CRE, CRIE, CRNE

Frequency-controlled Multistage Centrifugal Pumps
50 Hz

Contents

E-pumps

Grundfos pumps equipped with Grundfos MGE or MMGE motors are called E-pumps. CRE, CRIE and CRNE pumps belong to the E-pumps family.

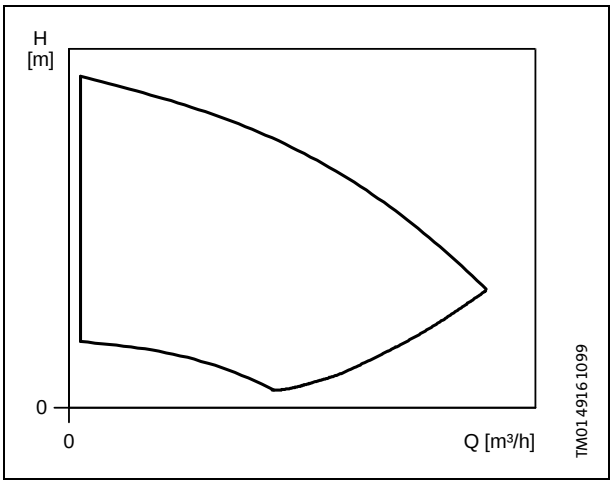
Pumps of a motor size up to and including 1.1 kW are fitted with the single-phase Grundfos MGE motor.

Pumps of a motor size of 1.5 kW or more are fitted with the three-phase MGE (1.5 - 7.5 kW) or MMGE (11-22 kW) motor.

Both the MGE and MMGE motors offer the following features:

- Built-in PI-controller,
- optional connection to external control signals,
- setpoint setting on the unit itself, and
- communication with the Grundfos remote control R100.

Through frequency control the MGE or MMGE motors enable continuously variable control of the motor speed. Thus the pump can operate in any duty point in the range between pump min. and max. performance curves.



CRE, CRIE, CRNE

CRE pumps are supplied with or without pressure sensor fitted.

Some CRE and CRNE versions are available with increased rated speed (4350 min^{-1}).

The complete product range is shown in the table below and in the performance curves in the following pages:

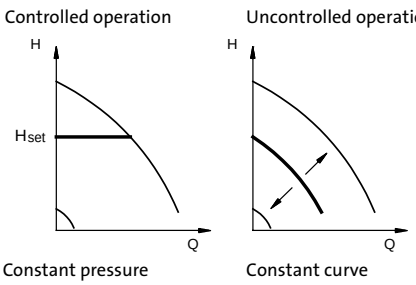
Pump type	Number of phases	Pressure sensor fitted	Rated speed [min^{-1}]	Performance curves See page...
CRE	1	●	2900	Page 4
CRE	1			Page 6
CRE	3	●		Page 4 and 5
CRE	3			Page 6 and 7
CRE	3	●	4350	Page 8
CRE	3			Page 8
CRIE	1		2900	Page 6
CRIE	1	●		Page 4
CRIE	3			Page 6
CRIE	3	●		Page 4
CRNE	1		2900	Page 6
CRNE	1	●		Page 4
CRNE	3			Page 6 and 7
CRNE	3	●		Page 4 and 5
CRNE	3		4350	Page 8

For applications requiring a constant pressure, a CRE with pressure sensor fitted offers a compact solution which is easy to install and start up. The pressure required can be set directly on the pump. It is also possible to change pump operating mode from controlled to uncontrolled (constant speed).

E-pumps without sensor should be used when there is a need for uncontrolled operation, or when control parameters are other than the pump discharge pressure. Such parameters could be flow, temperature, differential temperature, pressure or differential pressure at any place in the system.

CRE, CRNE pumps with increased speed (4350 min^{-1}) offer an ideal solution in applications requiring high head and small dimensions. The increased pump speed means that for a given required head the number of pump stages and thus the pump dimensions can be reduced.

CRE, CRIE, CRNE with pressure sensor



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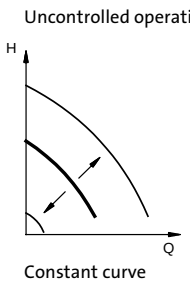
CRE, CRIE, CRNE



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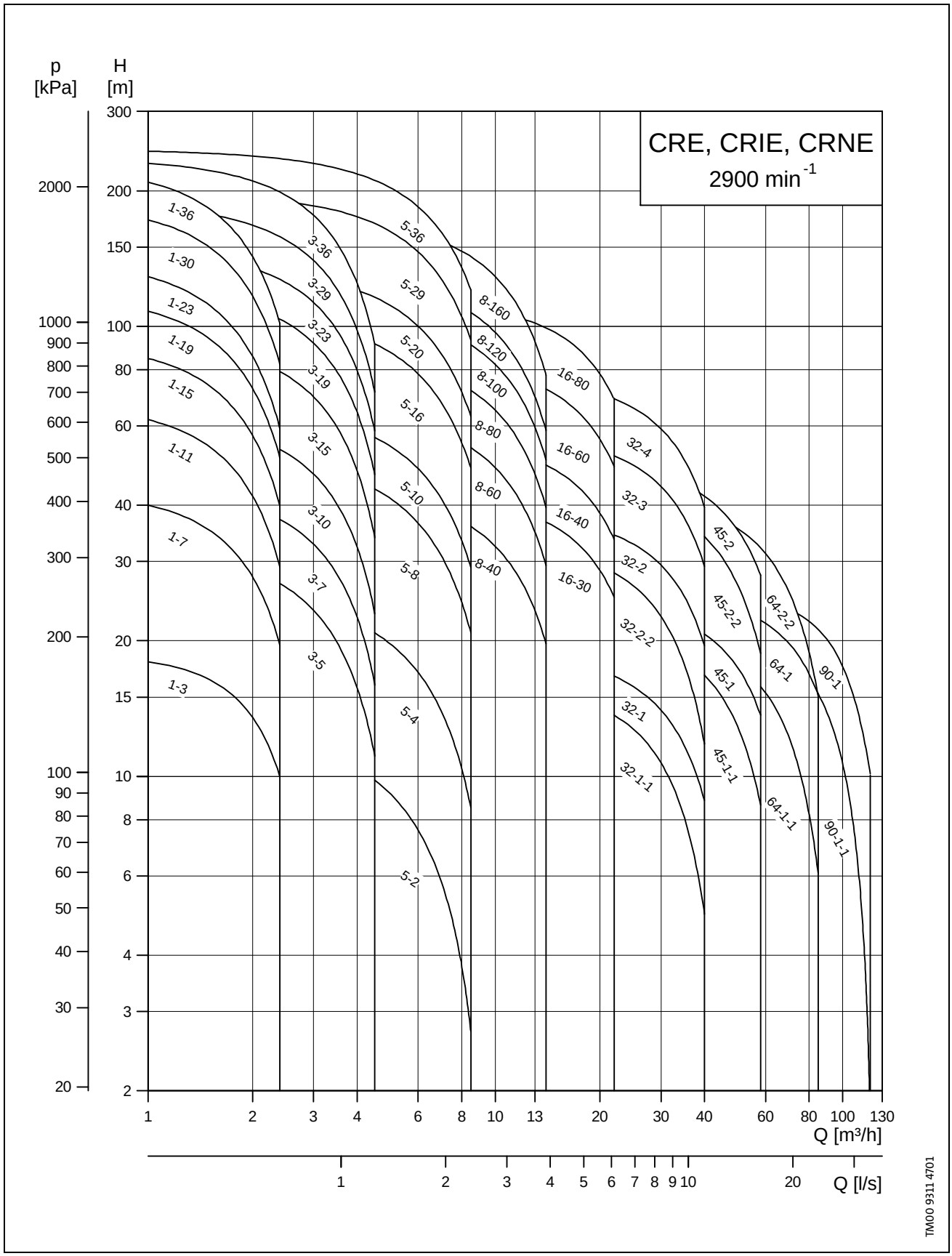
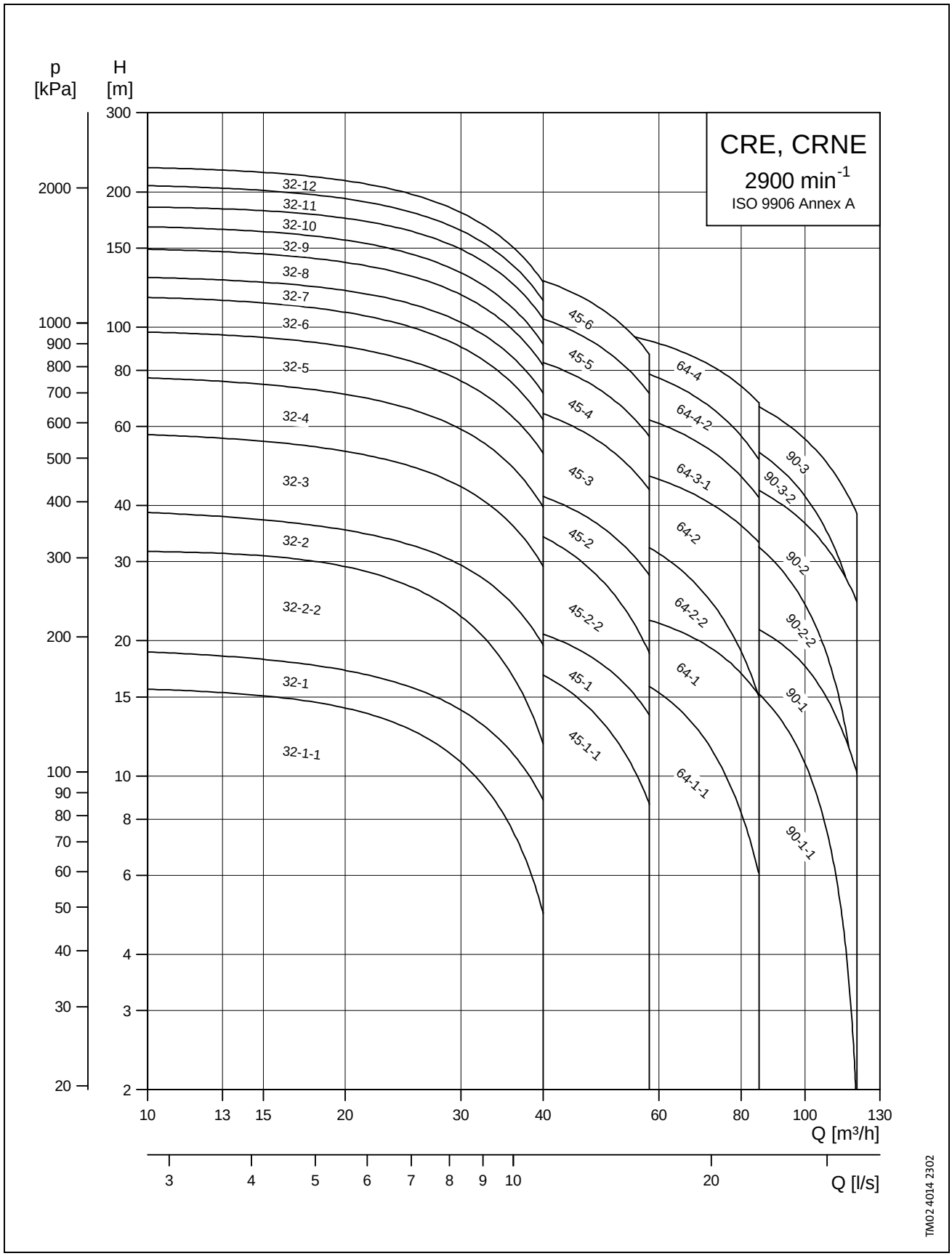
The fitting of a sensor at a later stage opens the possibility of control on the basis of pressure, differential pressure, temperature, differential temperature or flow.

