



Service instructions with parts list

CRI, CRN 1, 3, 5
CRI, CRN 10, 15, 20
CR, CRN 32, 45, 64, 90

Air-cooled top

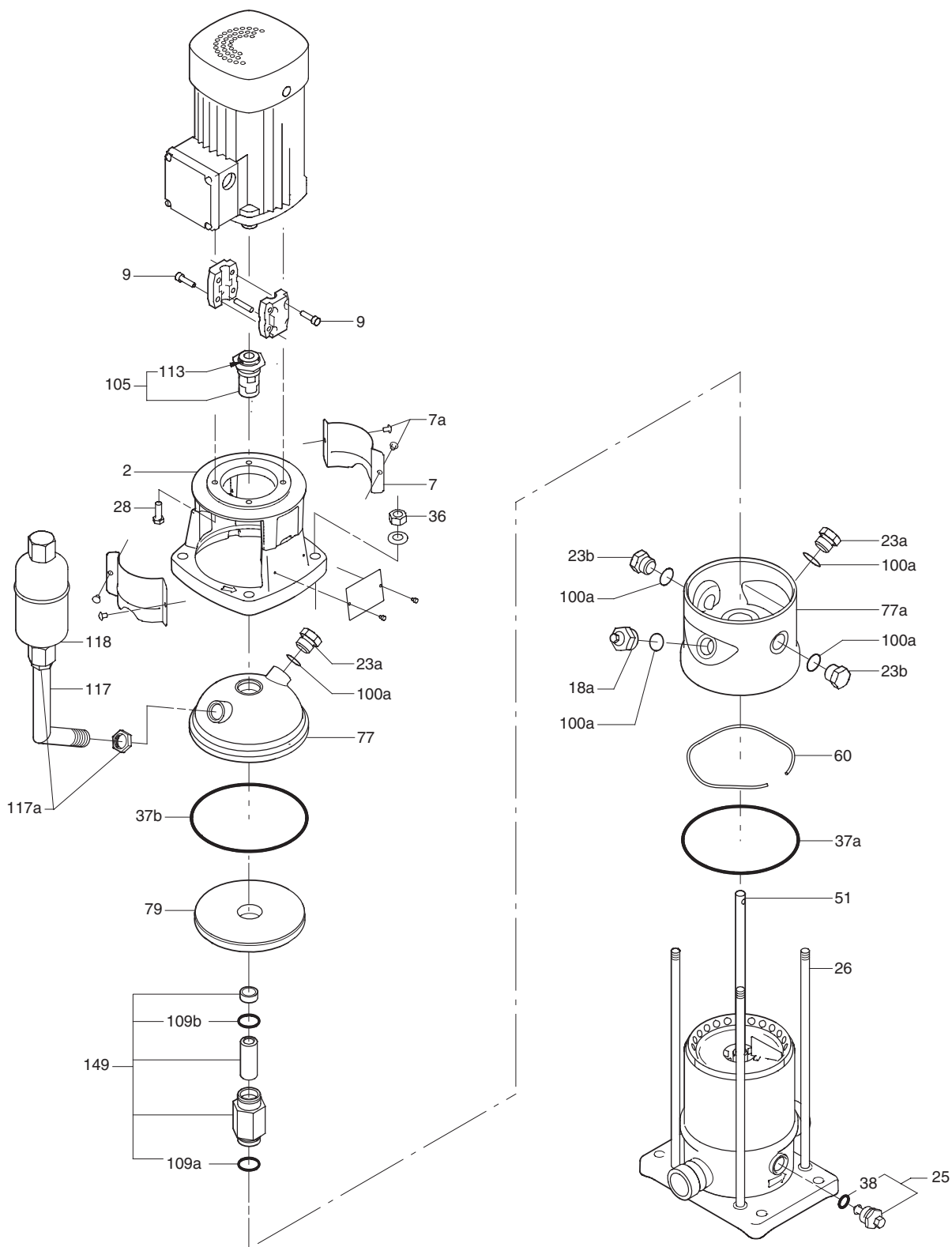
50/60 Hz, 3~

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1. CRI, CRN 1, 3, 5

1.1 Drawing



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Fig. 1 Exploded view, CRI, CRN 1, 3, 5

Parts without position numbers, see the parts list of the standard pump in WinCAPS or WebCAPS.

