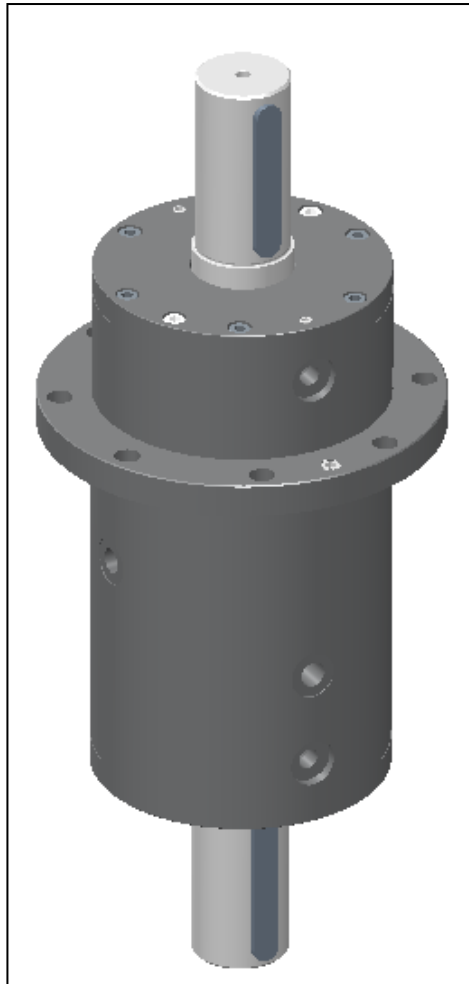


## DESMI BULKHEAD UNIT



### DESMI Pumping Technology A/S

Tagholm 1, DK-9400 Nørresundby, Denmark

Tel.: +45 96 32 81 11  
Fax: +45 98 17 54 99  
E-mail: [desmi@desmi.com](mailto:desmi@desmi.com)  
Internet: [www.desmi.com](http://www.desmi.com)



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## 1. BULKHEAD UNIT FUNCTIONAL DESCRIPTION

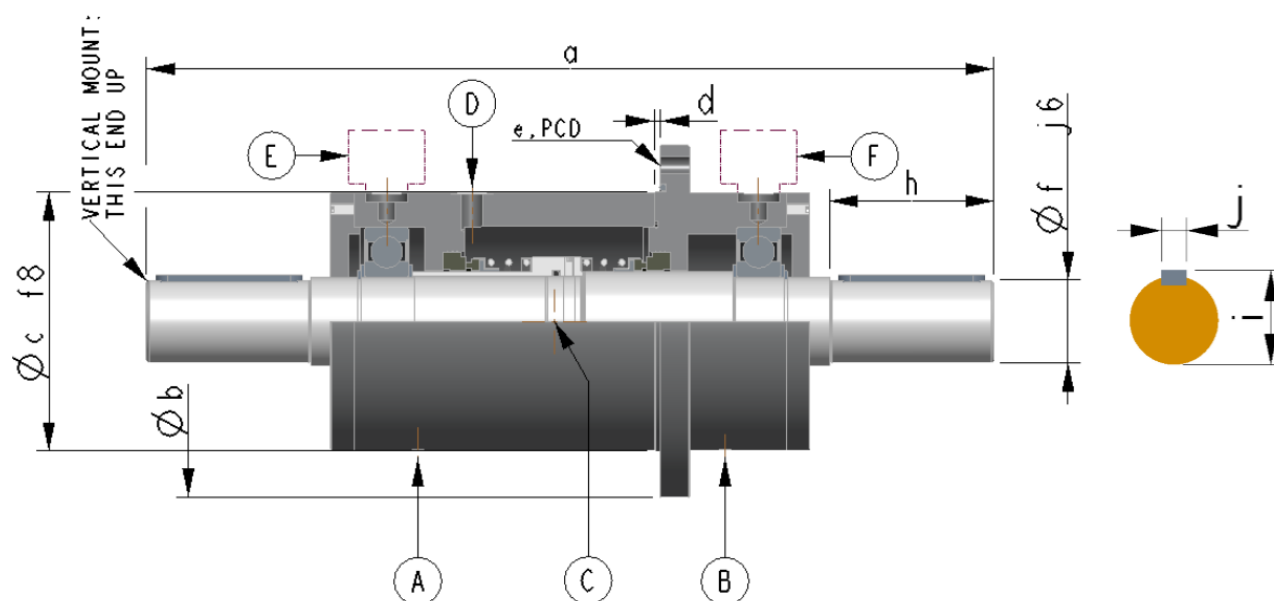
The DESMI bulkhead unit is designed to be used for connecting the motor and pump when the pump and motor are installed in two independent rooms. In some environments the running of the motor might cause potential danger, e.g. explosion in EX zones. Using the bulkhead unit the pump and motor can be placed separately thus eliminating the need for an explosion proof electric motor or combustion engine.

