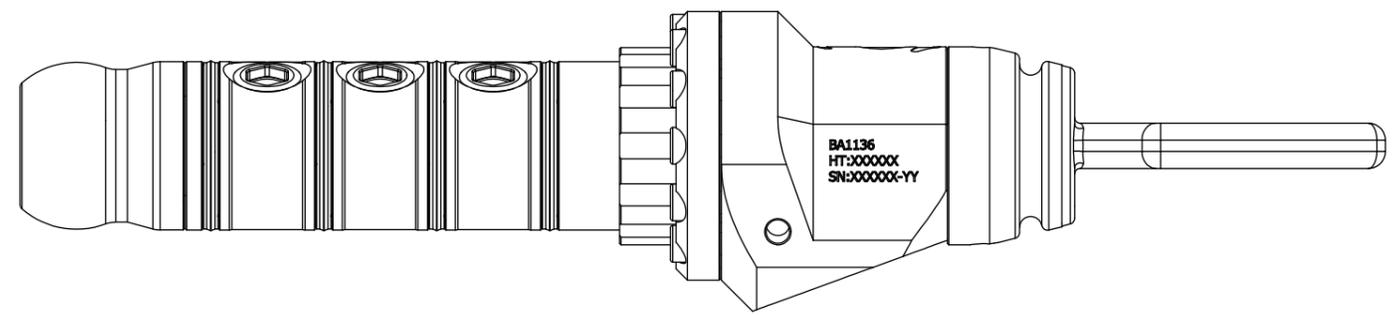
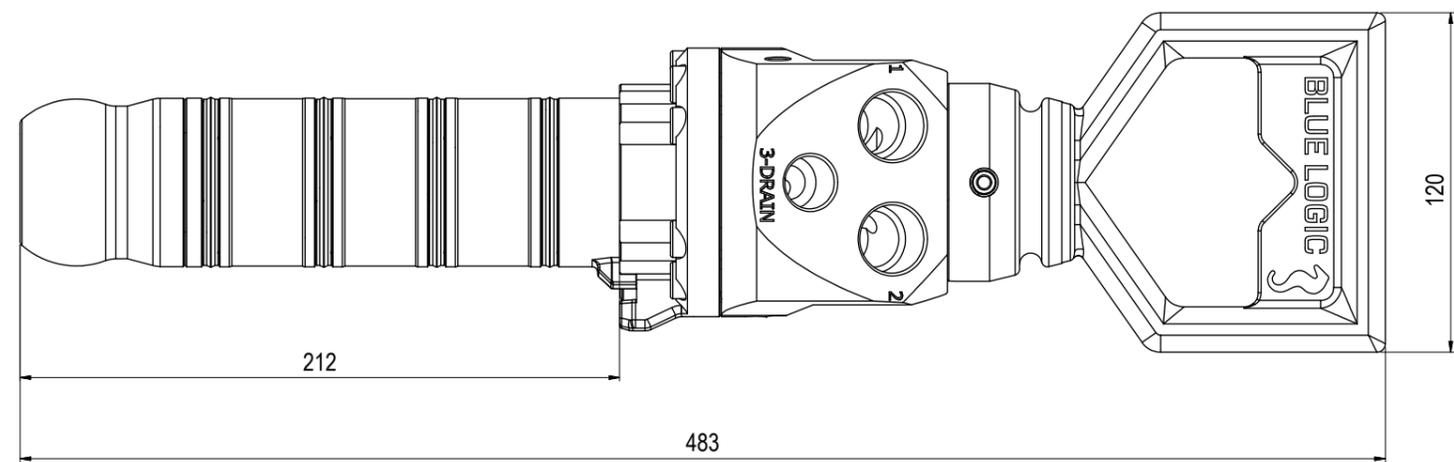
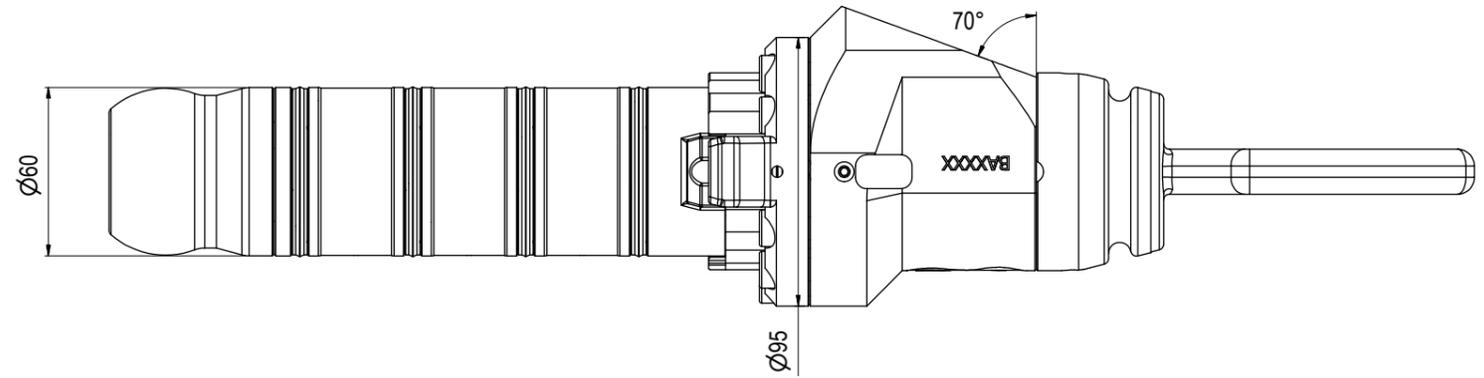
BLUE LOGIC 

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NTS
Dwg Proj:
Dwg Format:
A3

Drawing title:
Ø60 DP VStab 345Bar Interv 70deg BSP 3/4"

Drawing number:
BA8490

Rev.
09



NOTE: 1
DESIGN CODE:
NS-EN 13445

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.01. Stab
Sub Group: 3.34.74.3. Triple

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 250
Design Water Depth:
Material: Intervention
Weight: 9,3 kg
Volume: 1,29 dm³
Submerged Weight: 8,02 kg
Surface Area: 3384 cm²
Hydraulic: 2x3/4" BSP - 1x 1/2" BSP
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
BB1698

NOTE: 5
ADDITIONAL INFORMATION:
This VStab is only compatible with triple port Vstab receptacles. Mating of Vstabs and Vstab receptacles with different number of ports may cause injuries, equipment damage and spill of fluid.