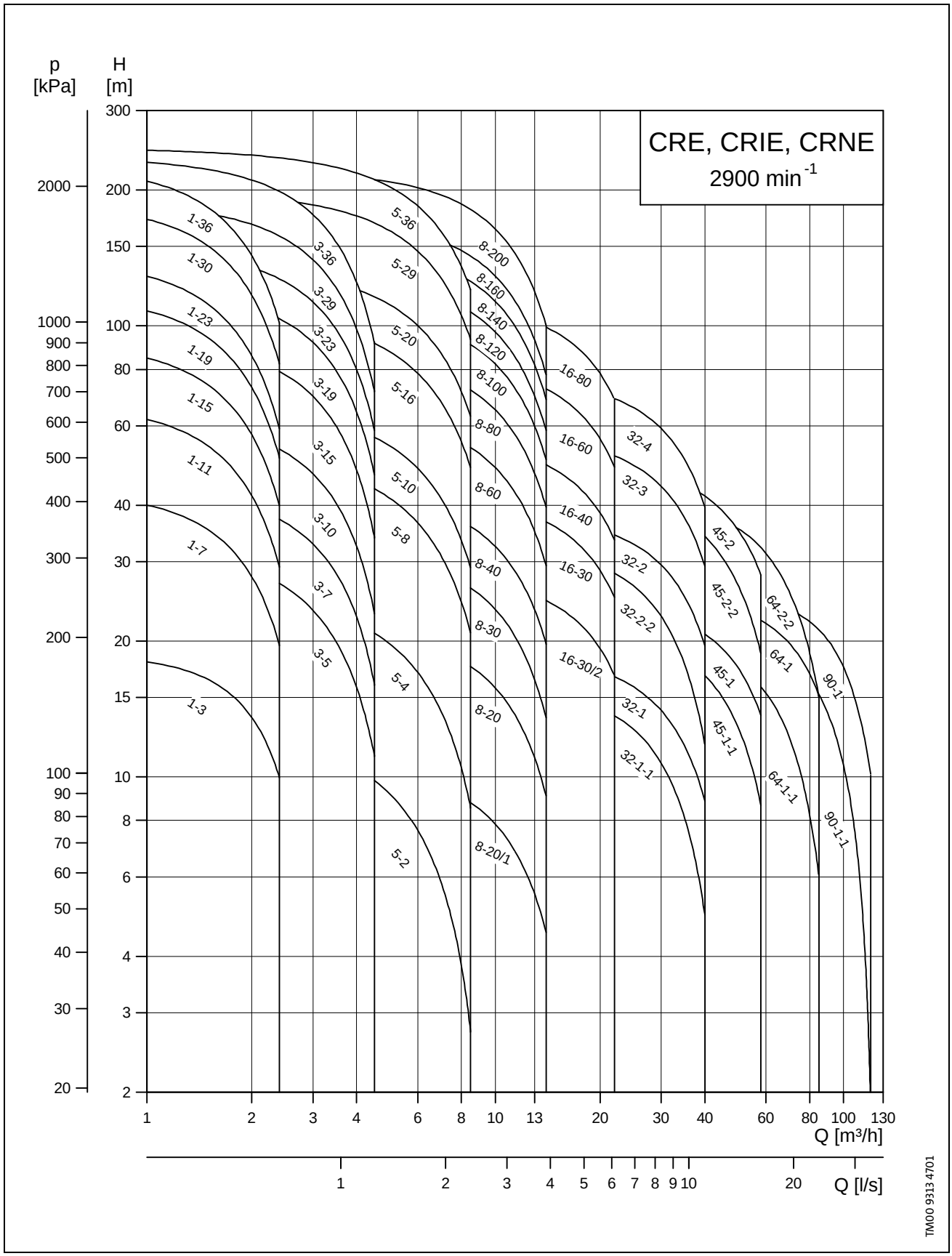
Performance range, 2900 min^{-1}



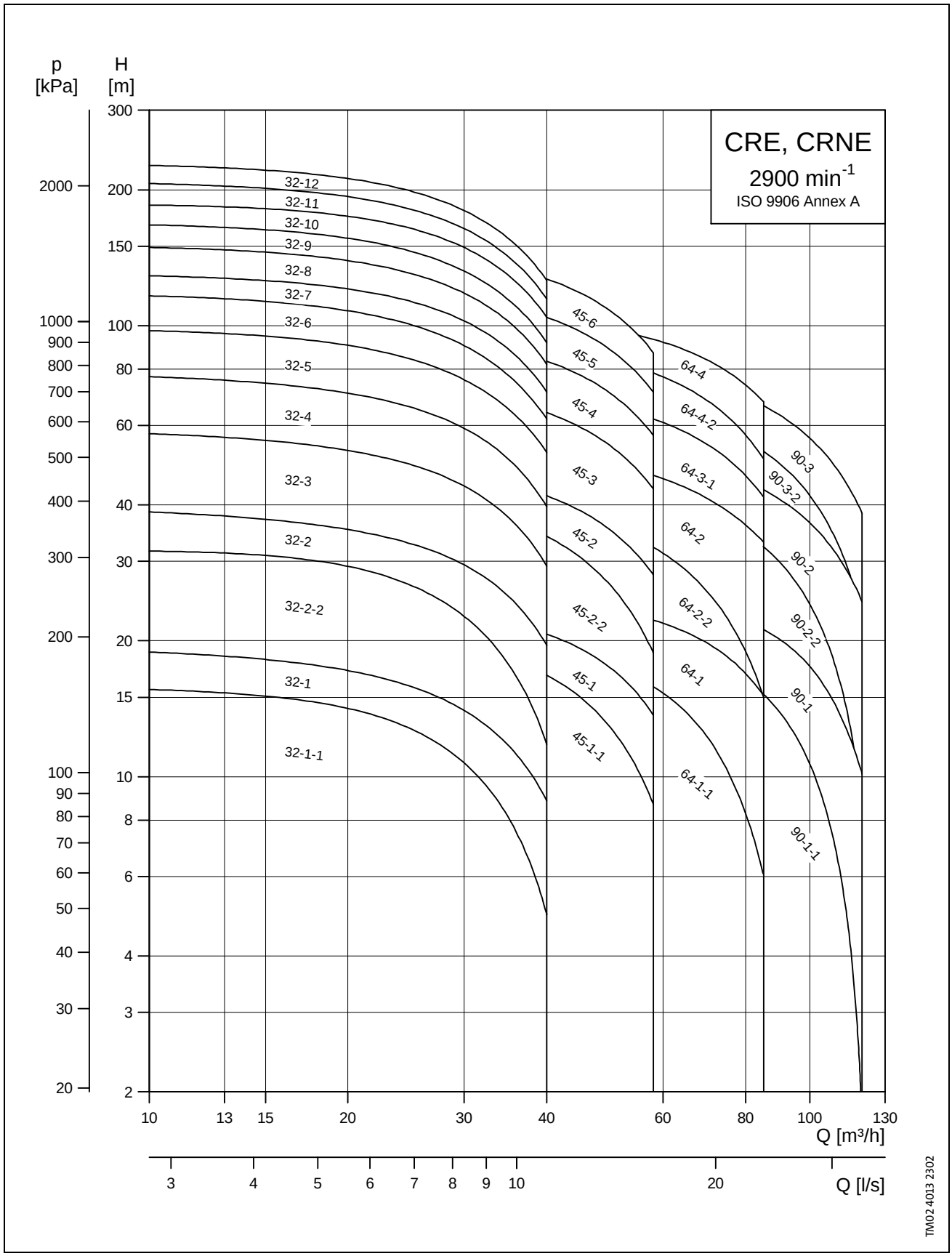
Performance range, 2900 min^{-1}



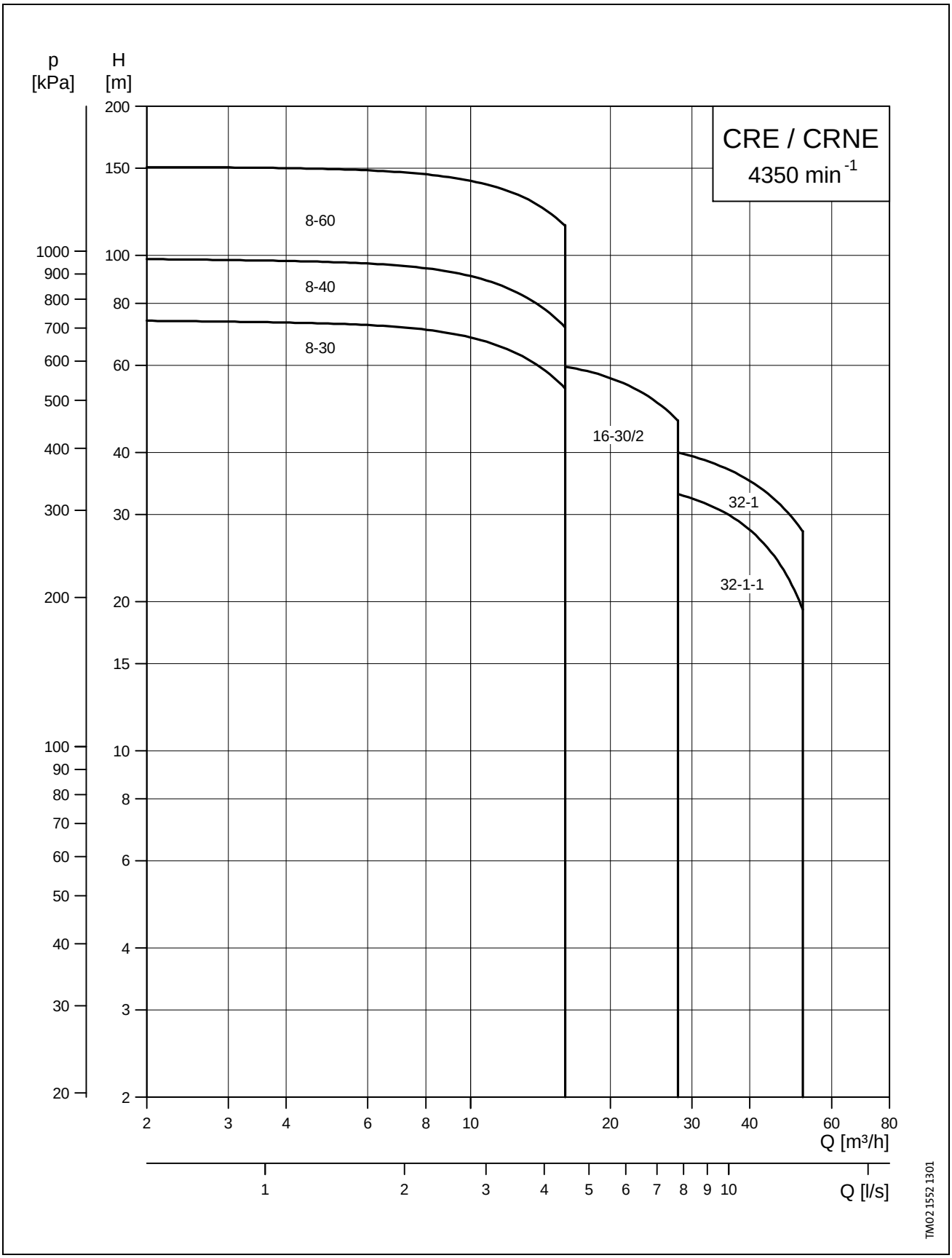
Performance range, 2900 min^{-1}



Performance range, 2900 min^{-1}

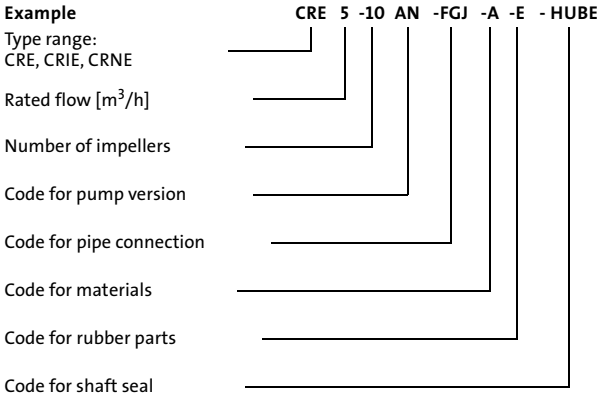


Performance range, 4350 min^{-1}

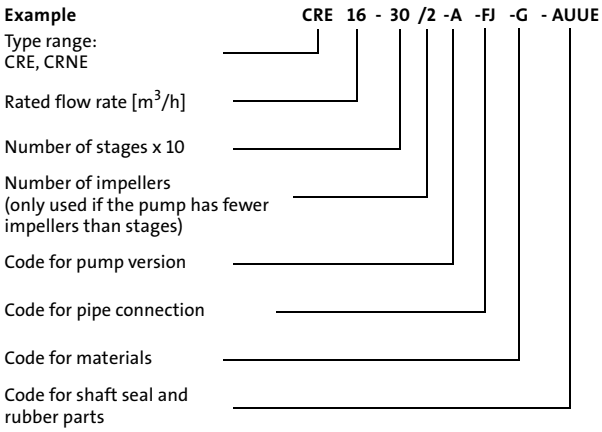


Type keys

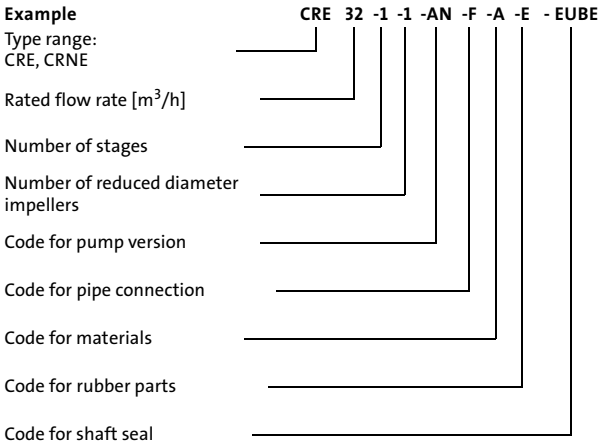
CRE, CRIE, CRNE 1, 3 and 5



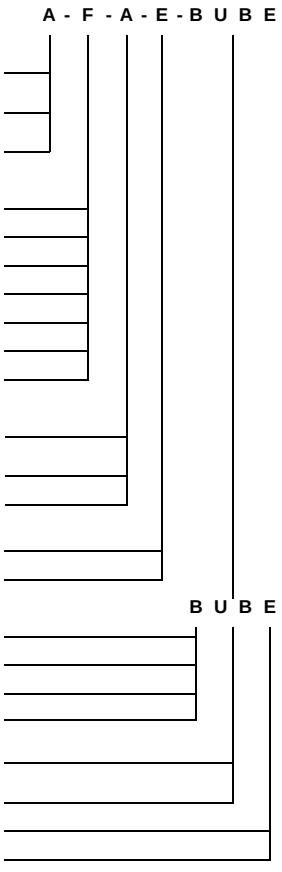
CRE, CRNE 8 and 16



CRE, CRNE 32, 45, 64 and 90



Codes



★ The output frequency of the frequency converter of the motor differs from the standard 50 Hz.
In this situation the frequency is approx. 75 Hz.

CRE 1, CRE 3, CRE 5, 2900 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor			
				A-FGJ-A-V DIN/ANSI/JIS flange		A-A-A-V Oval flange	
				Shaft seal		Shaft seal	
				HUBV	HUUV	HUBV	HUUV
CRE 1-3	0.37	1 x 200-240	3.0-2.5	96 46 11 45	96 46 11 66	96 46 11 18	96 46 11 30
CRE 1-7	0.37	1 x 200-240	3.0-2.5	96 46 11 48	96 46 11 68	96 46 11 19	96 46 11 31
CRE 1-11	0.55	1 x 200-240	4.3-3.6	96 46 11 51	96 46 11 69	96 46 11 20	96 46 11 33
CRE 1-15	0.75	1 x 200-240	5.6-4.7	96 46 11 53	96 46 11 70	96 46 11 22	96 46 11 35
CRE 1-19	1.1	1 x 200-240	8.2-6.8	96 46 11 58	96 46 11 71	96 46 11 25	96 46 11 37
CRE 1-23	1.1	1 x 200-240	8.2-6.8	96 46 11 60	96 46 11 72	96 46 11 28	96 46 11 38
CRE 1-30	1.5	3 x 380-415	4.00	96 46 11 62	96 46 11 73		
CRE 1-36	2.2	3 x 380-415	5.35	96 46 11 64	96 46 11 74		
CRE 3-5	0.37	1 x 200-240	3.0-2.5	96 46 02 63	96 46 02 71	96 46 01 20	96 46 01 26
CRE 3-7	0.55	1 x 200-240	4.3-3.6	96 46 02 64	96 46 02 72	96 46 01 21	96 46 01 27
CRE 3-10	0.75	1 x 200-240	5.6-4.7	96 46 02 65	96 46 02 73	96 46 01 22	96 46 01 28
CRE 3-15	1.1	1 x 200-240	8.2-6.8	96 46 02 66	96 46 02 74	96 46 01 23	96 46 01 29
CRE 3-19	1.5	3 x 380-415	4.00	96 46 02 67	96 46 02 75	96 46 01 24	96 46 01 30
CRE 3-23	2.2	3 x 380-415	5.35	96 46 02 68	96 46 02 76	96 46 01 25	96 46 01 31
CRE 3-29	2.2	3 x 380-415	5.35	96 46 02 69	96 46 02 77		
CRE 3-36	3.0	3 x 380-415	6.80	96 46 02 70	96 46 02 78		
CRE 5-2	0.37	1 x 200-240	3.0-2.5	96 45 91 71	96 45 91 79	96 45 91 65	96 45 91 59
CRE 5-4	0.55	1 x 200-240	4.3-3.6	96 45 91 72	96 45 91 80	96 45 91 66	96 45 91 60
CRE 5-8	1.1	1 x 200-240	8.2-6.8	96 45 91 73	96 45 91 81	96 45 91 67	96 45 91 61
CRE 5-10	1.5	3 x 380-415	4.00	96 45 91 74	96 45 91 82	96 45 91 68	96 45 91 62
CRE 5-16	2.2	3 x 380-415	5.35	96 45 91 75	96 45 91 83	96 45 91 69	96 45 91 63
CRE 5-20	3.0	3 x 380-415	6.80	96 45 91 76	96 45 91 84	96 45 91 70	96 45 91 64
CRE 5-29	4.0	3 x 380-415	9.00	96 45 91 77	96 45 91 85		
CRE 5-36	5.5	3 x 380-415	12.0	96 45 91 78	96 45 91 86		

CRE 1, CRE 3, CRE 5, 2900 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor			
				A-FGJ-A-E DIN/ANSI/JIS flange		A-A-A-E Oval flange	
				Shaft seal		Shaft seal	
				HUBE	HUUE	HUBE	HUUE
CRE 1-3	0.37	1 x 200-240	3.0-2.5	96 47 23 61	96 47 23 85	96 47 24 19	96 47 24 32
CRE 1-7	0.37	1 x 200-240	3.0-2.5	96 47 23 62	96 47 23 86	96 47 24 20	96 47 24 33
CRE 1-11	0.55	1 x 200-240	4.3-3.6	96 47 23 63	96 47 23 87	96 47 24 21	96 47 24 34
CRE 1-15	0.75	1 x 200-240	5.6-4.7	96 47 23 64	96 47 23 88	96 47 24 22	96 47 24 35
CRE 1-19	1.1	1 x 200-240	8.2-6.8	96 47 23 65	96 47 23 89	96 47 24 23	96 47 24 36
CRE 1-23	1.1	1 x 200-240	8.2-6.8	96 47 23 66	96 47 24 00	96 47 24 24	96 47 24 37
CRE 1-30	1.5	3 x 380-415	4.00	96 47 23 67	96 47 24 01		
CRE 1-36	2.2	3 x 380-415	5.35	96 47 23 68	96 47 24 02		
CRE 3-5	0.37	1 x 200-240	3.0-2.5	96 47 23 69	96 47 24 03	96 47 24 25	96 47 24 38
CRE 3-7	0.55	1 x 200-240	4.3-3.6	96 47 23 70	96 47 24 04	96 47 24 26	96 47 24 39
CRE 3-10	0.75	1 x 200-240	5.6-4.7	96 47 23 71	96 47 24 05	96 47 24 27	96 47 24 40
CRE 3-15	1.1	1 x 200-240	8.2-6.8	96 47 23 72	96 47 24 06	96 47 24 28	96 47 24 41
CRE 3-19	1.5	3 x 380-415	4.00	96 47 23 73	96 47 24 07	96 46 12 70	96 47 24 42
CRE 3-23	2.2	3 x 380-415	5.35	96 47 23 74	96 47 24 08	96 46 12 71	96 47 24 43
CRE 3-29	2.2	3 x 380-415	5.35	96 47 23 75	96 47 24 09		
CRE 3-36	3.0	3 x 380-415	6.80	96 47 23 76	96 47 24 10		
CRE 5-2	0.37	1 x 200-240	3.0-2.5	96 47 23 77	96 47 24 11	96 47 24 29	96 47 24 44
CRE 5-4	0.55	1 x 200-240	4.3-3.6	96 47 23 78	96 47 24 12	96 47 24 30	96 47 05 39
CRE 5-8	1.1	1 x 200-240	8.2-6.8	96 47 23 79	96 47 24 13	96 47 24 31	96 47 24 45
CRE 5-10	1.5	3 x 380-415	4.00	96 47 23 80	96 47 24 14	96 46 12 77	96 47 24 46
CRE 5-16	2.2	3 x 380-415	5.35	96 47 23 81	96 47 24 15	96 46 12 78	96 47 24 47
CRE 5-20	3.0	3 x 380-415	6.80	96 47 23 82	96 47 24 16	96 46 12 79	96 47 24 48
CRE 5-29	4.0	3 x 380-415	9.00	96 47 23 83	96 47 24 17		
CRE 5-36	5.5	3 x 380-415	12.0	96 47 23 84	96 47 24 18		

Order data

CRE 1, CRE 3, CRE 5, 2900 min^{-1} (with sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	With sensor			
				AN-FGJ-A-E DIN/ANSI/JIS flange		AN-A-A-E Oval flange	
				Shaft seal		Shaft seal	
				HUBE	HUUE	HUBE	HUUE
CRE 1-3	0.37	1 x 200-240	3.0-2.5	96 46 10 82	96 46 10 96	96 46 14 53	96 46 14 64
CRE 1-7	0.37	1 x 200-240	3.0-2.5	96 46 10 83	96 46 10 98	96 46 14 55	96 46 14 66
CRE 1-11	0.55	1 x 200-240	4.3-3.6	96 46 10 84	96 46 10 99	96 46 14 57	96 46 14 68
CRE 1-15	0.75	1 x 200-240	5.6-4.7	96 46 10 85	96 46 11 01	96 46 14 59	96 46 14 69
CRE 1-19	1.1	1 x 200-240	8.2-6.8	96 46 10 86	96 46 11 03	96 46 14 60	96 46 14 71
CRE 1-23	1.1	1 x 200-240	8.2-6.8	96 46 10 87	96 46 11 05	96 46 14 62	96 46 14 72
CRE 1-30	1.5	3 x 380-415	4.00	96 46 10 88	96 46 11 06		
CRE 1-36	2.2	3 x 380-415	5.35	96 46 10 89	96 46 11 08		
CRE 3-5	0.37	1 x 200-240	3.0-2.5	96 46 01 01	96 46 01 11	96 46 00 89	96 46 00 95
CRE 3-7	0.55	1 x 200-240	4.3-3.6	96 46 01 02	96 46 01 12	96 46 00 90	96 46 00 96
CRE 3-10	0.75	1 x 200-240	5.6-4.7	96 46 01 03	96 46 01 13	96 46 00 91	96 46 00 97
CRE 3-15	1.1	1 x 200-240	8.2-6.8	96 46 01 04	96 46 01 14	96 46 00 92	96 46 00 98
CRE 3-19	1.5	3 x 380-415	4.00	96 46 01 05	96 46 01 15	96 46 00 93	96 46 00 99
CRE 3-23	2.2	3 x 380-415	5.35	96 46 01 08	96 46 01 16	96 46 00 94	96 46 01 00
CRE 3-29	2.2	3 x 380-415	5.35	96 46 01 09	96 46 01 17		
CRE 3-36	3.0	3 x 380-415	6.80	96 46 01 10	96 46 01 18		
CRE 5-2	0.37	1 x 200-240	3.0-2.5	96 45 91 24	96 45 91 37	96 45 91 45	96 45 91 52
CRE 5-4	0.55	1 x 200-240	4.3-3.6	96 45 91 25	96 45 91 38	96 45 91 46	96 45 91 53
CRE 5-8	1.1	1 x 200-240	8.2-6.8	96 45 91 26	96 45 91 39	96 45 91 47	96 45 91 55
CRE 5-10	1.5	3 x 380-415	4.00	96 45 91 32	96 45 91 40	96 45 91 48	96 45 91 56
CRE 5-16	2.2	3 x 380-415	5.35	96 45 91 33	96 45 91 41	96 45 91 50	96 45 91 57
CRE 5-20	3.0	3 x 380-415	6.80	96 45 91 34	96 45 91 42	96 45 91 51	96 45 91 58
CRE 5-29	4.0	3 x 380-415	9.00	96 45 91 35	96 45 91 43		
CRE 5-36	5.5	3 x 380-415	12.0	96 45 91 36	96 45 91 44		