The two bulkhead unit mechanical shaft seals can be cooled and lubricated in different ways e.g.:

1. Flushing with tap water (approx. 0.1 liter/minute required)
2. Oil (hydraulic oil with 32 cSt viscosity (Q8 Handel 32 or similar) is recommended) or water self-circulating from a small tank (approx. 5 liter required) placed above the bulkhead unit (i.e. a closed loop system (customer supply) - connect outlet "D" on bulkhead unit near top of tank – and connect inlet "C" on bulkhead to bottom of tank. Ensure air venting in top of tank in order to avoid rising pressure due to thermal expansion of cooling liquid).
3. Flushing with liquid from main pump discharge side – return drain to suction side.

For installation in EX zones DESMI can supply temperature sensors mounted in adaptors "E" and "F".

## 2. BULKHEAD DIMENSIONS AND CONNECTIONS



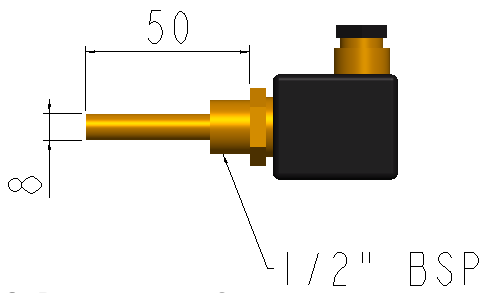
Main Dimensions & Max Torque

Type	a	b	c	d	PCD	e	f	h	i	j	Max torque(Nm)
28K	300	185	125	4	160	6xØ11	28	42	31	8	220
28L	336	185	125	4	160	6xØ11	28	60	31	8	320
42K	409	205	150	4	180	8xØ13	42	82	45	12	670
42L	465	205	150	4	180	8xØ13	42	110	45	12	900
70L	720	298	220	5	265	8xØ19	70	142	74.5	20	3000

### NOTE:

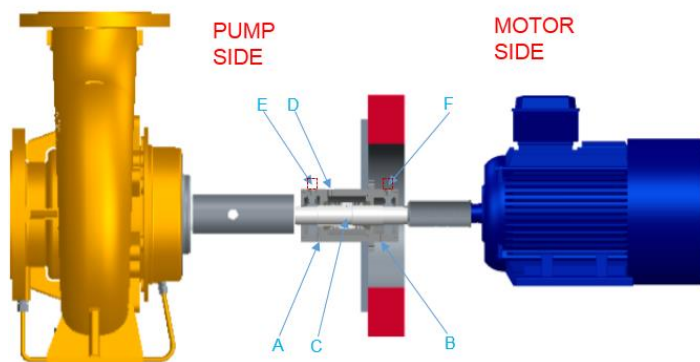
1. The torques are given provided : 1, The load is even ( duty factor = 1 , i.e. a smooth load like a centrifugal pump – not knocking from single cylinder engine , if so, the max. torque values are reduced to 50%) . 2, The fitted coupling hubs has sufficient strength (yield and ultimate stress) , the values are based on ductile cast iron hubs (GGG40) with a yield strength (= sigma 0.2) of about 250 N/mm<sup>2</sup>.
2. A & B drain holes . ( Position horizontal , A & B are pointing downwards)
3. C & D 1/4" BSP for lubrication and cooling connecting (Before the first start-up, fill the housing with the lubricating media through D, until it is leaking out through C) .
4. E & F adaptor for temperature sensor ( option ) .

