



# CRN1

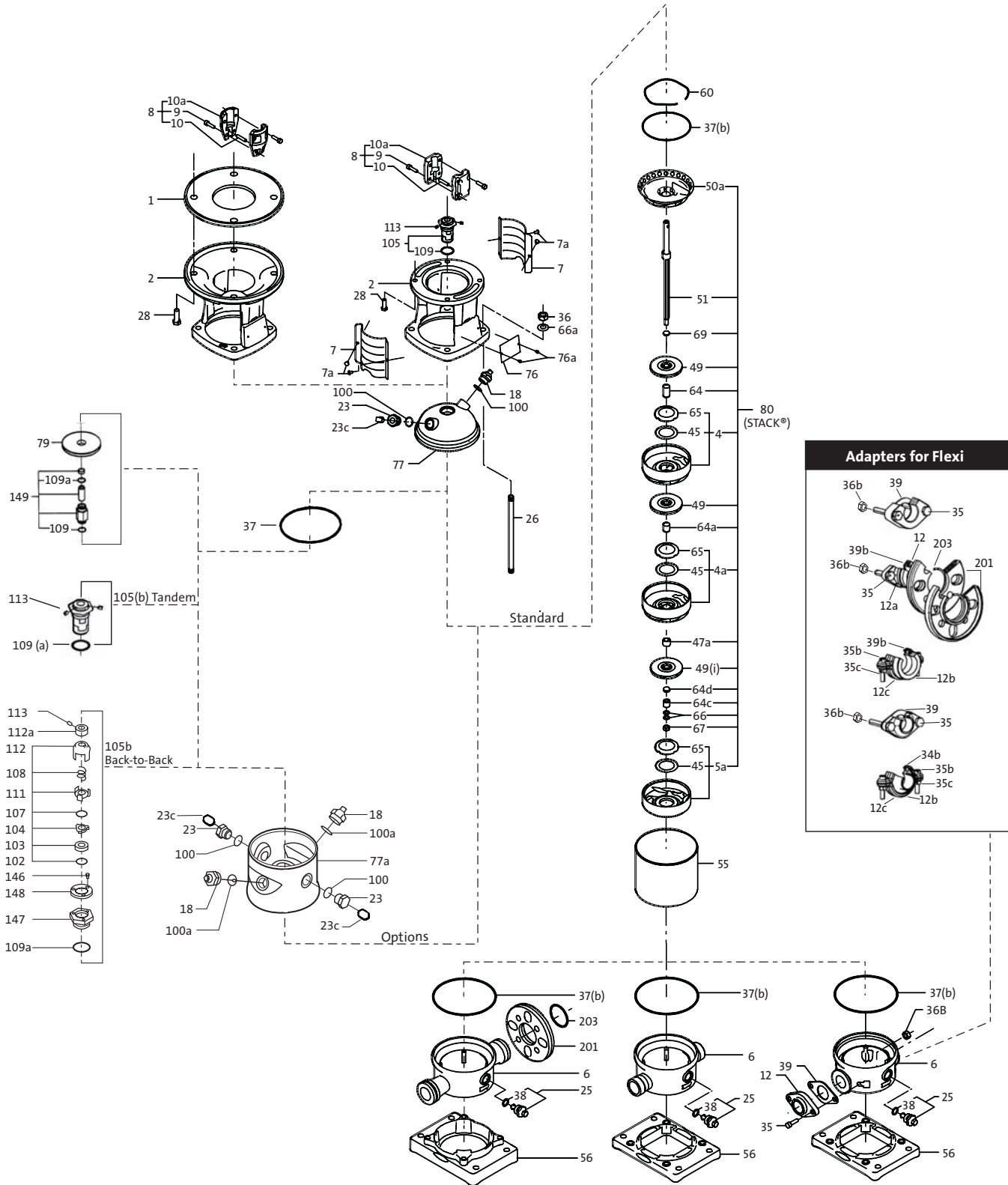
## Parts List & Kits

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Accessories  
Special Tools  
Standard Tools  
Tools for Torques

# Exploded View CRN1



Pos. No.	Part Description	Model	Stages	No. Used	Comments/Dimensions	B.O.M. Ref. No.	Material No.	Included in kits ?
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**PARTS LIST**