Usermanual: 600134-TD-0004

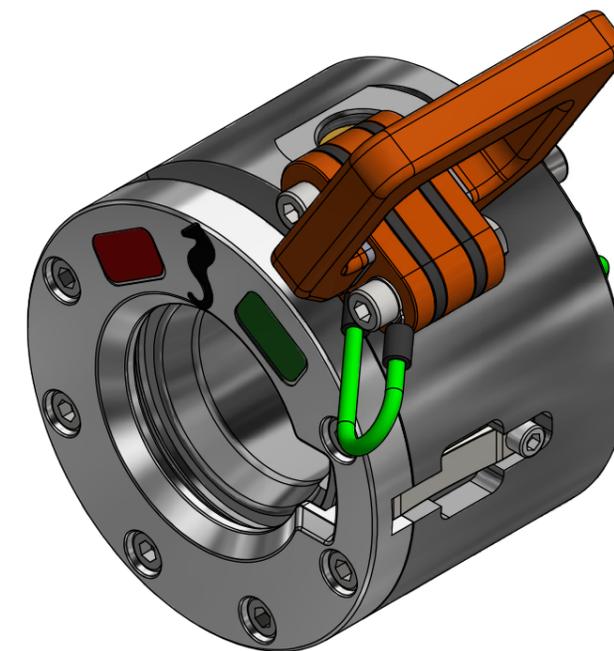
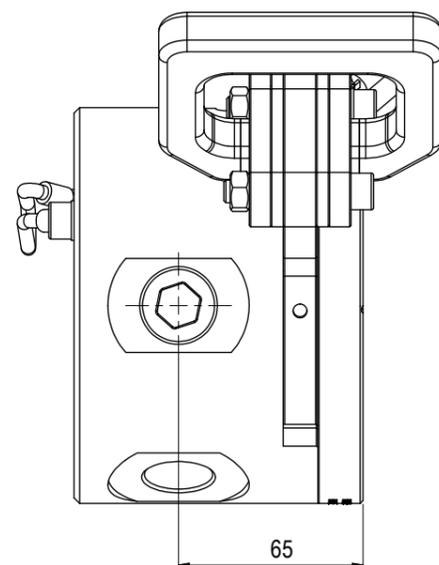
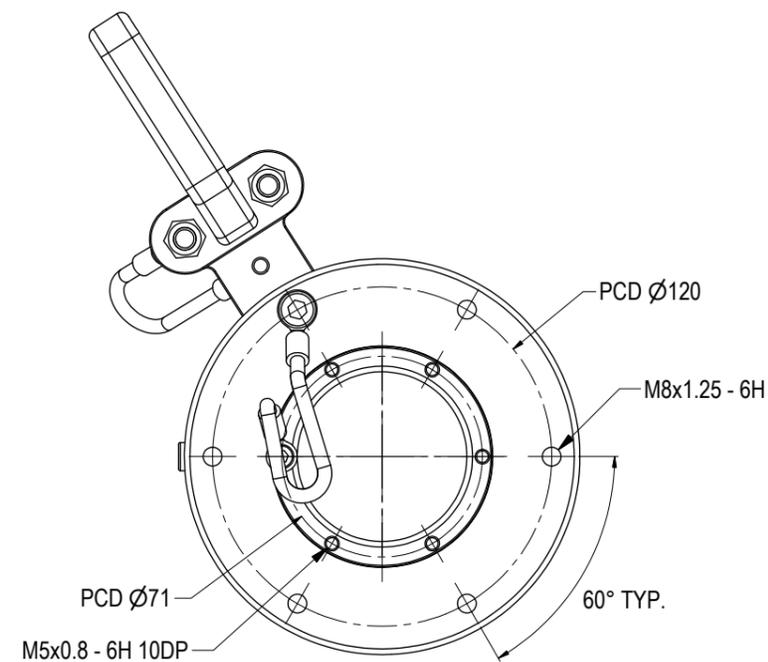
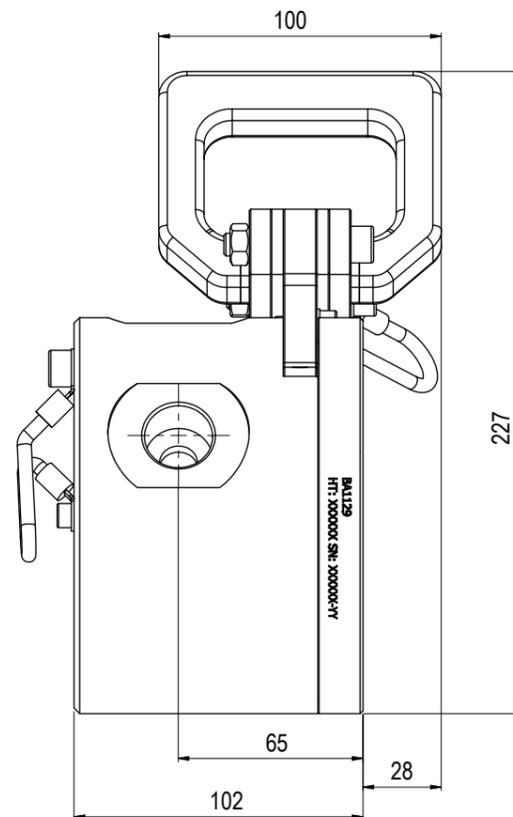
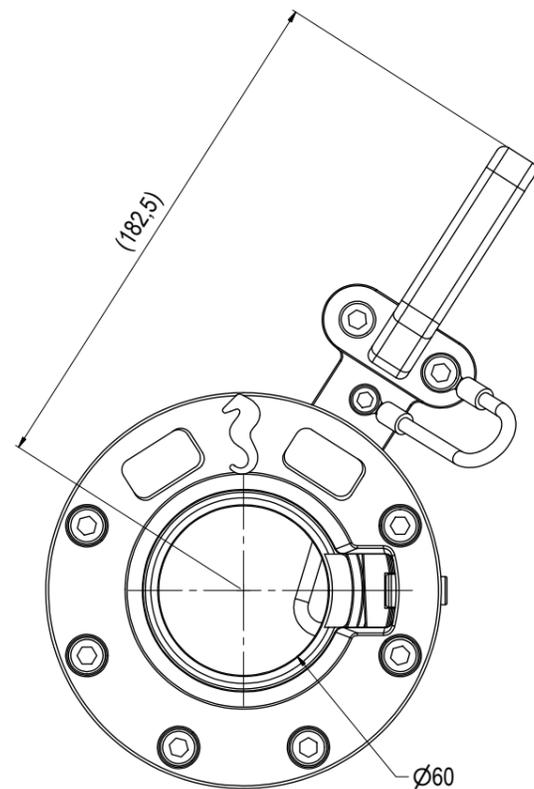
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12	15.9.2022	9-IFU (Issued for Use)		WTJ	LGH	WTJ
11	19.4.2022	9-IFU (Issued for Use)		WTJ	LGH	WTJ
10	21.10.2020	9-IFU (Issued for Use)		WTJ	LGH	WTJ
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.



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Dwg Format:	A3

Drawing title:	Ø60 TP VStab 250Bar Interv 70deg BSP 3/4"-1/2"	
Drawing number:	BA1135	Rev: 13



NOTE: 1
DESIGN CODE:
N/A

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.02. Receptacle
Sub Group: 3.34.75.1. Single

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 345
Material: Long-term
Weight: 10,1 kg
Volume: 1,3 dm³
Surface Area: 2708 cm²
Hydraulic: 3/4" BSP
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
N/A

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04	10.2.2016	2-IFT (Issued For Tender)		WTJ	HNJ	WTJ
03	24.9.2014	2-IFT (Issued for Tender)		WTJ	LGH	WTJ
02	16.3.2012	Issued for Information		LGH	NA	NA
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.

BLUE LOGIC

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Dwg Proj:
Dwg Format:
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Drawing title:
Ø60 SP VStab Rec 5k Long-term Man BSP 3/4"

