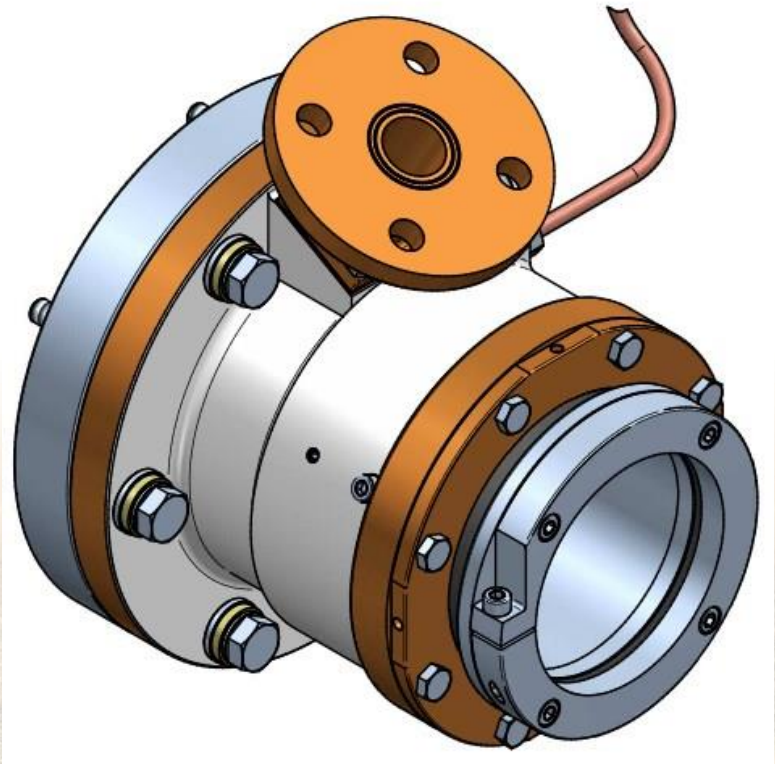
POSEIDON
PROPULSION B.V.

Pegasus Seals Deluxe
124 mm (Forw)



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Installation & maintenance manual

Order number	:	Poseidon: 15000710
Vessel name / Number	:	
Serial number Pegasus seal	:	
Size	:124mm	
Assembly drawing	:26.124BRIB.400	
BV type approval number	: Certificate 21649/BO BV File number ACM137/1602/001 Product code 07251	
Product marks	: type	:Pegasus seal inboard bronze (FWD) (4pc.)
	: Size	:124mm
	:	
	: Bureau Veritas mark: BV Certificate for Sealing Gland No: 2169RTD15	

The 124 mm Pegasus Seal Deluxe for the FCS5009 is of a special design. As extra this seal is NOT equipped with a spigot and so radially adjustable in alignment to the position of the shaft.
Further special precautions are taken to minimize galvanic corrosion.

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Table of contents

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INTRODUCTION

This manual gives guidance for a professional installation, maintenance and disassembly of the Poseidon Pegasus seals.
The instructions in this manual are accompanied, where necessary, by special symbols indicating particular hazards.

Caution!

Danger to the product and/or other machines.
These hazardous situations can arise when:

- Inadequately trained staff service the product;
- The product is inexpertly installed, maintained or disassembled;
- The product is used for purposes other than those for which it was originally designed.

In addition to the above hazard symbols, additional information is accompanied by the following symbol:

Extra information
All persons responsible for installation, maintenance or disassembly of the product must:

- Be familiar with the contents of this manual;
- Have adequate technical skills.

Although the information in this manual has been composed and verified as accurately as possible and the descriptions are as clear as possible, no liability can be accepted for errors and/or deficiencies in the work done during maintenance, installation or start-up procedures.

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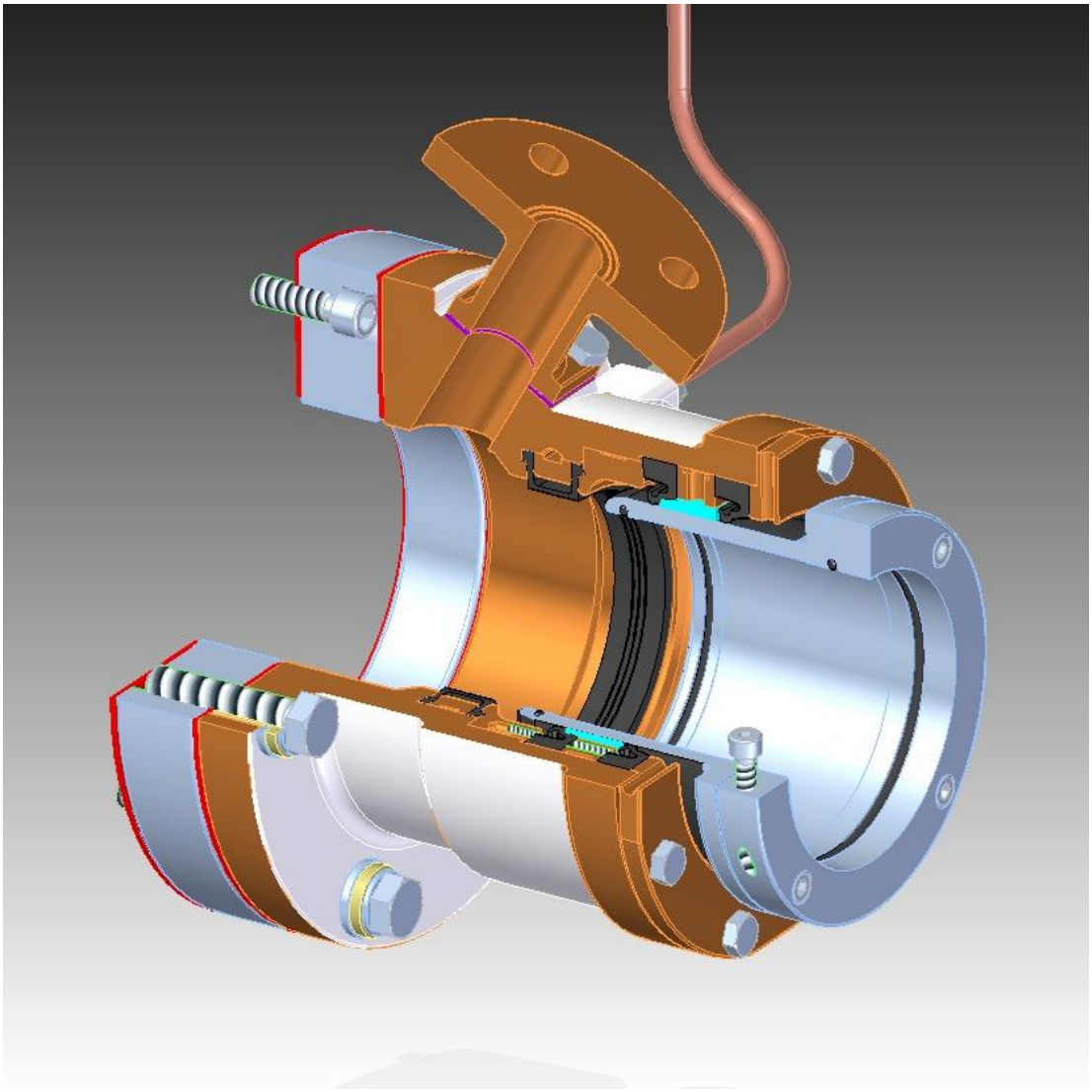
1 Product description



1.1 Equipment checks and precautions, done by Poseidon, before dispatch to Yard.

- All assemblies and components supplied by Poseidon have been carefully inspected before shipment.
- Each component is suitably packed and protected to prevent damage or deterioration during shipment, transit or storage. Any specific storage or handling requirements will be clearly identified on the package.