CRE 8, CRE 16, 2900 min^{-1} (without sensor / with sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor				With sensor	
				A-A-A Oval flange	A-N-A Oval flange	A-F-A DIN flange		AN-F-A DIN flange	
				Shaft seal		Shaft seal		Shaft seal	
				BUBE	AUUE	BUBV	AUUV	BUBE	AUUE
CRE 8-20/1	0.37	1 x 200-240	3.0-2.5	42 50 63 01	42 81 63 01	42 59 63 01	42 78 63 01		
CRE 8-20	0.75	1 x 200-240	5.6-4.7	42 50 63 02	42 81 63 02	42 59 63 02	42 78 63 02		
CRE 8-30	1.1	1 x 200-240	8.2-6.8	42 50 63 03	42 81 63 03	42 59 63 03	42 78 63 03		
CRE 8-30	1.1	3 x 380-415	3.20	42 50 73 03	42 81 73 03	42 59 73 03	42 78 73 03		
CRE 8-40	1.5	3 x 380-415	4.00	42 50 73 04	42 81 73 04	42 59 73 04	42 78 73 04	42 53 76 04	42 77 76 04
CRE 8-60	2.2	3 x 380-415	5.35	42 50 73 06	42 81 73 06	42 59 73 06	42 78 73 06	42 53 76 06	42 77 76 06
CRE 8-80	3.0	3 x 380-415	6.80	42 50 73 08	42 81 73 08	42 59 73 08	42 78 73 08	42 53 76 08	42 77 76 08
CRE 8-100	4.0	3 x 380-415	9.00	42 50 73 10	42 81 73 10	42 59 73 10	42 78 73 10		
CRE 8-120	4.0	3 x 380-415	9.00	42 50 73 12	42 81 73 12	42 59 73 12	42 78 73 12	42 53 76 12	42 77 76 12
CRE 8-140	5.5	3 x 380-415	12.0				42 59 73 14		
CRE 8-160	5.5	3 x 380-415	12.0				42 59 73 16		
CRE 8-200	7.5	3 x 380-415	16.0				42 59 73 20		
CRE 16-30/2	2.2	3 x 380-415	5.35			33 70 73 02	33 78 73 02		
CRE 16-30	3.0	3 x 380-415	6.80			33 70 73 03	33 78 73 03	33 50 76 03	33 77 76 03
CRE 16-40	4.0	3 x 380-415	9.00			33 70 73 04	33 78 73 04	33 50 76 04	33 77 76 04
CRE 16-60	5.5	3 x 380-415	12.0			33 70 73 06	33 78 73 06	33 50 76 06	33 77 76 06
CRE 16-80	7.5	3 x 380-415	16.0			33 70 73 08	33 78 73 08	33 50 76 08	33 77 76 08

CRE 32, CRE 45, CRE 64, CRE 90, 2900 min^{-1} (without sensor / with sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor		With sensor	
				A-F-A-V DIN flange		AN-F-A-E DIN flange	
				Shaft seal		Shaft seal	
				EUBV	EUUV	EUBE	EUUE
CRE 32-1-1	1.5	3 x 380-415	4.00	96 42 78 61	96 42 78 67	96 42 78 85	96 42 79 00
CRE 32-1	2.2	3 x 380-415	5.35	96 42 78 62	96 42 78 68	96 42 78 86	96 42 79 01
CRE 32-2-2	3.0	3 x 380-415	6.80	96 42 69 35	96 42 78 69	96 42 78 87	96 42 79 02
CRE 32-2	4.0	3 x 380-415	9.00	96 42 69 38	96 42 78 70	96 42 78 88	96 42 79 03
CRE 32-3	5.5	3 x 380-415	12.0	96 42 69 39	96 42 78 71	96 42 78 89	96 42 79 04
CRE 32-4	7.5	3 x 380-415	16.0	96 42 69 40	96 42 78 72	96 42 78 90	96 42 79 05
CRE 32-5	11.0	3 x 380-415	21.3	96 07 86 62	96 07 86 82	96 07 86 22	96 07 86 42
CRE 32-6	11.0	3 x 380-415	21.3	96 07 86 63	96 07 86 83	96 07 86 23	96 07 86 43
CRE 32-7	15.0	3 x 380-415	28.1	96 07 86 64	96 07 86 84	96 07 86 24	96 07 86 44
CRE 32-8	15.0	3 x 380-415	28.1	96 07 86 65	96 07 86 85	96 07 86 25	96 07 86 45
CRE 32-9	18.5	3 x 380-415	34.2	96 07 86 66	96 07 86 86	96 07 86 26	96 07 86 46
CRE 32-10	18.5	3 x 380-415	34.2	96 07 86 67	96 07 86 87	96 07 86 27	96 07 86 47
CRE 32-11	22.0	3 x 380-415	41.9	96 07 86 68	96 07 86 88	96 07 86 28	96 07 86 48
CRE 32-12	22.0	3 x 380-415	41.9	96 07 86 69	96 07 86 89	96 07 86 29	96 07 86 49
CRE 45-1-1	3.0	3 x 380-415	6.80	96 42 78 64	96 42 78 73	96 42 78 91	96 42 79 06
CRE 45-1	4.0	3 x 380-415	9.00	96 42 69 41	96 42 78 74	96 42 78 92	96 42 79 07
CRE 45-2-2	5.5	3 x 380-415	12.0	96 42 69 42	96 42 78 75	96 42 78 93	96 42 79 08
CRE 45-2	7.5	3 x 380-415	16.0	96 42 69 43	96 42 78 76	96 42 78 94	96 42 79 09
CRE 45-3	11.0	3 x 380-415	21.3	96 07 86 70	96 07 86 90	96 07 86 30	96 07 86 50
CRE 45-4	15.0	3 x 380-415	28.1	96 07 86 71	96 07 86 91	96 07 86 31	96 07 86 51
CRE 45-5	18.5	3 x 380-415	34.2	96 07 86 72	96 07 86 92	96 07 86 32	96 07 86 52
CRE 45-6	22.0	3 x 380-415	41.9	96 07 86 73	96 07 86 93	96 07 86 33	96 07 86 53
CRE 64-1-1	4.0	3 x 380-415	9.00	96 42 78 65	96 42 78 77	96 42 78 95	96 42 79 10
CRE 64-1	5.5	3 x 380-415	12.0	96 42 69 44	96 42 78 60	96 42 78 96	96 42 79 11
CRE 64-2-2	7.5	3 x 380-415	16.0	96 42 69 45	96 42 78 78	96 42 78 97	96 42 79 12
CRE 64-2	11.0	3 x 380-415	21.3	96 07 86 74	96 07 86 94	96 07 86 34	96 07 86 54
CRE 64-3-1	15.0	3 x 380-415	28.1	96 07 86 75	96 07 86 95	96 07 86 35	96 07 86 55
CRE 64-4-2	18.5	3 x 380-415	34.2	96 07 86 76	96 07 86 96	96 07 86 36	96 07 86 56
CRE 64-4	22.0	3 x 380-415	41.9	96 07 86 77	96 07 86 97	96 07 86 37	96 07 86 57
CRE 90-1-1	5.5	3 x 380-415	12.0	96 42 78 66	96 42 78 79	96 42 78 98	96 42 79 13
CRE 90-1	7.5	3 x 380-415	16.0	96 42 69 46	96 42 78 80	96 42 78 99	96 42 79 14
CRE 90-2-2	11.0	3 x 380-415	21.3	96 07 86 78	96 07 86 98	96 07 86 38	96 07 86 58
CRE 90-2	15.0	3 x 380-415	28.1	96 07 86 79	96 07 86 99	96 07 86 39	96 07 86 59
CRE 90-3-2	18.5	3 x 380-415	34.2	96 07 86 80	96 07 87 00	96 07 86 40	96 07 86 60
CRE 90-3	22.0	3 x 380-415	41.9	96 07 86 81	96 07 87 01	96 07 86 41	96 07 86 61

Order data

CRIE 1, CRIE 3, CRIE 5, 2900 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor					
				A-FGJ-I-V DIN/ANSI/JIS flange		A-P-I-V PJE coupling		A-CA-I-V FlexiClamp	
				Shaft seal		Shaft seal		Shaft seal	
				HUBV	HUUV	HUBV	HUUV	HUBV	HUUV
CRIE 1-3	0.37	1 x 200-240	3.0-2.5	96 46 15 77	96 46 15 85	96 46 16 14	96 46 16 22	96 46 15 94	96 46 16 06
CRIE 1-7	0.37	1 x 200-240	3.0-2.5	96 46 15 78	96 46 15 86	96 46 16 15	96 46 16 23	96 46 15 95	96 46 16 07
CRIE 1-11	0.55	1 x 200-240	4.3-3.6	96 46 15 79	96 46 15 87	96 46 16 16	96 46 16 24	96 46 15 96	96 46 16 08
CRIE 1-15	0.75	1 x 200-240	5.6-4.7	96 46 15 80	96 46 15 88	96 46 16 17	96 46 16 25	96 46 15 97	96 46 16 09
CRIE 1-19	1.1	1 x 200-240	8.2-6.8	96 46 15 81	96 46 15 89	96 46 16 18	96 46 16 26	96 46 16 01	96 46 16 10
CRIE 1-23	1.1	1 x 200-240	8.2-6.8	96 46 15 82	96 46 15 90	96 46 16 19	96 46 16 27	96 46 16 02	96 46 16 11
CRIE 1-30	1.5	3 x 380-415	4.00	96 46 15 83	96 46 15 91	96 46 16 20	96 46 16 28	96 46 16 03	96 46 16 12
CRIE 1-36	2.2	3 x 380-415	5.35	96 46 15 84	96 46 15 92	96 46 16 21	96 46 16 29	96 46 16 05	96 46 15 05
CRIE 3-5	0.37	1 x 200-240	3.0-2.5	96 46 04 76	96 46 04 84	96 46 04 92	96 46 05 00	96 46 04 08	96 46 04 68
CRIE 3-7	0.55	1 x 200-240	4.3-3.6	96 46 04 77	96 46 04 85	96 46 04 93	96 46 05 01	96 46 04 09	96 46 04 69
CRIE 3-10	0.75	1 x 200-240	5.6-4.7	96 46 04 78	96 46 04 86	96 46 04 94	96 46 05 02	96 46 04 10	96 46 04 70
CRIE 3-15	1.1	1 x 200-240	8.2-6.8	96 46 04 79	96 46 04 87	96 46 04 95	96 46 05 03	96 46 04 61	96 46 04 71
CRIE 3-19	1.5	3 x 380-415	4.00	96 46 04 80	96 46 04 88	96 46 04 96	96 46 05 04	96 46 04 62	96 46 04 72
CRIE 3-23	2.2	3 x 380-415	5.35	96 46 04 81	96 46 04 89	96 46 04 97	96 46 05 05	96 46 04 65	96 46 04 73
CRIE 3-29	2.2	3 x 380-415	5.35	96 46 04 82	96 46 04 90	96 46 04 98	96 46 05 06	96 46 04 66	96 46 04 74
CRIE 3-36	3.0	3 x 380-415	6.80	96 46 04 83	96 46 04 91	96 46 04 99	96 46 05 07	96 46 04 67	96 46 04 75
CRIE 5-2	0.37	1 x 200-240	3.0-2.5	96 45 93 67	96 45 93 75	96 45 93 17	96 45 93 26	96 45 93 50	96 45 93 59
CRIE 5-4	0.55	1 x 200-240	4.3-3.6	96 45 93 68	96 45 93 76	96 45 93 18	96 45 93 27	96 45 93 52	96 45 93 60
CRIE 5-8	1.1	1 x 200-240	8.2-6.8	96 45 93 69	96 45 93 77	96 45 93 20	96 45 93 28	96 45 93 53	96 45 93 61
CRIE 5-10	1.5	3 x 380-415	4.00	96 45 93 70	96 45 93 78	96 45 93 21	96 45 93 29	96 45 93 54	96 45 93 62
CRIE 5-16	2.2	3 x 380-415	5.35	96 45 93 71	96 45 93 79	96 45 93 22	96 45 93 30	96 45 93 55	96 45 93 63
CRIE 5-20	3.0	3 x 380-415	6.80	96 45 93 72	96 45 93 80	96 45 93 23	96 45 93 31	96 45 93 56	96 45 93 64
CRIE 5-29	4.0	3 x 380-415	9.00	96 45 93 73	96 45 93 81	96 45 93 24	96 45 93 32	96 45 93 57	96 45 93 65
CRIE 5-36	5.5	3 x 380-415	12.0	96 45 93 74	96 45 99 79	96 45 93 25	96 45 93 33	96 45 93 58	96 45 93 66

CRIE 1, CRIE 3, CRIE 5, 2900 min^{-1} (with sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	With sensor					
				AN-FGJ-I-E DIN/ANSI/JIS flange		AN-P-I-E PJE coupling		AN-CA-I-E FlexiClamp	
				Shaft seal		Shaft seal		Shaft seal	
				HUBE	HUUE	HUBE	HUUE	HUBE	HUUE
CRIE 1-3	0.37	1 x 200-240	3.0-2.5	96 46 14 87	96 46 14 97	96 46 15 22	96 46 15 69	96 46 15 06	96 46 15 14
CRIE 1-7	0.37	1 x 200-240	3.0-2.5	96 46 14 89	96 46 14 98	96 46 15 62	96 46 15 70	96 46 15 07	96 46 15 15
CRIE 1-11	0.55	1 x 200-240	4.3-3.6	96 46 14 90	96 46 14 99	96 46 15 63	96 46 15 71	96 46 15 08	96 46 15 16
CRIE 1-15	0.75	1 x 200-240	5.6-4.7	96 46 14 92	96 46 15 00	96 46 15 64	96 46 15 72	96 46 15 09	96 46 15 17
CRIE 1-19	1.1	1 x 200-240	8.2-6.8	96 46 14 93	96 46 15 01	96 46 15 65	96 46 15 73	96 46 15 10	96 46 15 18
CRIE 1-23	1.1	1 x 200-240	8.2-6.8	96 46 14 94	96 46 15 02	96 46 15 66	96 46 15 74	96 46 15 11	96 46 15 19
CRIE 1-30	1.5	3 x 380-415	4.00	96 46 14 95	96 46 15 03	96 46 15 67	96 46 15 75	96 46 15 12	96 46 15 20
CRIE 1-36	2.2	3 x 380-415	5.35	96 46 14 96	96 46 15 04	96 46 15 68	96 46 15 76	96 46 15 13	96 46 15 21
CRIE 3-5	0.37	1 x 200-240	3.0-2.5	96 46 03 53	96 46 03 68	96 46 03 92	96 46 04 00	96 46 03 76	96 46 03 84
CRIE 3-7	0.55	1 x 200-240	4.3-3.6	96 46 03 54	96 46 03 69	96 46 03 93	96 46 04 01	96 46 03 77	96 46 03 85
CRIE 3-10	0.75	1 x 200-240	5.6-4.7	96 46 03 55	96 46 03 70	96 46 03 94	96 46 04 02	96 46 03 78	96 46 03 86
CRIE 3-15	1.1	1 x 200-240	8.2-6.8	96 46 03 56	96 46 03 71	96 46 03 95	96 46 04 03	96 46 03 79	96 46 03 87
CRIE 3-19	1.5	3 x 380-415	4.00	96 46 03 64	96 46 03 72	96 46 03 96	96 46 04 04	96 46 03 80	96 46 03 88
CRIE 3-23	2.2	3 x 380-415	5.35	96 46 03 65	96 46 03 73	96 46 03 97	96 46 04 05	96 46 03 81	96 46 03 89
CRIE 3-29	2.2	3 x 380-415	5.35	96 46 03 66	96 46 03 74	96 46 03 98	96 46 04 06	96 46 03 82	96 46 03 90
CRIE 3-36	3.0	3 x 380-415	6.80	96 46 03 67	96 46 03 75	96 46 03 99	96 46 04 07	96 46 03 83	96 46 03 91
CRIE 5-2	0.37	1 x 200-240	3.0-2.5	96 45 92 59	96 45 92 67	96 45 92 43	96 45 92 51	96 45 93 34	96 45 93 42
CRIE 5-4	0.55	1 x 200-240	4.3-3.6	96 45 92 60	96 45 92 68	96 45 92 44	96 45 92 52	96 45 93 35	96 45 93 43
CRIE 5-8	1.1	1 x 200-240	8.2-6.8	96 45 92 61	96 45 92 69	96 45 92 45	96 45 92 53	96 45 93 36	96 45 93 44
CRIE 5-10	1.5	3 x 380-415	4.00	96 45 92 62	96 45 92 70	96 45 92 46	96 45 92 54	96 45 93 37	96 45 93 45
CRIE 5-16	2.2	3 x 380-415	5.35	96 45 92 63	96 45 92 71	96 45 92 47	96 45 92 55	96 45 93 38	96 45 93 46
CRIE 5-20	3.0	3 x 380-415	6.80	96 45 92 64	96 45 92 72	96 45 92 48	96 45 92 56	96 45 93 39	96 45 93 47
CRIE 5-29	4.0	3 x 380-415	9.00	96 45 92 65	96 45 92 73	96 45 92 49	96 45 92 57	96 45 93 40	96 45 93 48
CRIE 5-36	5.5	3 x 380-415	12.0	96 45 92 66	96 45 92 74	96 45 92 50	96 45 92 58	96 45 93 41	96 45 93 49