1	Adapter for Motor Stool				For NEMA, 213/215TC, 7.5 - 10HP	96476208		No
2	Motor Stool		3/2-19	1	NEMA, 56C, 1/3 - 2HP	96436510		No
			21-27		NEMA, 182/184TC, 3 - 5HP	96436511		No
			3/2-11	1	Add Pos. 1, NEMA, 213TC, 7.5 - 10HP	96436511		No
			12-23	1	IEC, F85, MG 71, .37 - .55kW	96436506		No
			24-36	1	IEC, F100, MG 80, .75 - 1.1kW	96436507		No
					IEC, F115, MG 90, 1.5 - 2.2kW	96436508		No
					IEC, F130, MG 100/112, 3.0 - 4.0 kW	96436509		No
					IEC, F265, MG132, 5.5 - 7.5kW	96436514		No
4	Chamber, Complete with Pos. 45 & 65		3/2-36	^^^	PTFE Pos.45	96439481		No
4a	Chamber Cpl. w/Pos. 45 & 65 & Bearing		3/2-36	^^^^	Silicon Carbide Bearing, PTFE Pos. 45	96439476		YES
	Chamber Cpl. w/Pos. 45 & 65 & Brg. (option)		3/2-36	^^^^	Graflon Bearing, PTFE Pos. 45	96440615		YES
5a	Chamber, Bottom Complete with Pos. 45 & 65		3/2-36	1	PTFE Pos.45	96439485		No
6	Base		3/2-17	1	Flexi -Clamp / Oval, Stainless (max 232 PSI)	96438394		No
			3/2-36	1	For Flanges JIS, FGJ, ANSI, Stainless (max 362 PSI)	96438328		No
			3/2-36	1	Victualic (PIE) 1.25", Stainless (max 362 PSI)	96436851		No
7	Coupling Guard			2	IEC, F85-F100	96438136		No
				2	NEMA-56C, IEC-F115,130, & 265	96438137		No
					NEMA, 182-215TC	96438138		No
7a	Screw for Coupling Guard		3/2-36	4	M4 x 8mm	96488481		No
9	Allen Screw		3/2-19	4	M6 x 20mm, Delta Seal	00ID7899		YES
			21-27	4	M8 x 25mm, Delta Seal	00ID7900		YES
					M10 x 25mm, Delta Seal	00ID7901		YES
10	Shaft Pin		3/2-36	1	ø5 x 26mm	310192		YES
10a	Coupling Half		3/2-19	2	NEMA, 56C, 1/3 - 2HP, ø15.8 / ø12	410108		YES
			21-27	2	NEMA, 182/184TC, 3-5HP, ø28.5/ø12	410109		YES
					NEMA, 213TC, 7.5-10HP, ø34.9/ø12	96472175		YES
			3/2-11	2	IEC, F85, MG71, .37-.55kW, ø14/ø12	410041		YES
			12-23	2	IEC, F100, MG80, .75-1.1kW, ø19/ø12	410043		YES
			24-36	2	IEC, F115, MG 90, 1.5-2.2kW, ø24/ø12	410045		YES
					IEC, F130, MG100/112, 3-4 kW, ø28/ø12	410047		YES
					IEC, F265, MG132, 5.5-7.5kW, ø38/ø12	410115		YES
12	Oval Flange for Flexi Base		3/2-17	2	Stainless, 1" -11.5 NPT (max 232 PSI)	96468336		YES
			3/2-23	2	Stainless, RP 1" BSP DIN (max 232 PSI)	96437814		No
12a	Adapter Flg. for ANSI Pos. 201/Flexi Base (option)		3/2-17	2	Stainless, (max 232 PSI)	96437818		YES
12b	Pipe Stub for Clamp/Flexi Base (option)		3/2-17	2	Stainless, Internal 1" -11.5 NPT (max 232 PSI)	400182		YES
			3/2-17	2	Stainless, Internal 1.25" -11.5 NPT (max 232 PSI)	410279		YES
			3/2-17	2	Stainless, External 2" -11.5 NPT (max 232 PSI)	96468338		YES
12c	Clamp for Flexi Base & Pos. 12b (option)		3/2-17	4	Stainless, (max 232 PSI)	00ID7194		YES
18	Priming/Vent Plug		3/2-36	*	G 1/2A, NV24 with NV9 x M8 stem	405150		No
23	Plug		3/2-36	**	G 1/2A, w/1/4"port, NV24	91120659		No
	Plug (option)		3/2-36	**	G 1/2A, Solid no port, NV24	370025		No
23c	Pipe Plug for Pos. 23 & 25 with hollow stem		3/2-36	**	1/4" NPT,SS SQHD	00ID7216		No
25	Drain/Priming Plug Cpl. with O-rings		3/2-36	1	G 1/2A, NV24 w/NV9 x M8 stem, EPDM	96440611		No
			3/2-36	1	G 1/2A, NV24 w/NV9 x M8 stem, FKM	96446891		No
	Drain/Priming Plug Cpl. with O-rings (option)		3/2-36	1	G 1/2A, NV24 w/NV9 x M8 stem, FXM	96460009		No
			3/2-36	1	G 1/2A, NV24 w/NV9 x M8 stem, FFKM	96475474		No
	Dr./Pr. Plug Cpl. for gauge, w/O-rings (option)		3/2-36	1	G 1/2A, NV24 w/NV9 x M8 hollow stem, EPDM	96527050		No
			3/2-36	1	G 1/2A, NV24 w/NV9 x M8 hollow stem, FKM	96527051		No
			3/2-36	1	G 1/2A, NV24 w/NV9 x M8 hollow stem, FXM	96549174		No
			3/2-36	1	G 1/2A, NV24 w/NV9 x M8 hollow stem, FFKM	96527052		No
26	Staybolt		3/2-3	4	M12 x 151mm	96487020		No
			4	4	M12 x 169mm	96442055		No
			5	4	M12 x 187mm	414103		No
			6	4	M12 x 209mm	404135		No
			7	4	M12 x 227mm	414134		No
			8	4	M12 x 241mm	414105		No
			9	4	M12 x 259mm	96459210		No
			10	4	M12 x 281mm	414136		No
			11	4	M12 x 295mm	414107		No
			12	4	M12 x 313mm	96463414		No
			13	4	M12 x 335mm	414138		No
			15	4	M12 x 367mm	96459214		No
			17	4	M12 x 403mm	414111		No
			19	4	M12 x 439mm	96442118		No
			21	4	M12 x 475mm	414143		No
			23	4	M12 x 511mm	414115		No
			25	4	M12 x 547mm	96442119		No
			27	4	M12 x 587mm	404156		No
			30	4	M12 x 637mm (50 Hz.)	96461557		No
			33	4	M12 x 691mm (50 Hz.)	96442122		No
			36	4	M12 x 745mm (50 Hz.)	96442123		No

Due to part changes over time, all position numbers (1-203) may not be used.