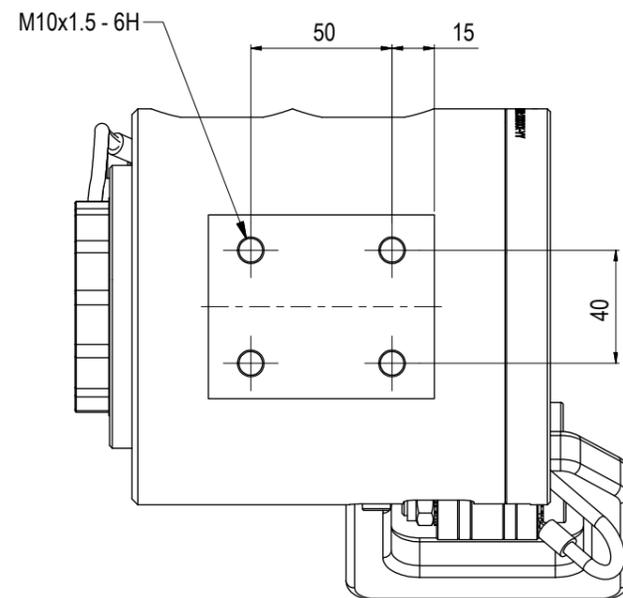
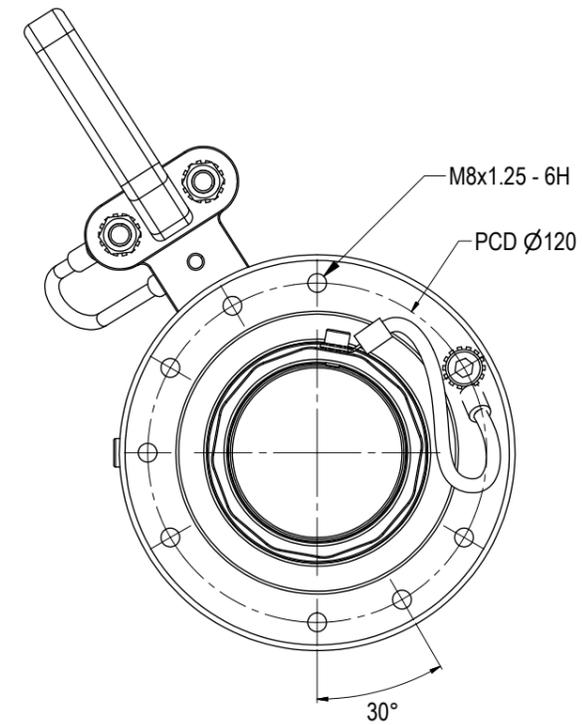
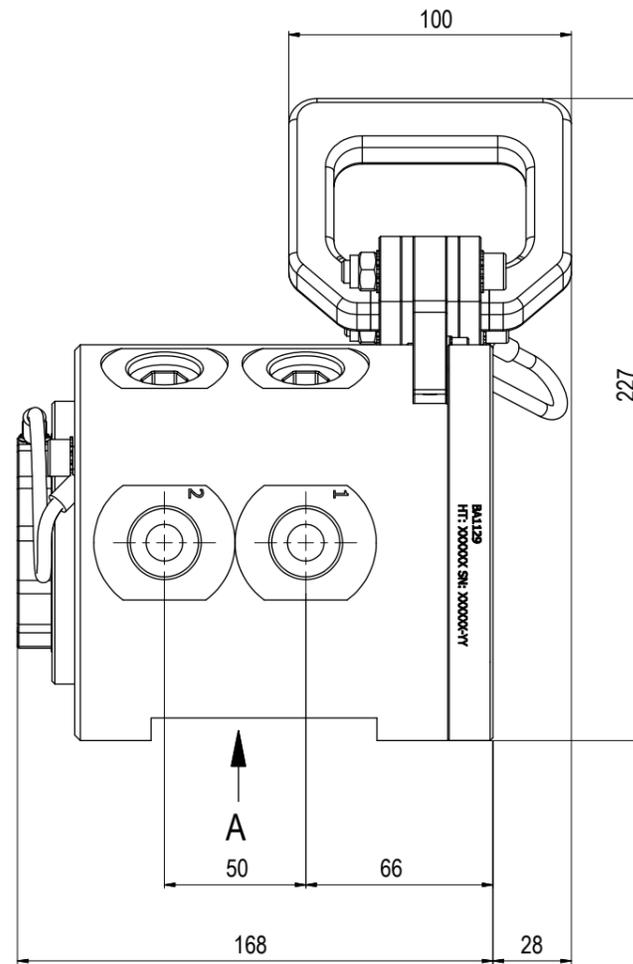
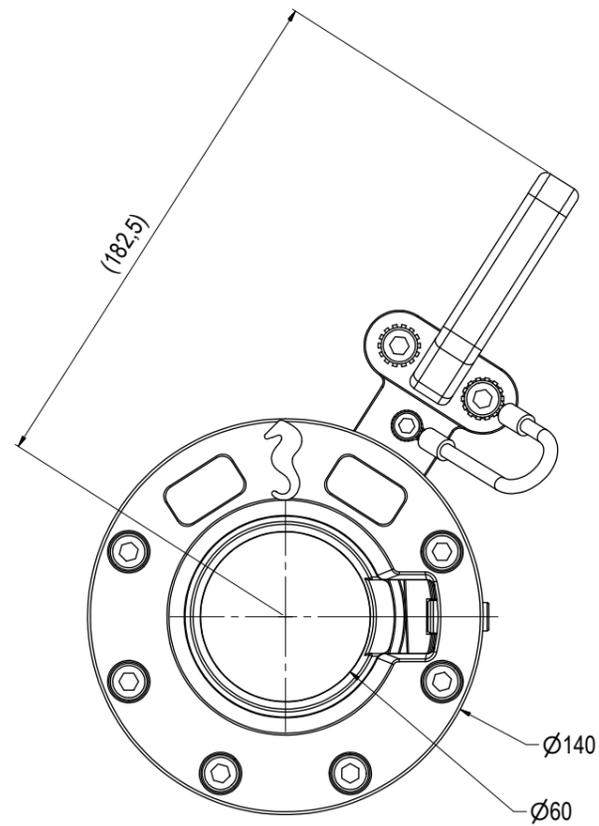
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Rev.
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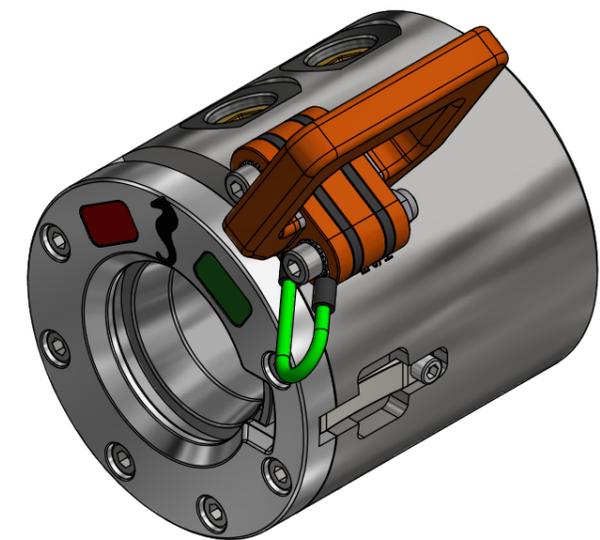
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NOTE: 2
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 Article Type: 003-Valve Stabs
 Main Group: 3.04. Ø60-Valvestab
 Intermediate Group: 3.34.02. Receptacle
 Sub Group: 3.34.75.2. Dual

NOTE: 3
 INTERFACE INFORMATION:
 Pressure Rating Bar: 345
 Material: Long-term
 Weight: 14,6 kg
 Volume: 1,88 dm³
 Surface Area: 3635 cm²
 Hydraulic: 3/4" BSP
 Mechanical: N/A
 Electrical: N/A
 Com. & Protocol: N/A



VIEW A



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Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.

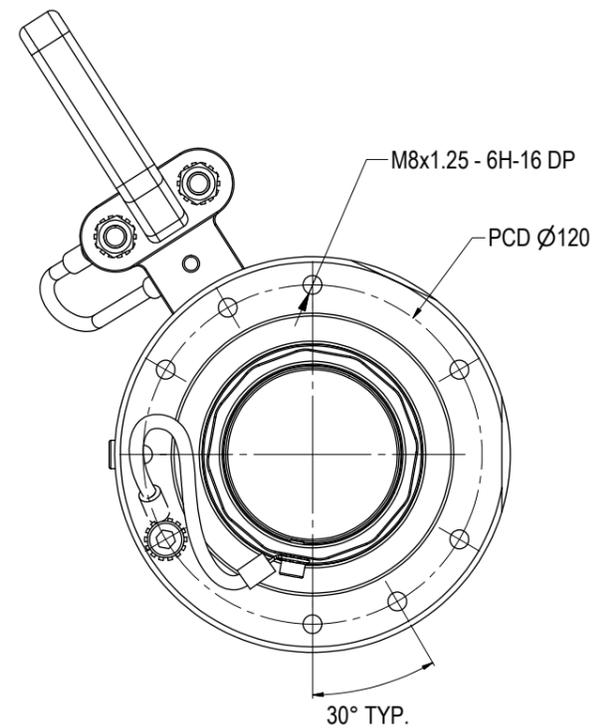
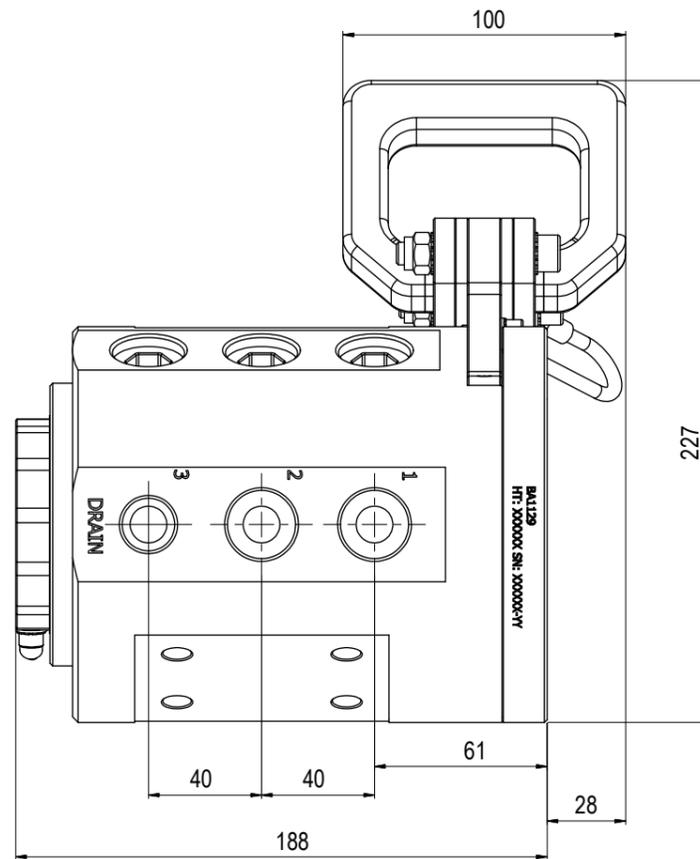
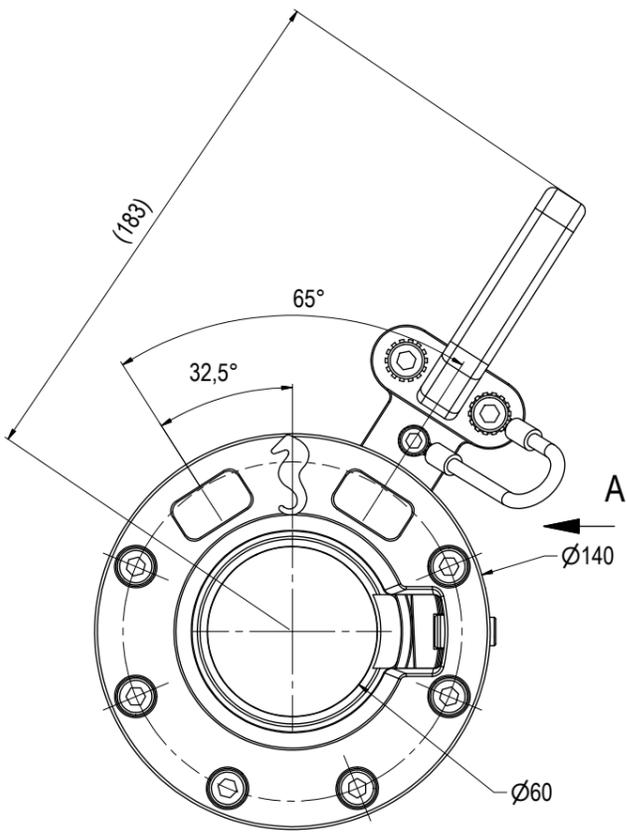
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Drawing title:
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Drawing number:
 BA1738

