



Standardized chemical pumps

to EN 22858/ISO 2858/ISO 5199

Automation products available:

- PumpExpert
- Hya-Drive
- Hyamaster
- hyatronic

Fields of Application

For handling aggressive organic and inorganic liquids in the chemical and petrochemical industries.

They are also used in:
refinery off-sites, the paper and cellulose industries, the foodstuffs industry, the sugar industry, sea water desalination plants, absorption equipment in environmental engineering, power stations, etc.

Designation

Type series	CPK-	E	40 - 200
Material of wetted parts			
Discharge nozzle DN			
Nominal impeller diameter in mm			

Design

Horizontal, radially split volute casing pump in back pull-out design, with radial impeller, single-entry, single-stage, to EN 22858/ISO 2858/ISO 5199.

Complemented by pumps of DN 25, DN 200 and above.

Operating Data

Capacity	Q	up to	4150 m ³ /h (1150 l/s)
Heads	H	up to	185 m
Pump sizes	DN		25 to 400
Operating pressures	p	up to	25 bar
Operating temperatures	t		-40 to +400 °C



General Member of



$n = 2900 \text{ 1/min}$



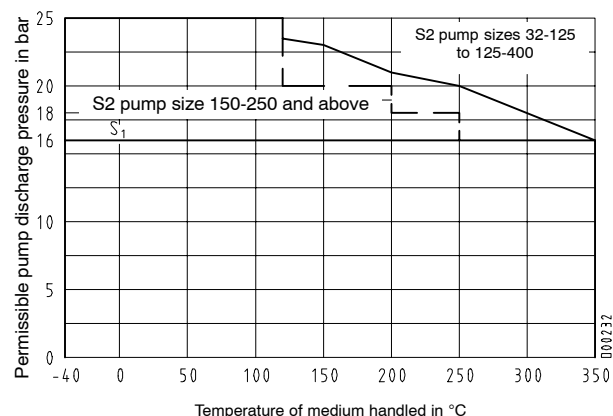
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Pressure and Temperature Limits

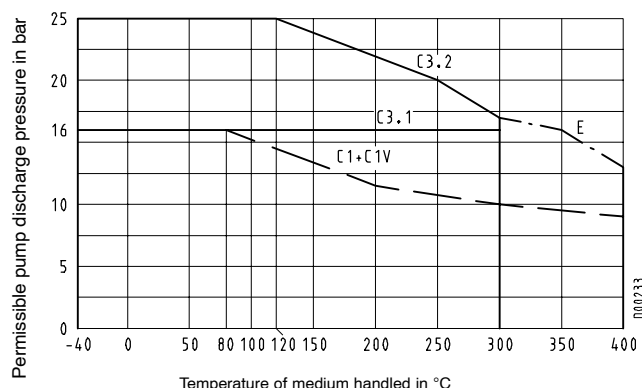
a) Where no special regulations apply (technical codes)

These pumps can be used for all liquids, except hot water and organic heat transfer media.

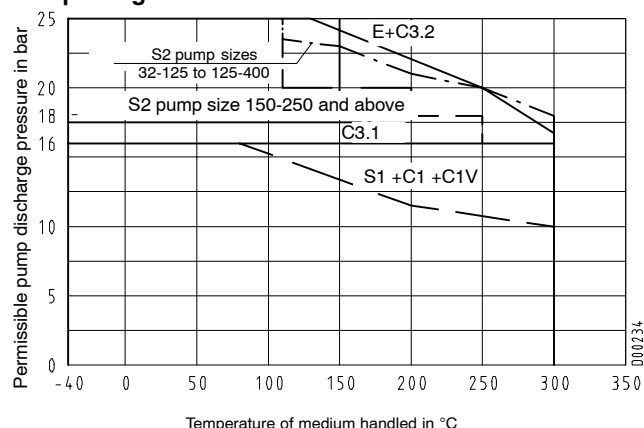
Material variants S1 and S2



Material variants C1, C3 and E

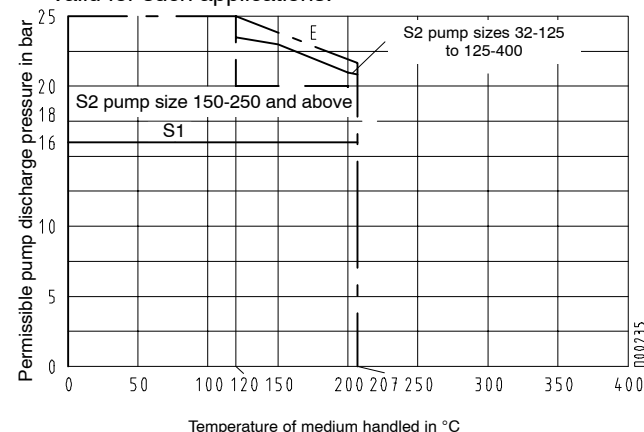


Pump design with conical seal chamber



b) Hot water applications

This applies to pumps not installed in hot water generation plants, i.e. pumps which are not subject to the regulations valid for such applications.



c) Where special regulations apply

In case of special regulations, different safety factors are required, which usually leads to a reduction of the limits stated in a).

Information about the revision of the application limits has to be requested for each individual case, stating the acceptance specifications.

d) Pressure and temperature limits for shaft seals

The application limits of shaft seals depend on the circumferential speed, the material and the medium handled.

They have to be checked in each individual case on the basis of the manufacturer's catalogues, taking into account the actual operating conditions.

Materials 1)

Part description	Material variant - standard programme			
	C1/C1V 2)	S1/S2	E	C3.1/C3.2
Volute casing	1.4408	JS1025 3)	GP240GH+N	Noridur 1.4593
Casing cover	1.4408	C22.8 / JS1025 4)9)	C22.8 / GP240GH+N 4)	Noridur 1.4593
Support foot	S235JRG2 5)	S235JRG2 5)	S235JRG2 5)	S235JRG2 5)
Shaft	C 45+N 6)	C 45+N 6)	C 45+N 6)	C 45+N 6)
Impeller	1.4408	JL1040 7)8)	JL1040 7)8)	Noridur 1.4593
Bearing bracket	JL1040 8)	JL1040 8)	JL1040 8)	JL1040 8)
Bearing bracket lantern	JL1040 8)9)	JL1040 8)9)	JL1040 8)9)	JL1040 8)9)
Seal cover	1.4571	1.4571	1.4571	1.4539
Casing wear ring	-	JL1040	-	-
Shaft protecting sleeve - gland packing	1.4571	1.4122	1.4122	1.4539
Shaft protecting sleeve - mechanical seal	1.4571	1.4571	1.4571	1.4539
Impeller nut	1.4571	1.4571	1.4571	1.4539
Joint rings/gaskets	asbestos-free	asbestos-free	asbestos-free	asbestos-free

1) Special materials available, depending on the medium handled

2) in compliance with VDMA 24276

3) EN 1563: GJS-400-18-LT

4) for pump design with conical seal chamber 1.4593 (S1: 1.4408)