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Pos. No.	Part Description	Model	Stages	No. Used	Comments/Dimensions	B.O.M. Ref. No.	Material No.	Included in kits ?
<b>PARTS LIST</b>								
26	Staybolt (Cool Top®, Back-to-Back & Tandem Seal option)		3/2-3	4	M12 x 263mm	404138		No
			4	4	M12 x 281mm	414136		No
			5	4	M12 x 295mm	414107		No
			6	4	M12 x 317mm	404141		No
			7	4	M12 x 335mm	414138		No
			8	4	M12 x 349mm	414109		No
	Staybolt (Cool Top®, Back-to-Back & Tandem Seal option)		9	4	M12 x 367mm	96459214		No
			10	4	M12 x 385mm	96458503		No
			11	4	M12 x 403mm	414111		No
			12	4	M12 x 425mm	404147		No
			13	4	M12 x 439mm	96442118		No
			15	4	M12 x 475mm	414143		No
			17	4	M12 x 511mm	414115		No
			19	4	M12 x 547mm	96442119		No
			21	4	M12 x 587mm	404156		No
			23	4	M12 x 619mm	414119		No
			25	4	M12 x 659mm	414160		No
			27	4	M12 x 691mm	96442122		No
			30	4	M12 x 745mm (50 Hz.)	96442123		No
			33	4	M12 x 799mm (50 Hz.)	414155		No
36	4	M12 x 853mm (50 Hz.)	96458507		No			
28	Motor Bolt	3/2-19	4	NEMA, 56C, 1/3 - 2HP. UNC 3/8" x 25mm	00ID1839		No	
		21-27	4	NEMA, 182/184TC, 3 - 5HP.UNC1/2" x 25mm	00ID1840		No	
			4	NEMA, 213TC, 7.5 -10HP. UNC 1/2" x 1.25"	91128631		No	
		3/2-11	4	IEC, F85, MG71, .37-.55kW. M6 x 20mm	00ID8022		No	
		12-23	4	IEC, F100, MG80,.75-1.1kW. M6 x 25mm	00ID8023		No	
		24-36	4	IEC, F115, MG 90, 1.5-2.2kW. M8 x 20mm	00ID8024		No	
35	Hex. Head Screw for Oval "CI" Flange (Flexi option)	3/2-17	4	M10 x70mm, 8.8, A4, DIN931	96447227		YES	
		3/2-17	4	M10 x 60mm, A4, DIN931	96447228		YES	
35b	Screw for Clamp Pos. 12c (Flexi option)	3/2-17	4	M8 x 40mm - A2, RR DIN933	00ID7188		YES	
35c	Nut for Screw Pos. 35b for Clamp Pos. 12c (Flexi option)	3/2-17	4	M8, 304SS	00ID7187		YES	
36	Staybolt Nut	3/2-36	4	19mm x M12, 316SS	00ID0876		No	
36b	Nut for Screw Pos. 35 Oval Flange (Flexi option)	3/2-17	4	M10, 316SS w/Delta Seal	96438757		YES	
37	Sleeve O-ring	3/2-36	◆◆	EPDM, ø137.5 x 3.3mm	96438743		YES	
		3/2-36	◆◆	FKM, ø137.5 x 3.3mm	96438744		YES	
37b	Sleeve O-ring (option)	3/2-36	◆◆	FXM, ø137.5 x 3.3mm	96458109		YES	
		3/2-36	◆◆	FFKM, ø136.12 x 3.53mm	96466718		YES	
38	Drain Plug O-ring	3/2-36	1	EPDM, ø16.3 x 2.4mm	00ID1288		YES	
		3/2-36	1	FKM, ø16.3 x 2.4mm	00ID2231		YES	
		3/2-36	1	FFKM, ø16.3 x 2.4mm	96428162		YES	
		3/2-36	1	FXM, ø16.3 x 2.4mm	96442869		YES	
39	Gasket for Oval Flange	3/2-17	2	95 x 55 x ø35 x 2mm, KLINGERSIL C4430	400189		YES	
39b	O-ring for Clamp, Thread stub-Union-& FGJ Flange, (option)	3/2-17	2	EPDM, ø44.45 x 3.53mm	96407726		YES	
		3/2-17	2	FKM, ø44.45 x 3.53mm	96411713		YES	
45	Neck Ring	3/2-36	# stgs	ø41.3 x ø30.6 x .75mm, PTFE	400003		YES	
47a	Bearing Ring/Spacer Brg. Ring/Spacer (option for Grafion Pos. 4a)	3/2-36	^^^^	SiC 150, ø17.37 x ø13.10 x ø10.9 x 13mm	96437488		YES	
		3/2-36	^^^^	TC, ø15.92 x ø13.10 x ø10.9 x 9.7mm	400041		YES	
49	Impeller	3/2-36	# stgs	ø73.6 x ø30.6 x 9.1mm (back-plate .5mm)	96440326		No	
50a	Top Guide Vane Top Guide Vane Plate (option for destaging)	3-36	1		96457638		No	
		3/2	1		96478562		No	
51	Shaft, Complete	3/2-3	1	ø12 x 160.5mm	96439607		No	
		4	1	ø12 x 180.5mm	96440386		No	
		5	1	ø12 x 196.5mm	96440387		No	
		6	1	ø12 x 214.5mm	96440388		No	
		7	1	ø12 x 234.5mm	96440389		No	
		8	1	ø12 x 250.5mm	96440390		No	
		9	1	ø12 x 268.5mm	96440391		No	
		10	1	ø12 x 288.5mm	96440392		No	
		11	1	ø12 x 304.5mm	96440393		No	
		12	1	ø12 x 322.5mm	96440394		No	
		13	1	ø12 x 342.5mm	96440395		No	
		15	1	ø12 x 376.5mm	96440396		No	
		17	1	ø12 x 412.5mm	96440398		No	
		19	1	ø12 x 450.5mm	96440400		No	
		21	1	ø12 x 484.5mm	96440401		No	
		23	1	ø12 x 520.5mm	96440403		No	
		25	1	ø12 x 556.5mm	96440405		No	
		27	1	ø12 x 592.5mm	96440406		No	
		30	1	ø12 x 646.5mm (50 Hz.)	96440408		No	
		33	1	ø12 x 700.5mm (50 Hz.)	96440410		No	
36	1	ø12 x 754.5mm (50 Hz.)	96440411		No			