1.2 Parts list

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number			
					CRN 1, 3	CRN 5	CRI 1, 3	CRI 5
18a	Air vent screw		1	G 1/2"			405150	
23a	Plug		1	G 1/2"			370025	
23a	Plug with hole		2	G 1/2"			96510323	
25	Priming valve		1	G 1/2"			96460009	
		3/2	4	L = 259 mm			414008	
				L = 263 mm	404138			
		2	4	L = 259 mm		96459210		414008
				L = 259 mm			414008	
		3	4	L = 263 mm	404138			
				L = 286 mm		404110		414109
				L = 277 mm	414136			404013
				L = 313 mm				414010
				L = 317 mm		96463414		
				L = 294 mm			96442754	
		5	4	L = 295 mm	414107			
				L = 340 mm		404113		
				L = 349 mm				404017
				L = 313 mm			404110	
		6	4	L = 317 mm	404141			
				L = 367 mm		96459214		414012
				L = 330 mm			96442760	
				L = 335 mm	414138			
				L = 394 mm		96442056		
				L = 397 mm				414030
				L = 349 mm	414109			404017
				L = 421 mm				96442773
				L = 425 mm		404147		
				L = 367 mm	96459214			414012
				L = 448 mm		404119		414015
				L = 385 mm			404019	
		10	4	L = 389 mm	414140			
				L = 475 mm		414143		414016
				L = 402 mm			96442762	
				L = 403 mm	414111			
				L = 502 mm		404122		96442774
				L = 421 mm			96442763	
		12	4	L = 425 mm	404147			
				L = 529 mm		414145		96442775
				L = 436 mm			96458181	
				L = 457 mm	414113			
				L = 556 mm		96462473		414019
		14	4	L = 583 mm		404156		404030
				L = 475 mm	414143			414016
				L = 610 mm		96458504		96458441
		16	4	L = 637 mm		96461557		414022
				L = 508 mm			404026	
				L = 511 mm	414115			
		18	4	L = 691 mm		96442122		96442777
				L = 546 mm			96442765	
				L = 551 mm	96442119			
		20	4	L = 745 mm		96442123		96442778
				L = 583 mm	404156		404030	
		22	4	L = 799 mm		414155		96442779
				L = 618 mm			96442767	
				L = 619 mm	414119			
		24	4	L = 853 mm		96458507		96458446
				L = 655 mm			96458442	
				L = 659 mm	414160			
		26	4	L = 907 mm		96458508		96458447
		27	4	L = 691 mm	96442122		96442777	

26 Staybolt

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number			
					CRN 1, 3	CRN 5	CRI 1, 3	CRI 5
26	Staybolt	29	4	L = 724 mm			96442769	
				L = 727 mm	96458505			
				L = 988 mm		96458509		
		30	4	L = 745 mm	96442123			
				L = 988 mm				96458452
		31	4	L = 745 mm			96442778	
				L = 763 mm	96458506			
		32	4	L = 763 mm			96442776	
				L = 1066 mm		96442126		
		33	4	L = 799 mm	414155			
				L = 1069 mm				96442782
		34	4	L = 799 mm			96442779	
				L = 853 mm	96458507			
		35	4	L = 1177 mm		96458510		
L = 853 mm					96458446			
36	4	L = 1177 mm				96458167		
37a	O-ring		2	Ø137.5 x 3.3 mm	See O-ring kits on page 5.			
37b	O-ring		1	Ø137.5 x 3.3 mm				
38	O-ring		1	Ø8.3 x 2.4 mm				
51	Shaft	3/2	1	L = 265.5 mm	96457560		96457560	
				L = 265.5 mm		96457560		96457560
		2	1	L = 265.5 mm	96457560		96457560	
				L = 285.5 mm		96457561		96457561
		3	1	L = 285.5 mm	96457561		96457561	
				L = 319.5 mm		96457563		96457563
		4	1	L = 301.5 mm	96457562		96457562	
				L = 339.5 mm		96457564		96457564
		5	1	L = 319.5 mm	96457563		96457563	
				L = 373.5 mm		96457566		96457566
		6	1	L = 339.5 mm	96457564		96457564	
				L = 393.5 mm		96457567		96457567
		7	1	L = 355.5 mm	96457565		96457565	
				L = 427.5 mm		96457569		96457569
		8	1	L = 373.5 mm	96457566		96457566	
				L = 447.5 mm		96457570		96457570
		9	1	L = 393.5 mm	96457567		96457567	
				L = 481.5 mm		96457571		96457571
		10	1	L = 409.5 mm	96457568		96457568	
				L = 501.5 mm		96457572		96457572
		11	1	L = 427.5 mm	96457569		96457569	
				L = 535.5 mm		96457574		96457574
		12	1	L = 447.5 mm	96457570		96457570	
				L = 555.5 mm		96457575		96457575
		13	1	L = 589.5 mm		96457576		96457576
				L = 481.5 mm	96457571		96457571	
		14	1	L = 609.5 mm		96457577		96457577
				L = 643.5 mm		96457579		96457579
		15	1	L = 517.5 mm	96457573		96457573	
				L = 697.5 mm		96457581		96457581
		16	1	L = 555.5 mm	96457575		96457575	
				L = 751.5 mm		96457583		96457583
17	1	L = 589.5 mm	96457576		96457576			
		L = 805.5 mm		96457585		96457585		
18	1	L = 625.5 mm	96457578		96457578			
		L = 859.5 mm		96457586		96457586		
19	1	L = 661.5 mm	96457580		96457580			
		L = 906.5 mm		96457587		96457587		
20	1	L = 697.5 mm	96457581		96457581			
		L = 733.5 mm	96457582		96457582			
21	1	L = 987.5 mm		96457588		96457588		
		L = 751.5 mm	96457583		96457583			
22	1	L = 769.5 mm	96457584		96457584			
		L = 1068.5 mm		96457589		96457589		

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number			
					CRN 1, 3	CRN 5	CRI 1, 3	CRI 5
51	Shaft	33	1	L = 805.5 mm	96457585		96457585	
		36	1	L = 859.5 mm	96457586		96457586	
				L = 1176.5 mm		96457590		96457590
77a	Pump head cover		1		96456294			
79	Disc		1		96456296			
100	O-ring		2	Ø16.3 x 2.4 mm	See O-ring kits on page 5.			
100a	O-ring		4	Ø16.3 x 2.4 mm				
109a	O-ring		1	Ø22.0 x 2.75 mm				
109b								
117	Vent pipe		1		330272			
117a	Nut		2	G 1/2"	96506709			
118	Air vent		1		96427483			
149	Connecting pipe, complete		1	FXM (109a) EPDM (109b)	96460414			
				FXM	96460415			
				EPDM	96493977			
				FXM	96493978			
				FKM	96493979			