Rev.
 10



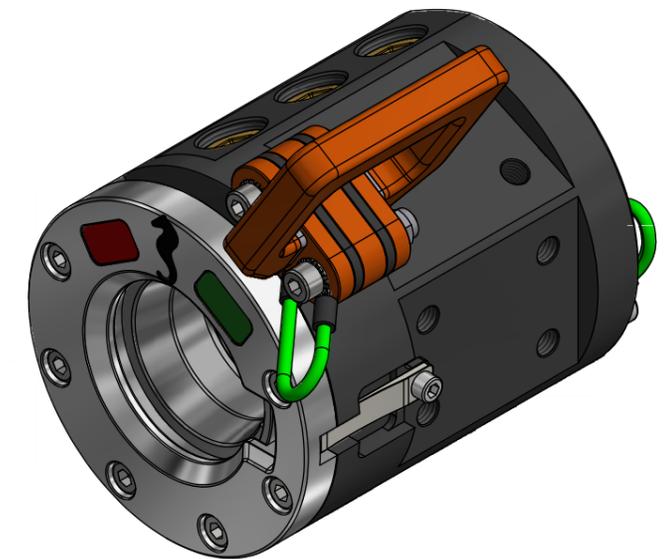
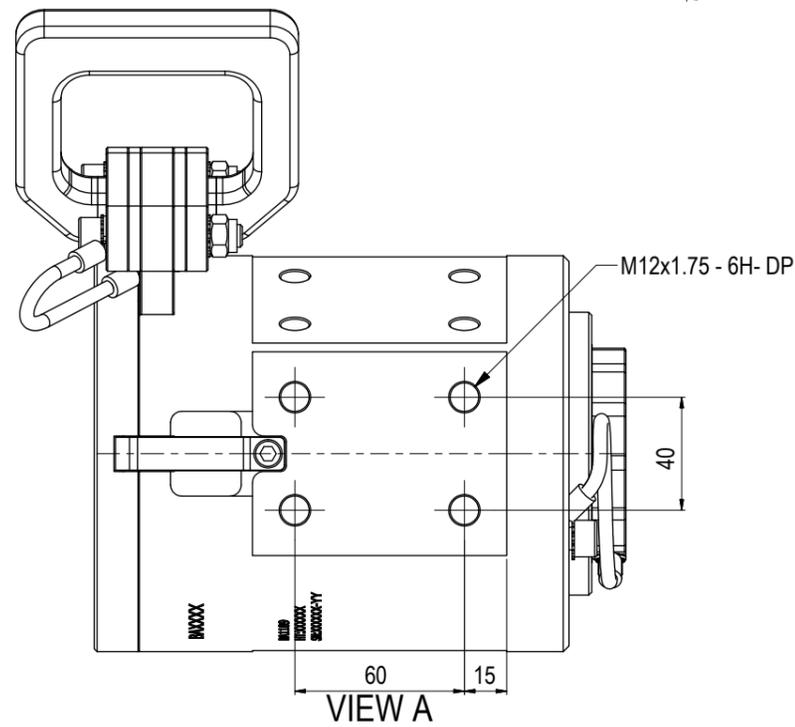
NOTE: 1
DESIGN CODE:
NS-EN 13445

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.02. Receptacle
Sub Group: 3.34.75.3. Triple

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 250
Material: Intervention
Weight: 8,8 kg
Volume: 1,99 dm³
Surface Area: 4025 cm²
Hydraulic: 2x3/4" BSP - 1x1/2" BSP
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
BB1703