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Pos. No.	Part Description	Model Stages	No. Used	Comments/Dimensions	B.O.M. Ref. No.	Material No.	Included in kits ?
<b>PARTS LIST</b>							
51	Shaft, Cpl. (Cool Top®, Back-to-Back & Tandem Seal option)	3/2-3	1	Ø12 x 265.5mm	96457560		No
		4	1	Ø12 x 285.5mm	96457561		No
		5	1	Ø12 x 301.5mm	96457562		No
		6	1	Ø12 x 319.5mm	96457563		No
		7	1	Ø12 x 339.5mm	96457564		No
		8	1	Ø12 x 355.5mm	96457565		No
		9	1	Ø12 x 373.5mm	96457566		No
		10	1	Ø12 x 393.5mm	96457567		No
		11	1	Ø12 x 409.5mm	96457568		No
		12	1	Ø12 x 427.5mm	96457569		No
		13	1	Ø12 x 447.5mm	96457570		No
		15	1	Ø12 x 481.5mm	96457571		No
		17	1	Ø12 x 517.5mm	96457573		No
		19	1	Ø12 x 555.5mm	96457575		No
		21	1	Ø12 x 589.5mm	96457576		No
		23	1	Ø12 x 625.5mm	96457578		No
		25	1	Ø12 x 661.5mm	96457580		No
		27	1	Ø12 x 697.5mm	96457581		No
		30	1	Ø12 x 751.5mm (50 Hz.)	96457583		No
		33	1	Ø12 x 805.5mm (50 Hz.)	96457585		No
36	1	Ø12 x 859.5mm (50 Hz.)	96457586		No		
55	Outer Sleeve	3/2-3	1	Ø138 x 44.6mm	96439996		No
		4	1	Ø138 x 62.6mm	96440025		No
		5	1	Ø138 x 80.6mm	96441528		No
		6	1	Ø138 x 98.6mm	96440014		No
		7	1	Ø138 x 116.6mm	96441529		No
		8	1	Ø138 x 134.6mm	96441531		No
		9	1	Ø138 x 152.6mm	96440015		No
		10	1	Ø138 x 170.6mm	96441532		No
		11	1	Ø138 x 188.6mm	96441534		No
		12	1	Ø138 x 206.6mm	96440016		No
		13	1	Ø138 x 224.6mm	96441535		No
		15	1	Ø138 x 260.6mm	96440017		No
		17	1	Ø138 x 296.6mm	96441538		No
		19	1	Ø138 x 332.6mm	96441539		No
		21	1	Ø138 x 368.6mm	96440019		No
		23	1	Ø138 x 404.6mm	96441542		No
		25	1	Ø138 x 440.6mm	96441543		No
		27	1	Ø138 x 476.6mm	96440021		No
		30	1	Ø138 x 530.6mm (50 Hz.)	96440022		No
		33	1	Ø138 x 584.6mm (50 Hz.)	96440023		No
36	1	Ø138 x 638.6mm (50 Hz.)	96439997		No		
56	Base Plate (Low) for PJE / Flexi-clamp Pos. 6 B. P. (High) for Flexi-clamp w/ANSI/DIN/JIS Pos. 6 Base Plate N (Low) for PJE / Flexi-clamp Pos.6 B. P. N (High) for Flexi-clamp w/ANSI/DIN/JIS Pos. 6	2-36	1	Cast Iron	96438133		No
		2-36	1	Cast Iron	96438132		No
		2-36	1	Cast Stainless	96437870		No
		2-36	1	Cast Stainless	96437868		No
60	Stack Compression Spring	3/2-36	1	Ø136 x 3.5mm	96439662		No
64	Spacing Pipe	2-36	^^^	Ø15.85 x Ø12.85 x 17.52mm	400035		No
64a	Spacing Pipe	3/2-36	^^^^	Ø15.85 x Ø12.85 x 4.5mm	96440292		YES
64b	Spacing Pipe (option for Grafalon Pos. 4a)	3/2-36	^^^^	Use with TC Pos.47a, Ø15 x Ø12.7 x 7.8mm	400016		YES
64c	Clamp, Splined	3/2-36	1	Ø15 x Ø13.10 x Ø10.9 x 13mm	96439668		YES
65	Neck Ring Retainer	3/2-36	# stgs	Ø43.5 x Ø34.0 x 3.6mm	96438746		YES
66	Lock Washer Set for Shaft	3/2-36	1	Ø13.5 x Ø8.2 x 2.6mm	96417297		YES
66a	Washer for Staybolt	3/2-36	4	DIN 125A, Ø24 x Ø13 x 2.5mm	00ID3103		No
67	Lock Nut for Shaft	3/2-36	1	13mm x M8	00ID2061		YES
69	Spacing Pipe	3/2	1	Ø15.85 x 12.85 x 18.0mm	400125		No
76	Nameplate	3/2-36	1	304SS, 60 x 45mm	96439820		No
76a	Rivet for Nameplate	3/2-36	2	304SS, Ø3 x 5mm	96022882		No
77	Pump Head Cov. for Motor Stool Pos. 2	3/2-36	1	Cast Stainless	96436340		No
77a	Pump Head Cov. for Back-to-Back & Tandem Seal	3/2-36	1	Cast Stainless	96456293		No
	Pump Head Cov. for Cool Top® (option)	3/2-36	1	Cast Stainless	96456294		No
79	Disc / Plate for Cool Top®	3/2-36	■	Stainless	96456296		No
100	Priming/Vent Plug O-ring	3/2-36	■	EPDM, Ø16.3 x 2.4mm	00ID1288		YES
		3/2-36	■	FKM, Ø16.3 x 2.4mm	00ID2231		YES
100a	Priming/Vent Plug O-ring (option)	3/2-36	■	FFKM, Ø16.3 x 2.4mm	96428162		YES
		3/2-36	■	FXM, Ø16.3 x 2.4mm	96442869		YES
102	O-ring for Pos. 105b Back-to-Back	3/2-36	1	EPDM, Ø18 x 2.5mm	00ID2041		YES
		3/2-36	1	FKM, Ø17.86 x 2.62mm	00ID2187		YES
		3/2-36	1	FFKM, Ø17.86 x 2.62mm	96440281		No
		3/2-36	1	FXM, Ø17.86 x 2.62mm	96472584		No
103	Stationary Seal Ring for 105b Back-to-Back Stationary Seal Ring for 105b Back-to-Back (option)	3/2-36	1	TC, 12mm	980190		No
		3/2-36	1	SiC, 12mm	980746		YES