Order data

CRNE 1, CRNE 3, CRNE 5, 2900 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor					
				A-FGJ-G-V DIN/ANSI/JIS flange		A-P-G-V PJE coupling		A-CA-G-V FlexiClamp	
				Shaft seal		Shaft seal		Shaft seal	
				HUBV	HUUV	HUBV	HUUV	HUBV	HUUV
CRNE 1-3	0.37	1 x 200-240	3.0-2.5	96 46 10 05	96 46 10 13	96 46 10 53	96 46 10 61	96 46 10 28	96 46 10 40
CRNE 1-7	0.37	1 x 200-240	3.0-2.5	96 46 10 06	96 46 10 14	96 46 10 54	96 46 10 62	96 46 10 29	96 46 10 42
CRNE 1-11	0.55	1 x 200-240	4.3-3.6	96 46 10 07	96 46 10 16	96 46 10 55	96 46 10 63	96 46 10 30	96 46 10 44
CRNE 1-15	0.75	1 x 200-240	5.6-4.7	96 46 10 08	96 46 10 17	96 46 10 56	96 46 10 64	96 46 10 31	96 46 10 45
CRNE 1-19	1.1	1 x 200-240	8.2-6.8	96 46 10 09	96 46 10 18	96 46 10 57	96 46 10 65	96 46 10 33	96 46 10 47
CRNE 1-23	1.1	1 x 200-240	8.2-6.8	96 46 10 10	96 46 10 20	96 46 10 58	96 46 10 66	96 46 10 34	96 46 10 48
CRNE 1-30	1.5	3 x 380-415	4.00	96 46 10 11	96 46 10 22	96 46 10 59	96 46 10 67	96 46 10 37	96 46 10 50
CRNE 1-36	2.2	3 x 380-415	5.35	96 46 10 12	96 46 10 24	96 46 10 60	96 46 10 68	96 46 10 38	96 46 10 51
CRNE 3-5	0.37	1 x 200-240	3.0-2.5	96 46 07 82	96 46 07 90	96 46 08 93	96 46 09 01	96 46 07 98	96 46 08 85
CRNE 3-7	0.55	1 x 200-240	4.3-3.6	96 46 07 83	96 46 07 91	96 46 08 94	96 46 09 02	96 46 07 99	96 46 08 86
CRNE 3-10	0.75	1 x 200-240	5.6-4.7	96 46 07 84	96 46 07 92	96 46 08 95	96 46 09 03	96 46 08 01	96 46 08 87
CRNE 3-15	1.1	1 x 200-240	8.2-6.8	96 46 07 85	96 46 07 93	96 46 08 96	96 46 09 04	96 46 08 03	96 46 08 88
CRNE 3-19	1.5	3 x 380-415	4.00	96 46 07 86	96 46 07 94	96 46 08 97	96 46 09 05	96 46 08 04	96 46 08 89
CRNE 3-23	2.2	3 x 380-415	5.35	96 46 07 87	96 46 07 95	96 46 08 98	96 46 09 06	96 46 08 07	96 46 08 90
CRNE 3-29	2.2	3 x 380-415	5.35	96 46 07 88	96 46 07 96	96 46 08 99	96 46 09 07	96 46 08 08	96 46 08 91
CRNE 3-36	3.0	3 x 380-415	6.80	96 46 07 89	96 46 07 97	96 46 09 00	96 46 09 08	96 46 08 12	96 46 08 92
CRNE 5-2	0.37	1 x 200-240	3.0-2.5	96 45 99 27	96 45 99 35	96 45 99 11	96 45 99 19	96 45 98 61	96 45 98 69
CRNE 5-4	0.55	1 x 200-240	4.3-3.6	96 45 99 28	96 45 99 36	96 45 99 12	96 45 99 20	96 45 98 62	96 45 98 88
CRNE 5-8	1.1	1 x 200-240	8.2-6.8	96 45 99 29	96 45 99 37	96 45 99 13	96 45 99 21	96 45 98 63	96 45 98 89
CRNE 5-10	1.5	3 x 380-415	4.00	96 45 99 30	96 45 99 38	96 45 99 14	96 45 99 22	96 45 98 64	96 45 98 90
CRNE 5-16	2.2	3 x 380-415	5.35	96 45 99 31	96 45 99 39	96 45 99 15	96 45 99 23	96 45 98 65	96 45 98 91
CRNE 5-20	3.0	3 x 380-415	6.80	96 45 99 32	96 45 99 40	96 45 99 16	96 45 99 24	96 45 98 66	96 45 98 92
CRNE 5-29	4.0	3 x 380-415	9.00	96 45 99 33	96 45 99 41	96 45 99 17	96 45 99 25	96 45 98 67	96 45 98 93
CRNE 5-36	5.5	3 x 380-415	12.0	96 45 99 34	96 45 99 42	96 45 99 18	96 45 99 26	96 45 98 68	96 45 98 94

CRNE 1, CRNE 3, CRNE 5, 2900 min^{-1} (with sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	With sensor					
				AN-FGJ-G-E DIN/ANSI/JIS flange		AN-P-G-E PJE coupling		AN-CA-G-E FlexiClamp	
				Shaft seal		Shaft seal		Shaft seal	
				HUBE	HUUE	HUBE	HUUE	HUBE	HUUE
CRNE 1-3	0.37	1 x 200-240	3.0-2.5	96 46 09 42	96 46 09 50	96 46 09 89	96 46 09 97	96 46 09 58	96 46 09 66
CRNE 1-7	0.37	1 x 200-240	3.0-2.5	96 46 09 43	96 46 09 51	96 46 09 90	96 46 09 98	96 46 09 59	96 46 09 67
CRNE 1-11	0.55	1 x 200-240	4.3-3.6	96 46 09 44	96 46 09 52	96 46 09 91	96 46 09 99	96 46 09 60	96 46 09 68
CRNE 1-15	0.75	1 x 200-240	5.6-4.7	96 46 09 45	96 46 09 53	96 46 09 92	96 46 10 00	96 46 09 61	96 46 09 69
CRNE 1-19	1.1	1 x 200-240	8.2-6.8	96 46 09 46	96 46 09 54	96 46 09 93	96 46 10 01	96 46 09 62	96 46 09 70
CRNE 1-23	1.1	1 x 200-240	8.2-6.8	96 46 09 47	96 46 09 55	96 46 09 94	96 46 10 02	96 46 09 63	96 46 09 71
CRNE 1-30	1.5	3 x 380-415	4.00	96 46 09 48	96 46 09 56	96 46 09 95	96 46 10 03	96 46 09 64	96 46 09 78
CRNE 1-36	2.2	3 x 380-415	5.35	96 46 09 49	96 46 09 57	96 46 09 96	96 46 10 04	96 46 09 65	96 46 09 80
CRNE 3-5	0.37	1 x 200-240	3.0-2.5	96 46 05 18	96 46 05 26	96 46 05 90	96 46 06 64	96 46 05 72	96 46 05 82
CRNE 3-7	0.55	1 x 200-240	4.3-3.6	96 46 05 19	96 46 05 27	96 46 06 33	96 46 06 69	96 46 05 73	96 46 05 83
CRNE 3-10	0.75	1 x 200-240	5.6-4.7	96 46 05 20	96 46 05 28	96 46 06 39	96 46 06 73	96 46 05 74	96 46 05 84
CRNE 3-15	1.1	1 x 200-240	8.2-6.8	96 46 05 21	96 46 05 29	96 46 06 42	96 46 06 76	96 46 05 75	96 46 05 85
CRNE 3-19	1.5	3 x 380-415	4.00	96 46 05 22	96 46 05 30	96 46 06 46	96 46 06 79	96 46 05 76	96 46 05 86
CRNE 3-23	2.2	3 x 380-415	5.35	96 46 05 23	96 46 05 31	96 46 06 56	96 46 06 82	96 46 05 79	96 46 05 87
CRNE 3-29	2.2	3 x 380-415	5.35	96 46 05 24	96 46 05 32	96 46 06 59	96 46 06 86	96 46 05 80	96 46 05 88
CRNE 3-36	3.0	3 x 380-415	6.80	96 46 05 25	96 46 05 33	96 46 06 61	96 46 06 89	96 46 05 81	96 46 05 89
CRNE 5-2	0.37	1 x 200-240	3.0-2.5	96 45 98 95	96 45 99 03	96 45 98 26	96 45 98 35	96 45 98 44	96 45 98 52
CRNE 5-4	0.55	1 x 200-240	4.3-3.6	96 45 98 96	96 45 99 04	96 45 98 27	96 45 98 37	96 45 98 45	96 45 98 53
CRNE 5-8	1.1	1 x 200-240	8.2-6.8	96 45 98 97	96 45 99 05	96 45 98 28	96 45 98 38	96 45 98 46	96 45 98 54
CRNE 5-10	1.5	3 x 380-415	4.00	96 45 98 98	96 45 99 06	96 45 98 29	96 45 98 39	96 45 98 47	96 45 98 55
CRNE 5-16	2.2	3 x 380-415	5.35	96 45 98 99	96 45 99 07	96 45 98 30	96 45 98 40	96 45 98 48	96 45 98 56
CRNE 5-20	3.0	3 x 380-415	6.80	96 45 99 00	96 45 99 08	96 45 98 32	96 45 98 41	96 45 98 49	96 45 98 57
CRNE 5-29	4.0	3 x 380-415	9.00	96 45 99 01	96 45 99 09	96 45 98 33	96 45 98 42	96 45 98 50	96 45 98 58
CRNE 5-36	5.5	3 x 380-415	12.0	96 45 99 02	96 45 99 10	96 45 98 34	96 45 98 43	96 45 98 51	96 45 98 60

Order data

CRNE 8, CRNE 16, 2900 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor			
				A-P-G PJE coupling		A-FJ-G DIN/JIS flange	
				Shaft seal		Shaft seal	
				BUBV	AUUV	BUBV	AUUV
CRNE 8-20/1	0.37	1 x 200-240	3.0-2.5	42 64 63 01	42 80 63 01	42 33 63 01	
CRNE 8-20	0.75	1 x 200-240	5.6-4.7	42 64 63 02	42 80 63 02	42 33 63 02	
CRNE 8-30	1.1	1 x 200-240	8.2-6.8	42 64 63 03	42 80 63 03	42 33 63 03	
CRNE 8-30	1.1	3 x 380-415	3.2	42 64 73 03	42 80 73 03	42 33 73 03	
CRNE 8-40	1.5	3 x 380-415	4.00	42 64 73 04	42 80 73 04	42 33 70 04	
CRNE 8-60	2.2	3 x 380-415	5.35	42 64 73 06	42 80 73 06	42 33 73 06	
CRNE 8-80	3.0	3 x 380-415	6.80	42 64 73 08	42 80 73 08	42 33 73 08	
CRNE 8-100	4.0	3 x 380-415	9.00	42 64 73 10	42 80 73 10	42 33 73 10	
CRNE 8-120	4.0	3 x 380-415	9.00	42 64 73 12	42 80 73 12	42 33 73 12	
CRNE 8-140	5.5	3 x 380-415	12.0		42 64 73 14		42 33 73 14
CRNE 8-160	5.5	3 x 380-415	12.0		42 64 73 16		42 33 73 16
CRNE 8-200	7.5	3 x 380-415	16.0		42 64 73 20		42 33 73 20
CRNE 16-30/2	2.2	3 x 380-415	5.35	33 64 73 02	33 80 73 02	33 33 73 02	
CRNE 16-30	3.0	3 x 380-415	6.80	33 64 73 03	33 80 73 03	33 33 73 03	
CRNE 16-40	4.0	3 x 380-415	9.00	33 64 73 04	33 80 73 04	33 33 73 04	
CRNE 16-60	5.5	3 x 380-415	12.0	33 64 73 06	33 80 73 06	33 33 73 06	
CRNE 16-80	7.5	3 x 380-415	16.0	33 64 73 08		33 33 73 08	

CRNE 32, CRNE 45, CRNE 64, CRNE 90, 2900 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor	
				A-F-G-V DIN flange	
				Shaft seal	
				EUUV	EUBV
CRNE 32-1-1	1.5	3 x 380-415	4.00	96 42 79 21	96 42 79 34
CRNE 32-1	2.2	3 x 380-415	5.35	96 42 79 22	96 42 79 35
CRNE 32-2-2	3.0	3 x 380-415	6.80	96 42 79 23	96 42 79 36
CRNE 32-2	4.0	3 x 380-415	9.00	96 42 79 24	96 42 79 37
CRNE 32-3	5.5	3 x 380-415	12.0	96 42 79 25	96 42 79 38
CRNE 32-4	7.5	3 x 380-415	16.0	96 42 79 26	96 42 79 39
CRNE 32-5	11.0	3 x 380-415	21.3	96 07 87 02	96 07 87 22
CRNE 32-6	11.0	3 x 380-415	21.3	96 07 87 03	96 07 87 23
CRNE 32-7	15.0	3 x 380-415	28.1	96 07 87 04	96 07 87 24
CRNE 32-8	15.0	3 x 380-415	28.1	96 07 87 05	96 07 87 25
CRNE 32-9	18.5	3 x 380-415	34.2	96 07 87 06	96 07 87 26
CRNE 32-10	18.5	3 x 380-415	34.2	96 07 87 07	96 07 87 27
CRNE 32-11	22.0	3 x 380-415	41.9	96 07 87 08	96 07 87 28
CRNE 32-12	22.0	3 x 380-415	41.9	96 07 87 09	96 07 87 29
CRNE 45-1-1	3.0	3 x 380-415	6.80	96 42 79 27	96 42 79 40
CRNE 45-1	4.0	3 x 380-415	9.00	96 42 79 28	96 42 79 41
CRNE 45-2-2	5.5	3 x 380-415	12.0	96 42 79 29	96 42 79 42
CRNE 45-2	7.5	3 x 380-415	16.0	96 42 79 30	96 42 79 43
CRNE 45-3	11.0	3 x 380-415	21.3	96 07 87 10	96 07 87 30
CRNE 45-4	15.0	3 x 380-415	28.1	96 07 87 11	96 07 87 31
CRNE 45-5	18.5	3 x 380-415	34.2	96 07 87 12	96 07 87 32
CRNE 45-6	22.0	3 x 380-415	41.9	96 07 87 13	96 07 87 33
CRNE 64-1-1	4.0	3 x 380-415	9.00	96 42 79 31	96 42 79 44
CRNE 64-1	5.5	3 x 380-415	12.0	96 42 79 32	96 42 79 45
CRNE 64-2-2	7.5	3 x 380-415	16.0	96 42 79 33	96 42 79 46
CRNE 64-2	11.0	3 x 380-415	21.3	96 07 87 14	96 07 87 34
CRNE 64-3-1	15.0	3 x 380-415	28.1	96 07 87 15	96 07 87 35
CRNE 64-4-2	18.5	3 x 380-415	34.2	96 07 87 16	96 07 87 36
CRNE 64-4	22.0	3 x 380-415	41.9	96 07 87 17	96 07 87 37
CRNE 90-1-1	5.5	3 x 380-415	12.0	96 45 98 04	96 45 98 06
CRNE 90-1	7.5	3 x 380-415	16.0	96 45 98 05	96 45 98 07
CRNE 90-2-2	11.0	3 x 380-415	21.3	96 07 87 18	96 07 87 38
CRNE 90-2	15.0	3 x 380-415	28.1	96 07 87 19	96 07 87 39
CRNE 90-3-2	18.5	3 x 380-415	34.2	96 07 87 20	96 07 87 40
CRNE 90-3	22.0	3 x 380-415	41.9	96 07 87 21	96 07 87 41

Order data

CRE 8, CRE 16, CRE 32, 4350 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor			
				J-F-A DIN flange		J-F-A-V DIN flange	
				Shaft seal		Shaft seal	
				BUBV	AUUV	EUBV	EUUV
CRE 8-30	4.0	3 x 380-415	9.00	42 59 75 83	42 78 75 83		
CRE 8-40	5.5	3 x 380-415	12.0	42 59 75 84	42 78 75 84		
CRE 8-60	7.5	3 x 380-415	16.0	42 59 75 86	42 78 75 86		
CRE 16-30/2	5.5	3 x 380-415	12.0	33 70 75 82	33 78 75 82		
CRE 32-1-1	5.5	3 x 380-415	12.0			96 42 78 81	96 42 78 83
CRE 32-1	7.5	3 x 380-415	16.0			96 42 78 82	96 42 78 84

CRE 8, CRE 16, CRE 32, 4350 min^{-1} (with sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	With sensor			
				JN-F-A DIN flange		JN-F-A-E DIN flange	
				Shaft seal		Shaft seal	
				BUBE	AUUE	EUBE	EUUE
CRE 8-30	4.0	3 x 380-415	9.00	42 53 77 83	42 77 77 83		
CRE 8-40	5.5	3 x 380-415	12.0	42 53 77 84	42 77 77 84		
CRE 8-60	7.5	3 x 380-415	16.0	42 53 77 86	42 77 77 86		
CRE 16-30/2	5.5	3 x 380-415	12.0	33 50 77 82	33 77 77 82		
CRE 32-1-1	5.5	3 x 380-415	12.0			96 42 79 15	96 42 79 17
CRE 32-1	7.5	3 x 380-415	16.0			96 42 79 16	96 42 79 18

CRNE 8, CRNE 16, CRNE 32, 4350 min^{-1} (without sensor)

Pump type	Motor power P_2 [kW]	Supply voltage 50/60 Hz [V]	Full load current $I_{1/1}$ [A]	Without sensor				
				J-P-G PJE coupling		J-F-G DIN flange	J-F-G-V DIN flange	
				Shaft seal		Shaft seal	Shaft seal	
				BUBV	AUUV	BUBV	EUUV	EUBV
CRNE 8-30	4.0	3 x 380-415	9.00	42 64 75 83	42 80 75 83	42 33 75 83		
CRNE 8-40	5.5	3 x 380-415	12.0	42 64 75 84	42 80 75 84	42 33 75 84		
CRNE 8-60	7.5	3 x 380-415	16.0	42 64 75 86	42 80 75 86	42 33 75 86		
CRNE 16-30/2	5.5	3 x 380-415	12.0	33 64 75 82	33 80 75 82	33 33 75 82		
CRNE 32-1-1	5.5	3 x 380-415	12.0				96 42 79 47	96 42 79 49
CRNE 32-1	7.5	3 x 380-415	16.0				96 42 79 48	96 42 79 50

Product range

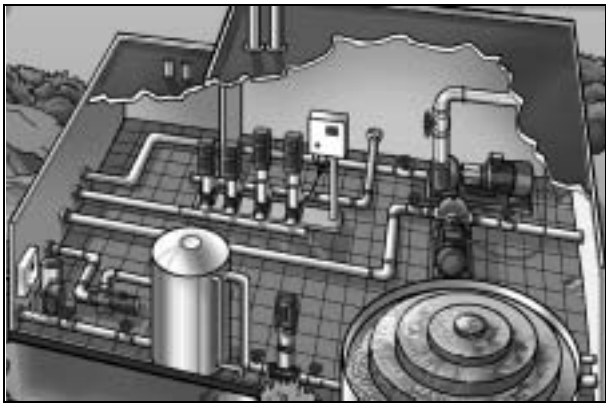
Range	CRE 1	CRE 3	CRE 5	CRE 8	CRE 16	CRE 32	CRE 45	CRE 64	CRE 90
Rated flow rate [m^3/h]	1	3	5	8	16	32	45	64	90
Flow range [m^3/h]	0.1-2	0.3-4	0.5-7.5	0.8-12	1.6-22	3.2-40	4.5-58	6.4-85	9.0-120
Max. pressure [bar]	22	24	25	22	11	23	15	11	10
Motor power [kW]	0.37 - 2.2	0.37 - 3.0	0.37 - 5.5	0.37 - 7.5	2.2 - 7.5	1.5 - 22	3 - 22	4 - 22	5.5 - 22
Temperature range [°C]	−20 to +120					−30 to +120			
Max. pump efficiency [%]	48	58	66	64	70	78	79	80	81
Version									
CRE: Cast iron and stainless steel DIN 1.4301/AISI 304	●	●	●	●	●	●	●	●	●
CRIE: Stainless steel DIN 1.4301/AISI 304	●	●	●						
CRNE: Stainless steel DIN 1.4401/AISI 316	●	●	●	●	●	●	●	●	●
CRE pipe connection									
Oval flange (BSP)	Rp 1	Rp 1	Rp 1¼	Rp 1½ Rp 2					
Oval flange (BSP) – on request	Rp 1¼	Rp 1¼	Rp 1						
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 100
Flange - on request						DN 80	DN 100	DN 125	DN 125
CRIE pipe connection									
Oval flange (BSP)	Rp 1	Rp 1	Rp 1¼						
Oval flange (BSP) – on request	Rp 1¼	Rp 1¼	Rp 1						
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32						
PJE coupling (Vitaulic)	●	●	●						
Clamp coupling	●	●	●						
CRNE pipe connection									
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 65	DN 80	DN 100	DN 100
Flange - on request						DN 80	DN 100	DN 125	DN 125
PJE coupling (Vitaulic)	●	●	●	●	●				
Clamp coupling	●	●	●	●	●				

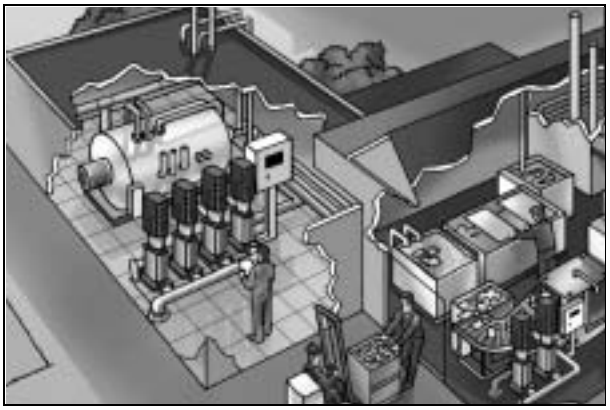
Applications

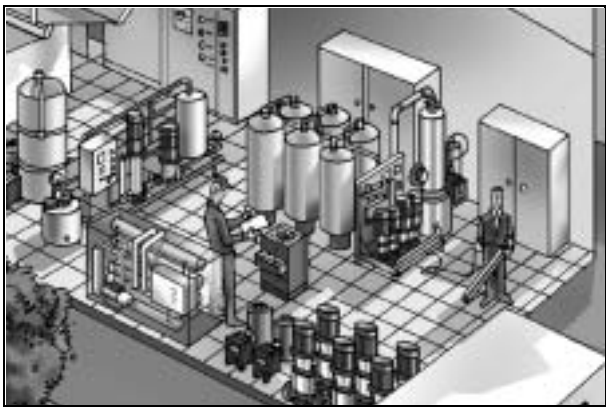
The CRE series is a multi-purpose pump range suitable for a variety of different applications demanding reliable and cost-efficient supply.