O-ring kits

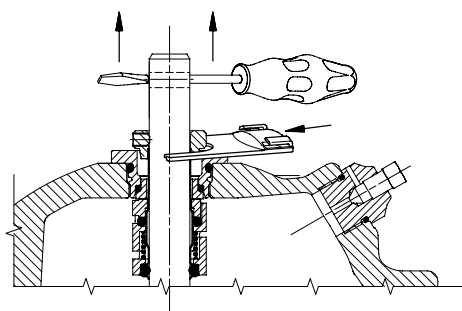
Pos.	Designation	Additional information	Material	Number per kit
				Part number 96533329
37a	O-ring	Ø137.5 x 3.3 mm	FXM	2
37b	O-ring	Ø137.5 x 3.3 mm	EPDM	1
38	O-ring	Ø8.3 x 2.4 mm	FXM	1
100	O-ring	Ø16.3 x 2.4 mm	EPDM	2
100a	O-ring	Ø16.3 x 2.4 mm	EPDM	2
			FXM	2
109a	O-ring	Ø22 x 2.75 mm	FKM	1

1.3 Dismantling

1. Remove the screws (pos. 7a) and coupling guards (pos. 7).
2. Remove the screws (pos. 9) and the coupling.
3. Remove the screws (pos. 28) and the motor.
4. Slacken the set screws (pos. 113) of the shaft seal (pos. 105).
5. Remove the shaft seal (pos. 105).
6. Remove the nuts (pos. 36).
7. Remove the pump head (pos. 2) including the cover (pos. 77) and the O-ring (pos. 37b). It may be necessary to loosen it with a rubber mallet by upward blows on the lower flange of the pump head.
8. Remove the cover (pos. 77a). It may be necessary to loosen it with a rubber mallet.
9. Remove the disc (pos. 79). If the disc is in the cover (pos. 77), use a punch. If the disc is in the cover (pos. 77a), loosen it with a rubber mallet, and lift it off.
10. Unscrew the connecting pipe (pos. 149).
11. Take the O-rings (pos. 109a and 109b) off the connecting pipe.
12. Continue the dismantling according to the instructions for dismantling of the standard pump.

1.4 Assembly

1. Lubricate the O-rings (pos. 109a and 109b) with O-ring grease, and fit them on the connecting pipe (pos. 149).
2. Fit the connecting pipe in the cover (pos. 77a). Tighten the connecting pipe to 35 Nm.
3. Press the disc (pos. 79) home on the connecting pipe.
4. Lubricate the O-ring (pos. 37a) with O-ring grease, and fit it and the spring (pos. 60) in the cover (pos. 77a).
5. Turn the cover so that the air vent screw (pos. 18a) is above the priming valve (pos. 25) in the bottom plate of the pump, and lower the cover over the shaft and home on the outer sleeve.
6. Lubricate the O-ring (pos. 37b) with O-ring grease, and fit it in the cover (pos. 77).
7. Fit the pump head including the cover (pos. 77).
8. Fit the nuts (pos. 36), and tighten them to these torques:
CRI: 50 Nm.
CRN: 60 Nm.
9. Lubricate the shaft with O-ring grease. Fit and tighten the shaft seal (pos. 105) to 35 Nm.
10. Remove the adjusting fork from the shaft seal.
11. Press the shaft home, and tighten the set screws of the shaft seal to 2.5 Nm.
12. Lift the pump shaft, and fit the adjusting fork. See fig. 2.



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Fig. 2 Fitting the adjusting fork

13. Fit the motor and the screws (pos. 28). Tighten the screws to these torques:

M6: 10 Nm.

M8: 12 Nm.

M10: 23 Nm.

3/8" UNC: 23 Nm.

M12: 40 Nm.

1/2" UNC: 40 Nm.

M16: 80 Nm.

14. Fit the coupling and the screws (pos. 9). Tighten the screws to these torques:

M6: 13 Nm.

M8: 31 Nm.

M10: 62 Nm.