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<b>PARTS LIST</b>								
104	Rotating Seal Ring for 105b Back-to-Back Rotating Seal Ring for 105b Back-to-Back (option)		3/2-36 3/2-36	1 1	TC, 12mm SiC, 12mm	980163 980733		No YES
105(b)	Shaft Seal HQBE Shaft Seal HQBV Shaft Seal HQBK (option) Shaft Seal HQQE Shaft Seal HQQV Shaft Seal HQQF (option) Shaft Seal HQQK (option) Shaft Seal HUBE Shaft Seal HUBV Shaft Seal HUBF (option) Shaft Seal HUBK (option) Shaft Seal HUUE		3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36 3/2-36	*** *** *** *** *** *** *** *** *** *** *** ***	SiC, Carbon with resin-impregnated, EPDM SiC, Carbon with resin-impregnated, FKM SiC, Carbon with resin-impregnated, FFKM SiC, SiC, EPDM SiC, SiC, FKM SiC, SiC, FXM SiC, SiC, FFKM TC, Carbon with resin-impregnated, EPDM TC, Carbon with resin-impregnated, FKM TC, Carbon with resin-impregnated, FXM TC, Carbon with resin-impregnated, FFKM TC, TC, EPDM	96441879 96441880 96489537 96441877 96441878 96472620 96464381 96441873 96441874 96481464 96481463 96441875		YES YES YES YES YES YES YES YES YES YES YES YES
105(b)	Shaft Seal HUUV Shaft Seal HUUF (option) Shaft Seal HUUK (option)		3/2-36 3/2-36 3/2-36	*** *** ***	TC, TC, FKM TC, TC, FXM TC, TC, FFKM	96441876 96475542 96467885		YES YES YES
105b	Shaft Seal/inboard for Back-to-Back OQQE Shaft Seal/inboard for Back-to-Back OQQV Shaft Seal/inboard for Back-to-Back OUUE Shaft Seal/inboard for Back-to-Back OUUV		3/2-36 3/2-36 3/2-36 3/2-36	1 1 1 1	SiC, SiC, EPDM SiC, SiC, FKM TC, TC, EPDM TC, TC, FKM	985200 985760 985189 985190		YES YES No No
107	O-ring for Pos. 105b Back-to-Back O-ring for Pos. 105b Back-to-Back (option)		3/2-36 3/2-36 3/2-36	1 1 1	EPDM, $\phi 11.5 \times 4.3$ mm FKM, $\phi 11.5 \times 4.3$ mm FFKM, $\phi 11.5 \times 4.3$ mm FXM, $\phi 11.5 \times 3.18$ mm	00ID2040 00ID2186 96440282 96472618		YES YES No No
108	Spring for Pos. 105b Back-to-Back		3/2-36	1	12mm	980195		YES
109(a)	O-ring for Shaft Seal Pos. 105 O-ring for Shaft Seal Pos. 106		3/2-36 3/2-36	1 1	EPDM, $\phi 21.3 \times 3.0$ mm FKM, $\phi 21.2 \times 3.0$ mm	00ID1798 00ID2339		YES YES
109b	O-ring for Shaft Seal Pos. 105 (option)		3/2-36 3/2-36	1 1	FXM, $\phi 22 \times 2.75$ mm FFKM, $\phi 23.47 \times 2.62$ mm	96458111 96464384		YES YES
111	Seal Driver (small) for Pos. 105b Back-to-Back		3/2-36	1		980192		YES
112	Seal Driver (large) for Pos. 105b Back-to-Back		3/2-36	1		980191		YES
112a	Seal Drv threaded for 112, Pos. 105b Back-to-Back		3/2-36	1		400203		YES
113	Set Screw for 112a, for Pos. 105b Back-to-Back		3/2-36	1	3mm x M5 x 6mm	00ID7392		YES
117	Pipe for Air Vent (option)		3/2-36	1	R 1/2", 316 Stainless	330272		YES
118	Automatic Air Vent (option)		3/2-36	1	Type AE50S 1/2" BSP, Stainless	96498508		YES
146	Allen Bolt for 147/148, for Pos. 105b Back-to-Back		3/2-36	1	2.5mm x M3 x 5mm	96462639		YES
147	Stationary Seal Retainer - Pos. 105b Back-to-Back		3/2-36	1	NV36, 316SS	96457354		No
148	Seal Retainer Washer - Pos. 105b Back-to-Back		3/2-36	1	316SS, $\phi 36.0 \times \phi 21.6 \times 5.0$ mm	96457355		No
149	Connecting Pipe for Cool Top®		3/2-36 3/2-36	1 1	NV36, 316SS, FXM & EPDM NV36, 316SS, FXM & FKM	96460414 96460415		No No
201	Flange		3/2-36 3/2-36	1 1	ANSI, DIN, JIS PN40/30K, Cast Iron ANSI, DIN, JIS PN40/30K, Stainless	96439203 96439492		YES YES
203	Lock Ring for Flange		3/2-36	1	Stainless	96439718		YES

Due to part changes over time, all position numbers (1-203) may not be used.

These columns indicates which model uses the spare part. If blank, the part is used in all models.

## Notes:

^^^ 3/2 to 9 stage= # of Stages less 2  
10 to 19 stage= # of stages less 3  
21 to 27 stage = # of stages less 4  
29 to 36 stage = # of stages less 5

^^^ 3/2 to 9 stage= use 1  
10 to 19 stage= use 2  
21 to 27 stage = use 3  
29 to 36 stage = use 4

\* Standard use 1. Back-to-Back or Tandem pump version use 3  
\*\* Standard use 1. Back-to-Back or Tandem pump version use 3  
\*\*\* 1 used in Hxxx (Standard), 2 used in Pxxx (Tandem) pump version

◆◆ Standard use 2. Back-to-Back or Tandem pump version use 3

■ Standard use 2. Back-to-Back or Tandem pump version use 6

Cool Top® is a registered trademark of Grundfos Pumps

## Key to Symbols:

KITS (YES) ..... Recommended spare part

Ø ..... Diameter

ANSI ..... American National Standards Institute

CPL ..... Complete Assembly – these parts consist of more than one component

EPDM ..... Ethylene Propylene (also known as EPR and EPT) – an elastic substance similar to rubber

FFKM ..... Kalrez Elastomer made by DuPont

FKM ..... Fluoro Elastomer (generic for Viton)

FXM ..... Fluoraz Elastomer made by Greene Tweed

M ..... International standard thread size designation (thread diameter in mm)

mm ..... Millimeter

MG ..... Identifies Grundfos motor type/size

N ..... Stainless

NBR ..... Buna - N (also known as Nitrile) – an elastic substance similar to rubber

NEMA ..... National Electrical Manufacturers Association

PTFE ..... Teflon

SiC ..... Silicon Carbide

TC ..... Tungsten Carbide

UNC ..... Unified National Coarse – a standard for threads on bolts

## Spare Part Kits

Since certain pump parts can be expected to exhibit wear at the same time as related pump parts, they have been grouped into the following kits for your convenience. The numbers indicate the quantity of the part within each kit. Please order these kits using the kit material number at the top of the columns.

<b>CR(I, N)15, 1, &amp; 3 SiC Bearing</b>		<b>Kit No.</b>	<b>96455095</b>			
<b>WEAR PARTS KIT 2-9</b>		<b>Kit No.</b>	<b>96455092</b>			
<b>WEAR PARTS KIT 10-19</b>		<b>Kit No.</b>	<b>96455093</b>			
<b>WEAR PARTS KIT 20-27</b>		<b>Kit No.</b>	<b>96455094</b>			
<b>Pos. No.</b>	<b>Description</b>	<b>Material No.</b>	<b>Qty. Included in each Kit</b>			
4a	Chamber N Cpl. w/Pos.45 & 65 & SiC Bearing	96439476	1	2	3	4
39	Gasket for Oval Flange, 95 x 55 x ø35 x 2mm	400189	2	2	2	2
45	Neck Ring, ø41.3 x ø30.6 x .75mm, PTFE	400003	8	17	24	32
47a	Bearing Ring/Spacer, SiC 150, 13mm	96437488	1	2	3	4
64a	Spacing Pipe, ø15.85 x ø12.85 x 4.5mm	96440292	1	2	3	4
64c	Clamp, Splined, ø15 x ø13.10 x ø10.9 x 13mm	96439668	1	1	1	1
65	Neck Ring Retainer, N, ø43.5 x ø34.0 x 3.6mm	96438746	8	17	24	32
66	Lock Washer Set of 2, ø13.5 x ø8.2 x 2.6mm	96417297	1	1	1	1
67	Lock Nut, 13mm x M8	00ID2061	1	1	1	1