1.2 Checks on receipt by (outfitting)Yard

- Goods should be examined on receipt to verify the contents and their condition.
- Poseidon should be immediately advised of any damage or discrepancy in the range of products supplied. Damage which is clearly caused by handling in transit should be notified to the carrier.
- Keep goods in their original packing until just prior to installation in order to protect them optimally.
- Care must be taken during handling to prevent any mechanical damage occurring due to dropping, crushing etc., especially on the ceramic coated wearing liner.

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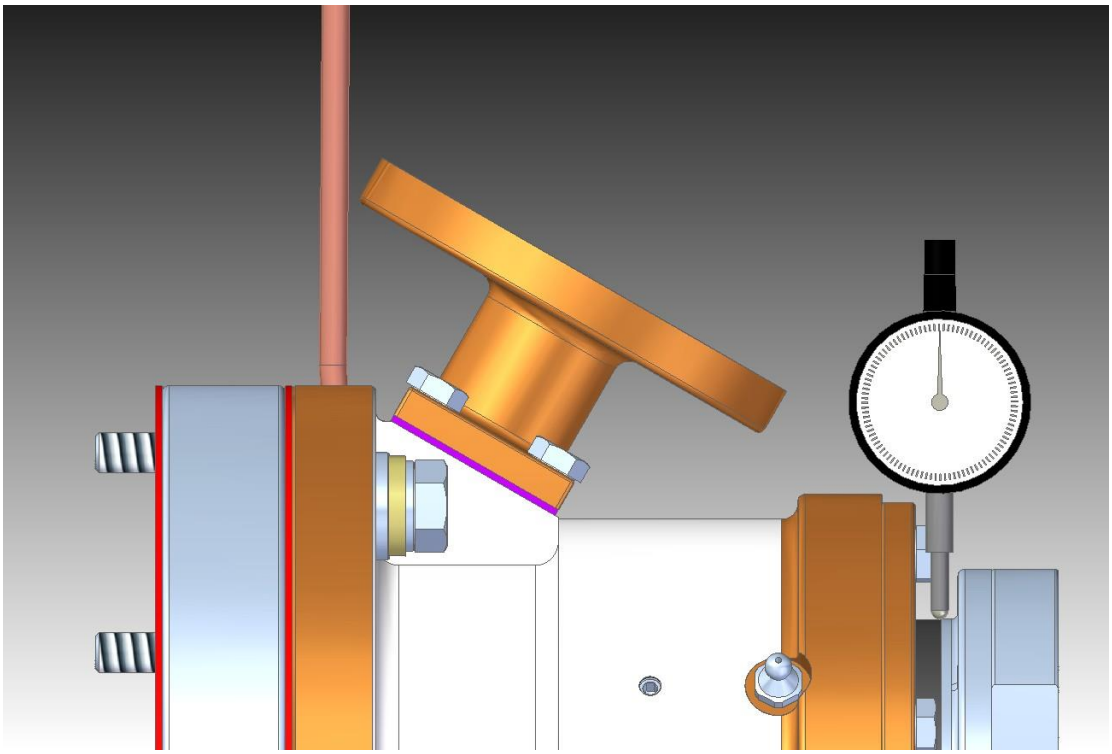
1.3 Limitations

- When in use, the seals can absorb radial swing of the shaft. This depending on the shaft diameter, in combination with the actual shaft revs/min, this will vary.
- The maximum radial dynamic movement of the shaft is to be not more than 0.4 mm.
- If during operations a shaft will frequently swing more than 0.4 mm, a serious alignment problem has shown up and immediately repairs are required. The shaft may exceed marginally bigger radial movements during manoeuvring at lower speed.
- When the shaft is NOT running, a maximum bearing clearance of 1% will still keep the seals tight (see instructions wear down measurements)
- The seals can take no higher speeds then 14 m/s.
- The maximum standard operating temperature is 80 degrees Celsius.

The maximum run out, measured on the liner, is to be less than 0.05 mm



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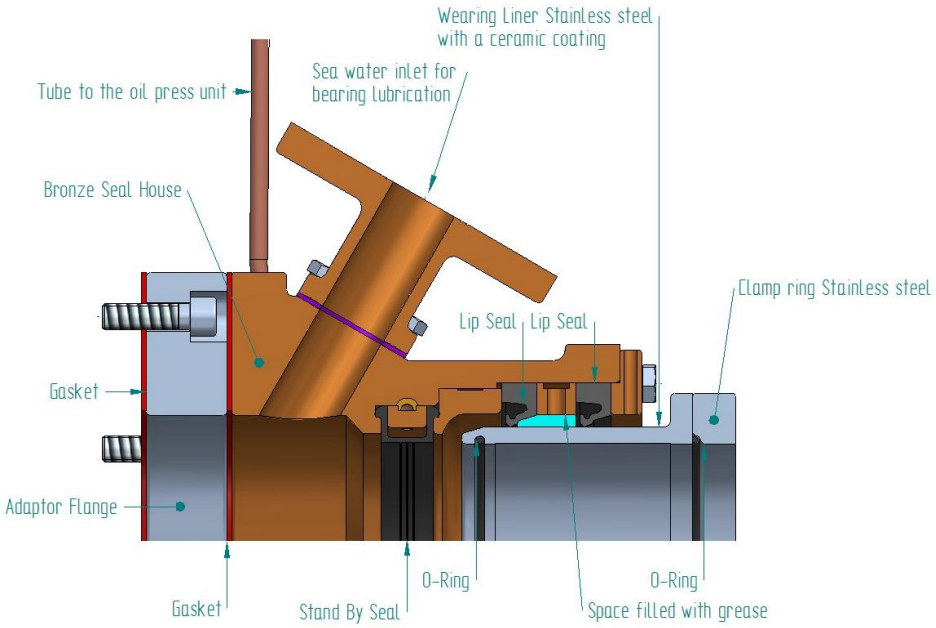
2.1 General

The Pegasus open water stern tube seal system consists of a Pegasus inboard seal only. Water circulation for the seals is particularity not required but is required to lubricate the water lubricated bearings in the tube.