## 5. Installation dimension for temperature sensor(option) :

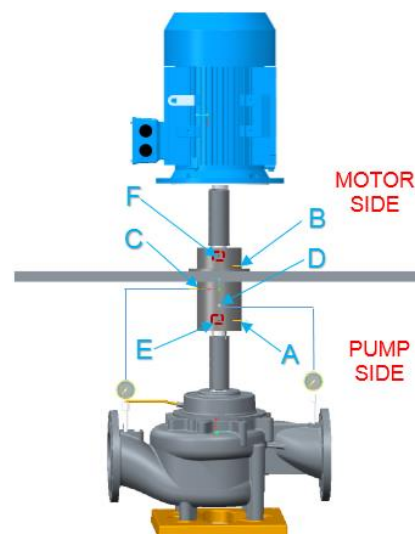


### 3. BULKHEAD CONNECTION

Horizontal mount



Vertical mount



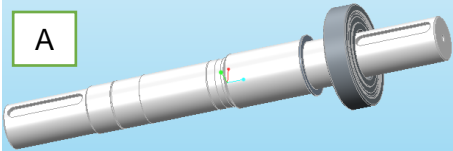
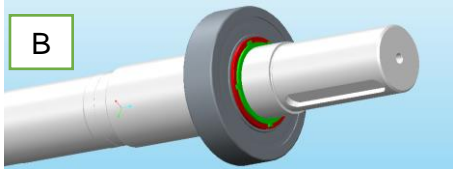
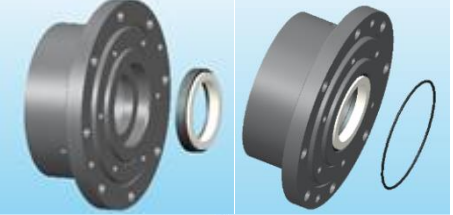
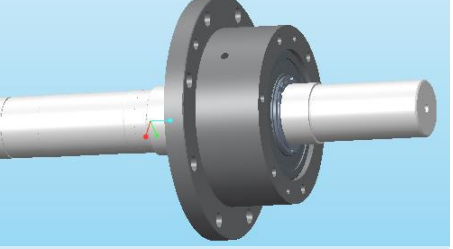
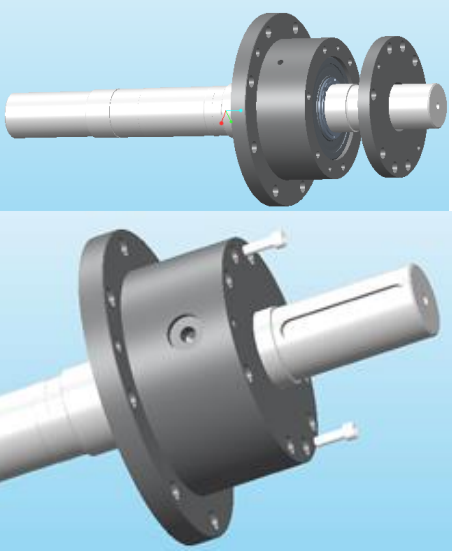
## 4. OPERATION INSTRUCTION