15. Remove the adjusting fork.

16. Fit the coupling guards and the screws (pos. 7a). Tighten the screws to 2 Nm.

2. CRI, CRN 10, 15, 20

2.1 Drawing

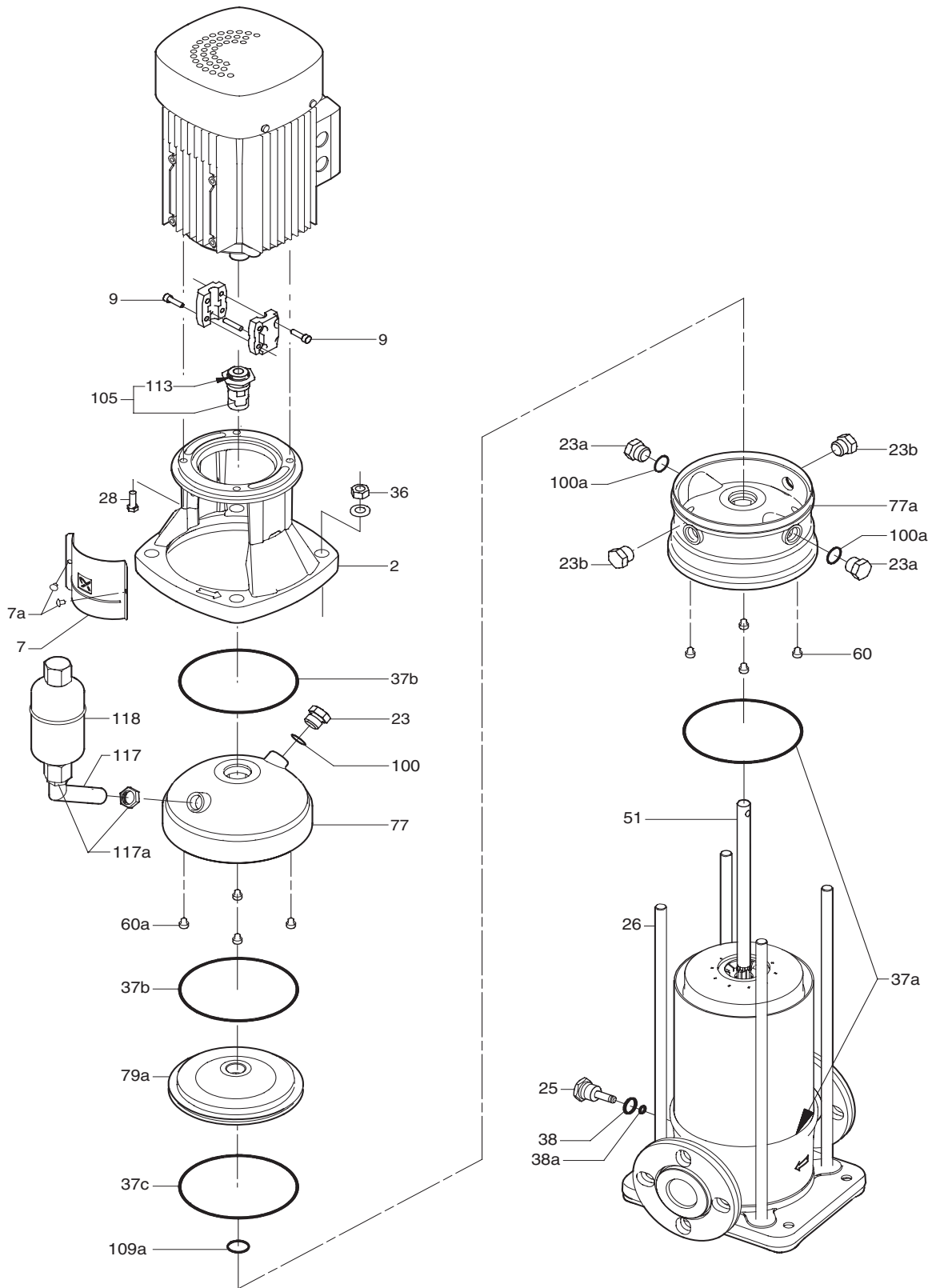


Fig. 3 Exploded view, CRI, CRN 10, 15, 20

Parts without position numbers, see the parts list of the standard pump in WinCAPS or WebCAPS.

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2.2 Parts list

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number			
					CRI 10	CRI 15, 20	CRN 10	CRN 15, 20
23a	Plug		2	G 1/2	370025			
23b	Plug with hole		2	G 1/2	96510323			
26	Staybolt	1/2	4	L = 330 mm	96492806		96492868	
				L = 360 mm		96492807		96492869
		3	4	L = 360 mm	96492807		96492869	
				L = 405 mm		96492809		96492871
		4	4	L = 390 mm	96492808		96492870	
				L = 450 mm		96492851		96492873
		5	4	L = 420 mm	96492850		96492872	
				L = 495 mm		96492853		96492875
		6	4	L = 450 mm	96492851		96492873	
				L = 540 mm		96492854		96492876
		7	4	L = 480 mm	96492852		96492874	
				L = 585 mm		96492855		96492877
		8	4	L = 510 mm	96512253		96512273	
				L = 630 mm		96492857		96492879
		9	4	L = 540 mm	96492854		96492876	
				L = 675 mm		96512255		96512275
		10	4	L = 570 mm	96512254		96512274	
				L = 720 mm		96492859		96492881
		12	4	L = 630 mm	96492857		96492879	
				L = 810 mm		96492861		96492883
		14	4	L = 690 mm	96512256		96512276	
				L = 900 mm		96512149		96512131
16	4	L = 750 mm	96512257		96512277			
17	4	L = 1035 mm		96512151		96512133		
18	4	L = 810 mm	96492861		96492883			
20	4	L = 870 mm	96512148		96512130			
22	4	L = 930 mm	96512150		96512132			
37a	O-ring		2	Ø170.7 x 3.3 mm	See O-ring kits on page 10.			
37b	O-ring	1	Ø170.7 x 3.3 mm					
37c	O-ring			Ø155.0 x 3.0 mm				
38	O-ring			Ø16.3 x 2.4 mm				
38a	O-ring			Ø5.3 x 2.4 mm				
51	Shaft	1, 2	1	L = 269 mm	96507534		96507534	
				L = 299 mm		96507538		96507538
		3	1	L = 299 mm	96507538		96507538	
				L = 339 mm		96507570		96507570
		4	1	L = 329 mm	96507539		96507539	
				L = 389 mm		96507572		96507572
		5	1	L = 359 mm	96507571		96507571	
				L = 429 mm		96507574		96507574
		6	1	L = 389 mm	96507572		96507572	
				L = 479 mm		96507576		96507576
		7	1	L = 419 mm	96507573		96507573	
				L = 519 mm		96507578		96507578
		8	1	L = 449 mm	96507575		96507575	
				L = 569 mm		96507579		96507579
		9	1	L = 479 mm	96507576		96507576	
				L = 609 mm		96507580		96507580
		10	1	L = 509 mm	96507577		96507577	
				L = 654 mm		96507582		96507582
		12	1	L = 569 mm	96507579		96507579	
				L = 749 mm		96507584		96507584
		14	1	L = 629 mm	96507581		96507581	
				L = 834 mm		96507586		96507586
16	1	L = 689 mm	96507583		96507583			
17	1	L = 969 mm		96507588		96507588		
18	1	L = 749 mm	96507584		96507584			
20	1	L = 809 mm	96507585		96507585			
22	1	L = 869 mm	96507587		96507587			