<b>CR(I, N)15, 1, &amp; 3 Graflon Bearing</b>		<b>Kit No.</b>	<b>96460140</b>			
<b>WEAR PARTS KIT 2-9</b>		<b>Kit No.</b>	<b>96455110</b>			
<b>WEAR PARTS KIT 10-19</b>		<b>Kit No.</b>	<b>96455111</b>			
<b>WEAR PARTS KIT 20-27</b>		<b>Kit No.</b>	<b>96455112</b>			
<b>Pos. No.</b>	<b>Description</b>	<b>Material No.</b>	<b>Qty. Included in each Kit</b>			
4a	Chamber N Cpl. w/Pos.45 & 65 & Graflon Bearing	96440615	1	2	3	4
39	Gasket for Oval Flange, 95 x 55 x ø35 x 2mm	400189	2	2	2	2
45	Neck Ring, ø41.3 x ø30.6 x .75mm, PTFE	400003	8	17	24	32
47a	Bearing Ring/Spacer, TC, 9.7mm	400041	1	2	3	4
64a	Spacing Pipe, ø15.85 x ø12.85 x 7.8mm	400016	1	2	3	4
64c	Clamp, Splined, ø15 x ø13.10 x ø10.9 x 13mm	96439668	1	1	1	1
65	Neck Ring Retainer, N, ø43.5 x ø34.0 x 3.6mm	96438746	8	17	24	32
66	Lock Washer Set of 2, ø13.5 x ø8.2 x 2.6mm	96417297	1	1	1	1
67	Lock Nut, 13mm x M8	00ID2061	1	1	1	1

<b>GASKET KIT (EPDM)</b>		<b>Kit No.</b>	<b>96455090</b>			
<b>GASKET KIT (FKM)</b>		<b>Kit No.</b>	<b>96455091</b>			
<b>GASKET KIT (FKM)</b>		<b>Kit No.</b>	<b>96463944</b>			
<b>GASKET KIT (FFKM)</b>		<b>Kit No.</b>	<b>96533328</b>			
<b>GASKET KIT (EPDM)-Double Seal option.</b>		<b>Kit No.</b>	<b>96533362</b>			
<b>GASKET KIT (FKM)-Double Seal option.</b>		<b>Kit No.</b>	<b>96533363</b>			
<b>GASKET KIT (FFKM)-Double Seal option.</b>		<b>Kit No.</b>	<b>96533364</b>			
<b>GASKET KIT (FKM, &amp; EPDM)-Cool-Top option</b>		<b>Kit No.</b>	<b>96533329</b>			
<b>Pos. No.</b>	<b>Description</b>	<b>Material No.</b>	<b>Qty. Included in each Kit</b>			
37	Sleeve O-ring, EPDM, ø137.5 x 3.3mm	96438743	2		3	1
	Sleeve O-ring, FKM, ø137.5 x 3.3mm	96438744		2	3	
37b	Sleeve O-ring, FXM, ø137.5 x 3.3mm	96458109		2		2
	Sleeve O-ring, FFKM, ø136.12 x 3.53mm	96466718		2	3	
38, 100(a)	Drain Plug O-ring, EPDM, Ø16.3 x 2.4mm	00ID1288	3		7	4
	Drain Plug O-ring, FKM, Ø16.3 x 2.4mm	00ID2231		3	7	
38, 100a	Drain Plug O-ring, FXM, Ø16.3 x 2.4mm	96442869		3		3
	Drain Plug O-ring, FFKM, Ø16.3 x 2.4mm	96428162		3	7	
109(a)	O-ring for Pos.105(b) & 149, EPDM, Ø21.3 x 3.0mm	00ID1798	1		1	
	O-ring for Pos.105(b) & 149, FKM, Ø21.2 x 3.0mm	00ID2339		1	1	
109b	O-ring for Pos.105(b) & 149, FXM, Ø22.0 x 2.75mm	96458111		1		2
	O-ring for Pos.105(b) & 149, FFKM, Ø23.47 x 2.62mm	96464384		1	2	

<b>STANDARD SHAFT SEAL KIT, BALANCED CARTRIDGE</b>		<b>Kit No.</b>	<b>96455088</b>			
<i>(Maximum allowed working PSI is 435)</i>		<b>Kit No.</b>	<b>96455089</b>			
<i>(Tandem Seal option Pumps require 2 of each Seal Kit)</i>		<b>Kit No.</b>	<b>96455086</b>			
		<b>Kit No.</b>	<b>96455087</b>			
		<b>Kit No.</b>	<b>96455082</b>			
		<b>Kit No.</b>	<b>96455083</b>			
		<b>Kit No.</b>	<b>96455084</b>			
		<b>Kit No.</b>	<b>96455085</b>			
<b>Pos. No.</b>	<b>Description</b>	<b>Material No.</b>	<b>Qty. Included in each Kit</b>			
105	HQBE	96441879	1			
	HQBV	96441880		1		
	HQQE	96441877			1	
	HQQV	96441878			1	
	HUBE	96441873			1	
	HUBV	96441874			1	
	HUUE	96441875				1
	HUUV	96441876				1
N/A	Grinding Device Tool for Emery Cloth	370711	1	1	1	1
N/A	Emery Cloth	370712	1	1	1	1

STACK KITS	
Model	Material No.
CRN1-3/2	96453507
CRN1-3	96453508
CRN1-4	96453509
CRN1-5	96453510
CRN1-6	96453511
CRN1-7	96453512
CRN1-8	96453513
CRN1-9	96453514
CRN1-10	96453515
CRN1-11	96453516
CRN1-12	96453517
CRN1-13	96453518
CRN1-15	96453519
CRN1-17	96453520
CRN1-19	96453521
CRN1-21	96453522
CRN1-23	96453523
CRN1-25	96453524
CRN1-27	96453525
*** CRN1-30	96453526
*** CRN1-33	96453527
*** CRN1-36	96453528

\*\*\*For 50 Hz operation only.