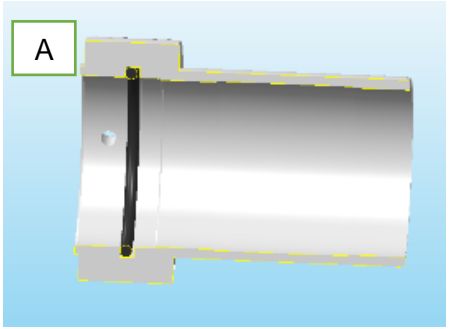
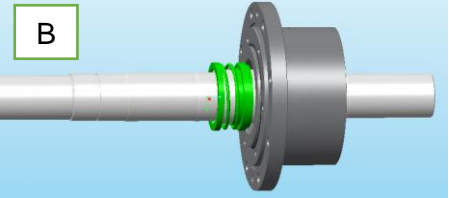
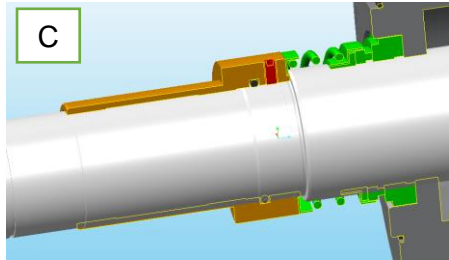
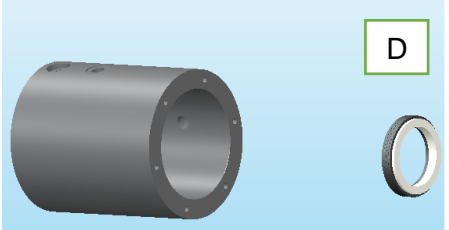
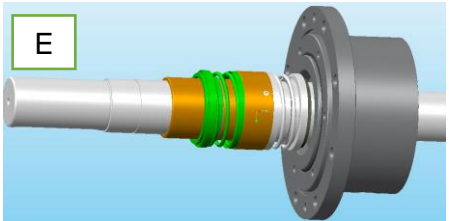
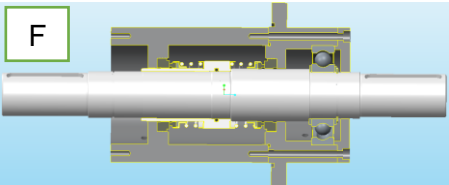
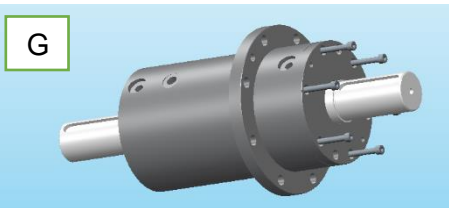
1. Shaft ends on the pump, electric motor (or others) and the above unit must be aligned. The bulkhead must be solid enough to withstand torsional moment and vibrations. The use of flexible couplings or cardan shafts is recommended.
2. The flange connection at the bulkhead needs a smooth and even surface to achieve tightness at the o-ring . The unit is delivered with an o-ring. Connections for bolts in the bulkhead, should be carried out as blind holes or studs screwed through the plating. Bolts passing through clearance holes should not be used.
3. Position horizontal units so drains A & B are pointing downwards.
5. To facilitate installation, place the lubrication and cooling connections C & D at the pump side. Connect C to the pump pressure side, D to suction. If the main pump is not used for cooling and lubrication of the unit, it is advantageous to place the connections C and D outside the pump room, connect C to an external source (e.g. Tap water) and lead D away with a flow rate about 0.1 l/min. Alternatively another lubricating system could be applied – for instance a 5 liter tank above the bulkhead unit. Use  $\varnothing 15$  or  $\frac{1}{2}$ " piping to ensure sufficient self-circulation. Ensure air venting in top of tank in order to avoid rising pressure due to thermal expansion of cooling liquid.
4. Before the first start-up, fill the housing with the lubricating media (through D), until it is leaking out through C and make sure point 4. is also observed.
5. The unit can be delivered with adaptors (E & F), making it possible to install a temperature sensor at each bearing (see dimensions above).