5) from bearing bracket P 05s: JS1030

6) T > 250 °C: 1.7709VS

T < -40 °C: 1.5680

7) on bearing bracket P 04: JS1025
for T > 350 °C or circumferential speeds > 48 m/sec: 1.4408

8) EN 1561: GJL-250

9) for hot water > 183 °C, for organic heat transfer media > 200 °C, for all T > 350 °C and if special regulations apply: JS1025

Benefits at a Glance

Easy to replace
due to standardized
pump and flange
design

Easy to dismantle
due to forcing screws

Durable
Dimensioned to ensure a bearing
life of more than 25,000 operating
hours and a shaft deflection of
less than 0.05 mm

Reliable
due to sturdy bearings
and oil lubrication

Reliable
due to well-proven
hydraulic system

Safety
ensured by strength
analysis and quality
casting with corrosion
allowance

Low operating costs
due to replaceable
casing wear rings and
impeller wear rings

**Cost-effective main-
tenance**
due to dry shaft (no
special materials
required) and shaft
protecting sleeve

**Small spare parts
stock**
due to modular design
system

Easy to dismantle
due to back pull-out
design: the casing may
remain in the pipeline
when the pump is
dismantled

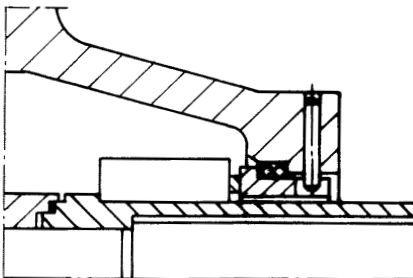
Long service life
of bearings and
mechanical seals
due to low radial
forces

Versatile
due to wide range of
materials and many
design variants, e.g.
cooling or heating

Maintenance-friendly
Radial bearing ensures
easy assembly and
permits thermal expansion
of the shaft

Easy to service
due to constant-level oiler:
constant lubrication, easy
to check

Design variant:



2721:298-2

Casing cover with conical seal
chamber

Technical Data

Pumps on bearing brackets P 02as to P 04s

		Pump sizes																																					
		Units	25-160	25-200	32-125	32-160	32-200	40-160	40-200	50-160	50-200	32-250	40-250	40-315	50-250	50-315	65-160	65-200	65-250	80-160	80-200	80-250	100-200	65-315	80-315	80-400	100-250	100-315	100-400	125-250	125-315	125-400	150-250						
Bearing bracket			P 02as												P 03s												P 04s												
General	corrosion allowance	mm	3												3												3												
	impeller outlet width	mm	6	6	8	7	7	9	7	15	12	6	7	8	10	8	20	16	13	27	22	17	29	10	14	11	23	19,5	15	32	26	20	46						
	impeller inlet Ø	mm	45	45	52	52	52	65	65	82	82	52	65	65	84	84	89	96	96	100	114	114	122	96	129	118	129	135	129	154	154	154	180						
	max. impeller Ø	mm	see individual curve																																				
	min. impeller Ø	mm	see individual curve																																				
Shaft diam.	in stuffing box housing	mm	25												32												42												
	at bearings	mm																																					
	pump side	mm	35												35												55												
	motor side	mm	35												35												55												
	at coupling	mm	24												32												42												
Shaft prot. sleeve	gland packing	mm	35												45												55												
	mech. seal (standard)	mm	KU 33 / KB 28												KU 43 / KB 38												KU 53 / KB 48												
Bearings	pump side	No.	NU 307												NU 307												NU 311												
	motor side	No.	2 x 7307 BUA												2 x 7307 BUA												2 x 7311 BUA												
Gland packing	bore Ø	mm	51												65												75												
	length	mm	53												64												64												
	pack. ring dim.	mm	8 x 8												10 x 10												10 x 10												
	no. of pack. rings	pcs.	4 (6)												4 (6)												4 (6)												
	width of lantern ring	mm	16												20												20												
	clearance for removal	mm	67												79												77												
Shaft deflection			Max. shaft deflection at shaft seal in accordance with ISO 5199 (max. 0.05 mm) is observed.																																				
Pressure limit	max. operating pressure	bar	see diagram page 3																																				
	max. test pressure	bar	1.5 x max. permissible pump discharge pressure																																				
Temp. limit	max. temp. of medium handled	°C	see diagram page 3																																				
Drive	P/n value		0.009												0.021												0.05												
	max. rating at n = 1450 1/min	KW	13												30												72												
	= 1750 1/min	KW	16												37												87												
	= 2900 1/min	KW	26												60												144												
	= 3500 1/min	KW	31												74												175												

Pumps on bearing brackets P 05s to P 12s

			Pump sizes																											
		Units	150-315	150-400	150-500	200-250	200-315	200-400	200-500	250-315	250-400	250-500	150-630	200-670	300-400	300-500	350-400	350-500	250-630	250-710	300-630	300-710	400-504	400-506	350-630	350-710	400-630	400-710		
Bearing bracket			P 05s										P 06s		P 08s						P 10as						P 12s			
General	corrosion allowance	mm	3										3		3						3						3			
	impeller outlet width	mm	38	29	23	62	50	40	32	73	63	43	21	25	68	58	115	72	40	38	46	46	81	106	58	53	76	68		
	impeller inlet Ø	mm	190	190	190	190	222	222	222	270	294	280	202	250	294	320	337	340	290	275	326	326	373	400	360	360	400	400		
	max. impeller Ø	mm	see individual curve																											
	min. impeller Ø	mm	see individual curve																											
Shaft diam.	in stuffing box housing	mm	54										65		80						100						120			
	at bearings	mm																												
	pump side	mm	65										65		80						120						120			
	motor side	mm	65										75		95						120						120			
	at coupling	mm	40										60		75						90						110			
Shaft prot. sleeve	gland packing	mm	70										80		100						120						140			
	mech. seal (standard)	mm	KU 65/KB 60										KU75/KB 70		KU 95/KB 90						KU 110/KB 110						KU 130/KB 130			
Bearings	pump side	No.	NU 313										NU 413		NU 416						NU 324						NU 324			
	motor side	No.	2 x 7313 BUA										2x7315B UA		2 x 7319 BUA						2 x 7324 BUA						2 x 7324 BUA			
Gland packing	bore Ø	mm	95										105		132						152						172			
	length	mm	79										79		102						130						130			
	pack. ring dim.	mm	12.5 x 12.5										12.5x12.5		16 x 16						16 x 16						16 x 16			
	no. of pack. rings	pcs.	4 (6)										4 (6)		4 (6)						6						6			
	width of lantern ring	mm	25										25		32						25						25			
	clearance for removal	mm	88										88		108						100						100			
Shaft deflection			Max. shaft deflection at shaft seal in accordance with ISO 5199 (max. 0.05 mm) is observed.																											
Pressure limit	max. operating pressure	bar	see diagram page 3																											
	max. test pressure	bar	1.5 x max. permissible pump discharge pressure																											
Temp. limit	max. temp. of medium handled	°C	see diagram page 3																											
Drive	P/n value		0.11										0.2		0.42						0.79						1.15			
	max. rating at n = 1450 1/min	KW	160										290		610						1150						1670			
	= 1750 1/min	KW	192										350		735						1382						2012			
	= 2900 1/min	KW	-										-		-						-						-			
	= 3500 1/min	KW	-										-		-						-						-			