The Pegasus deluxe forward seal consists of a housing that contains 2 lip seals which run on a ceramic coated stainless steel liner. The intension is to prevent (sea)water coming into the vessel.
The seals are water lubricated supported with a grease that is injected between the seals. This grease extents the lifespan of the seals.

The Pegasus seal is also equipped with an inflatable emergency seal, here after called "Stand by Seal".
This stand by seal can only be inflated/used when the shaft is NOT rotating.



2.2 Installation precautions

The following precautions must be taken before commencing the installation of the Pegasus seal:

- Check the shaft and stern tube for damage and/or dirt;
- The shaft and stern tube should be free of imperfections such as dirt and/or damage/burs.
- Check the goods for transport damage and/or incompleteness; If any transport damage is noted and/or anything is missing, contact Poseidon.
- Check the connection sizes;
- If the connection sizes do not match with those in the drawing, the stern tube seal cannot be fitted. In this case, consult Poseidon.

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2.3 Installation of the Pegasus seal

A new seal is delivered fully assembled.

Clean the working area before proceeding installation.
The seals are sensitive to dust and dirt.
Further the shaft liners need to be equipped with smooth 15 degree chamfers facilitating that the radial lip seals can slide in place.

Check the shaft on diameter tolerances. The OD should be machined to h7.
Provide the shaft with some grease. This make the liner slide easier over the shaft.

2.3.1 Installation of a complete new seal during vessel new-building-period or during overhaul with a removed propeller shaft.

Information

1. The seal is supplied included a stern tube adaptor, isolators and packing.
2. The stern tube adaptor needs to be provided with a coating system per instructions paint supplier.
3. The adaptor flange has NO spigot, so alignment (and readjustment) of the seal is fully possible.
4. The isolators are included to achieve a maximum galvanic isolation of the seal to prevent galvanic corrosion.
5. The liner is mounted inside the seal when shipped. When mounting the seal the liner has to be removed and installed at later stage.
6. First install the shaft before mounting the seal!! This will prevent that the shaft, during installation can lean on the seal, radial lip seals a damage them. So the seal will rest on the shaft.
7. Before installing the shaft check that the springs of the radial lip seals are all in place.
8. APPLY 30cc GREASE BETWEEN THE SEALS BEFORE INSTALLATION. To be used is any lithium grease such as; Mobil Unirex EP, Shell Albida RL The space between the seals is to be filled by approx 50%. Poseidon supplied a container with 300 cc grease with the seals.
9. Torque the mounting bolts up as per instructions in table below

Torques in Nm for all StSt A4 - 70 bolts Friction coefficient taken = 0.20	
M8	24.1
M10	47.9
M12	82
M16	204

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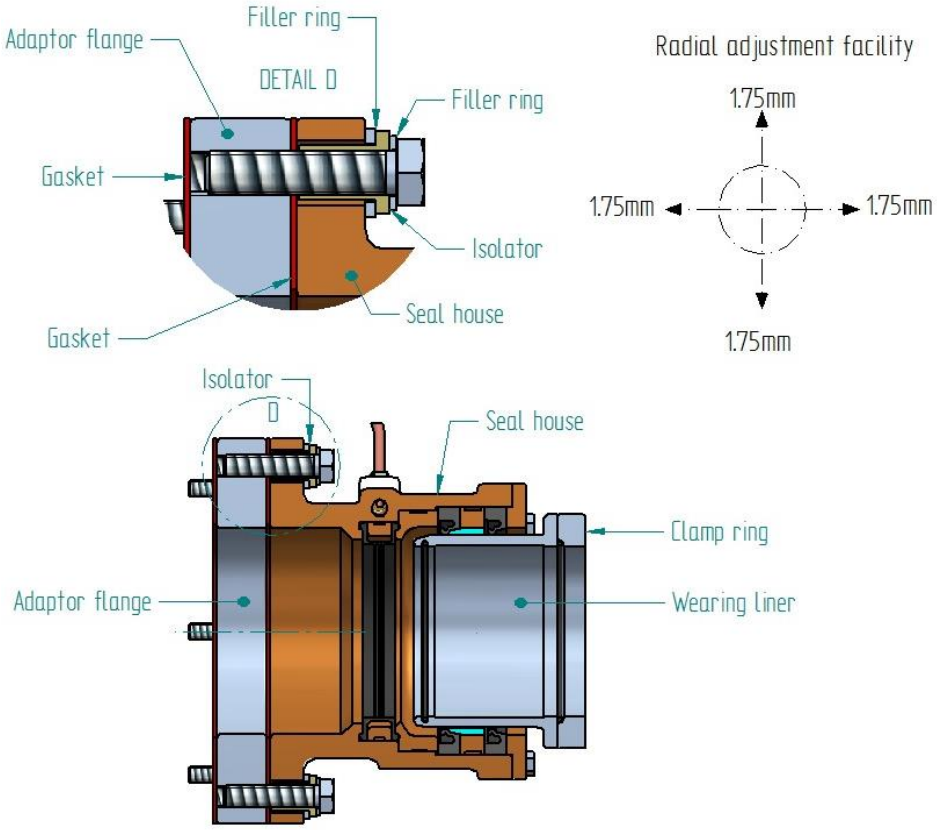

Mounting procedure (item numbers given will correspond with the drawing)

1. When bringing the shaft in, slide the gaskets, the adaptor flange, the seal and gasket over the shaft.
2. The wearing liner (item 2) and the clamp ring (item 3) with all O-rings (item 11) are placed on the shaft, away from the Pegasus seal.
3. Place the adaptor flange gasket (item 15) against the stern tube face using a little lithium grease between so it sticks on the tube to preventing falling down.
4. Mount the adaptor flange (item 9) and apply torques as per table page 8.
5. Place the seal gasket (item 14) against the adaptor flange face, again using a little lithium grease between so it sticks on the tube to preventing falling down. Also the grease will make it possible to (re)adjust the seal later on.
6. Mount the seal house using the mounting bolts (item 25) with isolators (item 28) and rings (item 30/29). DO NOT TIGTH THE BOLTS. Just tight them in a way that the seal "just stays in place" around the shaft
7. Install water inlet and stand by seal equipment
8. Position the Wearing liner (item 2) sliding it gently back avoiding that the radial lip seals (item 12) get damaged.