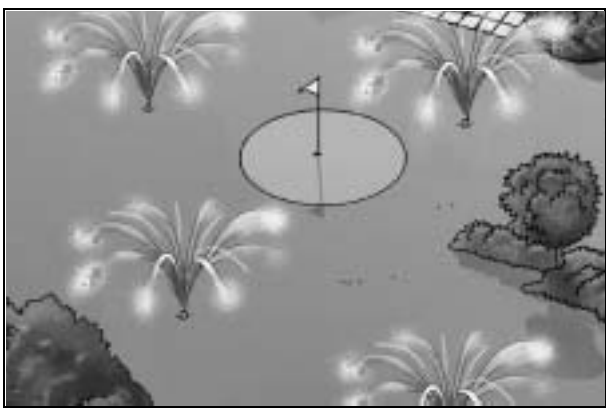
CRE handles a variety of liquids from potable water to industrial liquids within a very wide temperature, flow and pressure scale.

Below is a list representing some general examples of applications:









Water supply

- Filtration and transfer at waterworks
- Distribution from waterworks
- Pressure boosting in mains
- Pressure boosting in high-rise buildings, hotels, etc.
- Pressure boosting for industrial water supply.

Industry

Pressure boosting in ...

- process water systems,
- washing and cleaning systems,
- high-pressure washdown systems,
- vehicle washing tunnels,
- fire fighting systems.

Liquid transfer in ...

- cooling and air-conditioning systems (refrigerants),
- boiler feed and condensate systems,
- machine tools (cooling lubricants),
- aquafarming.

Transfer of ...

- oils and alcohols,
- acids and alkalis.

Water treatment

- Ultra-filtration systems
- Reverse osmosis systems
- Softening, ionising, demineralizing systems
- Distillation systems
- Separators
- Swimming baths.

Irrigation

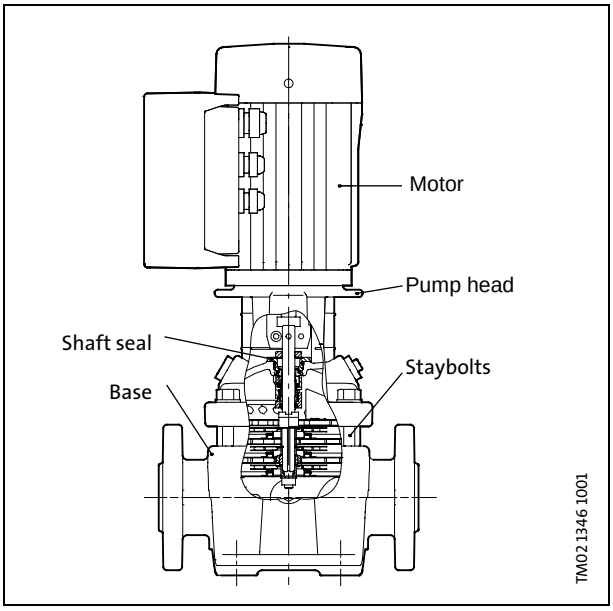
- Field irrigation (flooding)
- Sprinkler irrigation
- Drip-feed irrigation.

Pump

The CRE pump is a non-self-priming, vertical, multistage, centrifugal pump fitted with a Grundfos MGE or MMGE motor.

The pump consists of a base and a pump head. The chamber stack and the outer sleeve are secured between the pump head and the base by means of staybolts. The base has suction and discharge ports on the same level (in-line).

All pumps are equipped with a maintenance-free mechanical shaft seal.



Curve conditions

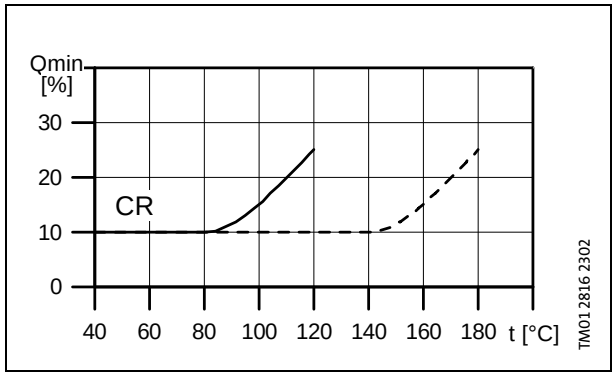
The guidelines below apply to the performance curves from page 44:

1. All curves state mean values according to ISO 9906, Annex A.

   If specification of minimum performance is required, individual measurements must be made.
   The curves apply to a kinematic viscosity of 1 mm²/s (1 cSt).
   Measurements were made at a water temperature of 20°C.
   Test liquid: Air-free water.

2. The conversion between head H (m) and pressure p (mPa) applies to water with a density of ρ = 1000 kg/m³. In the case of a density other than 1000 kg/m³, the discharge pressure is proportional to the density.

   The pumps should not be used at a minimum flow rate lying outside the areas indicated by the bold-faced curves due to danger of pump overheating. The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature. The dotted line shows a pump fitted with a cool top assembly.



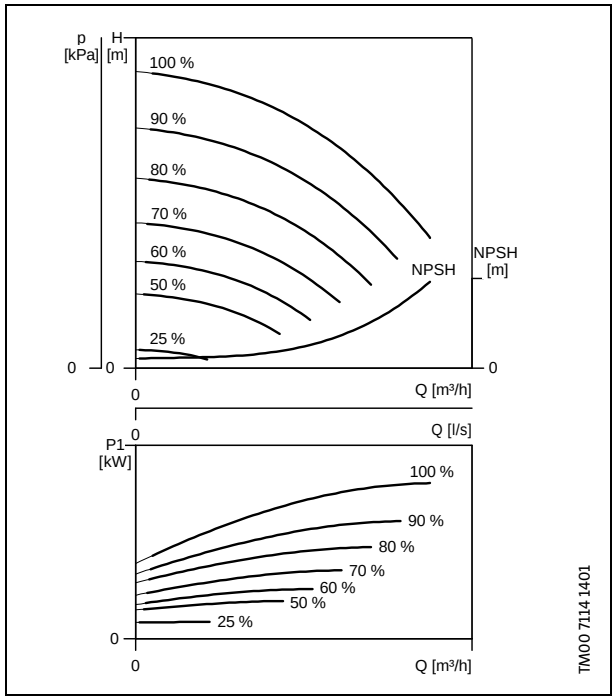
3. If the pumped liquid density and/or viscosity is higher than that of water, it may be necessary to use a motor with a higher performance.

Performance curves

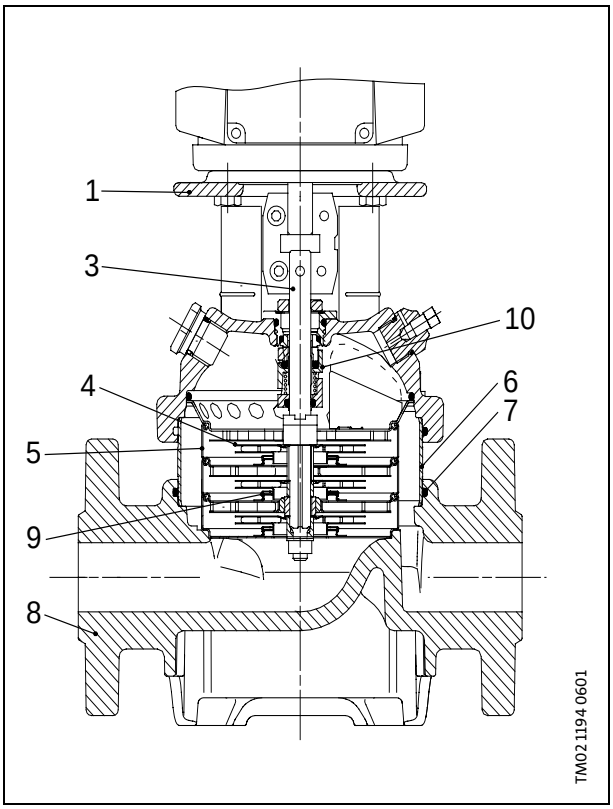
The curve charts on the following pages show QH-curves and QP_1-curves for 100%, 90%, 80%, 70%, 60%, 50% and 25% speed.

In the QH-chart the 100%-curve corresponds to the curve for a pump fitted with a standard fixed speed motor. In principle pumps with MGE or MMGE motors have an infinite number of performance curves each representing a specific speed.

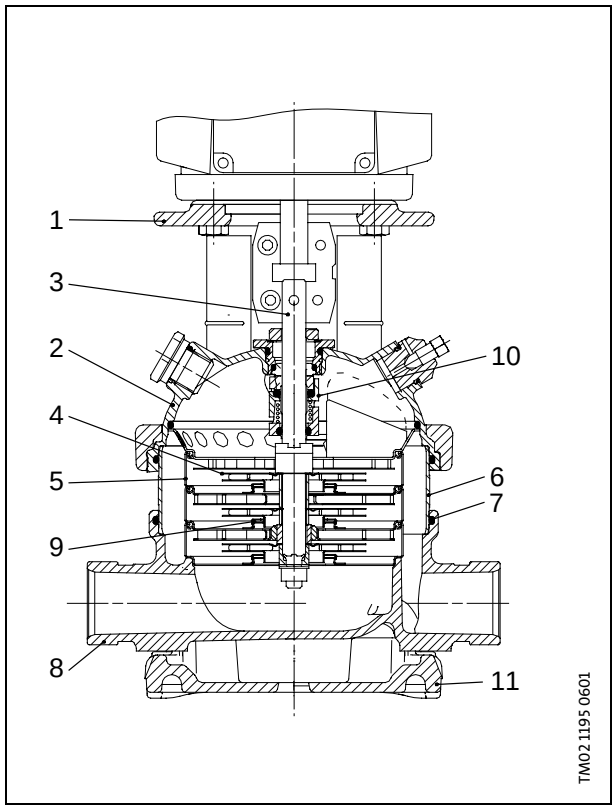
The P_1 chart states pump input power depending on the flow and the chosen speed.



CRE 1, 3 and 5



CRIE, CRNE 1, 3 and 5



Materials: CRE

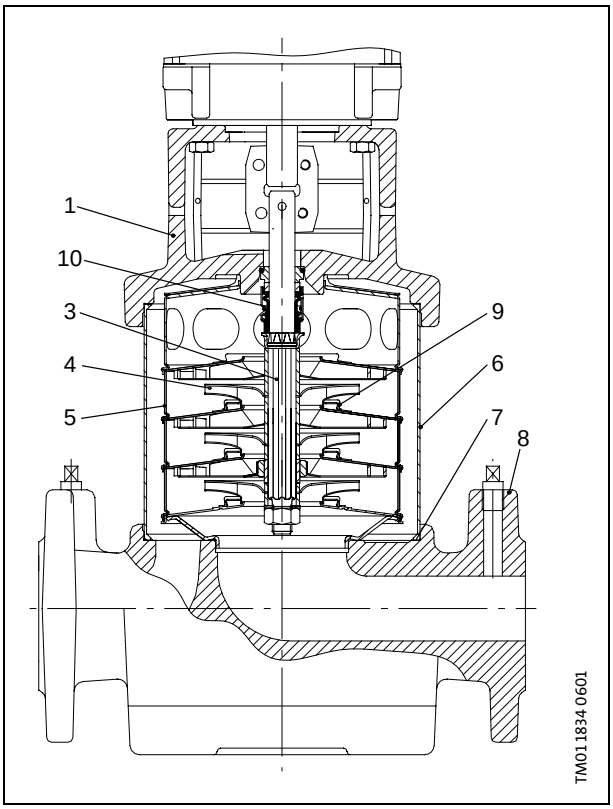
Pos.	Description	Materials	DIN/EN Nr.	AISI/ASTM
1	Pump head	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
3	Shaft	Stainless steel	1.4401	AISI 316
4	Impeller	Stainless steel	1.4301	AISI 304
5	Chamber	Stainless steel	1.4301	AISI 304
6	Outer sleeve	Stainless steel	1.4301	AISI 304
7	O-ring for outer sleeve	EPDM or FKM		
8	Base	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
9	Neck ring	PTFE		
10	Shaft seal	Type cartridge		
	Rubber parts	EPDM or FKM		

Materials: CRIE, CRNE

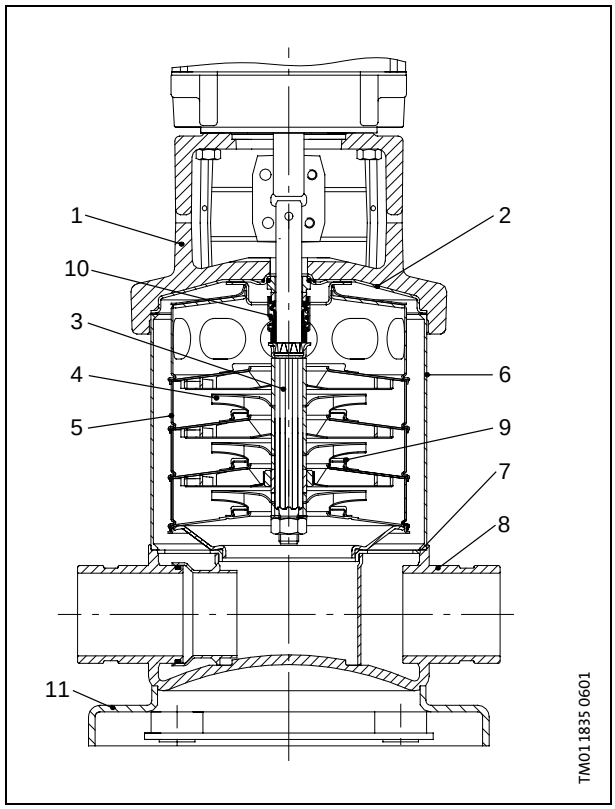
Pos.	Description	Materials	DIN/EN Nr.	AISI/ASTM
1	Pump head	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
2	Pump head cover	Stainless steel	1.4408	CF 8M
3	Shaft	Stainless steel	1.4401 1.4460	AISI 316 AISI 329
7	O-ring for outer sleeve	EPDM or FKM		
8	Base	Stainless steel	1.4408	CF 8M
9	Neck ring	PTFE		
10	Shaft seal	Type cartridge		
11	Base plate	Cast iron EN-GJL-200 ★	EN-JL1030	ASTM 25B
	Rubber parts	EPDM or FKM		
CRIE				
4	Impeller	Stainless steel	1.4301	AISI 304
5	Chamber	Stainless steel	1.4301	AISI 304
6	Outer sleeve	Stainless steel	1.4301	AISI 304
CRNE				
4	Impeller	Stainless steel	1.4401	AISI 316
5	Chamber	Stainless steel	1.4401	AISI 316
6	Outer sleeve	Stainless steel	1.4401	AISI 316

★Stainless steel on request

CRE 8 and 16



CRNE 8 and 16



Materials: CRE

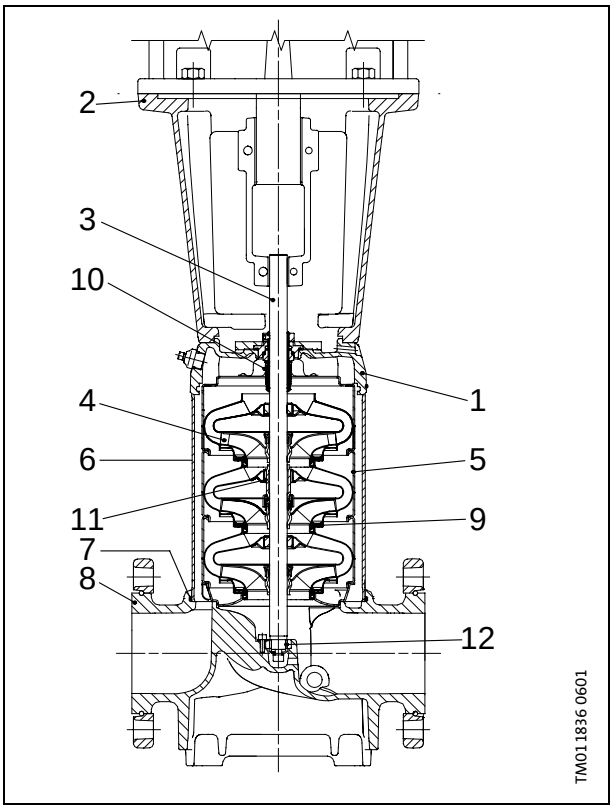
Pos.	Description	Materials	DIN/EN Nr.	AISI/ASTM
1	Pump head	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
3	Shaft	Stainless steel	1.4401 1.4057	AISI 316 AISI 431
4	Impeller	Stainless steel	1.4301	AISI 304
5	Chamber	Stainless steel	1.4301	AISI 304
6	Outer sleeve	Stainless steel	1.4301	AISI 304
7	Gasket for outer sleeve	Asbestos-free fibre		
8	Base	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
9	Neck ring	PTFE		
10	Shaft seal			
	Rubber parts	EPDM or FKM		

Materials: CRNE

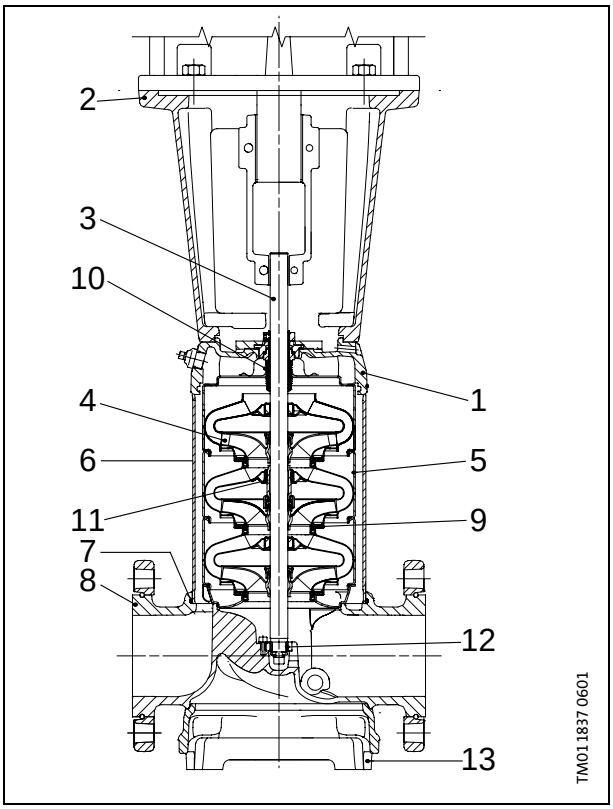
Pos.	Description	Materials	DIN/EN Nr.	AISI/ASTM
1	Pump head	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
2	Pump head cover	Stainless steel	1.4401	AISI 316
3	Shaft	Stainless steel	1.4401 1.4460	AISI 316 AISI 329
4	Impeller	Stainless steel	1.4401	AISI 316
5	Chamber	Stainless steel	1.4401	AISI 316
6	Outer sleeve	Stainless steel	1.4401	AISI 316
7	Gasket for outer sleeve	Asbestos-free fibre		
8	Base	Stainless steel	1.4401	AISI 316
9	Neck ring	PTFE		
10	Shaft seal			
11	Base plate	Cast iron EN-GJL-200 ★	EN-JL1030	ASTM 25B
	Rubber parts	EPDM or FKM		

★ Stainless steel on request.