Pump Size / Bearing Bracket Combinations

Dis-charge nozzle DN	Nominal impeller diameter												Bearing bracket
	125	160	200	250	315	400	500	504	506	630	670	710	
25		x ¹⁾⁵⁾	x ¹⁾⁵⁾										P 02as
32	x	x ¹⁾	x ¹⁾	x ¹⁾									P 03s
40		x ¹⁾	x ¹⁾	x ¹⁾	x ¹⁾								
50		x ¹⁾	x ¹⁾	x ¹⁾	x ¹⁾								
65		x ¹⁾	x ¹⁾	x ¹⁾	x ¹⁾³⁾								
80		x ¹⁾		x ¹⁾²⁾	x ¹⁾²⁾	x ¹⁾³⁾							P 04s
100			x ¹⁾²⁾	x ¹⁾²⁾	x ¹⁾²⁾	x ¹⁾²⁾							P 05s
125				x ¹⁾	x ¹⁾	x ¹⁾²⁾							P 06s
150				x ¹⁾	x ¹⁾	x ¹⁾	x ¹⁾			x			P 08s
200				x ¹⁾	x ¹⁾⁴⁾	x ¹⁾	x ¹⁾				x		P10as
250					x ¹⁾	x ¹⁾⁶⁾	x ¹⁾⁶⁾			x		x	
300						x ¹⁾⁶⁾	x ¹⁾⁶⁾			x		x	
350						x ¹⁾⁶⁾	x ¹⁾⁶⁾			x		x	P 12s
400								x	x	x		x	

- Double volute casing
 1) Casing cover with conical seal chamber possible
 2) CPK-C standard design without double volute
 3) CPK-E/S with double volute
 4) CPK-E with double volute
 5) not as CPK-S
 6) design with conical seal chamber not possible on CPK-S

Casing

Radially split, consisting of volute casing (on CPK-S with casing wear ring) and casing cover.

Double volute depending on pump size.

The casing cover and the bearing bracket lantern form a chamber which can be used for heating or cooling with superheated steam or water, respectively (except for pump design with conical seal chamber).

Balancing

Axial thrust is balanced by back vanes on DN > 400 and sealing gap on both sides if impeller diameter > 500.

Shaft Seal

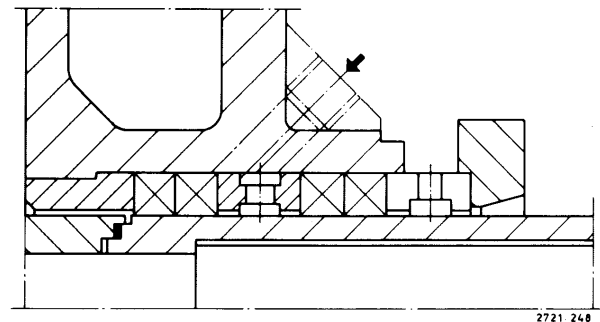
The shaft seal can be designed as a gland packing or as a mechanical seal.

Conversion from gland packing to single-acting mechanical seal and vice versa is possible without any rework on the casing cover by using the relevant replacement parts.

Commercially available mechanical seals in single- and double-acting design will be fitted. We use standardized mechanical seals of various makes in accordance with DIN 24 960 (design L₁K).

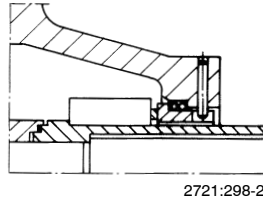
Single-acting mechanical seals may be fed with a quenching medium. Sealing against atmospheric influences is effected by means of a throttling bush, a shaft seal ring or a secondary mechanical seal.

Gland packing



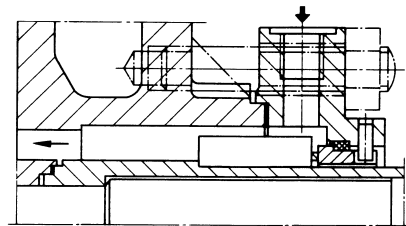
Gland packing design

Examples of Mechanical Seal Arrangements

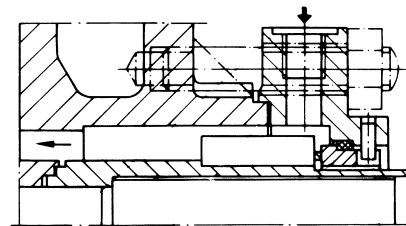


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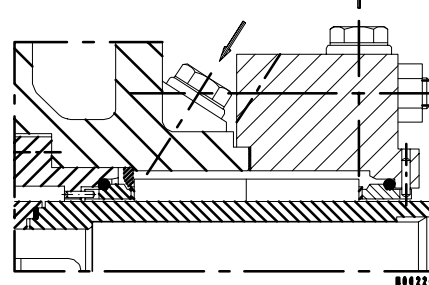
Shaft seal: standardized mechanical seal in short design, single-acting, unbalanced, without circulation (version with conical seal chamber).



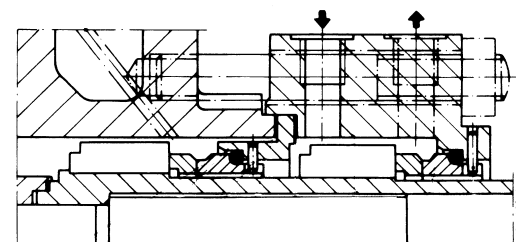
Shaft seal: single-acting mechanical seal, unbalanced.



Shaft seal: single-acting mechanical seal, balanced.



Shaft seal: double-acting mechanical seal (back to back), both sides unbalanced.



Shaft seal: double-acting mechanical seal (tandem), both sides balanced.

Mechanical Seals Installed in CPK Pumps

Design	Make	Type unbalanced	Type balanced
single-acting	KSB choice Burgmann	A. 3)	- - -
		M7N 3)	H75N
		MG1-G6 1)	
	Pacific Crane	600 3) 59U 3) 502 3)	610 59B
double-acting back-to-back	KSB choice Burgmann	A. / A. 2)	- - -
		M7N / M7N 2)	H75N / H75F1
		600 / 600 2)	610 / 660
	Pacific Crane	59U / 59U 2)	59B/59B-RF
double-acting tandem	Burgmann Pacific Crane	M7N / M7F1 600/650 59U/59U-RF	H75N / H75F1 610 / 660 59B/59B-RF

Standard seals

- 1) only for pump design with conical sealing chamber
2) pumping screw possible
3) also possible in conical sealing chamber

Coating and Preservation

(acc. to works standard AN 1865)

CPK-S, -E	< 150 °C	N	1	1	1	W
	≥ 150 °C	N	7	7	7	W
CPK-C	< 150 °C	N	0	1	1	U
	≥ 150 °C	N	0	7	7	U

Key:

Treatment of unmachined parts

Coating - pressure-retaining parts

Coating - bearing bracket, baseplate

Coating - motor

Preservation

N = reaction primer, parts in contact with the medium handled without last paint coat.