**Spare Part Kits** (continued)

OPTIONAL SHAFT SEAL KIT, BALANCED CARTRIDGE			Kit No. 96491375						
(Maximum allowed working PSI is 435)			Kit No. 96533327						
(Tandem Seal option Pumps require 2 of each Seal Kit)			Kit No. 96533326						
			Kit No. 96533323						
			Kit No. 96533322						
			Kit No. 96533325						
			Kit No. 96533324						
Pos. No.	Description	Material No.	Qty. Included in each Kit						
105	HQBK	96489537	1						
	HQQF	96472620		1					
	HQQK	96498109			1				
	HUBF	96481464				1			
	HUBK	96481463					1		
	HUUF	96475542						1	
	HUUK	96498108							1
N/A	Grinding Device Tool for Emery Cloth	370711	1	1	1	1	1	1	1
N/A	Emery Cloth	370712	1	1	1	1	1	1	1

INBOARD SHAFT SEAL & Gasket KIT, Back to Back OQQE			Kit No. 96533360	
INBOARD SHAFT SEAL & Gasket KIT, Back to Back OQQV			Kit No. 96533361	
(An HQQx seal kit must also be used for a seal repair)				
Pos. No.	Description	Material No.	Qty. Included in each Kit	
37	Sleeve O-ring, EPDM, $\phi$ 137.5 x 3.3mm	96438743	3	
	Sleeve O-ring, FKM, $\phi$ 137.5 x 3.3mm	96438744		3
38, 100(a)	Drain Plug O-ring, EPDM, $\phi$ 16.3 x 2.4mm	00ID1288	7	
	Drain Plug O-ring, FKM, $\phi$ 16.3 x 2.4mm	00ID2231		7
102	O-ring, EPDM, $\phi$ 18 x 2.5mm	00ID2041	1	
	O-ring, FKM, $\phi$ 17.86 x 2.62mm	00ID2187		1
103	Stationary Seal Ring, SiC, 12mm	980746	1	
104	Rotating Seal Ring, SiC, 12mm	980733	1	1
107	O-ring, EPDM, $\phi$ 11.5 x 4.3mm	00ID2040	1	
	O-ring, FKM, $\phi$ 11.5 x 4.3mm	00ID2186		1
108	Spring, 12mm	980195	1	1
109a	O-ring, EPDM, $\phi$ 21.3 x 3.0mm	00ID1798	1	
	O-ring, FKM, $\phi$ 21.2 x 3.0mm	00ID2339		1
111	Driver for pos.104	980192	1	1
112	Driver for pos.111	980191	1	1
112a	Driver for pos.112	400203	1	1
113	Set Screw for pos.112a	00ID7392	2	2
146	Allen Bolt for pos.147 & 148, 2.5mm x M3 x 5mm	96462639	3	3

IEC COUPLING KIT			Kit No. 415060						
			Kit No. 415061						
			Kit No. 415062						
			Kit No. 415063						
			Kit No. 415065						
Pos. No.	Description	Material No.	Qty. Included in each Kit						
9	Allen Screw, M6 x 20mm, Delta Seal	00ID7899	4						
	Allen Screw, M8 x 25mm, Delta Seal	00ID7900		4	4	4			
	Allen Screw, M10 x 25mm, Delta Seal	00ID7901						4	
10	Shaft Pin, $\phi$ 5 x 26mm, Stainless	310192	1	1	1		1	1	
10a	Coupling Half, F85, MG71, .37-.55kW. $\phi$ 14/ $\phi$ 12	410041	2						
	Coupling Half, F100, MG80, 75-1.1kW. $\phi$ 19/ $\phi$ 12	410043		2					
	Coupling Half, F115, MG 90, 1.5-2.2kW. $\phi$ 24/ $\phi$ 12	410045			2				
	Coupling Half, F130, MG100/112, 3-4 kW. $\phi$ 28/ $\phi$ 12	410047				2			
	Coupling Half, F265, MG132, 5.5-7.5kW. $\phi$ 38/ $\phi$ 12	410115						2	

NEMA COUPLING KIT			Kit No. 415314						
			Kit No. 415315						
			Kit No. 96478700						
Pos. No.	Description	Material No.	Qty. Included in each Kit						
9	Allen Screw, M6 x 20mm, Delta Seal	00ID7899	4						
	Allen Screw, M8 x 25mm, Delta Seal	00ID7900		4	4				
	Allen Screw, M10 x 25mm, Delta Seal	00ID7901							
10	Shaft Pin, $\phi$ 5 x 26mm, Stainless	310192	1	1	1				
10a	Coupling Half, 56C, 1/3 - 2HP. $\phi$ 15.8 / $\phi$ 12	410108	2						
	Coupling Half, 182/184TC, 3-5HP. $\phi$ 28.5/ $\phi$ 12	410109		2					
	Coupling Half, 213TC, 7.5-10HP. $\phi$ 34.9/ $\phi$ 12	96472175						2	

## Spare Part Kits (continued)

FLEXI FLANGE KIT FOR SMALL CRI15, 1, & 3		Kit No. 964680850	
1" Threaded Stainless ( 232 PSI Max.)			
Pos. No.	Description	Material No.	Qty. Included in each Kit
12	Flange, Stainless, 1" - 11.5 NPT	96468336	2
35	Hex Head Bolt, M10 x 60mm, A4, DIN931	96447228	4
35a	Nut, M10, 316SS w/Delta Seal	96438757	4
39	Gasket, 95 x 55 x $\phi$ 35 x 2mm, KLINGERSIL C4430	400189	2

FLEXI FLANGE KIT FOR SMALL CRI15, 1, 3, & 5		Kit No. 96480851	
1-1/4" Threaded Stainless ( 232 PSI Max.)			
Pos. No.	Description	Material No.	Qty. Included in each Kit
12	Flange, Stainless, 1" - 11.5 NPT	96468337	2
35	Hex Head Bolt, M10 x 60mm, A4, DIN931	96447228	4
36b	Nut, M10, 316SS w/Delta Seal	96438757	4
39	Gasket, 95 x 55 x $\phi$ 35 x 2mm, KLINGERSIL C4430	400189	2

FLEXI CLAMP FLANGE KIT FOR SMALL CRI(N)15, 1, 3, & 5		Kit No. 96480858	
1-1/4" Stainless Flange			
(Conversion max. allowable operating pressure 232 )			
		EPDM	FKM
		Kit No. 96480858	Kit No. 96480859
Pos. No.	Description	Material No.	Qty. Included in each Kit
12a	Adapter Flg. for ANSI pos.201/Flexi Base (232 PSI)	96437818	2
35	Hex Head Bolt, M10 x 60mm, A4, DIN931	96447228	4
36b	Nut, M10, 316SS w/Delta Seal	96438757	4
39b	O-ring, EPDM, $\phi$ 44.45 x 3.53mm	96407726	2
	O-ring, FKM, $\phi$ 44.45 x 3.53mm	96411713	2
201	Flange, ANSI, DIN, JIS PN40/30K, Stainless	96439492	2
203	Lock Ring, Stainless	96439718	2