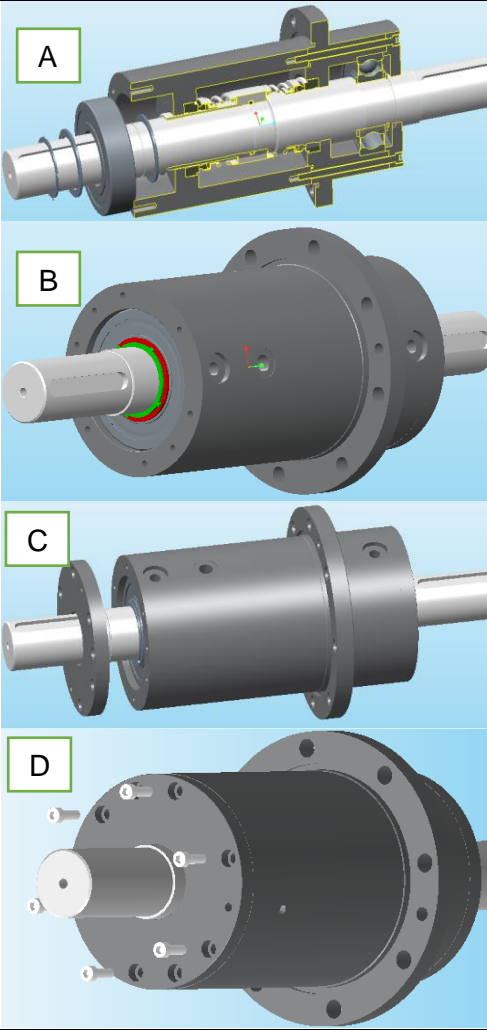
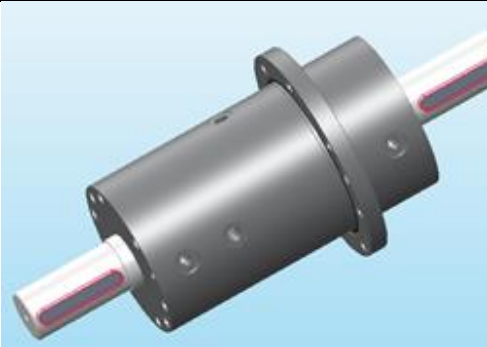
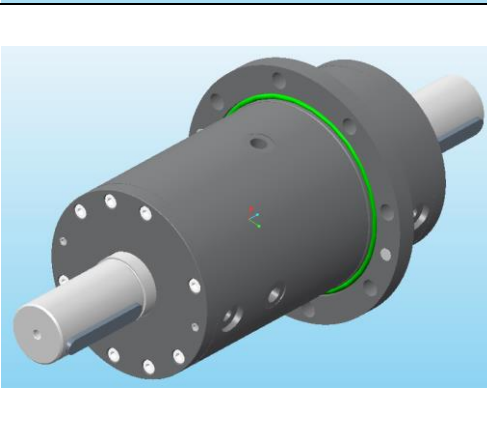
## 5. BULKHEAD ASSEMBLY AND DISASSEMBLY INSTRUCTION

Here just take the example about the assembly of type 70L . The numbers in brackets refer to the position numbers on the assembly drawing .

### 5.1 ASSEMBLY INSTRUCTION

No.	Name	Content and method	Pictures
1	Assemble the first bearing	<p>Place the support disc (15) and bearing (10) onto the right side of shaft (9) as shown in figure A .</p> <p>Press the bearing(10) into the place up against the support disc(15). Fit the support disc(15) and ring lock (16) as shown in figure B</p>	 
2	Assemble the bearing bracket	<p>1. Press the stationary seal ring and O-ring(13) into the bearing bracket(6).</p> <p><i>* Before fitting the seat and O-ring, clean the bearing bracket . When fitting the seat , protect the sliding surface of the seat to prevent it from being scratched or cut .The carbon ring can be held by a little silicone grease .</i></p> <p>2. Put the bearing bracket (6).through shaft(9) and against the bearing(10).</p> <p>3. Mount and fasten the end cover (2) with two allen screws (1) .</p>	  

<p style="text-align: center; font-size: 24pt; font-weight: bold;">3</p>	<p style="text-align: center; font-size: 18pt; font-weight: bold;">Assemble the shaft seal and casing</p>	<p>1. Place the O-ring (12) between bushing (4) and shaft (9) in the O-ring groove and hold it with a little grease.</p> <p><i>* Before fitting the O-ring, clean the O-ring groove in bushing.</i></p> <p>2. Lubricate the shaft with soapy water and assemble the rotating seal ring and spring of mechanical seal to the shaft (9). Then tighten the bushing (4) to the right place by means of pointed screw (5). As shown in figure B, C.</p> <p>3. Press the stationary seal ring into casing (3).</p> <p><i>* Before fitting the stationary seal ring, clean the casing. When fitting it, protect the sliding surface of the seat to prevent it from being scratched or cut. The carbon ring can be held by a little silicone grease.</i></p> <p>4. Lubricate the outer surface on the bushing (4) with soapy water and mount rotating seal ring and spring of mechanical seal onto the bushing(4).</p> <p>5. Fit the casing (3) to the right place of shaft(9) make sure the hole for E&amp;F are on one side as shown in figure G. Fasten the casing(3), bearing bracket(6) and end cover (2) with the Allen screws (7). Screw the point screw (17).</p>	      
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<p>4</p>	<p>Assemble the second bearing</p>	<p>1. Like the first bearing , assemble the support disc(15) , bearing (10) and ring lock(16) one by one onto the other side of shaft as shown in figure B .Then fasten the end cover (2) with Allen screws(1). Finally , screw the point screws(17).</p> <p><i>* Before fitting the bearing , clean the casing and shaft .</i></p>	
<p>5</p>	<p>Assemble the Key</p>	<p>Assemble the Key (8) on left and right</p>	
<p>6</p>	<p>Assemble O-ring</p>	<p>Assemble O-ring (14) in the O-ring groove in bearing bracket and hold it with a little grease. screw the point screws(18).</p> <p><i>* Before fitting the O-ring, clean the O-ring groove in bearing bracket.</i></p>	