0 = without top coat

1 = synthetic enamel RAL 5002, ultramarine blue

7 = heat-resistant enamel RAL 9007, aluminium-grey

U = untreated

W = rinsed with water repellent agent; blank parts liable to rust with protective coating

Acceptance Tests / Guarantees

- Materials tests**
Test report 2.2 on request
- Product tests**
Inspection certificate 3.1, on request, for:
pressure test of complete pump as per EN 10204
- Hydraulic tests**

Each pump is subjected to a performance test run, and its duty point is guaranteed according to ISO 9906/2A.

The following acceptance tests may be performed and certified at extra charge:

Performance test ISO 9906/2A 5 measuring points
Performance test ISO 9906/1 5 measuring points
(see individual curve)

NPSH test 1 measuring point

Warranties are given within the scope of the valid delivery conditions.

Forces and Moments

CPK pumps are designed for handling forces and moments in accordance with ISO 5199.

Documentation

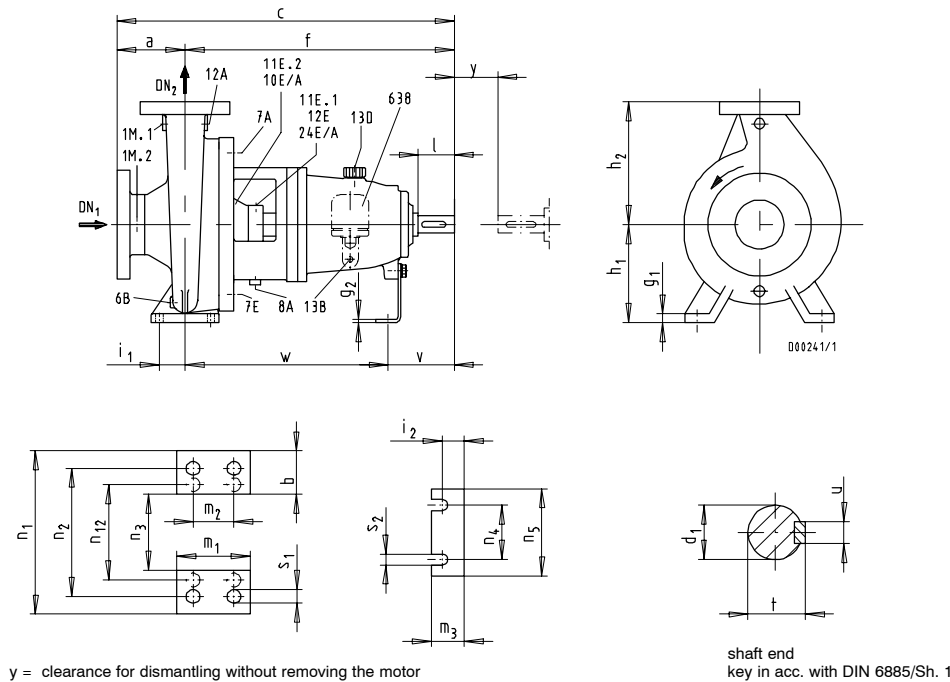
Printed documentation adapted to CE requirements

- sectional drawing with list of components
- drawing of shaft seal
- installation plan / dimensions table
- operating instructions

Recommended Spare Parts Stock for Two Years' Operation to DIN 24296

Part No.	Description	Number of pumps (incl. standby pumps)						
		2	3	4	5	6+7	8+9	10 and more
		Quantity of spare parts						
210	Shaft	1	1	1	2	2	2	20 %
230	Impeller	1	1	1	2	2	2	20 %
320.02	Angular contact ball bearing (set)	1	1	2	2	2	3	25 %
322.01	Cylindrical roller bearing	1	1	2	2	2	3	25 %
433	Mechanical seal, complete	1	1	2	2	2	3	25 %
	or							
	spring-loaded ring	2	3	4	5	6	7	90 %
	seat ring	2	3	4	5	6	7	90 %
	secondary seal at spring-loaded ring	2	3	4	5	7	9	100 %
	secondary seal at seat ring	2	3	4	5	7	9	100 %
	spring (set)	1	1	1	1	2	2	20 %
456.01	Neck bush	1	1	2	2	2	3	30 %
461.01	Gland packing (set)	4	4	6	6	6	8	100 %
502.01	Casing wear ring	2	2	2	3	3	4	50 %
524.01	Shaft protecting sleeve	2	2	2	3	3	4	50 %
---	Gaskets for pump casing (set)	4	6	8	8	9	12	150 %
---	Torque transmission elements (coupling, set)	1	1	2	2	3	4	30 %

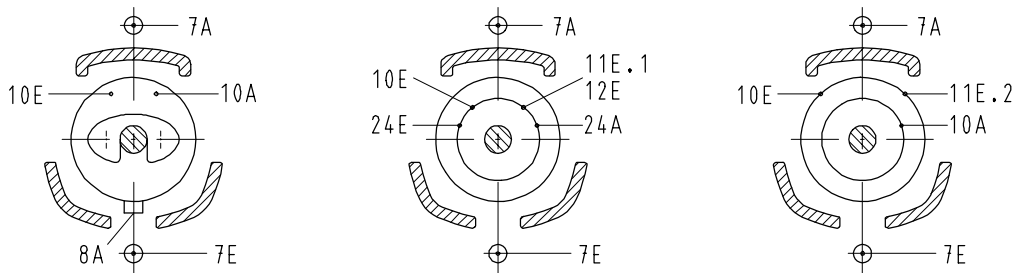
Dimensions



Flange design

CPK-S1	EN1092-2, PN 16 ²⁾
CPK-C1/C1V	DIN 2543, PN 16
CPK-C3.2	DIN 2544, PN 25
CPK-C3.1	DIN 2543, PN 16
CPK-S2	EN1092-2, PN 25
CPK-E	DIN 2544, PN 25

2) drilled



000243

Gland packing

Single-acting mech. seal

Double-acting mech. seal

Conne- ctions	Bearing bracket						Description
	P 02	P 03	P 04	P 05 P 06	P 08	P 10 P 12	
1 M.1	G 1/4	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2	Pressure gauge
1 M.2	G 1/4	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2	Pressure gauge
6 B	G 1/4	G 3/8	G 1/2	G 1/2	G 1	G 1	Casing drain
7 E/A ¹⁾	G 3/8	G 3/8	G 3/8	G 1/2	G 1/2	---	Cooling liquid IN/OUT
8 A	Rp 1/2	Rp 1/2	Rp 1/2	Rp 1/2	Rp 1/2	Rp 1/2	Leakage drain
10 E / A	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/2	Sealing liquid IN/OUT
11 E.1	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	Flushing liquid IN
11 E.2	G 1/8	G 1/8	G 1/8	G 1/8	G 1/8	G 1/4	Flushing liquid IN
12 E / A	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/2	Circulation liquid IN/OUT
13 B	G 1/4	G 1/4	G 1/4	G 1/4	G 1/2	G 1/2	Oil drain
13 D	20 Ø	20 Ø	20 Ø	20 Ø	20 Ø	20 Ø	Vent plug
24 E / A	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	G 1/4	Quench liquid IN/OUT
638	Rp 1/4	Rp 1/4	Rp 1/4	Rp 1/4	Rp 1/4	Rp 1/4	Constant-level oiler