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number			
					CRI 10	CRI 15, 20	CRN 10	CRN 15, 20
60	Rubber spring		4		See O-ring kits on page 10.			
60a	Rubber spring		4					
77a	Pump head cover		1		96505487			
79a	Intermediate plate, complete		1		96511281			
100	O-ring		1	Ø16.3 x 2.4 mm	See O-ring kits on page 10.			
100a	O-ring		2	Ø16.3 x 2.4 mm				
109a	O-ring		1	Ø27.5 x 2.75 mm				
117	Vent pipe		1	0.37 - 7.5 kW 11 - 18.5 kW	330272			
117a	Nut		2		96521537			
117a	Nut		2		96506709			
118	Air vent		1		96427483			

O-ring kits

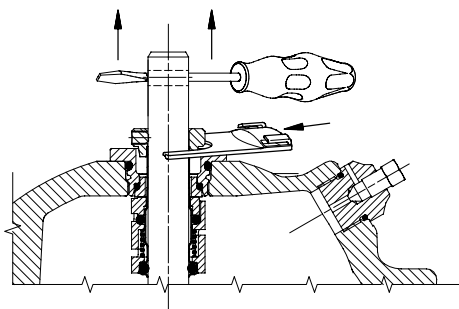
Pos.	Designation	Additional information	Material	Number per kit		
				Product number		
				96525419	96525431	96525432
37a	O-ring	Ø170.7 x 3.3 mm	EPDM	2		
			FKM		2	
			FXM			2
37b	O-ring	Ø170.7 x 3.3 mm	EPDM	1		1
			FKM		1	
37c	O-ring	Ø155 x 3 mm	EPDM	1		1
			FKM		1	
38	O-ring	Ø16.3 x 2.4 mm	EPDM	1		
			FKM		1	
			FXM			1
38a	O-ring	Ø5.3 x 2.4 mm	EPDM	1		
			FKM		1	
			FXM			1
39	Gasket	for oval flange, CR 10	KLINGERSIL C-4430	2	2	2
		for FGJ flange, CR 10		2	2	2
		for FGJ flange, CR 15. 20		2	2	2
60	Rubber spring		EPDM	4		
			FKM		4	
			PTFE			4
60a	Rubber spring		EPDM	4		
			FKM		4	
100	O-ring	Ø16.3 x 2.4 mm	EPDM	1		1
			FKM		1	
100a	O-ring	Ø16.3 x 2.4 mm	EPDM	2		
			FFKM		2	
			FXM			2
109a	O-ring	Ø27.5 x 2.75 mm	EPDM	1		
			FKM		1	
			FXM			1

2.3 Dismantling

1. Remove the screws (pos. 7a) and coupling guards (pos. 7).
2. Remove the screws (pos. 9) and the coupling.
3. Remove the screws (pos. 28) and the motor.
4. Slacken the set screws (pos. 113) of the shaft seal (pos. 105).
5. Remove the shaft seal (pos. 105).
6. Remove the nuts (pos. 36).
7. Remove the pump head (pos. 2) including the cover (pos. 77) and the O-rings (pos. 37b). It may be necessary to loosen it with a rubber mallet by upward blows on the lower edge of the pump head and the cover.
8. Remove the rubber springs (pos. 60a) from the cover (pos. 77).
9. Remove the cover (pos. 77a). It may be necessary to loosen it with a rubber mallet.
10. Push the intermediate plate (pos. 79a) out of the cover (pos. 77a). It may be necessary to remove it with a punch.
11. Remove the O-rings (pos. 37c and pos. 109a) from the intermediate plate.
12. Remove the rubber springs (pos. 60) from the cover (pos. 77a).
13. Continue the dismantling according to the instructions for dismantling of the standard pump.

2.4 Assembly

1. Lubricate the O-rings (pos. 37c and 109b) with O-ring grease, and fit them on the intermediate plate (pos. 79a).
2. Fit the intermediate plate in the cover (pos. 77a).
3. Fit the rubber springs (pos. 60) in the cover (pos. 77a).
4. Lubricate the O-rings (pos. 37b) with O-ring grease, and fit them in/on the cover (pos. 77).
5. Fit the rubber springs (pos. 60a) in the cover (pos. 77).
6. Fit the pump head including the cover (pos. 77).
7. Fit the nuts (pos. 36), and tighten them to these torques:
CRI: 80 Nm.
CRN: 100 Nm.
8. Lubricate the shaft with O-ring grease. Fit and tighten the shaft seal (pos. 105) to 35 Nm.
9. Remove the adjusting fork from the shaft seal.
10. Press the shaft home, and tighten the set screws of the shaft seal to 2.5 Nm.
11. Lift the pump shaft, and fit the adjusting fork. See fig. 4.



