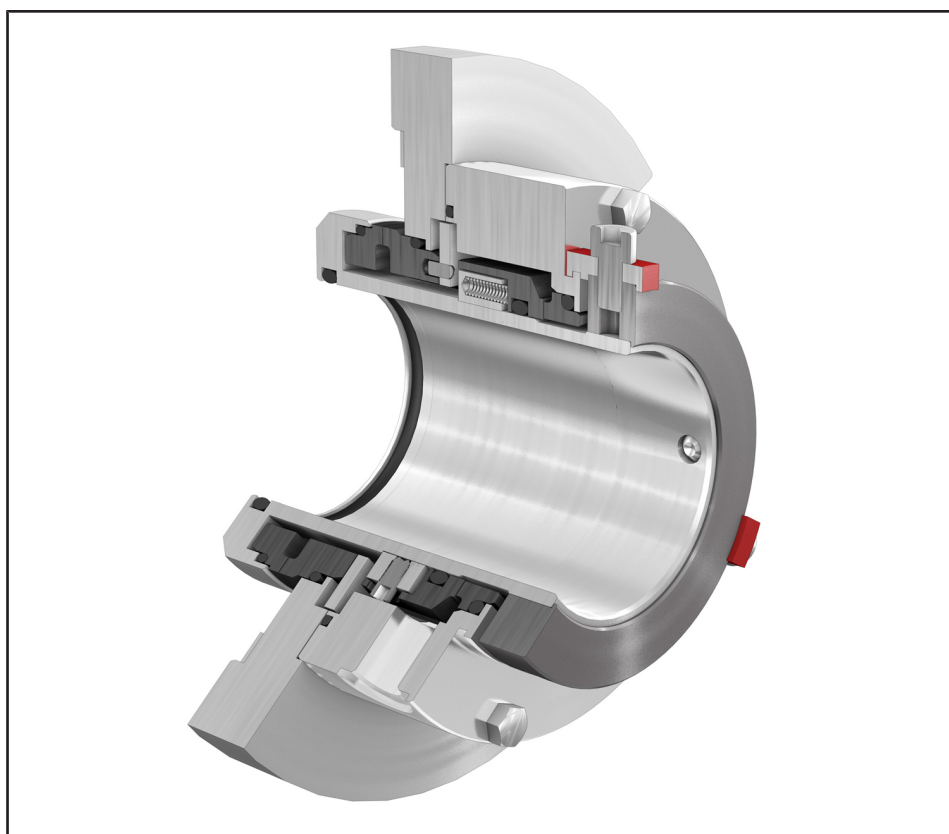


KSB Mechanical Seal

## 4CPD

For Type Series CPKN, MegaCPK

## Supplementary Operating Manual



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Supplementary Operating Manual 4CPD

Original operating manual

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## 1 Supplementary Operating Manual

### 1.1 General

This supplementary operating manual accompanies the installation/operating manual. All information contained in the installation/operating manual must be observed.

**Table 1:** Relevant operating manuals

Type series	Reference number of the installation/operating manual
CPKN	2730.8
MegaCPK	2731.8

### 1.2 Operating data

**Table 2:** Operating properties

Characteristic		Value				
Cartridge mechanical seal		C033M1-4CPD	C043M1-4CPD	C053M1-4CPD	C065M1-4CPD	C075M1-4CPD
Pump		MegaCPK / CPKN				CPKN
Bearing bracket MegaCPK		CS40	CS50	CS60	CS80	-
Bearing bracket CPKN		UP02	UP03	UP04	UP05	UP06
Maximum temperature	T [°C]	≤ 150				
Maximum dynamic pressure	p [bar]	25				
Maximum static pressure	p [bar]	37,5				
Maximum speed	n [rpm]	3500			1750	
Axial displacement	[mm]	+/- 1,0				

### 1.3 Removing the mechanical seal


The rules of sound engineering practice and the pump manufacturer's general provisions apply. Tidiness and cleanliness are essential for proper execution of the installation work.