1) Connection 7 E/A is not provided on pumps with conical seal chamber

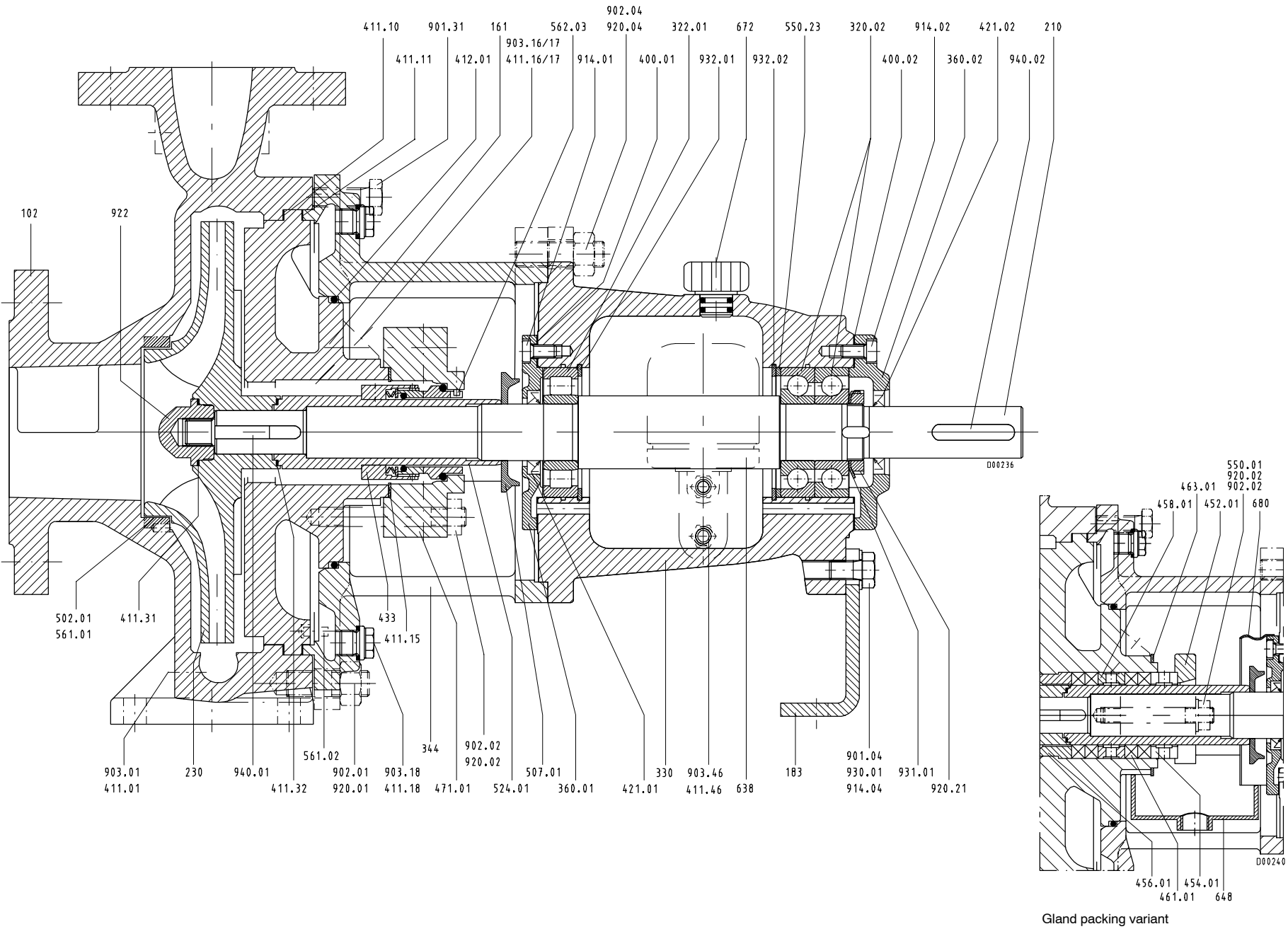
Dimensions

Dimensions in mm

Pump size	Bearing bracket	Pump dimensions															Shaft end						Foot bolts													
		DN 1	DN 2	a	b	c	f	g ₁	g ₂	h ₁	h ₂	m ₁	m ₃	n ₁	n ₃	n ₅	d ₁₀ k ₆	l	t	u	y	i ₁	i ₂	m ₂	n ₂	n ₄	s ₁	s ₂	v	w	n ₁₂					
25-160 25-200	P 02 P 02	40	25	80 80	50 50	465 465	385 385	14 14	4 4	132 160	160 180	100 100	48 48	240 190	140 140	160 160	24 24	50 50	27 27	8 8	100 100	35 35	20 20	70 70	190 190	110 110	14 14	14 14	100 100	285 285	-	-				
32-125 32-160 32-200 32-250	P 02 P 02 P 02 P 03	50	32	80 80 80 100	50 50 50 65	465 465 465 600	385 385 385 500	12 14 14 16	4 4 4 4	112 132 160 180	140 160 180 225	100 100 100 125	48 48 48 48	240 240 240 320	90 140 140 190	160 160 160 160	24 24 24 32	50 50 50 80	27 27 27 35	8 8 8 10	100 100 100 100	35 35 35 35	20 20 20 20	70 70 70 95	140 190 190 250	110 110 110 110	14 14 14 14	14 14 14 14	100 100 100 130	285 285 285 370	-	-				
40-160 40-200 40-250 40-315	P 02 P 03 P 03 P 03			65	40	80 100 100 125	50 50 65 65	465 485 600 625	385 385 500 500	14 14 16 18	4 4 4 6	132 160 180 200	160 180 225 250	100 100 125 125	48 48 48 48	240 265 320 345	140 165 190 215	160 160 160 160	24 24 32 32	50 50 80 80	27 27 35 35	8 8 10 10	100 100 100 100	35 35 47.5 47.5	20 20 20 20	70 70 95 95	190 212 250 280	110 110 110 110	14 14 14 14	14 14 14 14	100 100 130 130	285 285 370 370	-	-		
50-160 50-200 50-250 50-315	P 02 P 03 P 03 P 03					80	50	100 100 125 125	50 50 65 65	485 485 625 625	385 385 500 500	14 14 16 18	4 4 4 6	160 160 180 225	180 200 225 280	100 100 125 125	48 48 48 48	265 265 320 345	165 165 190 215	160 160 160 160	24 24 32 32	50 50 80 80	27 27 35 37	8 8 10 10	100 100 100 100	35 35 47.5 47.5	20 20 20 20	70 70 95 95	212 212 250 280	110 110 110 110	14 14 14 14	14 14 14 14	100 100 130 130	285 285 370 370	-	-
65-160 65-200 65-250 65-315	P 03 P 03 P 03 P 04							100	65	100 100 125 125	65 65 80 80	600 600 625 655	500 500 500 530	15 16 18 18	4 4 6 6	160 180 200 225	225 250 250 280	125 125 160 160	48 48 48 48	280 320 360 400	150 160 200 240	160 160 160 160	32 32 32 42	80 80 80 110	35 35 35 45	10 10 10 12	100 100 140 140	47.5 47.5 60 60	20 20 20 20	95 95 120 120	212 250 280 315	110 110 110 110	14 14 14 14	14 14 14 14	130 130 130 160	370 370 370 370
80-160 80-200 80-250 80-315 80-400	P 04 P 03 P 04 P 04 P 04	125	80							125 125 125 125 125	65 65 80 80 80	625 625 625 655 655	500 500 500 530 530	15 16 18 18 20	4 4 6 6 6	180 180 225 250 280	225 250 280 315 355	125 125 160 160 160	48 48 48 48 48	300 345 400 400 435	190 215 240 240 275	160 160 160 160 160	32 32 32 42 42	80 80 80 110 110	35 35 35 45 45	10 10 10 12 12	140 140 140 140 140	47.5 47.5 60 60 60	20 20 20 20 20	95 95 120 120 120	250 280 315 355 355	110 110 110 110 110	14 14 14 14 14	14 14 14 14 14	130 130 130 160 160	370 370 370 370 370
100-200 100-250 100-315 100-400	P 03 P 04 P 04 P 04			125	100					125 140 140 140	80 80 80 100	625 670 670 670	500 530 530 530	16 18 18 20	6 6 6 6	200 225 250 280	280 160 315 355	160 160 160 200	48 48 48 48	360 400 400 500	200 160 240 300	160 160 160 160	32 42 42 42	80 110 110 110	35 45 45 45	10 12 12 12	140 140 140 140	60 60 60 75	20 20 20 20	120 120 120 150	280 315 315 400	110 110 110 110	14 14 14 23	14 14 14 14	130 160 160 160	370 370 370 370
125-250 125-315 125-400	P 04 P 04 P 04					150	125			140 140 140	80 100 100	670 670 670	530 530 530	18 20 20	6 6 6	250 280 315	355 355 400	160 160 200	48 48 48	400 500 500	240 300 300	160 160 160	42 42 42	110 110 110	45 45 45	12 12 12	140 140 140	60 75 75	20 20 20	120 150 150	315 400 400	110 110 110	14 13 23	14 18 14	160 160 160	370 370 370