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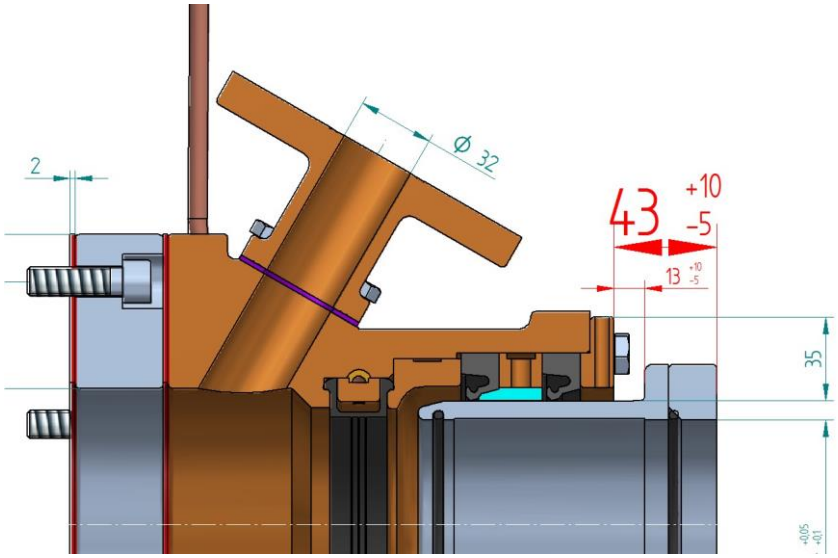
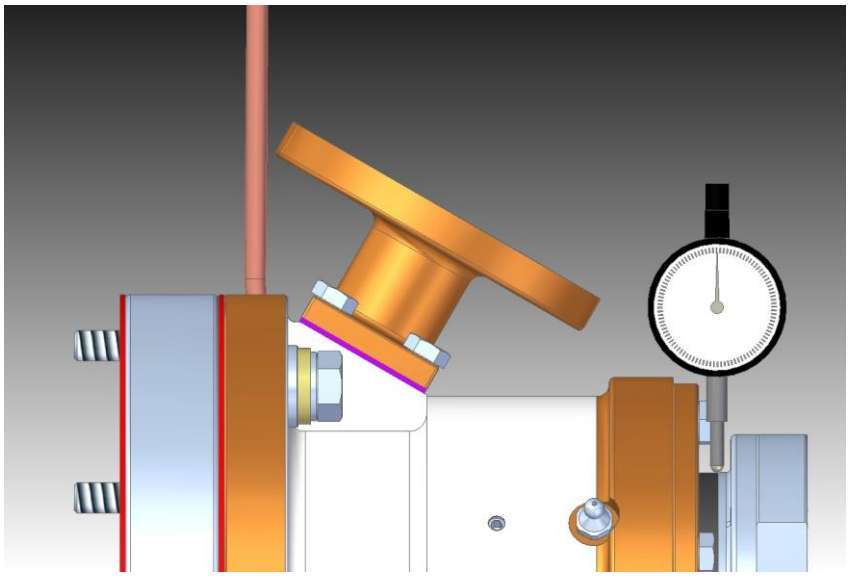
9. Place the wearing liner(item 2) in a way so that the radial lip seals (item 12) will run on the ceramic raceway. (sea fig. below) Taking in account the travel of the shaft due to propeller trust.



10. Place the O-ring (item 11) between the forward face of the wearing liner (item 2) and locking ring (item 3)
11. Mount the screws (item 21 and 22) and apply torques as per table page 8.
12. Follow the further instructions in 2.5 alignment and 3 start up.

The maximum run out, measured on the liner, is to be less than 0.05 mm



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2.3.2 Replacement Instructions for the seals by SPLIT seals with a propeller shaft in position.

When complete new seal assemblies have been supplied, endless radial lip seals are mounted. When the seals need to be replaced while the vessel is in the water and or the **shaftline is NOT removed, you can use *split* seals.**
Split seals have a split at 1 place and are seals, of which the rubber seal rings can be replaced without the need to remove the propeller shaft. For replacement of the forw seal set, the following instructions are to be followed up.

1. Lock the shaft using the dedicated shaft locking device, if installed. This will prevent the gearbox clutch to be activated.
2. Close the seal isolation valves of the water lubrication system.
3. Clean the shaft area right behind the seal thoroughly.
4. If the vessel is in the water!! than pump up the stand-by-seal with an air or oil pressure of approx 0,5 bar. (max 1 bar)
5. Unscrew screw (item 22) of the locking ring
6. Remove all screw (item 21)
7. Pull the locking ring (item 3) forw. Remove the O-ring (item 11)
8. Provide the shaft with some grease. This makes the liner slide easier over the shaft.
9. Than you can pull the wearing liner (item 2) forward.
10. Remove screws (item 23),
11. Remove the retaining plate (item 4).
12. Pull the first radial lip seal out by using a small hook.
13. Cut or saw the radial lip seals and its spring (item 12) of the shaft.
14. Take the first Seal Support ring (item 5) out of the housing. There are 2 threaded holes in the face of the ring that you can use to put a M6 screw in that will help pulling it out.
15. Remove the 2nd radial lip seal (item 12) as you did the first one and also cut this one away.
16. Check the clearance between shaft and seal housing at bottom side and at top side to check if the bearings are worn out or not.
17. Check if the seal seat is still in good condition and clean all faces thoroughly. Remove any grease and dirt.
18. If all is OK, parts are clean and the bearing clearance is still within tolerance then we can start mounting the new split radial lip seals and assemble the whole Pegasus seal again.
19. Take the spring from each seal (see details) and unscrew the joint. Bring the spring around the shaft until the connection of both ends of the spring is visible and, holding one end in each hand, twist the other end a few turns counter clockwise.
20. Take both spring ends , wind them counter clockwise , bring the ends together and release the spring ends to obtain a proper engagement. To avoid any ' curl-in' tendency at the split, the precautions, detailed in figurers 1 – 3 shall always be followed.
21. Move the seal around the shaft and lift the spring into the groove in the seal lip.
22. Ensure that the two spring ends match perfectly, with the split at the top side.
23. Push the seal evenly into the chamber and also press firmly against the back side of the housing.
24. During the installation of forward split radial lip seal, grease (according to parts list) shall be added.
25. Double check that all springs are in correct position in the seat of the split radial lip seal

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Figure 1

Figure 2

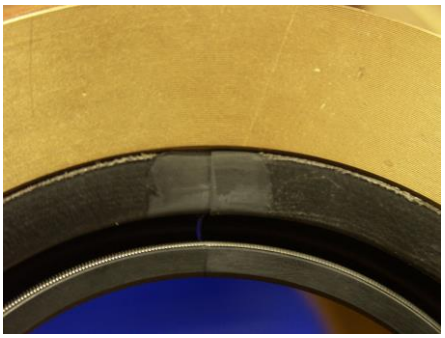

Figure 3

26. Place the Retaining ring (item 4) in place and fasten all bolt connections in reverse sequence of removal. Apply torques as stated on the table.
27. Place the wearing liner (item 2) back in place sliding it gently back avoiding that the radial lip seals get damaged.
28. Place the wearing liner (item 2) in a way so that the radial lip seals will run on a "fresh" raceway.
29. Glue a new O-ring (item 11) around the shaft and put this in place between the forward face of the wearing liner (item 2) and locking ring (item 3)
30. Mount the screws (items 20 and 21) and apply torques as stated on the drawing
31. Release the oil (or air) pressure from the stand by seal (13).
32. Open the isolation valves
33. Follow the further instructions in 2.5 alignment and 3 start up.

Do not use any glu/adhesive to seam the split seals.

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2.3.3 Replacement of the complete seal or overhaul.

If the vessel is slipped and the shaft is dismounted and the seal as a complete item is to be dismounted for an overhaul than follow these instructions are to be followed up.