NOTE: 5
ADDITIONAL INFORMATION:
Usermanual: 600134-TD-0004



13	19.7.2021	9-IFU (Issued for Use)		WTJ	LGH	WTJ
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11	24.4.2018	9-IFU (Issued for Use)		WTJ	LGH	WTJ
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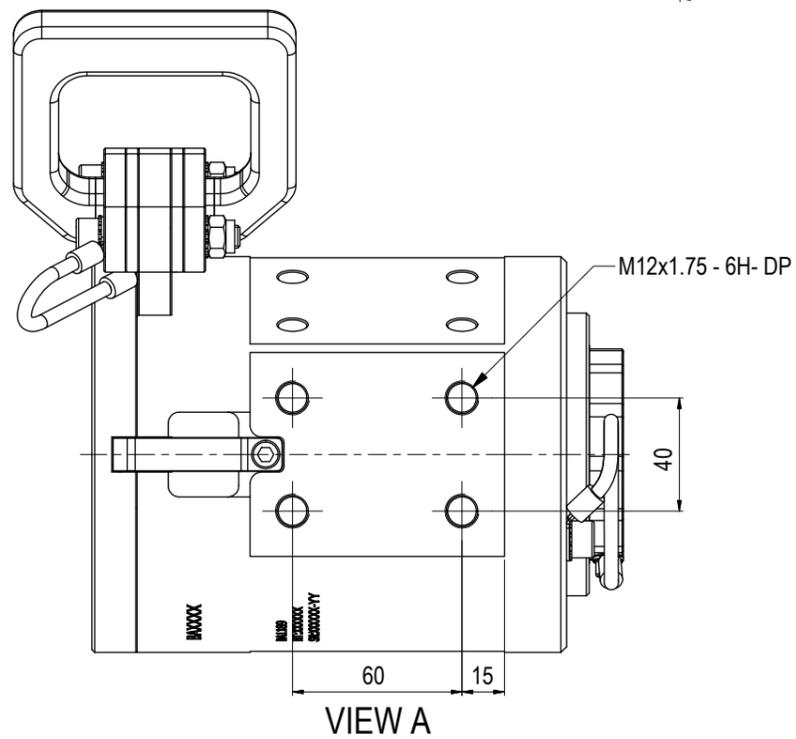
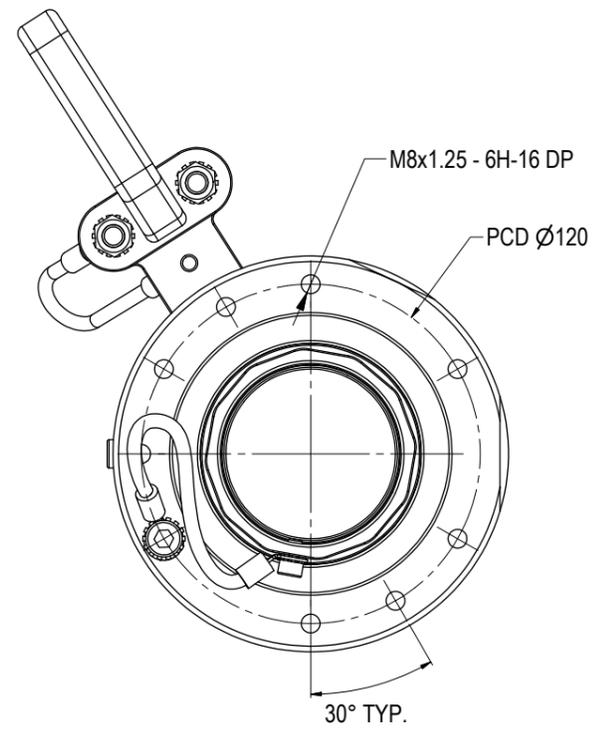
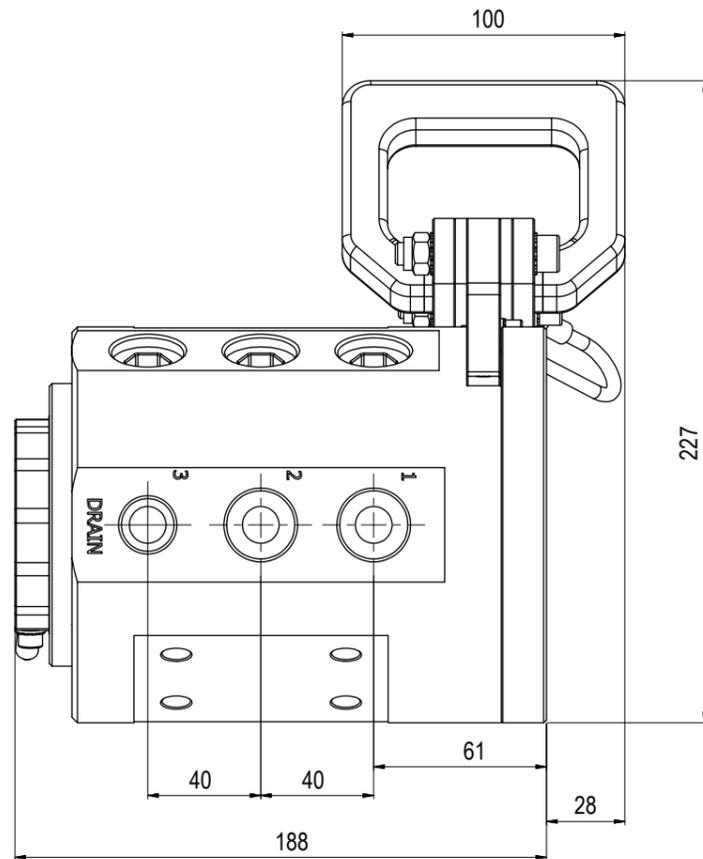
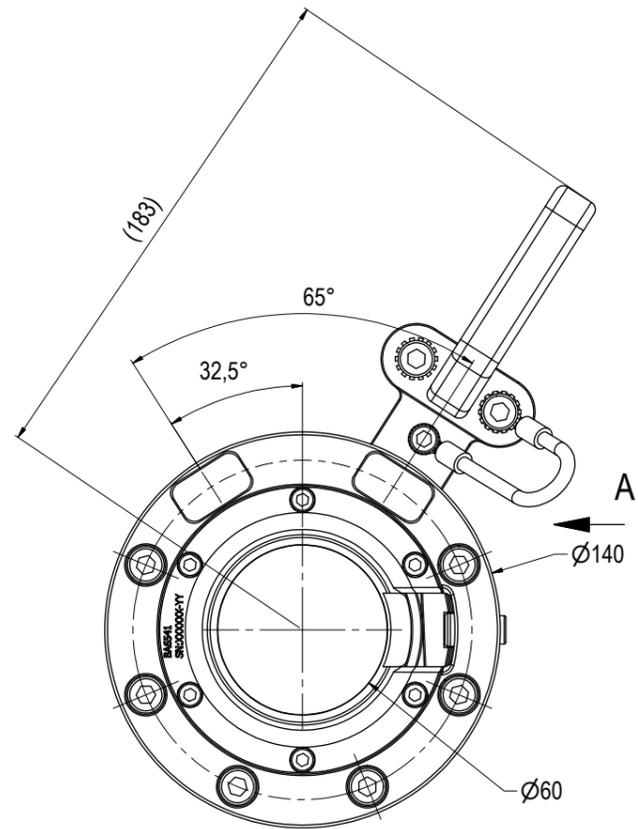
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NTS
Dwg Proj:
Dwg Format:
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Drawing title:
Ø60 TP VStab Rec 250Bar Interv Man BSP 3/4"-1/2"

Drawing number:
BA1121

Rev.
13



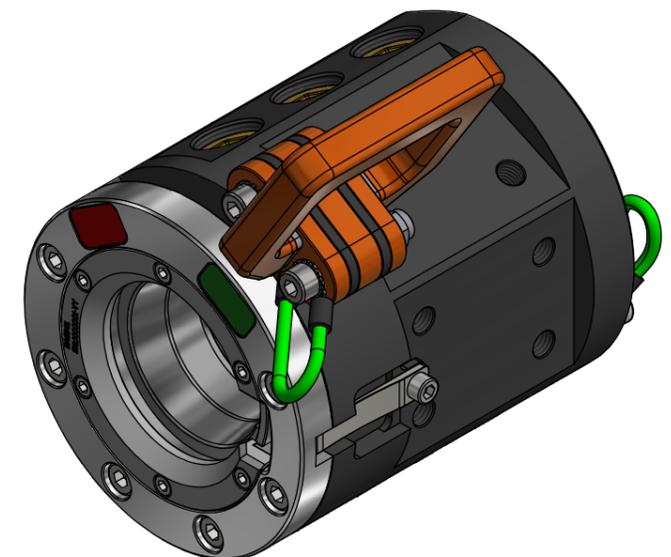
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NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.02. Receptacle
Sub Group: 3.34.75.3. Triple

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: 250
Material: Intervention
Weight: 8,6 kg
Volume: 1,99 dm³
Surface Area: 4082 cm²
Hydraulic: 2x3/4" BSP - 1x1/2" BSP
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
BB1703

NOTE: 5
ADDITIONAL INFORMATION:
Usermanual: 600134-TD-0004

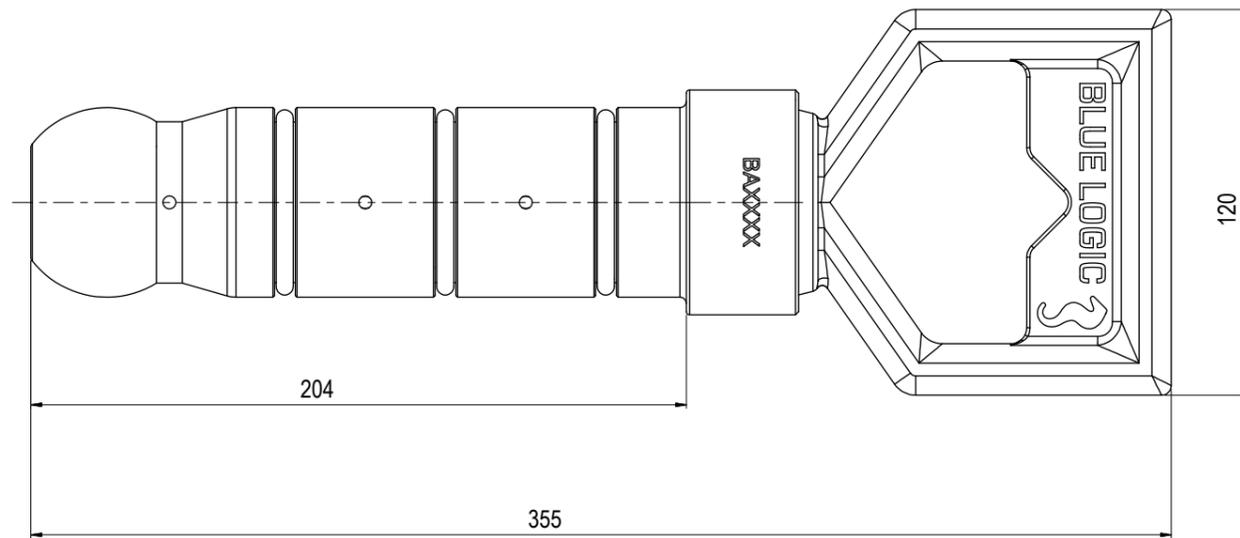
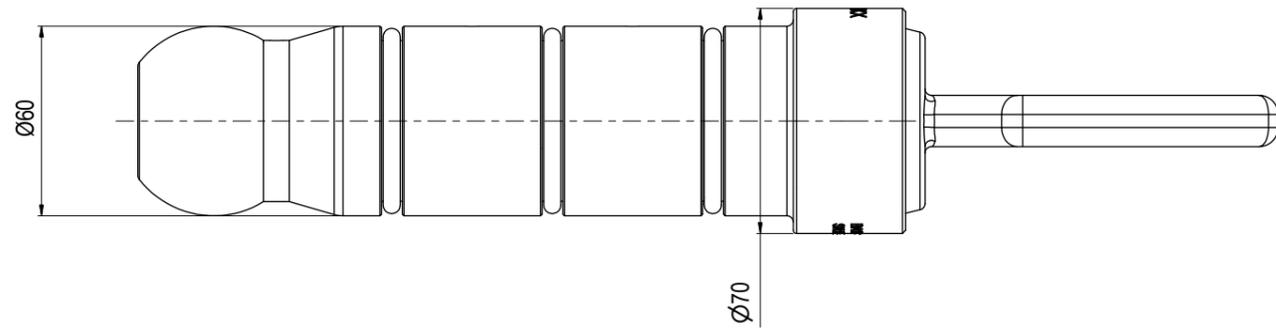