150-250 150-315 150-400	P 04 P 05 P 05							200	150	160 160 160	100 100 100	690 830 830	530 670 670	20 22 22	6 12 12	280 315 315	375 400 450	200 200 200	60 60 60	500 550 550	300 350 350	160 200 200	42 48 48	110 110 110	45 51 51	12 14 14	180 180 180	75 75 75	20 39 39	150 150 150	400 450 450	110 140 140	23 23 23	14 18 17	160 170 500	370 500 -
150-500 150-630	P 05 P 08s	200	150							180 250	100 180	850 1145	670 895	22 32	12 28	375 500	500 670	200 360	60 70	550 900	350 540	200 200	48 75 ¹⁾	110 150	51 79.5	14 20	180 250	75 125	39 46	150 250	450 750	140 140	23 28	18 18	170 220	500 675
200-250 200-315 200-400 200-500 200-670	P 05 P 05 P 05 P 05 P 08s			200	200					180 200 180 200 250	100 110 100 100 225	850 870 850 870 1150	670 670 670 670 900	22 22 22 22 40	12 12 12 12 28	355 450 500 560 500	425 450 500 600 670	200 200 200 200 400	60 60 60 60 70	550 550 550 660 1080	350 350 350 460 630	200 200 200 200 200	48 48 48 48 150	110 110 110 110 79.5	51 51 51 51 20	14 14 14 14 25	180 180 180 180 250	75 75 75 75 150	20 39 39 39 46	150 150 150 150 300	450 450 450 560 1000	140 140 140 140 140	23 23 23 23 28	18 18 17 17 220	500 500 500 500 680	-
250-315 250-400 250-500 250-630 250-710	P 05 P 06s P 06s P 10as P 10as					300	250			250 200 200 300 300	130 130 130 225 225	920 920 920 1390 1380	670 720 720 1090 1080	26 26 26 40 40	12 12 12 14 14	400 425 475 500 600	560 600 670 750 800	260 260 260 400 400	60 60 60 70 70	690 800 800 1080 1250	430 540 540 630 800	200 200 200 200 200	48 60 ¹⁾ 60 ¹⁾ 95 ¹⁾ 95 ¹⁾	110 140 140 170 170	51 64 64 100 100	14 18 18 25 25	180 180 180 250 250	95 95 95 150 150	39 39 39 44 44	190 190 190 300 300	560 670 670 1000 1170	140 140 140 140 140	28 28 28 28 28	18 18 18 19 19	170 205 205 360 720	500 515 515 730 970
300-400 300-500 300-630 300-710	P 08s P 08s P 10as P 10as							350	300	300 300 300 300	180 225 225 225	1200 1390 1390 1390	900 1090 1090 1090	32 40 40 40	12 14 14 14	500 600 800 850	630 750 800 850	360 400 400 400	60 70 70 70	900 1080 1250 1250	540 630 800 800	200 200 200 200	75 ¹⁾ 75 ¹⁾ 95 ¹⁾ 95 ¹⁾	150 170 170 210	79.5 79.5 100 116	20 25 25 28	250 250 250 250	125 150 150 150	39 39 44 44	250 300 300 300	750 1000 1170 1170	140 140 140 140	28 28 28 28	18 18 19 19	220 680 730 720	680 970 970 970
350-400 350-500 350-630 350-710	P 08s P 08s P 12s P 12s	350	350							350 300 300 300	225 225 225 225	1280 1200 1450 1450	930 900 1150 1150	40 40 40 40	12 12 14 14	600 670 850 900	750 850 850 850	400 400 400 400	60 70 70 70	1250 1250 1250 1250	800 800 800 800	200 240 200 200	75 ¹⁾ 75 ¹⁾ 110 ¹⁾ 110 ¹⁾	150 150 210 210	79.5 79.5 116 116	20 20 28 28	250 250 250 250	150 150 150 150	44 44 44 44	300 300 300 300	1170 1170 1170 1170	140 140 140 140	28 28 28 28	18 18 19 19	220 630 410 410	970 970 970 970
400-504 400-506 400-630 400-710	P 10as P 10as P 12s P 12s			400	400					350 350 350 350	225 225 225 225	1460 1460 1490 1490	1110 1110 1140 1140	40 40 40 40	14 14 14 14	670 670 630 670	900 900 900 1000	400 400 400 400	70 70 70 70	1250 1250 1250 1250	800 800 800 800	200 200 200 200	95 ¹⁾ 95 ¹⁾ 110 ¹⁾ 110 ¹⁾	170 170 210 210	100 100 116 116	25 25 28 28	250 300 250 250	150 150 150 150	44 44 44 44	300 300 300 300	1170 1170 1170 1170	140 140 140 140	28 28 28 28	19 19 19 19	360 360 410 410	750 970 970 970

General Drawing with List of Components

up to impeller diameter 500



When ordering spare parts please always specify the type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, sectional drawing No. and mode of dispatch.