1. When the shaft is to be pulled, always dismount the seal complete seal from the tube so it rest on the shaft.
2. Close the seal isolation valves of the water lubrication system.
3. Clean the shaft right behind the seal thoroughly.
4. Remove the water inlet
5. Remove the stand by seal inlet
6. Remove screws (item 25)
7. Gasket (item 14) needs to be replaced by the new gasket!! So the old (item 14) needs to be removed completely and both seal house face and stern tube face require thoroughly cleaning.
8. The wearing liner (item 2) was removed earlier when the shaft was removed.
9. Remove screws (item 23),
10. Remove the retaining ring (item 4).
11. Pull the first radial lip seal out by using a small hook.
12. Take the first spacer ring out of the housing. There are 2 threaded holes in the face of the ring that you can use to put a M6 screw in that will help pulling it out.
13. Remove the 2nd radial lip seal as you did the first one
14. Pull out the stand by seal together with the support ring (item 7).
15. Check if the seal seats and rings are still in good condition and clean all faces thoroughly. Remove any grease or dirt.
16. If all is OK, parts are clean we can start mounting the new stand by seal (item 13) and radial lip seals (item 12) and assemble partly the Pegasus seal again. (they liner will be positioned if the shaft is in place again. !!! Note!! BEFORE mounting the shaft do NOT forget to slide the wearing liner (item 2), with the new O-rings (item 11) and the Clamp ring (item 3) over the shaft.
17. Place the new stand by seal (item 13) around the support ring (item nr 7).
18. Slide the stand by seal and support ring back in position. (do NOT yet mount the set screws item 24!!)
19. Take the spring from each seal and unscrew the joint. Turn the spring around the shaft until the connection of both end of the spring are visible and, holding one end in each hand, twist the other end a few turns counter clockwise.
20. Take both spring ends , wind them counter clockwise , bring the ends together and release the spring ends to obtain a proper engagement. To avoid any ' curl-in' tendency at the split, the precautions, detailed in figurers 1 – 3 (chapter B) shall always be followed.
21. Pass the seal around the shaft and lift the spring into the groove in the seal lip.
22. Ensure that the two spring ends match perfectly, with the split at the top side.
23. Push the seal evenly into the chamber and also press firmly against the back side of the housing.
24. During the installation of forward split radial lip seal (item 12), grease (according to parts list) shall be added.
25. Do not grease the seal facing the bearing site as otherwise grease can come in the system.
26. Place the retaining ring (item 4) in place and fasten all bolt connections in reverse sequence of removal. Apply torques as stated on the drawing.
27. Tight the set screws (item 24).
28. After the shaft is mounted again the wearing liner (item 2) can be positioned and mounted.
29. Place the wearingliner back in place sliding it gently back avoiding that the radial lip seals get damaged.
30. Position the wearing liner in a way so that the radial lip seals will run on a " fresh" raceway.
31. New O-ring (item 11) are to be put in place between the forw face of the wearing liner (item 2) and Clamp ring (item 3).
32. Mount the screws (items 20 and 21) and apply torques as stated on the table
33. Follow the further instructions in 2.5 alignment and 3 start up.

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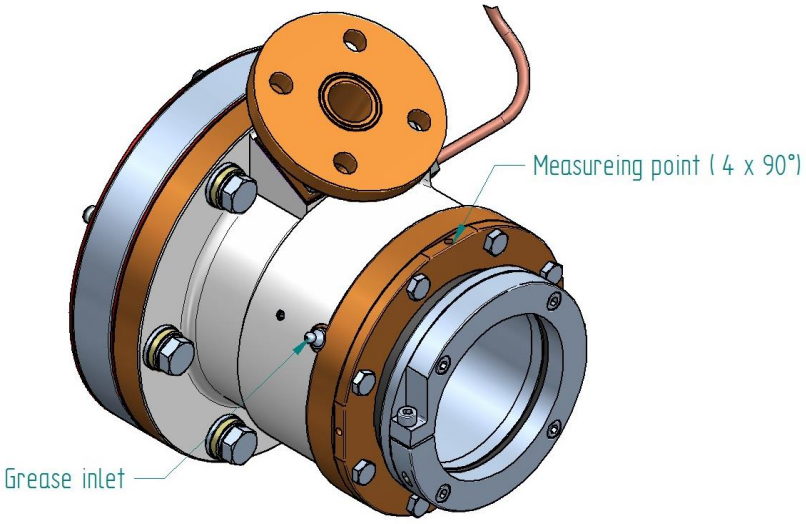
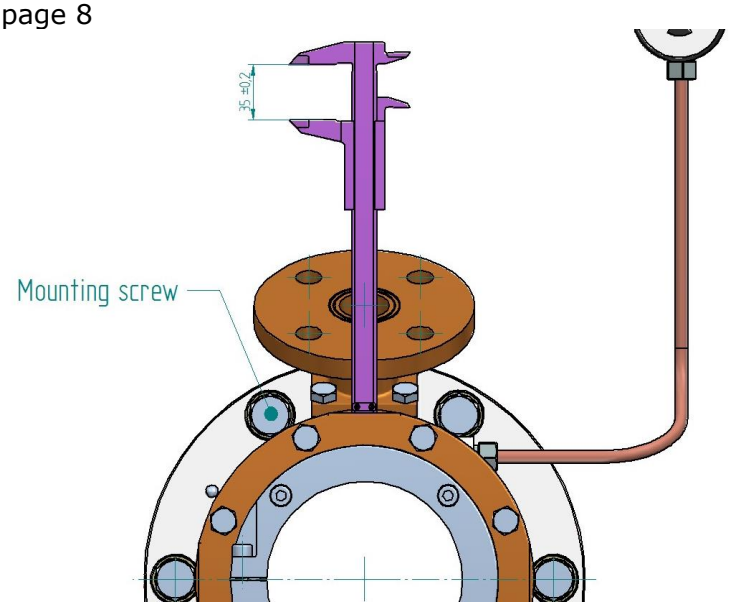
2.5 Alignment of the seal

1. To arrange this a the seal is equipped with 4 measure points. To take the measurements you need to use a Vernier caliper.



2. Using a wooden or copper hammer you can adjust the seal towards the correct alignment. All 4 readings should become within 0.2 mm
3. When the (re)alignment is finished the M16 mounting bolts can be tightened per table page 8



On the next page the readings can be recorded and/or compared with earlier readings
In the same table each shaft can be recorded.

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	Reading Top side				Reading PB side				Reading SB side				Reading bottom			
Date	Shaftline 1 PB	Shaftline 2 PB middle	Shaftline 3 SB middle	Shaftline SB	Shaftline 1 PB	Shaftline 2 PB middle	Shaftline 3 SB middle	Shaftline SB	Shaftline 1 PB	Shaftline 2 PB middle	Shaftline 3 SB middle	Shaftline SB	Shaftline 1 PB	Shaftline 2 PB middle	Shaftline 3 SB middle	Shaftline SB

When adjusting the seal, the bearing clearance is to be taken in account.
The shaft, when not turning, rests in the bearing.
Measure the bearing clearance by jacking up the shaft till it meets the top of the bearing. When the shaft is turning it will seek the "middle" of the bearing. Thus the measured difference/2 is the neutral shaft line that is to be used for the adjustment of the seal.