- ✓ The operating manual for the pump is available.
- ✓ The back pull-out unit of the pump has been placed in a clean and level assembly area.
- ✓ Impeller 230 and the keys have been removed from shaft 210.
  1. Remove assembly fixtures 96-3 from retaining bracket 89-11.
  2. Fit assembly fixtures 96-3 with hexagon socket head cap screws 914.54 on locking ring 515.52.
    - ⇒ The groove profile must engage properly in the groove in shaft seal housing 441.
  3. Loosen grub screws 904.53.
  4. Evenly loosen nuts 920.02.
  5. Remove nuts 920.02 with discs 550.01 from studs 902.02.
  6. Undo the bolts joining casing cover 161 and bearing lantern 340 and carefully remove casing cover 161.
  7. Carefully and evenly pull mechanical seal 433 including shaft protecting sleeve 524 off shaft 210.
  8. Remove shaft protecting sleeve 524 from mechanical seal 433.

**Further dismantling of the mechanical seal is carried out at KSB.**


### 1.4 Installing the mechanical seal

The rules of sound engineering practice and the pump manufacturer's general provisions apply. Tidiness and cleanliness are essential for proper execution of the installation work.

	<p style="text-align: center;"><b>CAUTION</b></p> <p><b>Use of grease or other permanent lubricants</b> Torque transmission impeded/ overheating of and damage to the pump!</p> <ul style="list-style-type: none"> <li>▷ Do not use grease or other permanent lubricants for fitting a mechanical seal.</li> <li>▷ Use soft soap to reduce any friction caused by assembly.</li> <li>▷ Do not coat the mechanical seal faces with grease or oil.</li> </ul>
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- ✓ The operating manual for the pump is available.
- ✓ The installation of mechanical seal 433 is carried out in accordance with the installation drawing.
- ✓ The back pull-out unit of the pump has been placed in a clean and level assembly area.
- ✓ Mechanical seal 433 is fully assembled and undamaged.
- ✓ O-ring 412.54 is fitted in mechanical seal 433. A lubricant compatible with the elastomer material has been applied to the O-ring.
- ✓ Joint ring 411.52 fully abuts seal cover 471.
  1. Carefully slide mechanical seal 433 onto shaft protecting sleeve 524 from the chamfered side.
  2. Slide the assembly consisting of mechanical seal 433 and shaft protecting sleeve 524 onto shaft 210.
  3. Carefully place casing cover 161 on bearing lantern 340, align it and bolt it in place.
  4. Carefully fit impeller 230 and fasten with impeller nut 922.

5. Slide mechanical seal 433 in the direction of the pump cover until seal cover 471 with joint ring 411.52 abuts casing cover 161.
6. Evenly fasten mechanical seal 433 at casing cover 161 with studs 902.02, discs 550.01 and nuts 920.02. Tighten the fasteners crosswise in several increments. (⇒ Section 1.5, Page 6)
7. Fit locking ring 515.52 on shaft protecting sleeve 524 using cup point grub screws 904.53.

	<b>NOTE</b>
<p>Do not re-use cup point grub screws! A second set of cup point grub screws is supplied with the mechanical seal.</p>	

8. Tighten cup point grub screws 904.53 in several increments. (⇒ Section 1.5, Page 6)
9. Remove hexagon socket head cap screws 914.54.
10. Undo assembly fixtures 96-3, screw them onto the retaining bracket 89-11 supplied, and fasten on stud 902.02.