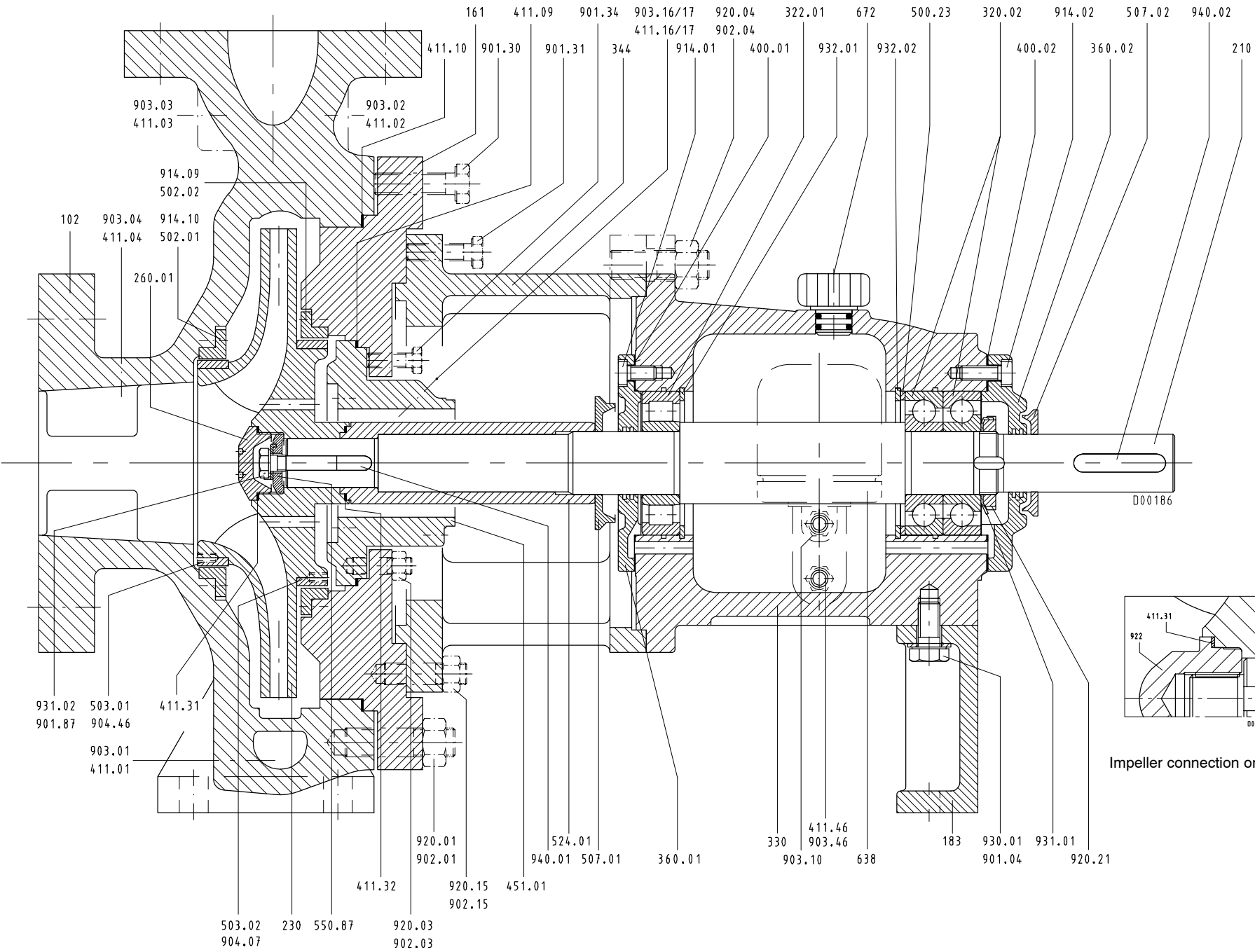
Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.10, casing wear ring 502.01 ¹⁾ , stud 902.01, screwed plug 903.01, hex. nut 920.01
161	Casing cover	with joint ring 411.11/.16/.17, O-ring 412.01, drip plate 463.01, disc 550.01, stud 902.02, screwed plug 903.16/.17, hex. nut 920.02
183	Support foot	with hex. head bolt 901.04 ²⁾ , spring washer 930.01
210	Shaft	with keywayed nut 920.21, lockwasher 931.01, key 940.01/.02
230	Impeller	with joint ring 411.32
320.02	Angular contact ball bearing	
322.01	Cylindrical roller bearing	
330	Bearing bracket	
330	Bearing bracket (cpl.)	with bearing cover 360.01/.02, gasket 400.01/.02, joint ring 411.46, radial shaft seal ring 421.01/.02, support disc 550.23, constant-level oiler 638, vent plug 672, screwed plug 903.46, socket head cap screw 914.01/.02, circlip 932.01/.02
344	Bearing bracket lantern	with O-ring 412.01, parallel pin 561.02, screwed plug 903.18, stud 902.04, hex. head bolt 901.31, hex. nut 920.04, joint ring 411.18
360.01/.02	Bearing cover	with gasket 400.01/.02, socket head cap screw 914.01/.02
421.01.02	Radial shaft seal ring	
433	Mechanical seal	
452.01	Gland cover	
454.01	Stuffing box ring	split
456.01	Neck bush	
458.01	Lantern ring	split
461.01	Gland packing	
463.01	Drip plate	
471	Seal cover	with joint ring 411.15, parallel pin 562.03
502.01 ¹⁾	Casing wear ring	with parallel pin 561.01
507.01	Thrower	
524.01	Shaft protecting sleeve	with joint ring 411.32
638	Constant-level oiler	
648	Drip pan	
680	Guard	
922	Impeller nut	with joint ring 411.31