## 5.2 DISASSEMBLY INSTRUCTION

The process of disassembly and assembly is reverse .

When the bulkhead has been dismantled, check the following parts for wear and damage:

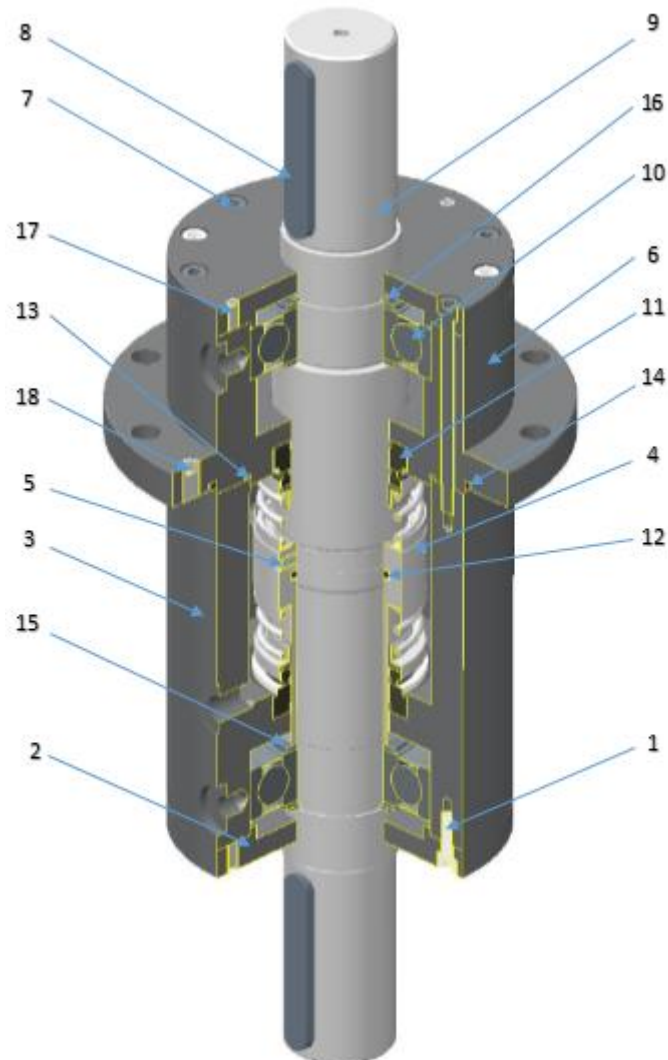
- Shaft seal: Check the seat for flatness and cracks.  
Check the rubber parts for elasticity.
- Bearings: Replace in case of wear, noise or abnormal temperature rise.

## 6. INFORMATION RELEVANT FOR DISASSEMBLY, RECYCLING OR DISPOSAL AT END-OF-LIFE

No dangerous materials are used in DESMI pumps – please refer to DESMI Green Passport (can be sent on request – contact a DESMI sales office) – i.e. common recycling companies can handle the disposal at end-of-life. Alternatively the pump and motor can be returned to DESMI at end-of-life for safe recycling.



## 7.BULKHEAD PARTS LIST(TYPE 70L)



Position number	Description	Position number	Description	Position number	Description	Position number	Description
1	ALLEN SCREW	6	BEARING BRACKET	11	MECHANICAL SEAL	16	SNAP RING
2	END COVER	7	ALLEN SCREW	12	O-RING	17	POINT SCREW
3	CASING	8	KEY	13	O-RING	18	POINT SCREW
4	BUSHING	9	SHAFT	14	O-RING		
5	POINT SCREW	10	BEARING	15	SUPPORT WASHER		