### 1.5 Tightening torques

**Table 3:** Tightening torques

Thread	Tightening torques
	[Nm]
M6	8
M8	15
M10	20

1.6 General assembly drawing with list of components

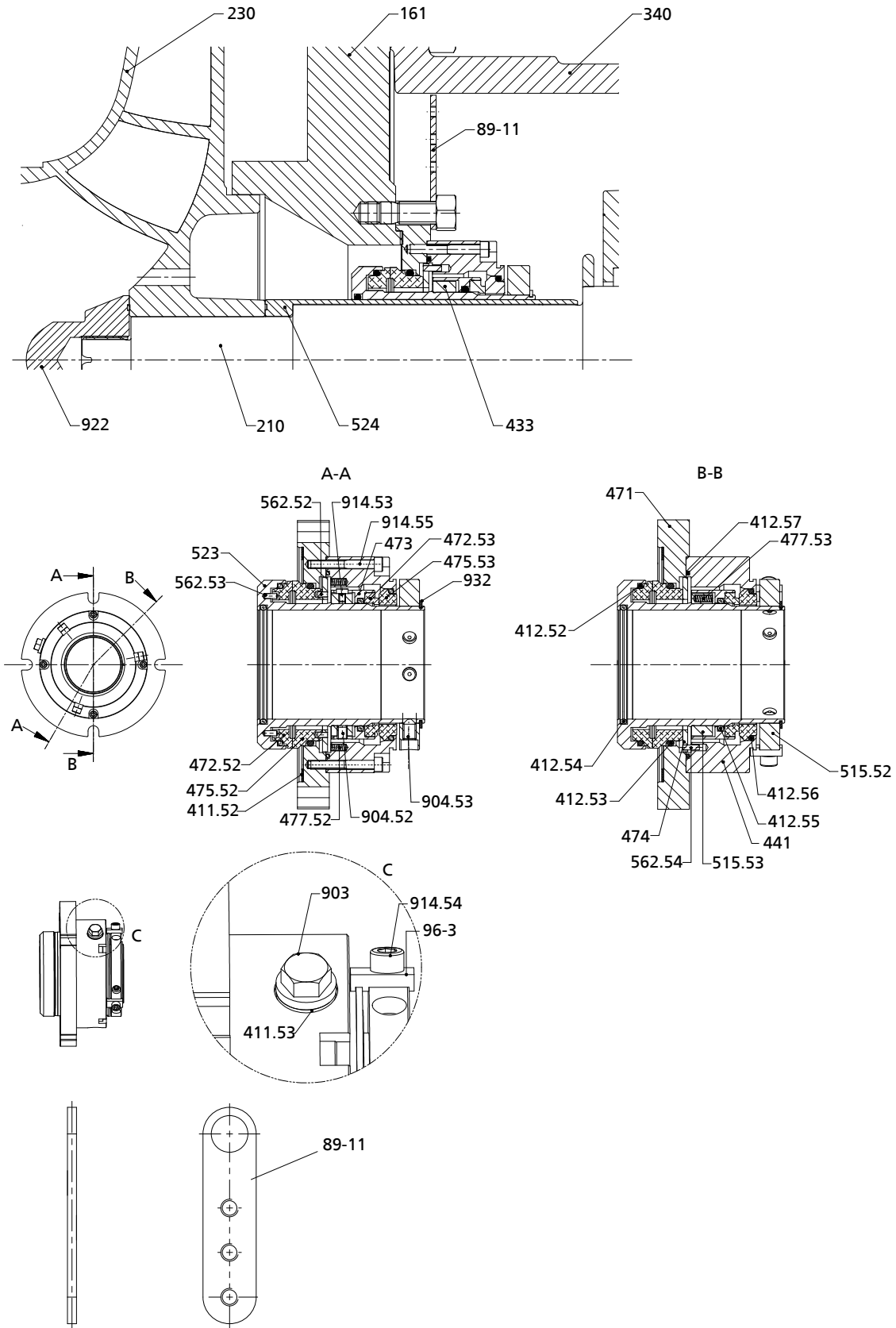


Fig. 1: General assembly drawing

**Table 4:** List of components

Part. No.	Description	Part. No.	Description
161	Casing cover	477.52/.53	Spring for mechanical seal
210	Shaft	515.52/.53	Locking ring
230	Impeller	523	Shaft sleeve
340	Bearing lantern	524	Shaft protecting sleeve
411.52/.53	Joint ring	562.52/.53/.54	Parallel pin
412.52/.53/.54/.55/.56/.57	O-ring	89-11	Retaining bracket
433	Mechanical seal	903	Screw plug
441	Shaft seal housing	904.52/.53	Grub screw
471	Seal cover	914.53/.54/.55	Hexagon socket head cap screw
472.52/.53	Primary ring	922	Impeller nut
473	Primary ring carrier	932	Circlip
474	Thrust ring	96-3	Assembly fixture
475.52/.53	Mating ring		











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