Do NOT drive the shaft when working on the seal.

Don't use steel hammers / excessive forces to adjust the seal.

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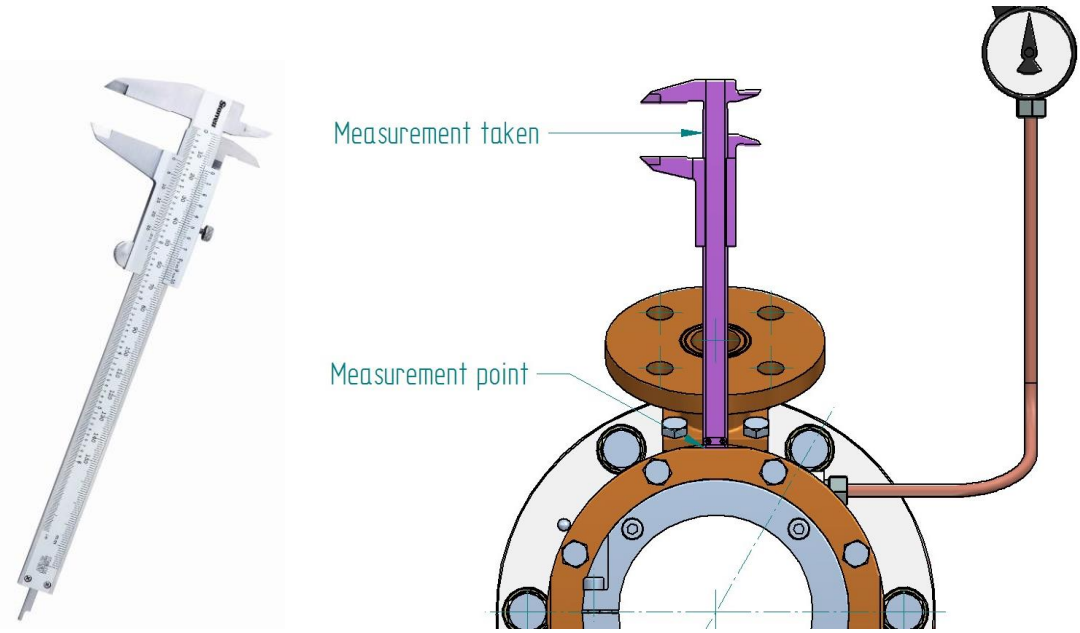
3 Zero wear-down measurements

The wear-down of the forw bearing bush can be determined without removing the aft seal by carrying out a zero wear-down measurement. This measurement has to be carried out before launch. The value has to be recorded on the wear-down log sheet in the table or on in the engine rooms log.
Readings are to be done by a Vernier callipers. This measurement has to be carried out regularly, e.g. at dry-dockings. By comparing the values to the zero wear-down value, it can be determined whether the bearing clearance is still acceptable.



1. Take the reading as showing using the Vernier callipers
2. Record the value measured
3. Compare the measurement with earlier readings if available.

Date measurement	Measurement				Notes (ie running hours)
	Shaftline 1 PB	Shaftline 2 PB middle	Shaftline 3 SB middle	Shaftline SB	

A bearing clearance of 1% is allowable.
So when the last measurement differs more than 0.6 mm with the first one its time to replace the bearing

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3 Start-up procedure

Preparation and checks before use
To put the propulsion installation into operation, see the relevant manuals from the supplier(s) of the propulsion installation. As regards the stern tube seals and bearings, the following steps must be taken:

1. Check that the Pegasus seals are correctly fitted and placed.
2. Add GREASE BETWEEN THE SEALS BEFORE start running the shaft. The grease chamber was pre-filled with lithium grease such as; Mobil Unirex EP, Shell Albida RL. The space between the seals is to be filled up to 100 % (100% is equal to 60cc. Thus topping up requires 30 cc) any contamination will damage the lip seals.

During start-up, keep well clear of the shaft!

3 Open the isolation valves
4 Check for water flow
5 Make sure the stand by seal is mounted and filled with oil.
6 When NOT in use the pressure gauge of the stand by seals reeds "0"
7 Record other pressure gauges reading.
8 Record system water temperature and
9 Compare the readings of all shaft lines.
10 If there are any significant differences, examine where these differences are coming from. If no clear explanation can be found, the building yard is to be contacted immediately.

The gauge of the stand by seal has to record "0" when not in use and when the s
It is however possible that when the shaft in running the waterfed pressure is giving some pressure to the emergency seal rubber and then the gauge will show some pressure.

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4 Periodic maintenance

Periodical	Act	Note
Weekly	Check temperature	When rising check the alignment
Montly	Add 30 CC grease between the seals	
½ yearly	Check the alignment	
Each docking	Measure the wear-down Check the alignment Eventually overhaul the seal	

If performance is unsatisfactory, refer to chapter 5 – Trouble shooting.

4.1 Weekly checks

Check weekly if the temperature stays on an acceptable level and that no leaking appears. In case of any increase in temperature or leaking starts to show then check the alignment.
As a guidance we can say that with a water temperature of 20 degree and a engine room temperature of 25 degrees, the temperature rise of the seal should be be no more then a few degrees.
When a bearing sits right after the seal then the temperature cannot rise more than 10 degrees.
Any higher difference between the temperatures of 20 degrees, between inlet water and seal housing, indicates an (potential) misalignment.

4.2 Montly checks

Add approx. 30 CC of grease between the seals. (Mobil Unirex EP, Shell Albida RL or equal)

4.3 Half yearly maintenance

Check the alignment as per instructions (2.5 Alignment of the seal) and the original readings.

4.4 Each docking

4.4.1 Measuring the wear-down:
Before starting the work; the wear-down on the bearing bush needs to be measured. The method of measuring this is the same as the zero wear-down measurement as described in section 3
For the maximum allowable bearing wear, contact the relevant classification society.
After this work, the zero wear-down measurement needs to be undertaken again.

4.4.2 Alignment check

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5 Trouble shooting

Problem	Cause / Solution	Note
Wearing liner will not go on/over the shaft	Ream the liner so a positive clearance of minimum 0.1 mm appears	Shaft should be tolerated h7
Liners clamp ring is not clamping	Probable the screw is to long/the hole is not tapped deep enough. Place a ring under the screw till the ring does clamp	
Seal start leaking	Misalignment / check misalignment / eventually correct it.	
Seal starts leaking	Seals are wear down / check the lip / replace the seals	Lifespan seals at average use 10.000 hours
Seal starts leaking	Max bearing clearance/wear is achieved	Check the bearing wear down
Seal starts leaking	The ceramic raceway is damaged / replace the liner	Check on galvanic corrosion
Stand by seal will not come in	Check whether oil is in the press, Check if the valve is not closed,	When the oil leaks away the seal may be damaged and then never will work

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6 Service and spare parts

We offer 3 spare parts kits;

1) **Emergency kit**, for each seal, existing out of;
   a. 2 pc Split seals. (item 12)
   b. Tube with grease

   This kit is to be used in emergency cases were usually the vessel stays in the water and the shaft is not demounted.