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Fig. 4 Fitting the adjusting fork

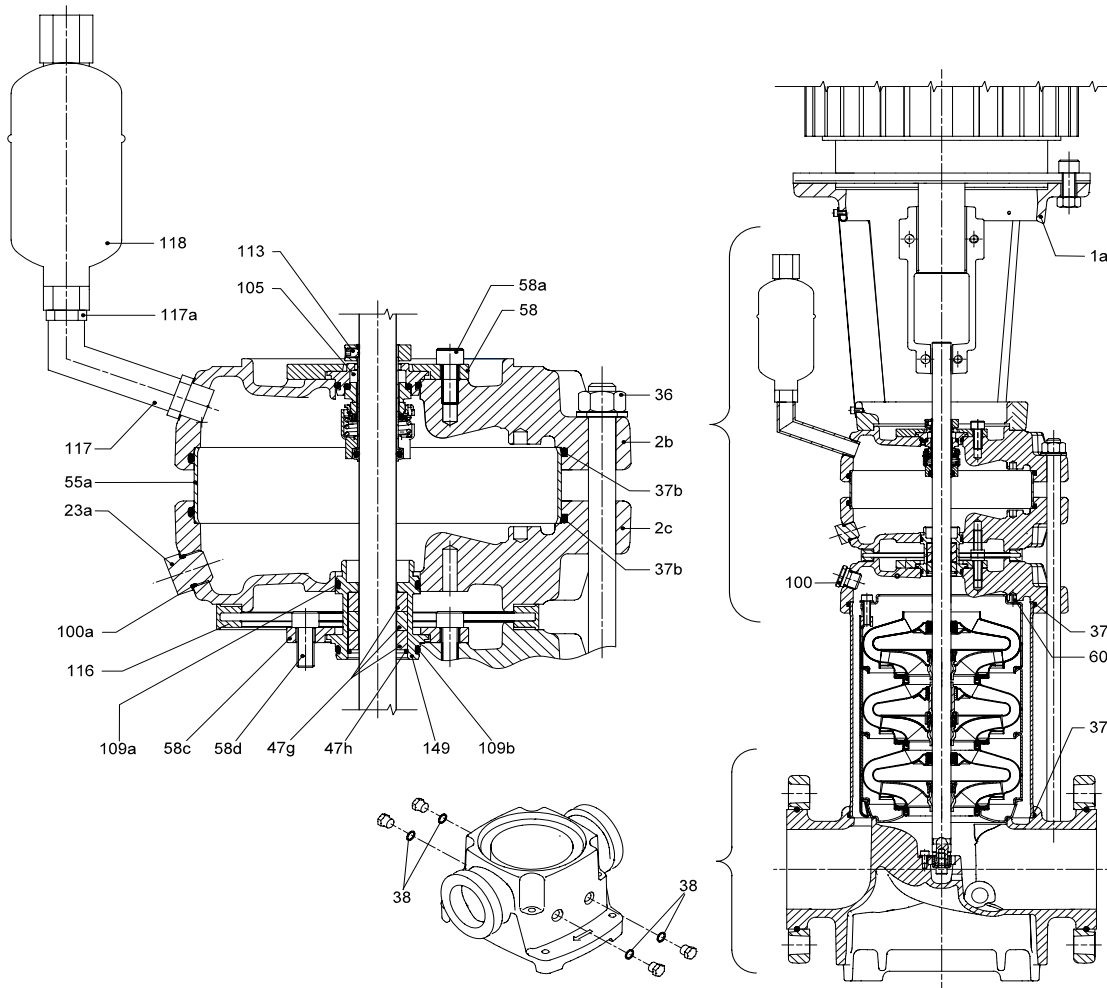
12. Fit the motor and the screws (pos. 28). Tighten the screws to these torques:

M6:	10 Nm.
M8:	12 Nm.
3/8" UNC:	23 Nm.
M12:	40 Nm.
1/2" UNC:	40 Nm.
M16:	80 Nm.
13. Fit the coupling and the screws (pos. 9). Tighten the screws to these torques:

M6:	13 Nm.
M8:	31 Nm.
M10:	62 Nm.
14. Remove the adjusting fork, and place it on the inside of one of the coupling guards (pos. 7).
15. Fit the coupling guards and the screws (pos. 7a). Tighten the screws to 2 Nm.

3. CR, CRN 32, 45, 64, 90

3.1 Drawing



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Fig. 5 Exploded view, CR, CRN 32, 45, 64, 90

Parts without position numbers, see the parts list of the standard pump in WinCAPS or WebCAPS.