FLEXI CLAMP KIT FOR SMALL CRI15, 1, & 3		Kit No. 96480854	
1" Internal Threaded SS Pipe Stub ( 232 PSI Max.)			
		EPDM	FKM
		Kit No. 96480854	Kit No. 96480855
Pos. No.	Description	Material No.	Qty. Included in each Kit
12b	Stainless, Internal 1" -11.5 NPT	400182	2
12c	Clamp for Flexi Base & pos.12b	00ID7194	4
35b	Screw for Pos. 12c, M8 x 40mm - A2, RR DIN933	00ID7188	4
35c	Nut for Pos. 35b, M8, 304SS	00ID7187	4
39b	O-ring, EPDM, $\phi$ 44.45 x 3.53mm	96407726	2
	O-ring, FKM, $\phi$ 44.45 x 3.53mm	96411713	2

FLEXI CLAMP KIT FOR SMALL CRI15, 1, 3, & 5		Kit No. 96480856	
1-1/4" Internal Threaded SS Pipe Stub ( 232 PSI Max.)			
		EPDM	FKM
		Kit No. 96480856	Kit No. 96480857
Pos. No.	Description	Material No.	Qty. Included in each Kit
12b	Stainless, Internal 1-1/4" -11.5 NPT	410279	2
12c	Clamp for Flexi Base & pos.12b	00ID7194	4
35b	Screw for Pos. 12c, M8 x 40mm - A2, RR DIN933	00ID7188	4
35c	Nut for Pos. 35b, M8, 304SS	00ID7187	4
39b	O-ring, EPDM, $\phi$ 44.45 x 3.53mm	96407726	2
	O-ring, FKM, $\phi$ 44.45 x 3.53mm	96411713	2

FLEXI CLAMP KIT FOR SMALL CRI15, 1, 3, & 5		Kit No. 96480852	
2" External Threaded SS Pipe Stub ( 232 PSI Max.)			
		EPDM	FKM
		Kit No. 96480852	Kit No. 96480853
Pos. No.	Description	Material No.	Qty. Included in each Kit
12b	Stainless, Internal 2" -11.5 NPT	96468338	2
12c	Clamp for Flexi Base & pos.12b	00ID7194	4
35b	Screw for Pos. 12c, M8 x 40mm - A2, RR DIN933	00ID7188	4
35c	Nut for Pos. 35b, M8, 304SS	00ID7187	4
39b	O-ring, EPDM, $\phi$ 44.45 x 3.53mm	96407726	2
	O-ring, FKM, $\phi$ 44.45 x 3.53mm	96411713	2

AIR VENT FOR SMALL CR		Kit No. 91128708	
Pos. No.	Description	Material No.	Qty. Included in each Kit
117	Pipe for Air Vent, R1/2", 316SS	330272	1
118	Automatic Air Vent, Type AE50S 1/2" BSP, SS.	96498508	1

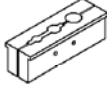



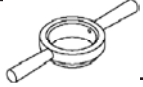



## Accessories

ANSI COMPANION FLANGES FOR SMALL CR		Kit No. 91129013	
1-1/4" Threaded Stainless, 300 Lb. Class			
Pos. No.	Description	Material No.	Qty. Included in each Kit
N/A	Nut, HEX 5/8"-11 UNC, 18-8SS	0ID00164	8
N/A	Bolt, HEX 5/8" x 2-3/4", UNC 18-8SS	00ID7241	8
N/A	Flange 1-1/4" Stainless, ANSI, DIN, JIS PN40/30K,	00ID7239	2
N/A	Gasket Full Face Flange, 1-1/4", 300#, Cut Ring	400201	2

VICTAULIC TYPE COMPANION CONNECTIONS FOR SMALL CRI(N)		Kit No. 4013010	
		EPDM	FKM
		Kit No. 4013010	Kit No. 0ID00118
Pos. No.	Description	Material No.	Qty. Included in each Kit
N/A	Victaulic Type Coupling, 1-1/4", EPDM	0ID17810	2
N/A	Victaulic Type Coupling, 1-1/4", 77 FKM	0ID00112	2
N/A	1-1/4" Stainless NPT Nipple	4000011	2

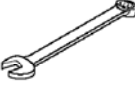






## Special Tools

Tools not generally available from normal sources.

Mat. No.	Description and Use	
00SV0040	<b>Shaft Holder for Dismantling/Assembly</b> Used to hold and protect the shaft during dismantling and assembly.	
00SV2007	<b>Tubular Box Spanner for Shaft Seal 36.1 mm</b> Used to install and remove the shaft seal. Fits a 1/2" drive ratchet.	
00SV0239	<b>Puller for Neck Ring</b> Used to remove the Neck Ring from Chamber.	
00SV2014	<b>Circlip Pliers for Flange Lock Ring</b> Used to remove the Lock Ring for the Flange.	
00SV2066	<b>Tool for Outer Sleeve</b> Used to press sleeve into base. (optional)	
00SV2011	<b>Bit Holder</b> Used with Bits Kit, 1/4"	
00SV2010	<b>Bits Kit</b> NV 5 mm for M6, 1/4" NV 6 mm for M8, 1/4" NV 8 mm for M10, 1/4"	
00SV2012	<b>Hexagon Socket Bit</b> Used for Shaft Seal NV 2.5 mm for M5, 1/4"	

## Standard Tools

In addition to being available from Grundfos, comparable tools can be purchased through normal sources.

Mat. No.	Description and Use	
00SV0083 00SV0055 00SV0056 00SV0054 00SV0122	<b>Wrenches</b> Used to tighten various nuts. NV 10 mm for M6 NV 13 mm for M8 NV 17 mm for M10 NV 19 mm for M12 NV 24 mm for M16	
00SV0292 00SV0269 00SV0400	<b>Torque Wrench</b> Used to torque various screws. 4-20 Nm, 9 x 12 20-100 Nm, 9 x 12 40-200 Nm, 14x18	
00SV0438	<b>Torque Screwdriver</b> Used to tighten various nuts. 1-6 Nm, 1/4"	
00SV0295	<b>Ratchet Spanner for all Adapters</b> 9 mm x 12 mm, 1/2"	
00SV0296 00SV0297 00SV0298	<b>Socket Spanner with Inside Hex</b> NV 5 mm for M6, 1/2" x 1/2" NV 6 mm for M8, 1/2" x 1/2" NV 8 mm for M10, 1/2" x 1/2"	
00SV0310 00SV0294 00SV0270 00SV0271 00SV0524	<b>Ring Spanner</b> NV 10 mm for M6 NV 13 mm for M8 NV 17 mm for M10 NV 19 mm for M12 NV 24 mm for M16	
00SV2013	<b>Socket Spanner</b> NV 13 mm for M8, 9 x 12	



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