2) **Small spare kit** for each seal, existing out of;
   a. 2 Pc Endless seals (item 12)
   b. Stand by seal rubber (item 13)
   c. O-rings (item 11)
   d. Gasket (item 14 and 15)
   e. Tube grease

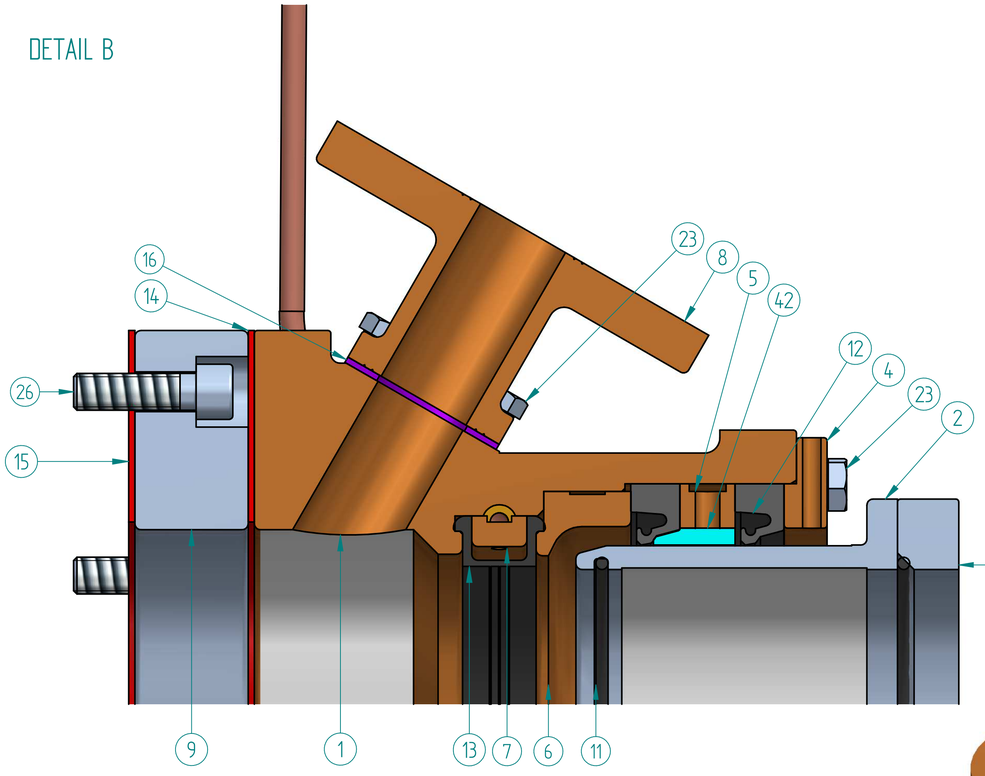
   This kit is to be used when an overhaul is made but were the wearing liners are still in a good condition

3) **Large spare kit**

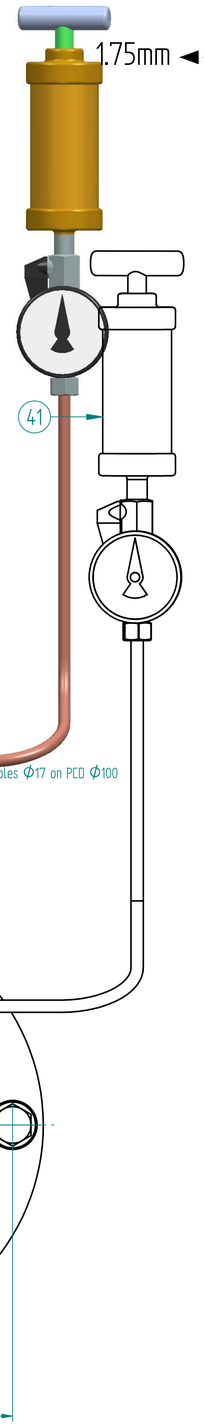
   Note: this kit is the same as the above kit added with a liner
   a. 2 Pc Endless seals (item 12)
   b. Stand by seal rubber (item 13)
   c. O-rings (item 11)
   d. Gasket (item 14 and 15)
   e. Tube grease
   f. SS 316 wearing liner (item 2) with a ceramic (excl. clamping ring Item 3)