3.2 Parts list

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number							
					CR 32	CRN 32	CR 45	CRN 45	CR 64	CRN 64	CR 90	CRN 90
2b	Pump head		1		290058	290060	370090	370092	370090	370092	380005	380022
2c	Pump head		1									
18a	Air vent screw		1	G 1/2"					405150			
23a	Priming plug		2	G 1/2"					370025			
1			4	L = 415 mm					370134			
				L = 426 mm	290249							
				L = 444 mm							380091	
				L = 478 mm						370200		
				L = 487 mm			350181					
				L = 492 mm		290234						
				L = 505 mm								380244
2			4	L = 496 mm	290250				290250			
				L = 536 mm							380092	
				L = 562 mm		290235				290235		
				L = 566 mm			290251					
				L = 597 mm								380245
3			4	L = 632 mm			290236					
				L = 566 mm	290251							
				L = 580 mm					370136			
				L = 628 mm							380093	
				L = 643 mm						370202		
				L = 647 mm			350183					
				L = 689 mm								380246
4	Staybolt		4	L = 710 mm				350193				
				L = 636 mm	290252							
				L = 663 mm					370137			
				L = 702 mm		290237						
				L = 720 mm							380094	
				L = 726 mm						370203		
				L = 727 mm			350184					
				L = 781 mm								380247
5			4	L = 790 mm				350194				
				L = 706 mm	290253							
				L = 745 mm					370138			
				L = 772 mm		290238						
				L = 807 mm			350185					
				L = 808 mm						370204		
				L = 812 mm							380434	
6			4	L = 870 mm				350195				
				L = 873 mm								380430
				L = 776 mm	290254							
				L = 827 mm					370981			
				L = 842 mm		290239						
				L = 887 mm			350186					
				L = 890 mm						370982		
				L = 904 mm							380435	
7			4	L = 950 mm				350196				
				L = 965 mm								380431
				L = 846 mm	290255							
				L = 909 mm					371046			
				L = 912 mm		290240						
				L = 967 mm			350187					
			4	L = 972 mm						371042		
				L = 1030 mm					350197			

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number								
					CR 32	CRN 32	CR 45	CRN 45	CR 64	CRN 64	CR 90	CRN 90	
26	Staybolt	8	4	L = 916 mm	290256								
				L = 982 mm		290241							
				L = 991 mm					371047				
				L = 1047 mm				350762					
				L = 1054 mm							371043		
						L = 1110 mm				350574			
		9	4	L = 986 mm	290257								
				L = 1052 mm		290242							
				L = 1127 mm				350763					
				L = 1192 mm					290244				
		10	4	L = 1056 mm	290258								
				L = 1122 mm		290243							
				L = 1207 mm				350764					
		11	4	L = 1270 mm						350599			
L = 1126 mm	290259												
L = 1192 mm				290244									
12	4	L = 1287 mm				350845							
		L = 1350 mm					350854						
		L = 1196 mm	290260										
13	4	L = 1262 mm		290906									
		L = 1367 mm				350859							
		L = 1430 mm					350855						
14	4	L = 1266 mm	290891										
		L = 1332 mm		290907									
		L = 1447 mm				350860							
37	O-ring	2											
												L = 1510 mm	
37b	O-ring	2											
38	O-ring	4		Ø16.3 x 2.4 mm									
47g	Bush	3		Ø22 mm				370024					
47h	Retaining ring	1						370213					
51	Shaft	1	1	L = 495 mm					370225	370232			
				L = 523 mm								380103	380238
				L = 530 mm	290174	290189							
				L = 567 mm				350221	350231				
		2	1	L = 577 mm						370226	370233		
				L = 600 mm	290175	290190							
				L = 615 mm								380104	380239
		3	1	L = 647 mm				350222	350232				
				L = 660 mm						370227	370234		
				L = 670 mm	290176	290191							
		4	1	L = 707 mm								380105	380240
				L = 727 mm				350223	350233				
				L = 740 mm	290177	290192							
		5	1	L = 742 mm						370228	370235		
L = 799 mm										380106	380241		
L = 807 mm						350224	350234						
6	1	L = 810 mm	290178	290193									
		L = 825 mm						370229	370236				
		L = 887 mm				350225	350235						
7	1	L = 891 mm									380428		
		L = 880 mm	290179	290194									
		L = 907 mm						370978	370979				
8	1	L = 967 mm				350226	350236						
		L = 983 mm									380429		
		L = 950 mm	290180	290195									
9	1	L = 989 mm							371040				
		L = 1047 mm				350227	350237						

See [O-ring kits](#) on page 15.

Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number							
					CR 32	CRN 32	CR 45	CRN 45	CR 64	CRN 64	CR 90	CRN 90
51	Shaft	8	1	L = 1020 mm	290181	290196						
				L = 1071 mm					371041			
				L = 1127 mm			350756	350578				
		9	1	L = 1090 mm	290182	290197						
				L = 1207 mm			350757	350714				
		10	1	L = 1160 mm	290183	290198						
				L = 1287 mm			350758	350701				
		11	1	L = 1230 mm	290184	290199						
				L = 1367 mm					350851			
		12	1	L = 1300 mm	290904							
				L = 1447 mm				350852				
		13	1	L = 1370 mm	290905							
				L = 1527 mm				350853				
		14	1	L = 1440 mm	290900							
55a	Outer sleeve		1		290585		350503		370786		380193	
58c	Top cover		1		370794							
58d	Hexagon socket head screw		4	M10 x 25 mm	96406407							
100	O-ring		2	∅16.3 x 2.4 mm	See O-ring kits on page 15.							
100a	O-ring		3	∅16.3 x 2.4 mm								
109a	O-ring		1	∅44.5 x 3.5 mm								
109b	O-ring		1	∅44.5 x 3.5 mm								
116	Spacer ring		1		370791							
117	Vent pipe		1		370790							
118	Air vent		1		96427483							
149	Connecting pipe, complete		1		370788							