CRE 32, 45, 64 and 90



CRNE 32, 45, 64 and 90



Materials: CRE

Pos.	Description	Materials	DIN/EN Nr.	AISI/ASTM
1	Pump head	Cast iron EN-GJS-500-7	EN-JS1050	ASTM 80-55-06
2	Motor stool	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
3	Shaft	Stainless steel	1.4057	AISI 431
4	Impeller	Stainless steel	1.4301	AISI 304
5	Chamber	Stainless steel	1.4301	AISI 304
6	Outer sleeve	Stainless steel	1.4301	AISI 304
7	O-ring for outer sleeve	EPDM or FKM		
8	Base	Cast iron EN-GJS-500-7	EN-JS1050	ASTM 80-55-06
9	Neck ring	Carbon-graphite filled PTFE		
10	Shaft seal			
11	Bearing ring	Bronze		
12	Bottom bearing ring	TC/TC★		
	Rubber parts	EPDM or FKM		

★ TC = Tungsten Carbide (cemented)

Materials: CRNE

Pos.	Description	Materials	DIN/EN Nr.	AISI/ASTM
1	Pump head	Stainless steel	1.4408	CF 8M
2	Motor stool	Cast iron EN-GJL-200	EN-JL1030	ASTM 25B
3	Shaft	Stainless steel	1.4462	
4	Impeller	Stainless steel	1.4401	AISI 316
5	Chamber	Stainless steel	1.4401	AISI 316
6	Outer sleeve	Stainless steel	1.4401	AISI 316
7	O-ring for outer sleeve	EPDM or FKM		
8	Base	Stainless steel	1.4408	CF 8M
9	Neck ring	Carbon-graphite filled PTFE		
10	Shaft seal			
11	Bearing ring	Chlorosulfonated polyethylene		
12	Bottom bearing ring	TC/TC ★		
13	Base plate	Cast iron EN-GJS-500-7	EN-JS1050	ASTM 80-55-06
		Stainless steel		
	Rubber parts	EPDM or FKM		

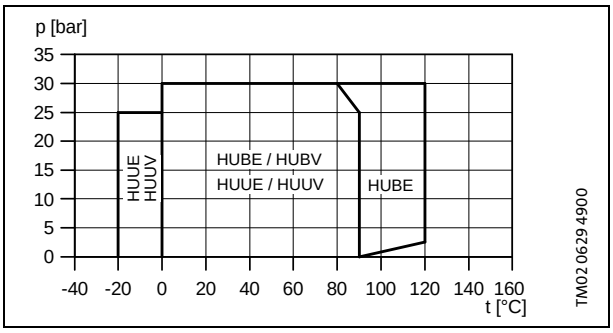
★ TC = Tungsten Carbide (cemented)

Operating range of the shaft seal

The actual operating range of the shaft seal depends on operating pressure, pump type, type of shaft seal and liquid temperature. The following curves apply to clean water and water containing glycol.

For other liquids, see recommended shaft seals in the "List of pumped liquids", page 99.

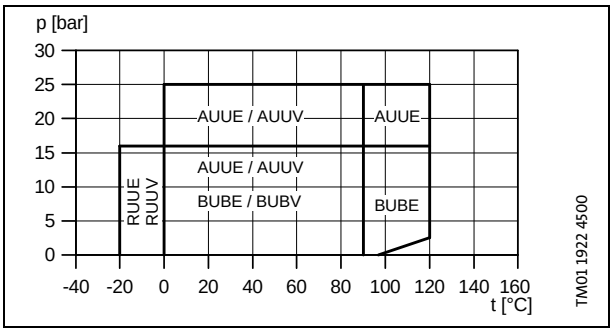
CRE, CRIE, CRNE 1, 3 and 5



Shaft seal	Description	Max. temp. range [°C]
HUUE	O-ring (cartridge) (balanced seal), TC/TC★, EPDM	–20 to +90
HUUV	O-ring (cartridge) (balanced seal), TC/TC★, FKM	–20 to +90
HUBE	O-ring (Cartridge), (balanced seal), TC/carbon, EPDM	0 to +120
HUBV	O-ring /Cartridge), (balanced seal), TC/carbon, FKM	0 to +90

★ TC = Tungsten carbide (cemented)

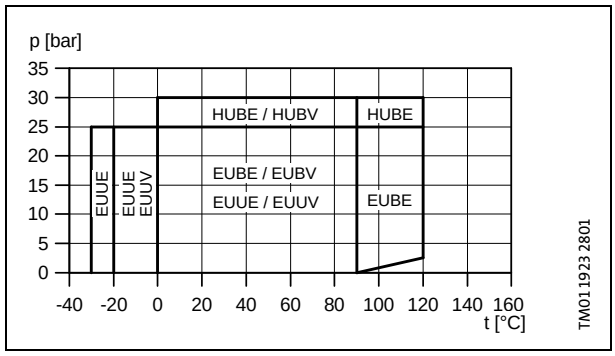
CRE, CRNE 8 and 16



Shaft seal	Description	Max. temp. range [°C]
RUUE	O-ring (balanced seal), TC/TC★, EPDM	–20 to +90
RUUV	O-ring (balanced seal), TC/TC, FKM	–20 to +90
AUUE	O-ring, TC/TC, EPDM	0 to +120
AUUV	O-ring, TC/TC, FKM	0 to +90
BUBE	Bellows, TC/carbon, EPDM	0 to +120
BUBV	Bellows, TC/carbon, FKM	0 to +90

★ TC = Tungsten carbide (cemented)

CRE, CRNE 32, 45, 64 and 90



Shaft seal	Description	Max. press. [bar]	Max. temp. range [°C]
EUUE	O-ring (Cartridge), TC/TC★, EPDM	25	–30 to +90
EUUV	O-ring (Cartridge), TC/TC, FKM	25	–20 to +90
EUBE	O-ring (Cartridge), TC/carbon, EPDM	25	0 to +120
EUBV	O-ring (Cartridge), TC/Carbon, FKM	25	0 to +90
EUHE	O-ring (Cartridge), TC/hybrid, EPDM	25	0 to +90★★
EUHV	O-ring (Cartridge), TC/hybrid, FKM	25	0 to +90★★
EUBE	O-ring (Cartridge), TC/carbon, EPDM	25	+120 to +150★★
HUBE	O-ring (Cartridge) (balanced seal), TC/carbon, EPDM	30	0 to +120★★
HUBV	O-ring (Cartridge) (balanced seal), TC/carbon, FKM	30	0 to +90★★

★ TC = Tungsten carbide (cemented)
★★On request

Maximum inlet pressure

The following table shows the maximum permissible inlet pressure. However, the actual inlet pressure + the pressure against a closed valve must always be lower than the maximum permissible operating pressure.

CRE, CRIE, CRNE 1	
1-3 → 1-7 1-11 → 1-36	6 [bar] 10 [bar]
CRE, CRIE, CRNE 3	
3-5 3-7 → 3-29 3-36	6 [bar] 10 [bar] 15 [bar]
CRE, CRIE, CRNE 5	
5-2 5-4 → 5-16 5-20 → 5-36	6 [bar] 10 [bar] 15 [bar]
CRE, CRNE 8	
8-20/1 → 8-60 8-80 → 8-200	6 [bar] 10 [bar]
CRE, CRNE 16	
16-30/2 → 16-30 16-40 → 16-80	6 [bar] 10 [bar]
CRE, CRNE 32	
32-1-1 → 32-2-2 32-2 → 32-4 32-5 → 32-10 32-11 → 32-12	3 [bar] 4 [bar] 10 [bar] 15 [bar]
CRE, CRNE 45	
45-1-1 45-1 → 45-2 45-3 → 45-5 45-6	3 [bar] 4 [bar] 10 [bar] 15 [bar]
CRE, CRNE 64	
64-1-1 → 64-2-2 64-2 → 64-4-2 64-4	4 [bar] 10 [bar] 15 [bar]
CRE, CRNE 90	
90-1-1 → 90-1 90-2-2 → 90-3-2 90-3	4 [bar] 10 [bar] 15 [bar]

Example of operating and inlet pressures

The values for operating and inlet pressures shown in the tables must not be considered individually but must always be compared, see the following examples:

Example 1:

The following pump type has been selected:
CRE 5-16 A-A-A

Max. operating pressure: **16 bar**
Max. inlet pressure: **10 bar**
Discharge pressure against a closed valve: **10.6 bar**, see page 56.

This pump is **not** allowed to start at an inlet pressure of 10 bar, but on the other hand at an inlet pressure of 16.0 – 10.6 = **5.4 bar**.

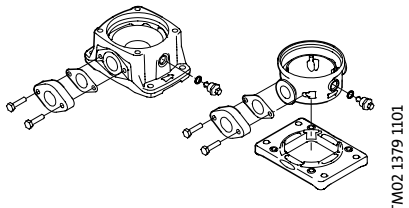
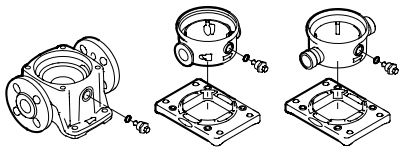
Example 2:

The following pump type has been selected:
CRE 5-2 A-A-A

Max. operating pressure: **16 bar**
Max. inlet pressure: **6 bar**
Discharge pressure against a closed valve: **1.4 bar**, see page 54.

This pump is allowed to start at an inlet pressure of 6 bar as the discharge pressure against a closed valve is only 1.4 bar which results in an operating pressure of 6.0 + 1.4 = **7.4 bar**. On the contrary, the max. operating pressure of this pump is limited to 7.4 bar as a higher operating pressure will require an inlet pressure of more than 6 bar.

Maximum operating pressure

	Oval		PJE-Clamp-DIN	
	 TM02 1379 1101		 TM02 1383 1101	
	Max. permissible operating pressure	**Liquid temperature range**	**Max. permissible operating pressure**	**Liquid temperature range**
CRE, CRIE, CRNE 1	16 [bar]	–20°C - +120°C	25 [bar]	–20°C - +120°C
CRE, CRIE, CRNE 3	16 [bar]	–20°C - +120°C	25 [bar]	–20°C - +120°C
CRE, CRIE, CRNE 5	16 [bar]	–20°C - +120°C	25 [bar]	–20°C - +120°C
CRE 8-20/1, CRNE 8-20/1→ CRE, CRNE 8-120	16 [bar]	–20°C - +120°C		
CRE, CRNE 8-20/1→ CRE, CRNE 8-120			16 [bar]	–20°C - +120°C
CRE, CRNE 8-140→ CRE, CRNE 8-200			25 [bar]	–20°C - +120°C
CRE, CRNE 16-30/2→ CRE, CRNE 16-80			16 [bar]	–20°C - +120°C
CRE, CRNE 32-1-1→ CRE, CRNE 32-7			16 [bar]	–30°C - +120°C
CRE, CRNE 32-8→ CRE, CRNE 32-12			25 [bar]	–30°C - +120°C
CRE, CRNE 45-1-1→ CRE, CRNE 45-5			16 [bar]	–30°C - +120°C
CRE, CRNE 45-6			25 [bar]	–30°C - +120°C
CRE, CRNE 64-1-1→ CRE, CRNE 64-4			16 [bar]	–30°C - +120°C
CRE, CRNE 90-1-1→ CRE, CRNE 90-3			16 [bar]	–30°C - +120°C

Selection of CRE, CRIE, CRNE pumps

Pump size and efficiency

The pump must be able to fulfil the max. required flow and pressure, see point 1, 2, 3 on the curve.

- 1: Max. head
- 2: Max. flow
- 3: Duty point

Normally, E-pumps are used in applications characterized by a variable load (flow). Consequently, it is not possible to select a pump which is constantly operating at optimum efficiency.

In order to ensure optimum operating economy, the pump should be selected on the basis of the following criteria:

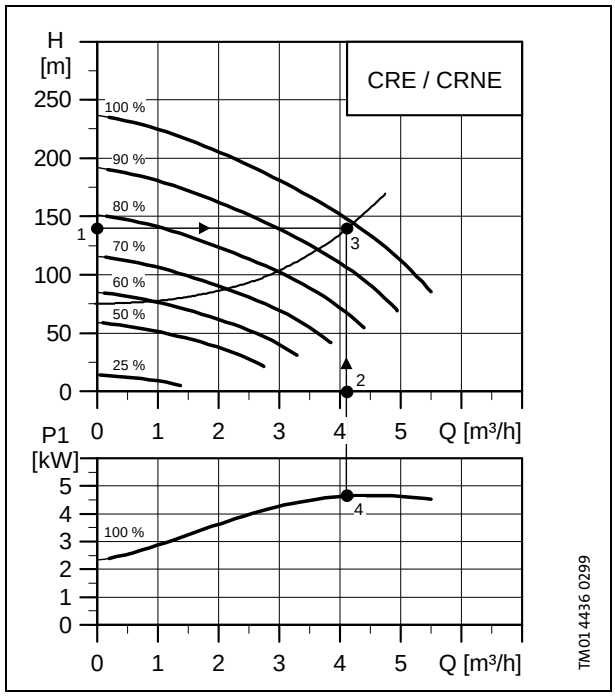
- The max. required duty point (see point 3 in the chart) should be as close as possible to the 100% QH-curve of the pump.
- Point 3 should be positioned so that P1 is close to the max. point of the 100% curve (see point 4 in the chart).

As a rule of thumb pipes should be dimensioned in such a way that the velocity of the liquid does not exceed 1 to 1.5 m/sec.

Material

The material variant (CRE, CRIE, CRNE) should be selected on the basis of the liquid to be pumped. The product range covers three basic types.

- The CRE, CRIE pump types are suitable for clean, non-aggressive liquids such as potable water, oils, etc.
- The CRNE pump type is suitable for industrial liquids (see "List of pumped liquids", page 99).

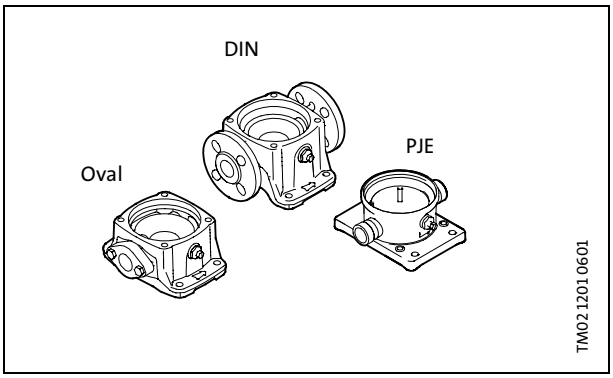


The pump must be able to fulfil the flow and pressure requirements. Check that the highest efficiency falls within the marked duty range.

Pump connection

Selection of pump connection depends on rated pressure and pipework. To meet any requirement the CRE, CRIE and CRNE pumps offer a wide range of flexible connections such as:

- Oval flange (BSP)
- DIN flange
- PJE coupling
- Clamp coupling
- Other connections on request.



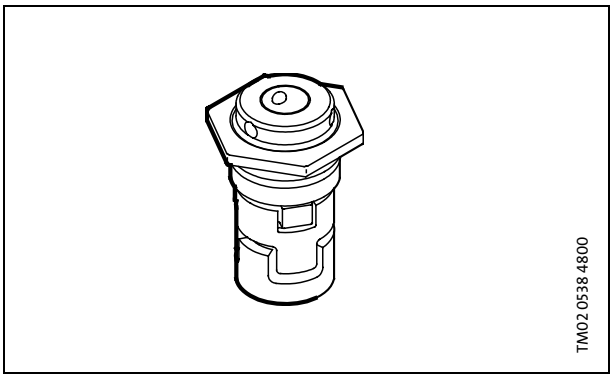
Shaft seal

As standard, the CRE range is fitted with a Grundfos shaft seal suitable for the most common applications.

The following three key parameters must be taken into account, when selecting the shaft seal:

- type of pumped liquid
- liquid temperature and
- maximum pressure.

Grundfos offers a wide range of shaft seal variants to meet specific demands (see "List of pumped liquids", page 99).