Total weigth seal 47,5 Kg

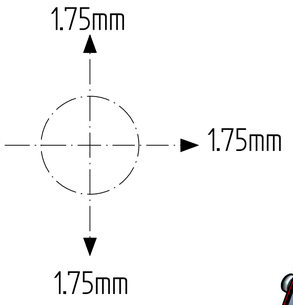
DETAIL B

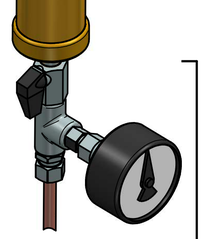


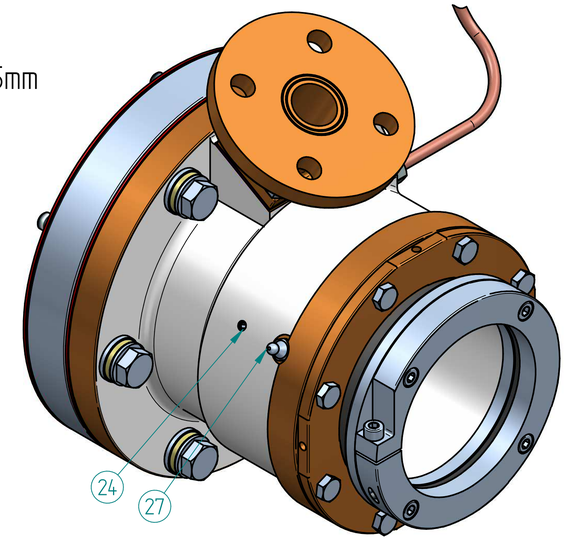
SECTION C-C

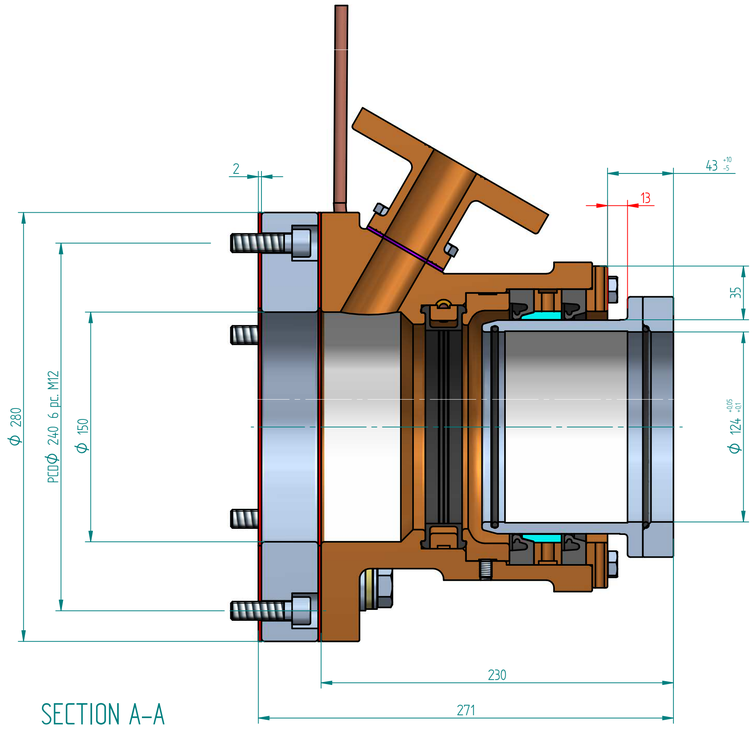


Radial adjustment facility

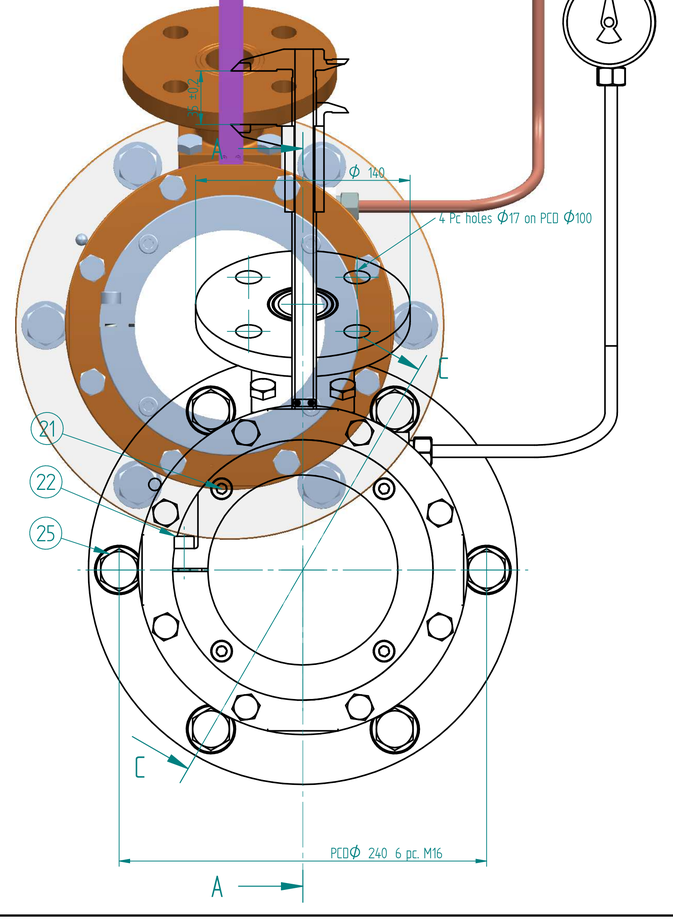








SECTION A-A



Item Nr.	Quantity	Title	Artikelnummer	Material	Mass	Comments
43	1	Manual Pegasus Seals Deluxe (forw)	Manual Pegasus Seals Deluxe (forw)			
42	1	Total multi complex	Total multi complex			To be added on board
41	1	Poseidon stand by seal press	3002-STBP	Brass, yellow brass	1.970 kg	optional
30	6	Washer	SR21X32X4A4	Stainless Steel, 316	0.081 kg	
29	6	Washer	M16D125A4	Stainless Steel, 316	0.000 kg	
28	6	Isolator M16	26.M16H33.408	Acrylic, high impact grade	0.039 kg	
27	1	Grease nipple M8	klein-smeer-M8	Stainless Steel, 316	0.011 kg	
26	6	Cylinderhead bolt M12x40 D912 A4	CK M12x40 D912 A4	Stainless Steel, 316	0.338 kg	Torque 82 Nm
25	6	Hexagon bolt M16x60 D933 A4	ZK M16x60 D933 A4	Stainless Steel, 316	0.911 kg	Torque 204 Nm
24	3	Set screw M8x12 D913 A4	SS M8x12 D913 A4	Stainless Steel, 316	0.012 kg	
23	12	Hexagon bolt M10x25 D933 A4	ZK M10x25 D933 A4	Stainless Steel, 316	0.320 kg	Torq 47,9 Nm
22	1	Cylinderhead bolt M8x30 D912 A4	CK M8x30 D912 A4	Stainless Steel, 316	0.020 kg	Torque 24,1 Nm
21	4	Cylinderhead bolt M8x20 D912 A4	CK M8x20 D912 A4	Stainless Steel, 316	0.062 kg	Torque 24,1 Nm
16	1	Adaptor waterinlet inlet packing	26.PEG.00001	Aramide (gasket)	0.007 kg	
15	1	Adaptor flange gasket.par	26.124BRIB.422	Aramide (gasket)	0.201 kg	
14	1	Klingerit gasket	26.124BRIB.421	Aramide (gasket)	0.201 kg	
13	1	Standby seal 124	PSBS 124	NBR 50° SH	0.177 kg	
12	2	PS140E	PS140E	NBR 50° SH	0.548 kg	
11	2	O-ring 124x4	O-ring 124x4	NBR 50° SH	0.025 kg	
9	1	Stern tube adaptor flange	26.124BRIB.409	S355J0	11.988 kg	
8	1	Adaptor Pegasus Seal Waterinlet	26.PEG.00002	CU3	1.979 kg	
7	1	Support ring	26.124BRIB.407	Bronze RG7	0.654 kg	
6	1	Backing ring	26.124BRIB.406	Bronze RG7	1.657 kg	
5	1	Seal support ring	26.124BRxx.405	Bronze RG7	1.004 kg	
4	1	Retaining ring inboard	26.124BRIB.404	Bronze RG7	1.815 kg	
3	1	Clamp ring	26.124xxxx.403	Stainless Steel, 316	1.520 kg	
2	1	Wearing liner inboard	26.124xxIB.402	Stainless Steel, 316	3.095 kg	Ceramic coated
1	1	Seal house inboard	26.124.BRIB.401	CuAl10Fe5Ni5	17.747 kg	3.2 certificaat

REVISIE:				
C	-	-	-	-
B	-	-	-	-
A	-	-	-	-
REV	NAME	DATE REV	DETAILS	

DIMENSIONS: MM | AMERIKAANSE PROJECTIE | DRAWING CHECKED BY:

POSEIDON PROPULSION B.V.

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NAME: Pegasus Seal 124 Bronze Inboard Damen SY

DATE:	8-12-2014	SCALE:	1:10
DRAWN BY:	Theo	DRAW FORMAT:	A1
PROJECT:	Damen SY	FILE:	

ART.NUMBER: 26.124BRIB.400

DRAWING NR.: 26.124BRIB.400.dft