O-rings and rubber springs for temperatures of 150 °C to 180 °C

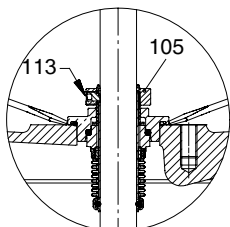
Pos.	Designation	Number of stages 50/60 Hz	Quantity	Additional information	Part number						
					CR 32	CRN 32	CR 45	CRN 45	CR 64	CRN 64	CR 90
37b	O-ring, FXM		2	∅198 x 4 mm	96442837						
				∅216 x 4 mm		96442841					
				∅225 x 4 mm					96442845		
60	Rubber spring		4	PTFE	370796						
100a	O-ring, FXM		3	∅16.3 x 2.4 mm	96442869						

O-ring kits

Pos.	Designation	Additional information	Material	Number per kit		
				CR, CRN 32	CR, CRN 45 CR, CRN 64	CR, CRN 90
				Product number		
				96533370	96533371	96533372
37	O-ring	∅198 x 4 mm	FXM	2		
		∅216 x 4 mm			2	
		∅225 x 4 mm				2
37b	O-ring	∅198 x 4 mm	EPDM	2		
		∅216 x 4 mm			2	
		∅225 x 4 mm				2
38	O-ring	∅16.3 x 2.4 mm	FXM	4	4	4
60	Rubber spring		EPDM	4	4	4
			PTFE	4	4	4
100	O-ring	∅16.3 x 2.4 mm	FXM	2	2	2
			EPDM	3	3	3
100a	O-ring	∅16.3 x 2.4 mm	FXM	2	2	2
			EPDM	3	3	3
109a	O-ring	∅44.5 x 3.5 mm	FXM	1	1	1
109b	O-ring	∅44.5 x 3.5 mm	FXM	1	1	1

3.3 Dismantling

1. Remove the screws (pos. 7a) and coupling guards (pos. 7).
2. Remove the screws (pos. 9) and the coupling.
3. Remove the screws (pos. 28), the motor and motor stool (pos. 1a).
4. Remove the screws (pos. 58a) and the retainer (pos. 58).
5. Clean the shaft end.
6. Slacken the three screws (pos. 113) of the shaft seal (pos. 105)
7. Prise the shaft seal (pos. 105) out of the pump head, and pull it off the shaft. See fig. 6.



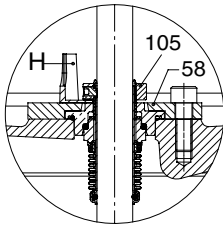
TM01 2027 0998

Fig. 6 Removing the shaft seal

8. Remove the nuts (pos. 36).
9. First remove the upper pump head (pos. 2b) and then the lower pump head (pos. 2c). It may be necessary to loosen them with a rubber mallet.
10. Remove the outer sleeve (pos. 55a) from the pump head and the O-rings (pos. 37b) from the two pump heads (pos. 2b and 2c).
11. Remove the screws (pos. 58a) and the retainer (pos. 58).
12. Pull the connecting pipe (pos. 149) off the shaft.
13. Take the O-rings (pos. 109a and 109b) off the connecting pipe.
14. Continue the dismantling according to the instructions for dismantling of the standard pump.

3.4 Assembly

1. Clean and smooth the shaft end. Use the holder with emery cloth supplied with the shaft seal kit.
2. Wipe the shaft end, and lubricate it with O-ring grease.
3. Lubricate the O-rings (pos. 109a and 109b) with O-ring grease, and fit them on the connecting pipe (pos. 149).
4. Fit the connecting pipe and retainer (pos. 58c) in the pump head.
5. Lubricate the screws (pos. 58d), and fit and cross-tighten them to 62 Nm.
6. Lubricate the O-rings (pos. 37b) with O-ring grease, and fit them in the pump heads (pos. 2b and 2c).
7. Fit the lower pump head (pos. 2c).
8. Fit the outer sleeve (pos. 55a) in the lower pump head (pos. 2c).
9. Fit the upper pump head (pos. 2b).
10. Fit the nuts (pos. 36), and tighten them to 100 Nm.
11. Lubricate the shaft seal (pos. 105) with O-ring grease, and press it down on the shaft and home in the upper pump head (pos. 2b).
12. Fit the retainer (pos. 58).
13. Lubricate the screws (pos. 58a), and fit and cross-tighten them to 62 Nm.
14. Press the pump shaft home, and fix the shaft seal on the shaft by tightening the screws (pos. 113) to 6 Nm.
15. Check that the pump shaft can rotate freely.
16. Lift the pump shaft, and fit the adjusting fork (pump H). See fig. 7.



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Fig. 7 Fitting the adjusting fork

17. Fit the motor stool and the motor.
18. Lubricate the screws (pos. 28), and fit and tighten them to these torques:

M8:	12 Nm.
M12:	40 Nm.
M16:	80 Nm.
19. Fit the shaft pin and the coupling. Lubricate the screws (pos. 9), and fit and tighten them to 85 Nm.
20. Remove the adjusting fork from the shaft seal, and place it under one of the screws (pos. 58).
21. Check that the pump shaft can rotate freely.
22. Fit the coupling guards (pos. 7) and the screws (pos. 7a). Tighten the screws to 6 Nm.