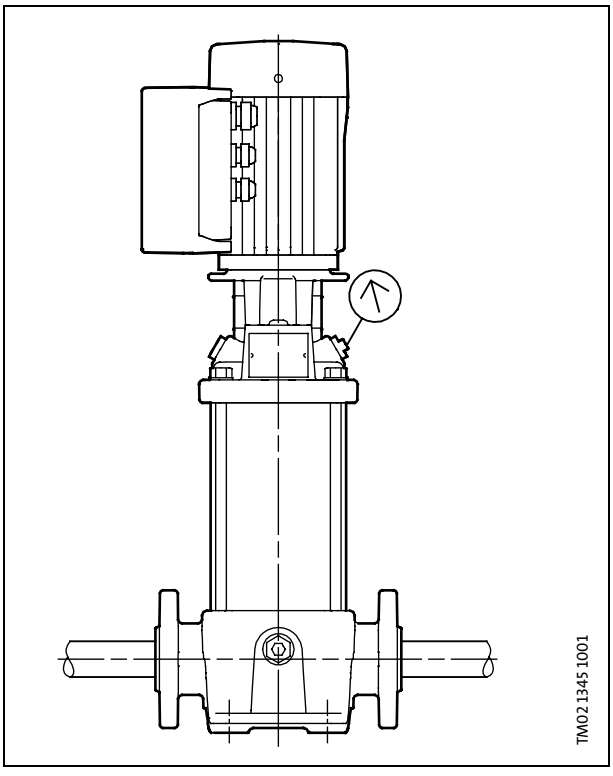


Inlet pressure and operating pressure

It should be checked whether the pressure conditions are fulfilled.

The limit values stated on page 25 and 26 must not be exceeded as regards ...

- maximum inlet pressure
- maximum operating pressure.



Minimum inlet pressure - NPSH

Calculation of the inlet pressure "H" is recommended when ....

- the liquid temperature is high
- the flow is significantly higher than the rated flow
- water is drawn from depths
- water is drawn through long pipes
- inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift "H" in metres head can be calculated as follows:

$H = p_b \times 10.2 - NPSH - H_f - H_v - H_s$

p_b = Barometric pressure in bar.
(Barometric pressure can be set to 1 bar).
In closed systems, p_b indicates the system pressure in bar.

NPSH = Net Positive Suction Head in metres head.
(To be read from the NPSH curve at the highest flow the pump will be delivering).

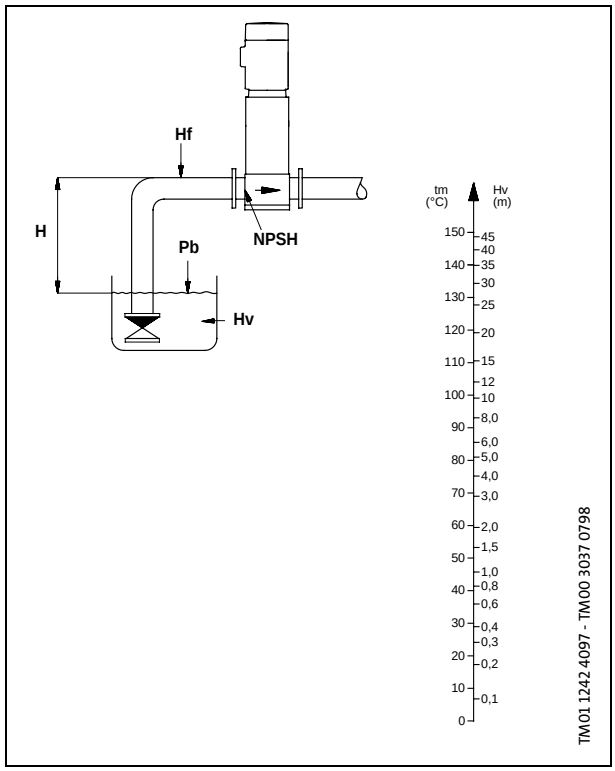
H_f = Friction loss in suction pipe in metres head.
(At the highest flow the pump will be delivering.)

H_v = Vapour pressure in metres head.
(To be read from the vapour pressure scale.
"H_v" depends on the liquid temperature "T_m").

H_s = Safety margin = minimum 0.5 metres head.

If the "H" calculated is positive, the pump can operate at a suction lift of maximum "H" metres head.

If the "H" calculated is negative, an inlet pressure of minimum "H" metres head is required.



Check that the pump is not and will not be exposed to cavitation.

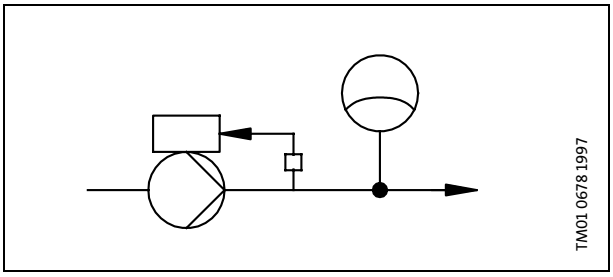
Examples of applications

CRE, CRIE and CRNE pumps are the ideal solution in a number of applications characterized by a need for variable flow at constant pressure. The pumps are suited for water supply systems and pressure boosting, but also industrial applications such as pressure boosting in water treatment systems are obvious for these pumps.

Depending on the nature of the application, the pumps offer energy savings, increased comfort or improved processing.

A compact one-pump booster

A compact booster unit is the CRE featuring an integrated sensor and a small diaphragm tank.



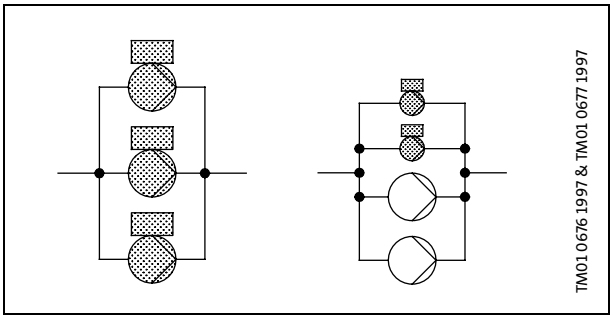
These components make up a complete pressure boosting system which is independent of the load and maintains a constant pressure.

CRE incorporates a stop function to ensure that the pump automatically stops if the water demand drops to a very low level or disappears altogether. The method gives good total operating economy irrespective of the water demand, and the pump is not subjected to overheating and the subsequent risk of damage to the shaft seal.

CRE as the basis of bigger pressure boosting systems

Pressure boosting systems based on parallel coupled pumps of which one or more are CRE pumps, also available from Grundfos. This range of boosters has the name Hydro 2000 and incorporates E-pumps type CRE as a very important element.
The Hydro 2000 E range includes booster systems solely with speed-controlled pumps type CRE and systems with one or more speed-controlled CRE pumps.

Two examples:



A Hydro 2000 E booster system can be used for a number of applications. For further information, see the Hydro 2000 data booklet or contact Grundfos.

E-pumps in the service of industry

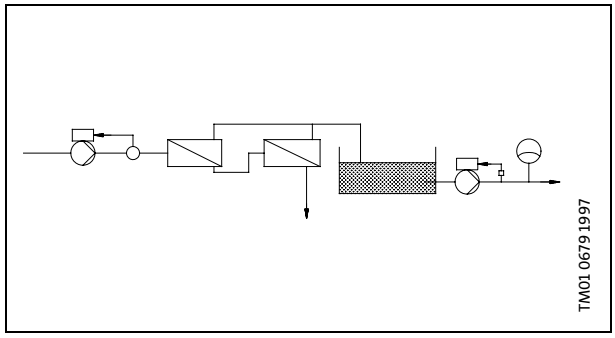
Countless pumps are operating in industry today, and for many of them speed regulation would be an advantage. In industrial cleaning and similar applications a further advantage can be gained by ensuring a constant pressure.

Other applications such as circulation of cooling water, pressure boosting or other process related pump applications would in many cases be good applications for E-pumps.

Water treatment installation

Water treatment is an obvious application for a speed-controlled CRNE pump. The combination of a stainless steel pump and a speed-controlled pump makes it possible to satisfy material specifications, while providing optimised operations, minimising energy consumption, etc.

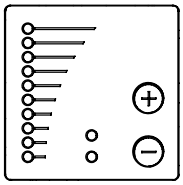
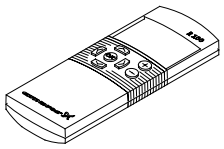
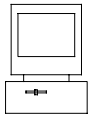
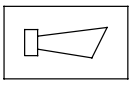
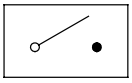
A CRNE pump is very suitable as the high-pressure pump in a reverse osmosis plant. If exposed to varying pumped liquid temperature and thus varying viscosity an uncontrolled pump will yield a varying flow. An E-pump, however, controlled by a flow sensor ensures a constant flow resulting in improved system performance of the reverse osmosis plant.



In a system with a speed-controlled supply pump a beginning choking up of the filters will not result in a lower capacity of the system. The pump will just speed up and maintain a constant flow to the clean water tank.

An E-pump will also be advantageous as supply pump for the clean water tank. A CRE or a CRNE with a pressure transmitter connected can ensure a comfortable constant-pressure water supply. The built-in stop function will ensure that the pump is stopped when there is low or no flow in the system.

Overview of functions

E-pumps/functions		CRE, CRIE, CRNE with sensor	CRE, CRIE, CRNE without sensor
 TM00 7600 1596	**Setting via control panel:**		
	Setpoint	●	●
	Start/stop	●	●
	Max. curve	●	●
	Min. curve	●	●
	Reading via control panel:		
	Setpoint	●	●
	Operating indication	●	●
	Fault indication	●	●
 TM00 4498 3494	**Setting via R100:**		
	Setpoint	●	●
	Start/stop	●	●
	Max. curve	●	●
	Min. curve	●	●
	Controlled/uncontrolled	●	●
	PI-controller	●	●
	Signal relay		●
	Operating range		●
	Stop function	●	●
	Reading via R100:		
	Setpoint	●	●
	Operating indication	●	●
	Pump status	●	●
 TM01 0929 2797	**Connection to building management system**	The pumps have inputs for BUS communication. The pumps can be controlled and monitored via these inputs from a Building Management System or other external control systems.	
  TM00 4533 3593	**External signals.**		
	Inputs:		
	Setpoint	●	●
	Start/stop	●	●
	Sensor	**Fitted**	●
	Digital signals:		
	Max. curve	●	●
	Min. curve	●	●
	External fault	●	●
	Flow switch	●	●
	Outputs:		
	Signal	●	●

Control modes

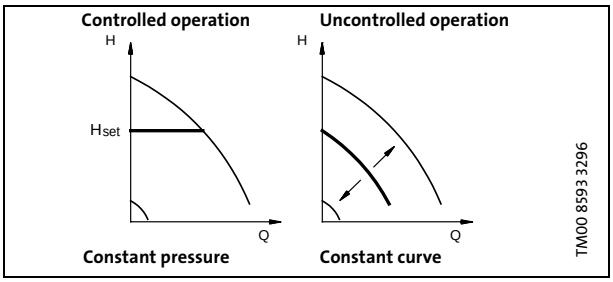
CRE, CRIE, CRNE with sensor

CRE pumps with integrated pressure sensor enable control of the pressure supplied by the pump.

The pump can be set to two control modes, i.e. constant pressure mode or constant-curve mode.

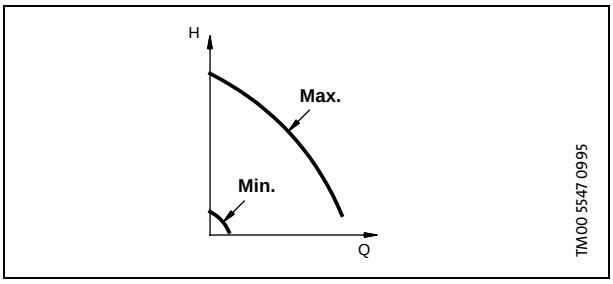
In **constant-pressure** mode the pump will maintain a constant pressure on the discharge side of the pump, irrespective of the flow.

In **constant-curve** mode, the pump is not controlled. The curve can be set within the range from min. curve to max. curve.



The pumps are set to constant-pressure mode from factory.

Besides normal duty (constant-pressure and constant-curve) the operating modes **Stop, Min**. or **Max.** are available.



Max. curve mode can be used in connection with venting during installation.

Min. curve mode can be used in periods requiring very low flow.

All operating modes (Stop, Normal, Min., Max.) can be set using the operating panel on the pump terminal box.

If the supply voltage to the pump is disconnected, pump settings are saved.

The remote control R100 offers additional posibilities of settings and status readings.

The pumps are set to constant pressure from factory. The setpoint value corresponds to 50% of the sensor measuring range.

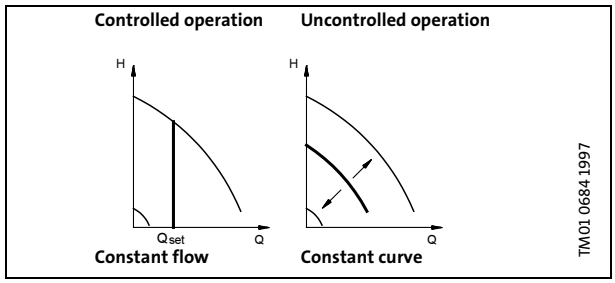
CRE, CRIE, CRNE without sensor

CRE, CRIE, CRNE pumps can be connected to an external sensor enabling control of pressure, differential pressure, temperature, differential temperature or flow.

CRE, CRIE, CRNE pumps can be set to two control modes, controlled or uncontrolled operation.

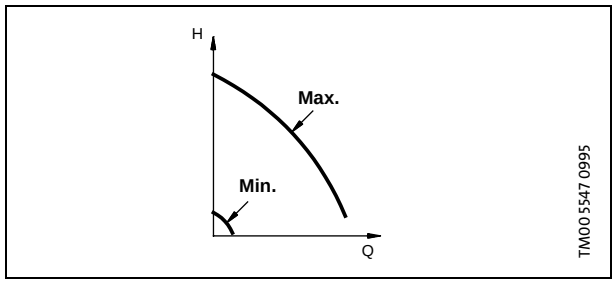
In **controlled** operating mode the pump is automatically operating according to the desired setpoint of the control parameter. The illustration below shows a pump with flow control as an example of controlled operation.

In **uncontrolled** operating mode the pump operates according to the constant curve set.



The pumps are set to uncontrolled operation from factory.

Besides normal duty (constant-flow and constant-curve) the operating modes **Stop, Min.** or **Max.** are available.



The max. curve can for instance be used in connection with the venting procedure during installation.

The min. curve can be used in periods in which a minimum flow is required.

The operating modes (Stop, Normal, Min., Max.) can all be set on the control panel on the pump terminal box.

If the electricity supply to the pump is disconnected, the pump setting will be stored.

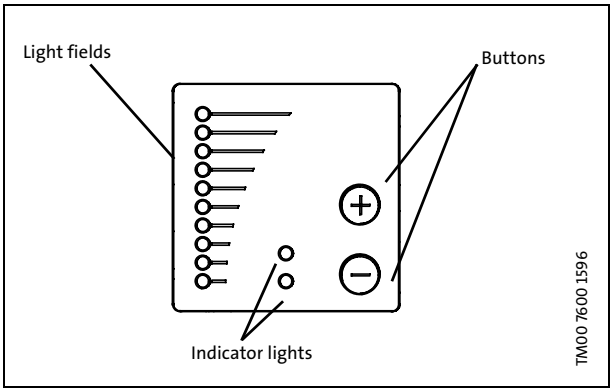
The remote control R100 offers additional possibilities of setting and status displays.

The pumps are set to uncontrolled operation from factory. The setpoint value corresponds to 100%.

Control panel

The control panel on the pump terminal box incorporates the following:

- Buttons, "+" and "–", for setpoint setting.
- Light fields, yellow, for setpoint indication.
- Indicator lights, green (operation) and red (fault).



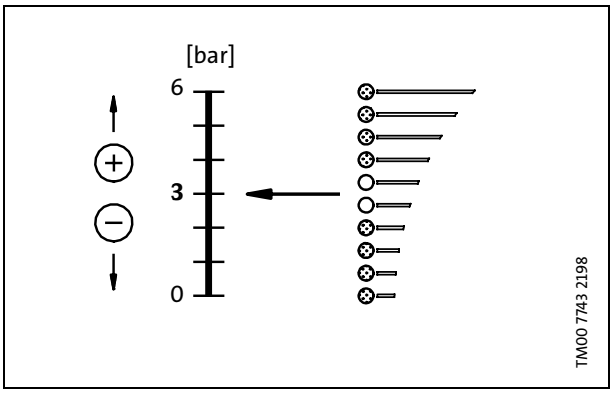
Setpoint setting

The pump setpoint is set by pressing the "+" or "–" buttons.

The light fields on the control panel will indicate the setpoint set. See the following two examples.

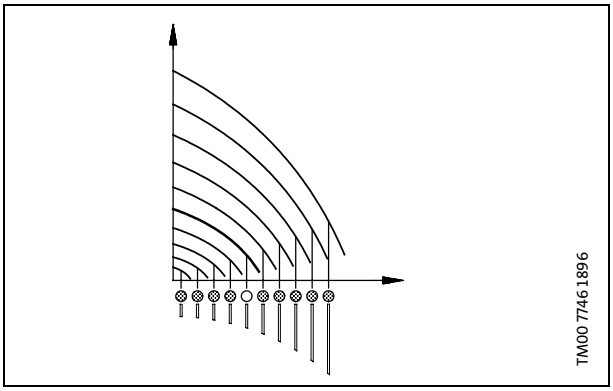
Example: Pump in controlled-operating mode (pressure control).

The illustration below shows that the light fields 5 and 6 are activated, indicating a desired setpoint of 3 bar with a sensor measuring range from 0 to 6 bar. The setting range is equal to the sensor measuring range (see sensor nameplate).



Example: Pump in uncontrolled operating mode:

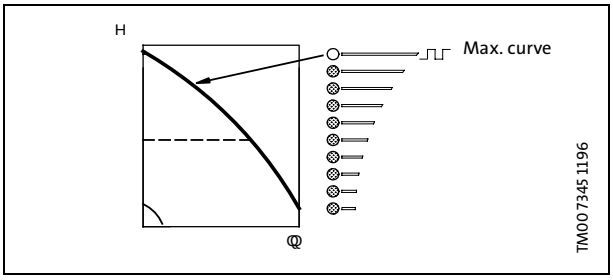
In uncontrolled operating mode, the pump performance is set within the range from min. to max. curves.



Setting to max. curve duty

Press "+" continuously to change over to the max. curve of the pump (top light field flashes).