08	4.9.2020	9-IFU (Issued for Use)		WTJ	HNJ	WTJ
07	30.1.2019	9-IFU (Issued for Use)		WTJ	LGH	WTJ
06	27.4.2018	9-IFU (Issued for Use)		WTJ	LGH	WTJ
05	10.4.2018	9-IFU (Issued for Use)		WTJ	LGH	WTJ
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.



Dwg Scale:	NTS
Dwg Proj:	
Dwg Format:	A3

Drawing title:	Ø60 TP VStab Rec 250Bar Interv Man BSP 3/4"-1/2" WeLi	
Drawing number:	BA6542	Rev: 08



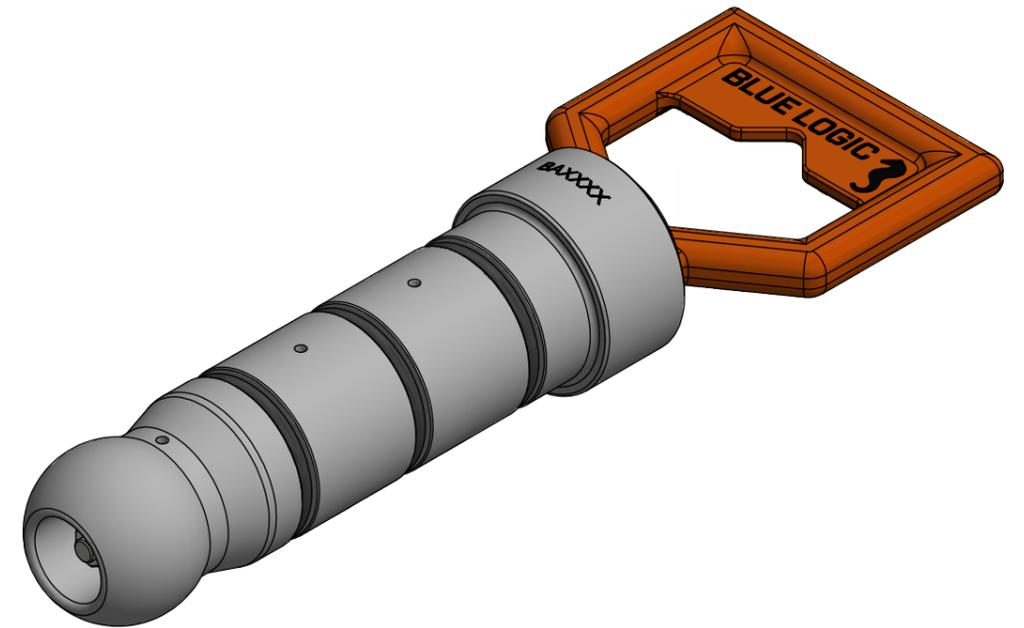
NOTE: 1
DESIGN CODE:
NS-EN 13445

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.03. Protection
Sub Group: 3.34.233.2. Dual

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: Vented
Design Water Depth:
Material: Long-term
Weight: 1,7 kg
Volume: 0,73 dm³
Submerged Weight: 0,98 kg
Surface Area: 1198 cm²
Hydraulic: N/A
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
BB1698

NOTE: 5
ADDITIONAL INFORMATION:
Usermanual: 600134-TD-0004

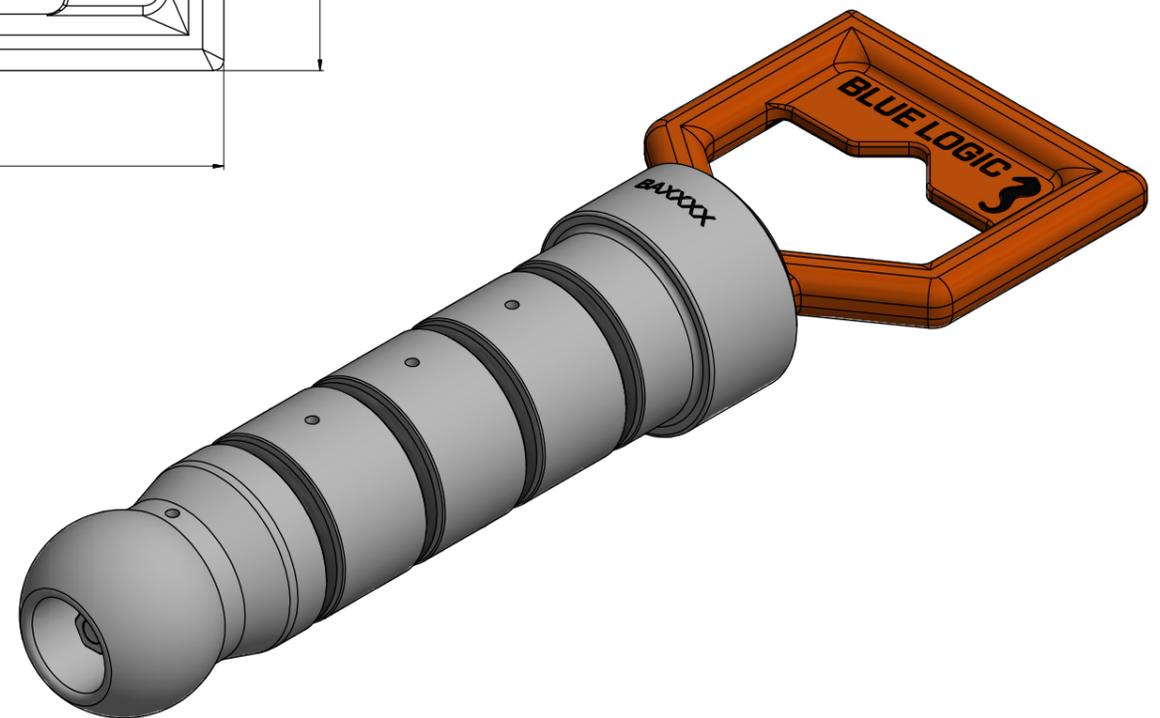
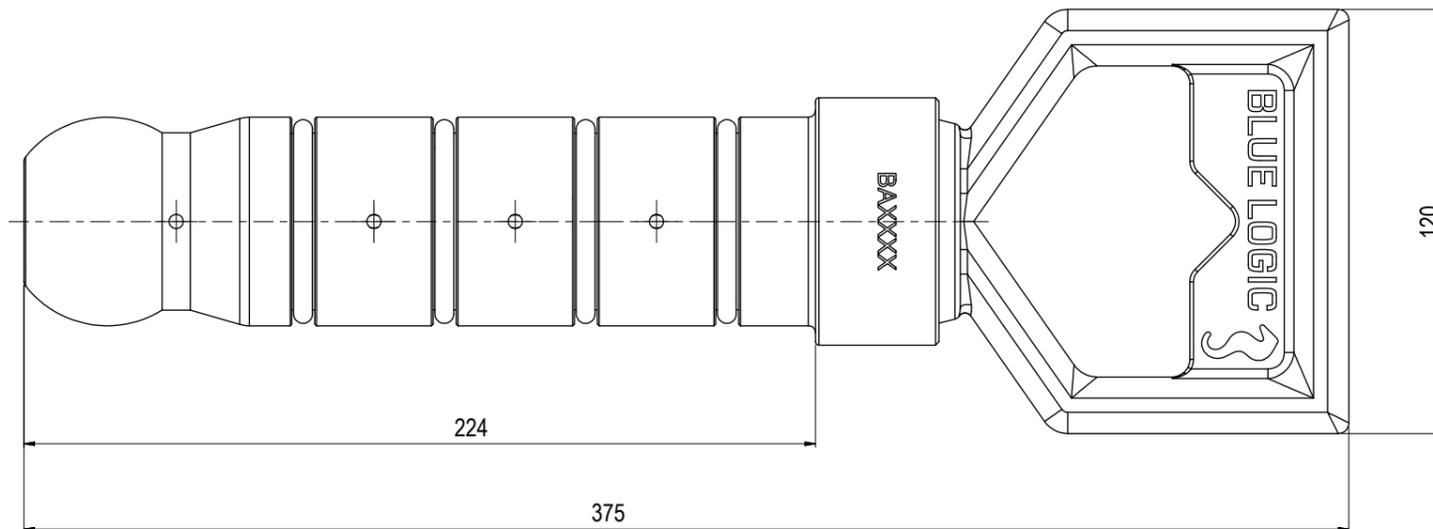
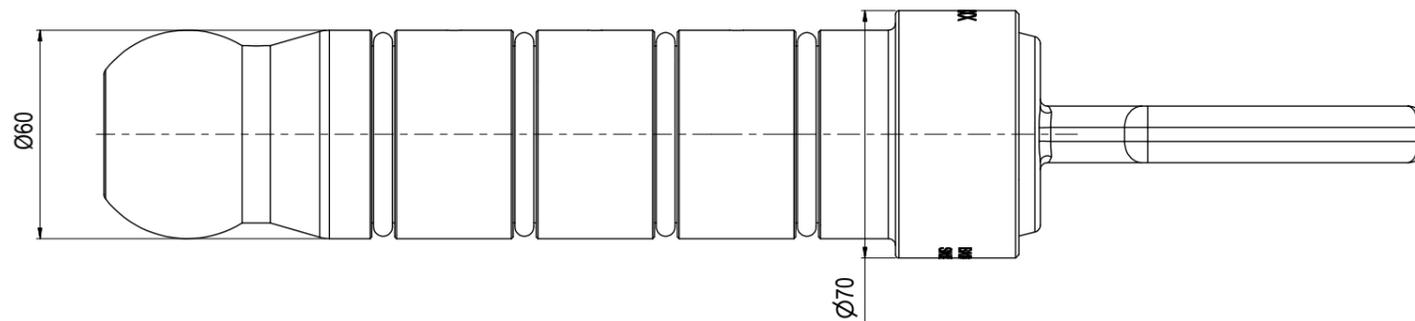


Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.
02	4.2.2021	9-IFU (Issued for Use)		WTJ	HNJ	WTJ
01	30.1.2019	9-IFU (Issued for Use)		WTJ	HNJ	WTJ



Dwg Scale:	NTS
Dwg Proj:	
Dwg Format:	A3

Drawing title:	Ø60 DP Prot VStab Vented Long-term	
Drawing number:	BB1202	Rev: 02



NOTE: 1
DESIGN CODE:
N/A

NOTE: 2
TECHNICAL CLASSIFICATION:
Article Type: 003-Valve Stabs
Main Group: 3.04. Ø60-Valvestab
Intermediate Group: 3.34.03. Protection
Sub Group: 3.34.233.3. Triple

NOTE: 3
INTERFACE INFORMATION:
Pressure Rating Bar: Vented
Material: Long-term
Weight: 1,8 kg
Volume: 0,79 dm³
Surface Area: 1290 cm²
Hydraulic: N/A
Mechanical: N/A
Electrical: N/A
Com. & Protocol: N/A

NOTE: 4
SPAREPARTS:
BB1698

NOTE: 5
ADDITIONAL INFORMATION:
Usermanual: 600134-TD-0004

04	26.10.2021	9-IFU (Issued for Use)		WTJ	HNJ	WTJ
03	23.6.2014	9-IFU (Issued for Use)		WTJ	HLG	WTJ
02	27.11.2012	7-IFC (Issued for Construction)		HNJ	LGH	HNJ
01	7.12.2011	Issued for information		LGH	NA	NA
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.

BLUE LOGIC 

Dwg Scale:
NTS
Dwg Proj:
Dwg Format:
A3

Drawing title:
Ø60 TP Prot VStab Vented Long-term

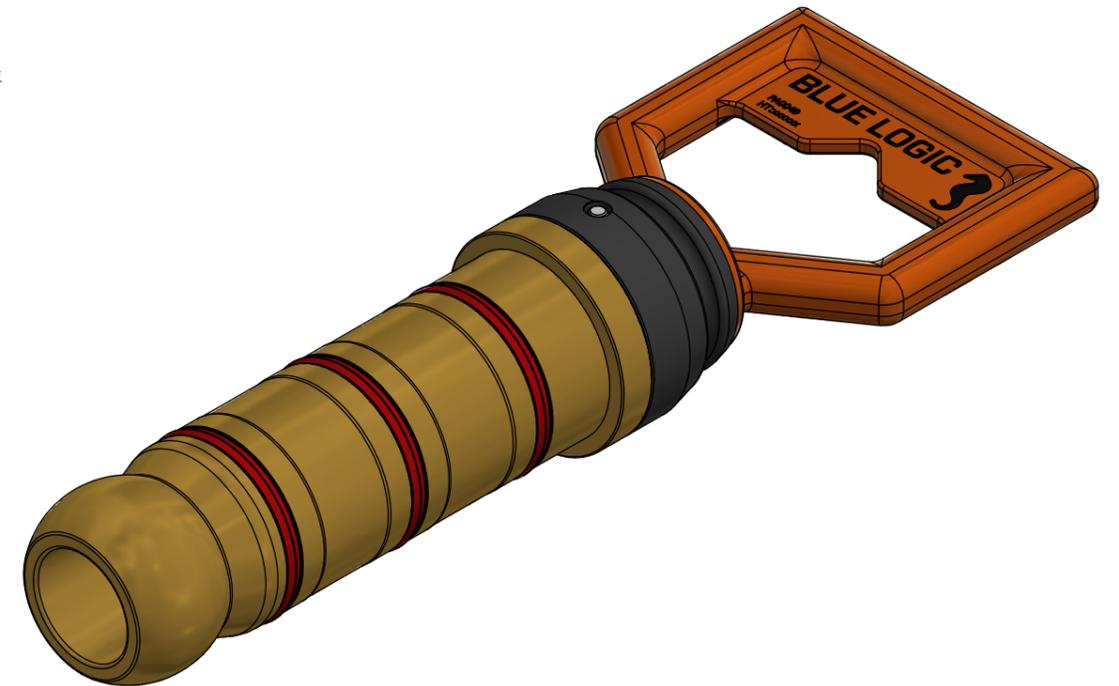
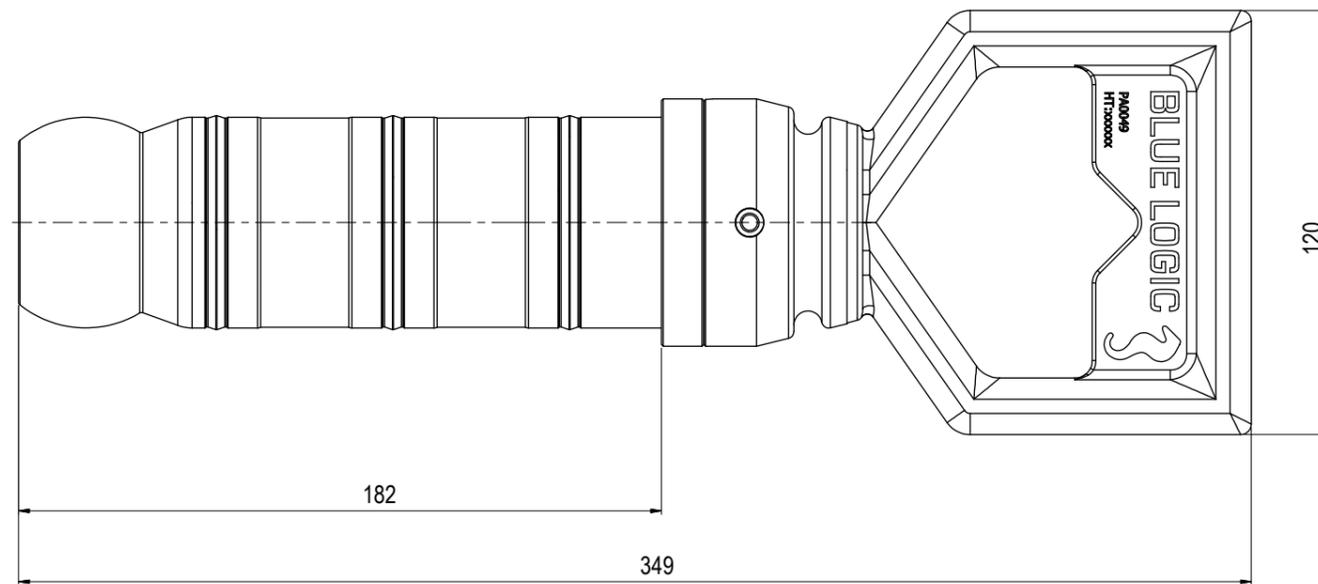
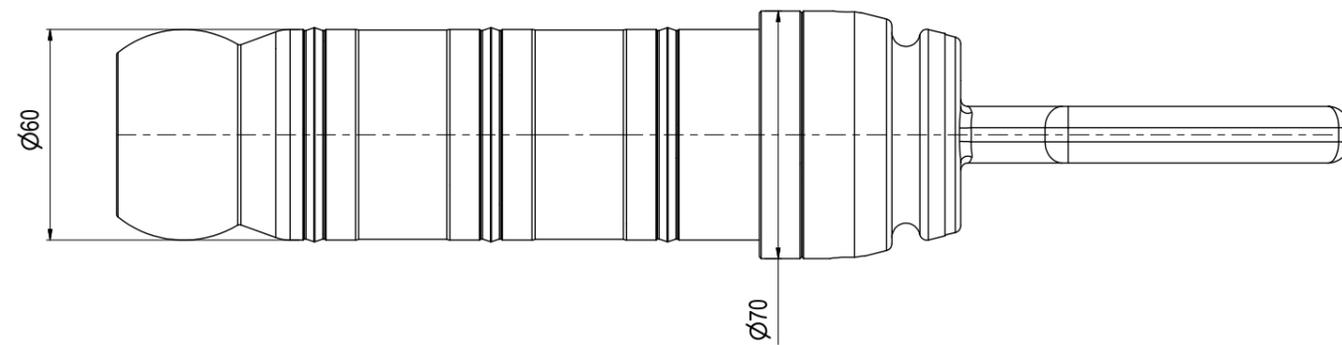
Drawing number:
BA1965