1) only on CPK-S

2) on bearing assembly P 02as: socket head cap screw 914.04

General Drawing with List of Components

Impeller diameter 504 and above

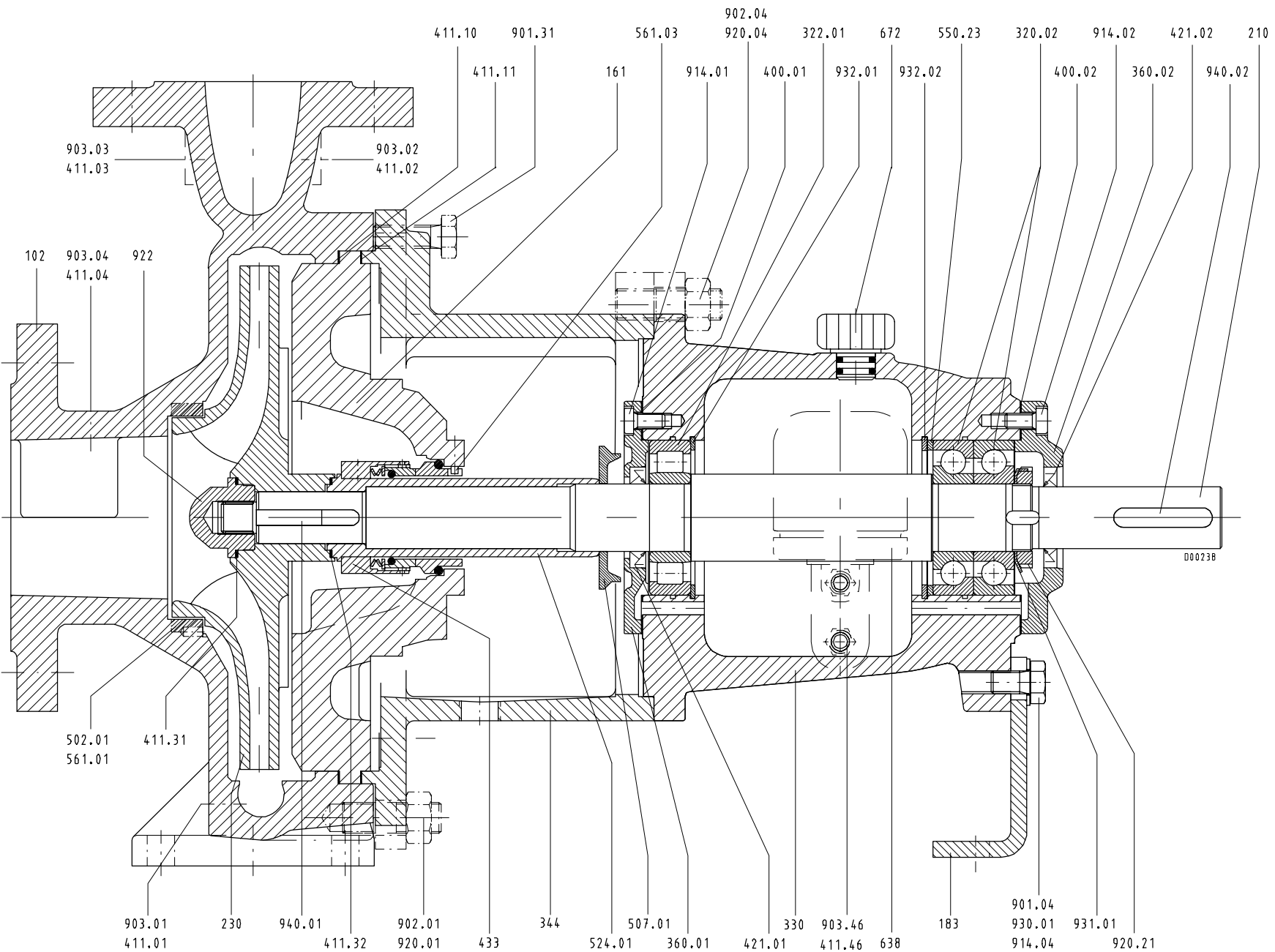


Impeller connection on P 08s

When ordering spare parts please always specify the type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, sectional drawing No. and mode of dispatch.

Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.10, casing wear ring 502.01, stud 902.01, screwed plug 903.01, socket head cap screw 914.10, hex. nut 920.01
161	Casing cover	with joint ring 411.09, casing wear ring 502.02, stud 902.15, socket head cap screw 914.09, hex. nut 920.15
183	Support foot	
210	Shaft	with keywayed nut 920.21, lockwasher 931.01, key 940.01/.02
230	Impeller	with impeller wear ring 503.01/.02 (if fitted)
260.01	Impeller cap	(bearing brackets P 10as, P 12s)
320.02	Angular contact ball bearing	
322.01	Cylindrical roller bearing	
330	Bearing bracket	
344	Bearing bracket lantern	with stud 902.04, hex. nut 920.04
360.01/.02	Bearing cover	
451.01	Stuffing box housing	with stud 902.03, screwed plug 903.16/.17, hex. nut 920.03
502.01/.02	Casing wear ring	
507.01/.02	Thrower	
524.01	Shaft protecting sleeve	
550.23	Support disc	
550.87	Disc	(bearing brackets P 10as, P 12s)
638	Constant-level oiler	
672	Vent plug	
901.04	Hex. head bolt	
901.87	Hex. head bolt	(bearing brackets P 10as, P 12s)
903.46	Screwed plug	
914.01/.02	Socket head cap screw	
914.09/.10	Socket head cap screw	
922	Impeller nut	(bearing bracket P 08s)
930.01	Spring washer	
931.01	Lockwasher	
931.02	Lockwasher	(bearing brackets P 10as, P 12s)
932.01/.02	Circlip	

Pump design with conical seal chamber (up to impeller diameter 500)
Shaft seal without circulation



When ordering spare parts please always specify the type series/pump size, works No. (stamped on the name plate and on the suction nozzle flange), motor No. (serial No.), year of construction, quantity required, part No., description, material, medium handled, sectional drawing No. and mode of dispatch.

Part No.	Description	Scope of supply
102	Volute casing	with joint ring 411.01/.02/.03/.04/.10, casing wear ring 502.01 ¹⁾ , stud 902.01, screwed plug 903.01/.02/.03/.04, hex. nut 920.01
161	Casing cover	with joint ring 411.10/.11, grooved pin 561.03
183	Support foot	with hex. head bolt 901.04 ²⁾ , spring washer 930.01
210	Shaft	with keywayed nut 920.21, lockwasher 931.01, key 940.01/.02
230	Impeller	with joint ring 411.32
320.02	Angular contact ball bearing	
322.01	Cylindrical roller bearing	
330	Bearing bracket	
330	Bearing bracket (cpl.)	with bearing cover 360.01/.02, gasket 400.01/.02, joint ring 411.46, radial shaft seal ring 421.01/.02, support disc 550.23, constant-level oiler 638, vent plug 672, screwed plug 903.46, socket head cap screw 914.01/.02, circlip 932.01/.02
344	Bearing bracket lantern	with joint ring 411.11, stud 902.04, hex. head bolt 901.31, hex. nut 920.04
360.01/.02	Bearing cover	with gasket 400.01/.02, socket head cap screw 914.01/.02
421.01/.02	Radial shaft seal ring	
433	Mechanical seal	
502.01 ¹⁾	Casing wear ring	with parallel pin 561.01
507.01	Thrower	
524.01	Shaft protecting sleeve	with joint ring 411.32
638	Constant-level oiler	
922	Impeller nut	

1) only on CPK-S

2) on bearing assembly P 02as: socket head cap screw 914.04



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