Rev.
04

NOTE: 1
 DESIGN CODE:
 Interface: API 17H Testing: API 6/ISO 10423

NOTE: 2
 TECHNICAL CLASSIFICATION:
 Article Type: 003-Valve Stabs
 Main Group: 3.04. Ø60-Valvestab
 Intermediate Group: 3.34.04. Pressure
 Sub Group: 3.34.234.2. Dual

NOTE: 3
 INTERFACE INFORMATION:
 Pressure Rating Bar: 345
 Material: Intervention
 Weight: 3,7 kg
 Volume: 0,56 dm³
 Surface Area: 1327 cm²
 Hydraulic: N/A
 Mechanical: D-Handle
 Electrical: N/A
 Com. & Protocol: N/A



04	3.10.2019	9-IFU (Issued for Use)		HNJ	SNA	HNJ
03	15.8.2019	9-IFU (Issued for Use)		WTJ	LGH	WTJ
02	9.12.2014	2-IFT (Issued for Tender)		WTJ	LGH	WTJ
01	7.12.2011	2-IFT (Issued for Tender)		LGH	N/A	N/A
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.



Dwg Scale:
 NTS
 Dwg Proj:
 Dwg Format:
 A3

Drawing title:
 Ø60 DP Press VStab 345Bar Interv

Drawing number:
 BA1972

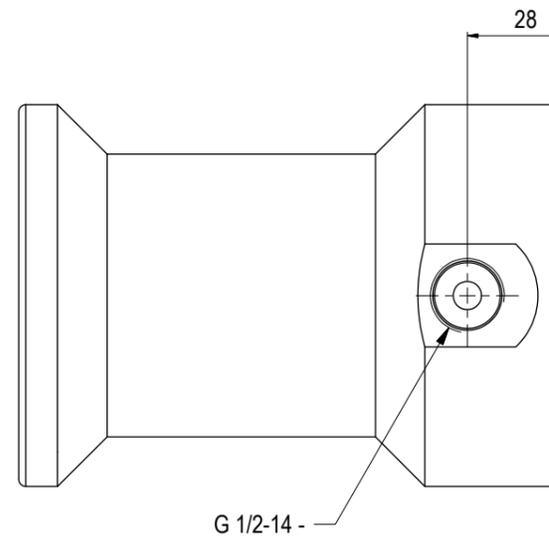
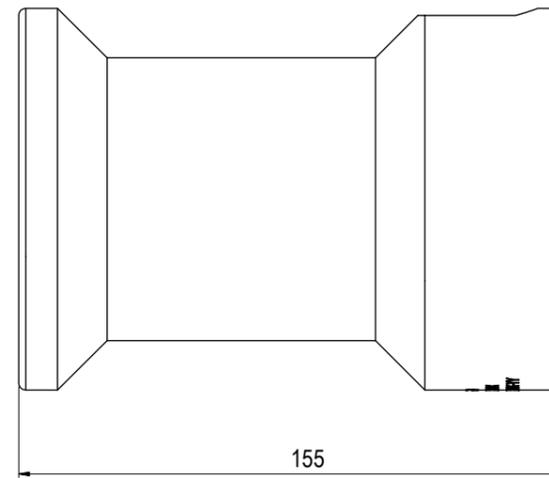
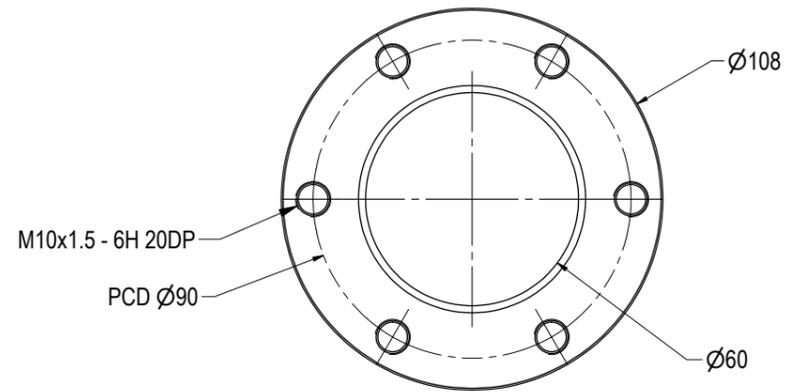
Rev.
 04

NOTE: 1
 DESIGN CODE:
 NS-EN 13445

NOTE: 2
 TECHNICAL CLASSIFICATION:
 Article Type: 003-Valve Stabs
 Main Group: 3.04. Ø60-Valvestab
 Intermediate Group: 3.34.2. Receptacle
 Sub Group: 3.34.75.3. Triple

NOTE: 3
 INTERFACE INFORMATION:
 Pressure Rating Bar: N/A
 Material: Intervention
 Weight: 1,499 kg
 Volume: 0,553 dm³
 Surface Area: 941,285 cm²
 Hydraulic: N/A
 Mechanical: N/A
 Electrical: N/A
 Com. & Protocol: N/A

NOTE: 4
 ADDITIONAL INFORMATION:
 Usermanual: 600134-TD-0004



Allow min. 60mm free space for stabber nose when mounted on panel



04	23.6.2014	9-IFU (Issued for Use)		WTJ	HNJ	WTJ
03	8.7.2013	7-IFC (Issued for Construction)		HNJ	LAE	HNJ
02	3.1.2013	7-IFC (Issued for Construction)		HNJ	HSE	HNJ
01	8.11.2012	7-IFC (Issued for Construction)		LGH	NA	NA
Rev.	Date	Reason for issue	Revision change	Made	Chk'd	Appr.



Dwg Scale: NTS
 Dwg Proj:
 Dwg Format: A3

Drawing title: Ø60 TP Park VRec Interv

Drawing number: BA3054

Rev: 04