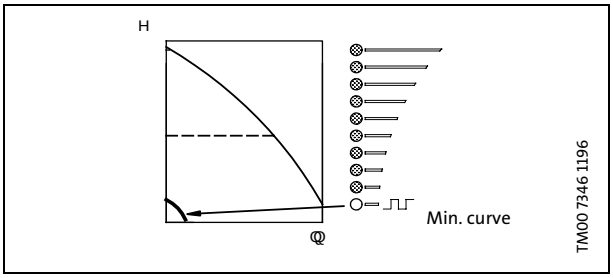
To change back, press "–" continuously until the desired setpoint is indicated.



Setting to min. curve duty

Press "–" continuously to change over to the min. curve of the pump (bottom light field flashes).

To change back, press "+" continuously until the desired setpoint is indicated.



Start/stop of pump

Stop the pump by continuously pressing "–" until none of the light fields are activated and the green indicator light flashes.

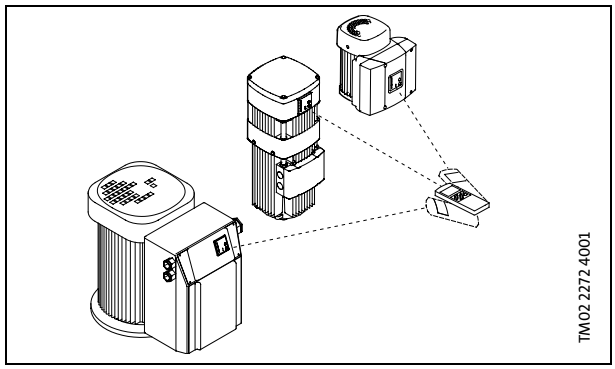
Start the pump by continuously pressing "+" until the desired head is indicated.

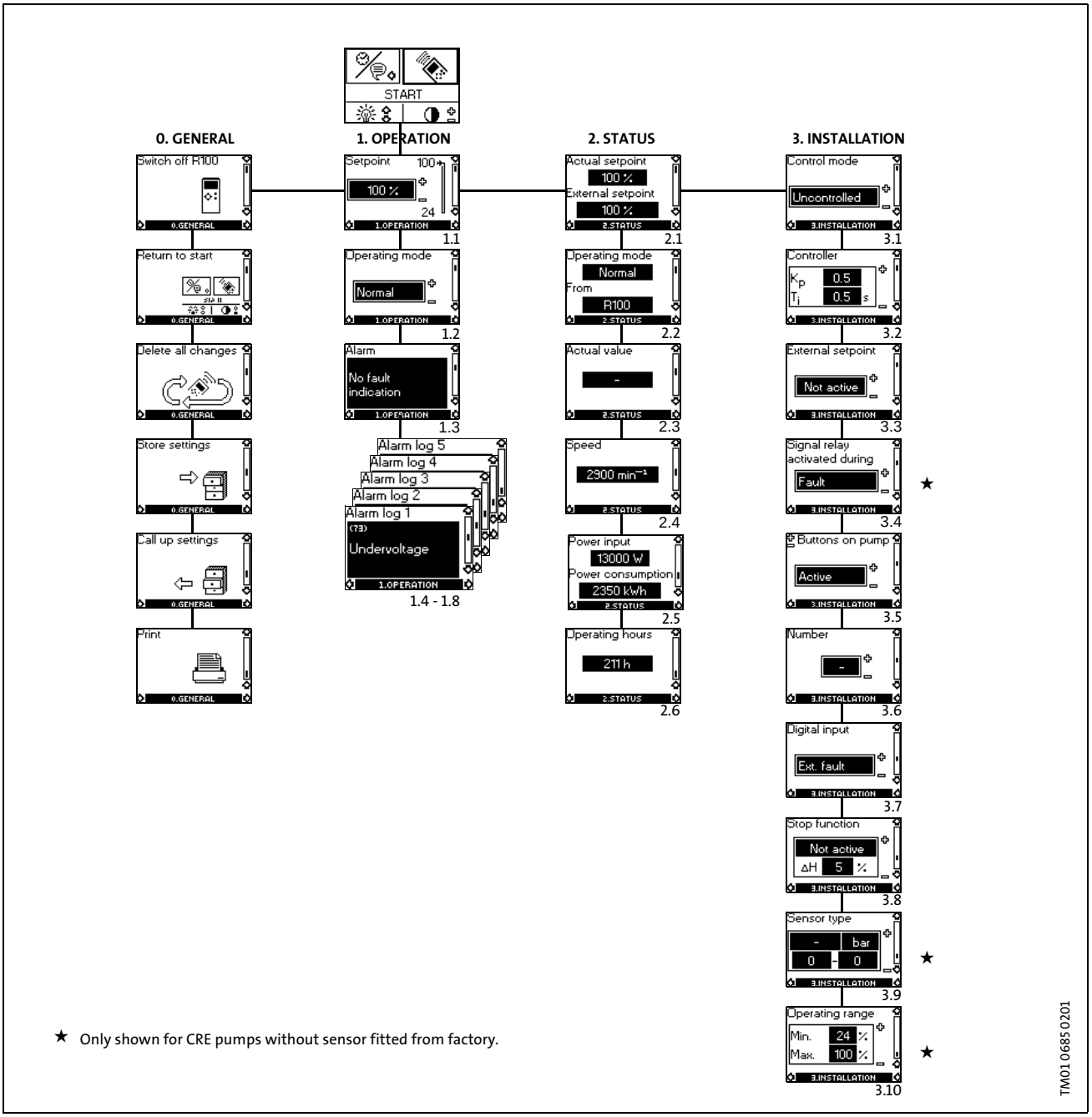
Setting by means of R100

The pump is designed for wireless communication with the Grundfos remote control R100. The communication is effected by means of infra-red light. The pump transmitter and receiver unit is placed in the control panel.

R100 offers additional possibilities of pump settings and status readings. The displays are divided into four parallel menus:

0. GENERAL
1. OPERATION
2. STATUS
3. INSTALLATION

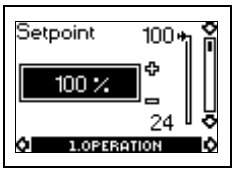




Menu OPERATION

Using the R100 remote control it is possible to make the following operating mode settings.

1.1 Setpoint setting

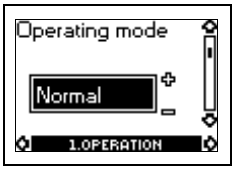


In this display, the desired setpoint can be set.

In **controlled** operating mode the setting range is equal to the sensor measuring range e.g. 0 to 25 m.

In **uncontrolled** operating mode the setpoint is set in % of max. performance. The setting range lies between the min. and max. curves.

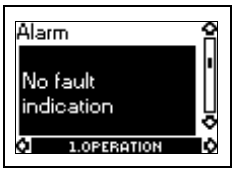
1.2 Setting of operating mode



Select one of the following operating modes:

- Stop
- Min.
- **Normal** (duty)
- Max.

1.3 Fault indications

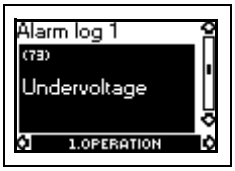


If the pump is faulty, the cause will appear in the display.

- Too high motor temperature
- Undervoltage
- Overvoltage
- Phase failure (3~ pumps only)
- Mains supply failure (3~ pumps only)
- Too many restarts (after faults)
- Overload
- Sensor signal outside signal range
- Setpoint signal outside signal range
- Other fault.

A fault indication can be reset in this display if the cause of the fault has disappeared.

1.4-1.8 Alarm log



If faults have been indicated, the last five fault indications will appear in the alarm log. "Alarm log 1" shows the newest/ latest fault.

The example shows the fault indication "Undervoltage", the fault code and the number of minutes the pump has been connected to the electricity supply after the fault occurred.

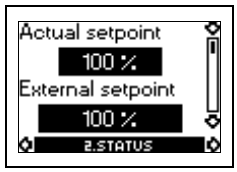
The time cannot be displayed for the three-phase pumps.

Menu STATUS

The displays appearing in this menu are status displays only. It is not possible to change or set values.

The tolerances are stated as a guide in % of the maximum values of the parameters.

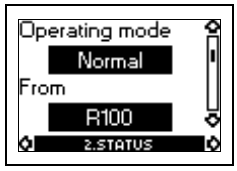
2.1 Display of actual setpoint



Tolerance: ±2%

This display shows the actual setpoint and the external setpoint in % of the range from the minimum value to the setpoint set. See "External setpoint signal" page 38.

2.2 Display of operating mode

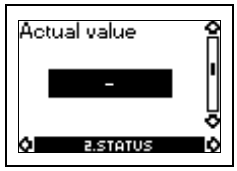


This display shows the actual operating mode:

- Stop
- Min.
- **Normal** (duty)
- Max.

It also shows where this operating mode was selected (R100, pump, BUS, External, Stopfunction).

2.3 Display of actual value

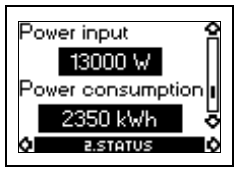


Tolerance: ±3%

2.4 Display of actual speed

Tolerance: ±5%

2.5 Display of actual power



Tolerance: ±10%

The power consumption value is accumulated from the beginning of pump operation, and it cannot be reset.

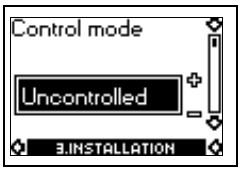
2.6 Display of operating hours

Tolerance: ±2%

The value of operating hours is an accumulated value and cannot be reset.

Menu INSTALLATION

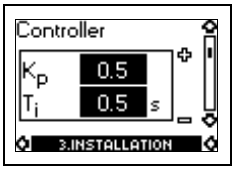
3.1 Selection of control mode



Select one of the following control modes:

CRE, CRIE, CRNE with sensor	CRE, CRIE CRNE without sensor
Constant pressure	Controlled
Constant curve	Uncontrolled

3.2 Setting of controller

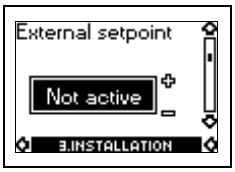


- The gain (Kp) is set within the range from 0.1 to 20.
- The integral-action time (T_i) is set within the range from 0.1 to 3600 s. If 3600 s is selected, the controller will function as a P-controller

The gain (Kp) and intergral-action time (T_i) of the built-in PI-controller can be changed, should factory settings be inadequate.

Furthermore, it is possible to set the controller to inverse control (if the setpoint is increased, the speed will be reduced). In the case of inverse control, the gain (Kp) must be set within the range from –0.1 to –20.

3.3 Selection of external setpoint signal



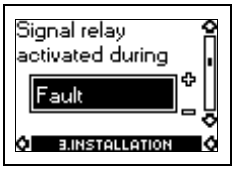
Select one of the following types:

- 0-5 V (3~ pumps only)
- 0-10 V
- 0-20 mA
- 4-20 mA
- **Not active.**

If "Not active" is selected, the setpoint set by means of the R100 or the control panel will apply.

3.4 Selection of fault, operating or ready signal relay

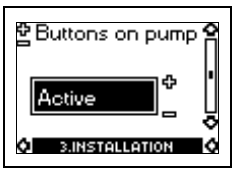
Note: Applies only to CRE, CRIE, CRNE without sensor.



The signal relay can be set to activation by:

- **Fault** (fault indication),
- Operation (operating indication),
- Ready (ready indication).

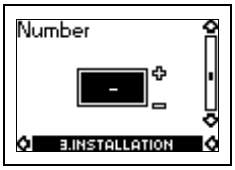
3.5 Locking of the buttons on the pump



The buttons "+" and "–" on the pump can be set to:

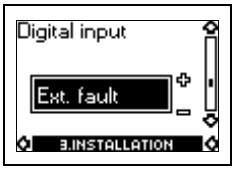
- **Active**,
- Not active.

3.6 Allocation of pump number



A number between 1 and 64 can be allocated to the pump. In the case of BUS communication, a number must be allocated to each pump.

3.7 Selection of function for digital input



Select one of the following functions:

- Min. (min. curve)
- Max. (max. curve)
- **Ext. fault** (external fault)
- Flow switch.

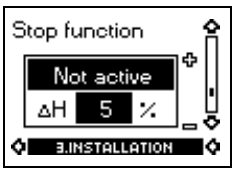
The selected function is activated by closing the contact between the following terminals:

- 1 and 9 of single-phase pumps
- 1 and 3 of three-phase pumps.

See "Other connetions" page 42.

- **Min.:** When the input is activated, the pump is operating according to the min. curve.
- **Max.:** When the input is activated, the pump is operating according to the max. curve.
- **Ext. fault:** When the input is activated, a timer is started. If the input is activated for more than 5 secs., the pump is stopped and a fault is indicated. If the connection is disconnected for more than 5 secs., the fault condition will cease and the pump can be re-started manually by resetting the fault indication. The typical application will be detection of missing inlet pressure or water shortage by means of a pressure switch installed on the suction side of a pump.
- **Flow switch:** When this function is active, the pump will be stopped when a connected flow switch detects a low flow. It is only possible to use this function if the pump is connected to a pressure sensor. When the input is activated for more than 5 secs., the stop function incorporated in the pump will take over, see "Setting of stop function" page 37.

3.8 Setting of stop function



The stop function can be set to:

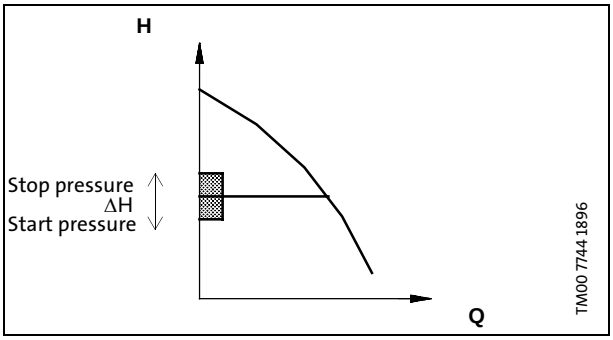
- Active
- **Not active.**

When the stop function is active, the pump will be stopped at very low flows to avoid unnecessary power consumption. It is only possible to use this function if the pump is connected to a pressure sensor.

There are two possibilities of low-flow detection:

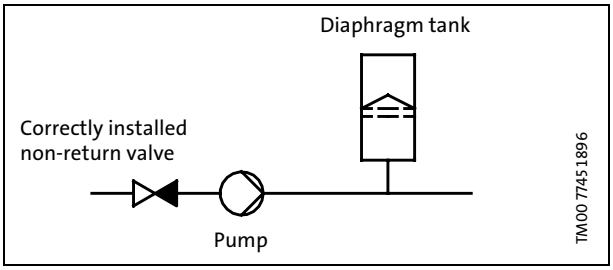
1. A "low-flow detector" which automatically starts functioning if no flow switch is chosen/connected to the digital input. The pump will check the flow regularly by reducing the speed for a short time, thus checking the change in pressure. If there is no or a small change in pressure, the pump will detect a low flow.
2. A flow switch connected to the digital input. When the input is activated for more than 5 secs., the stop function of the pump will take over. Unlike the built -in low-flow detector, the flow switch measures the minimum flow at which the pump must stop. The pump will not check the flow regularly by reducing the speed.

When the pump detects a low flow, the speed will be increased until the stop pressure (actual setpoint + 0.5 x ΔH) is reached and the pump stops. When the pressure has fallen to the start pressure (actual setpoint – 0.5 x ΔH), the pump will restart. ΔH indicates the difference between start and stop pressures.



ΔH is factory-set to **10% of actual setpoint**. ΔH can be set within the range from 5% to 30% of actual setpoint.

Note: The non-return valve must be fitted immediately before the pump. If the non-return valve is fitted between pump and diaphragm tank, the pressure sensor must be fitted after the non-return valve.



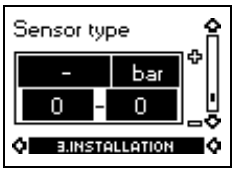
The stop function requires a diaphragm tank of a certain minimum size. The tank must be installed immediately after the pump and the precharge pressure must be 0.7 x actual setpoint. Recommended diaphragm tank size when no flow switch is connected.

Rated flow of pump [m^3/h]	Diaphragm tank size [litres]
0-6	8
7-24	18
25-40	50
41-70	120
71-100	180

If a diaphragm tank of the above size is installed in the system, the factory setting of ΔH is the correct setting. If the tank installed is too small, the pump will start and stop too often. This can be remedied by increasing ΔH.

3.9 Setting of sensor

Note: Applies only to CRE, CRIE, CRNE without sensor.



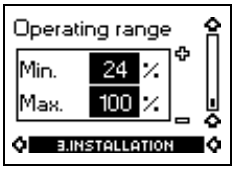
Select the following:

- Sensor output signal (0-5 V (3~ pumps only),0-10 V, 0-20 mA or 4-20 mA),
- sensor measuring unit (bar, mbar, m, kPa, psi, ft, m^3/h, m^3/s, l/s, gpm, °C, °F or %) and
- sensor measuring range.

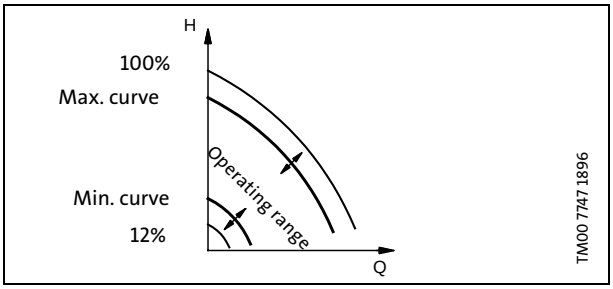
The setting of the sensor is only carried out in the case of controlled operation.

3.10 Setting of min. and max. curves

Note: Applies only to CRE, CRIE, CRNE without sensor.



Set the min. and max. curves in % of maximum performance if the operating range must be reduced.



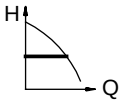
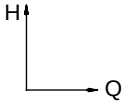
- The max. curve can be adjusted within the range from maximum performance (100%) to min. curve.
- The min. curve can be adjusted within the range from max. curve to 12% of maximum performance. The pump has been factory-set to 24% of maximum performance.
- The operating range lies between the min. and max. curves.

External forced-control signals

The pump has inputs for external signals for the forced-control functions:

- Start/stop of pump.
- Digital function.

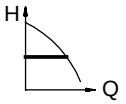
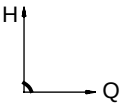
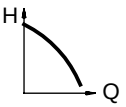
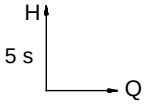
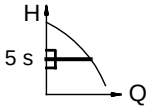
Functional diagram: Start/stop input

Start/stop (terminals 2 and 3)		
		Normal duty
		Stop

By means of the R100, one of the following functions can be selected for the digital input:

- Min. curve.
- Max. curve.
- External fault.
- Flow switch.

Functional diagram: Input for digital function

Digital function (terminals 1 and 9 for 1~ pumps) (terminals 1 and 3 for 3~ pumps)		
		Normal duty
		Min. curve
		Max. curve
		External fault
		Flow switch

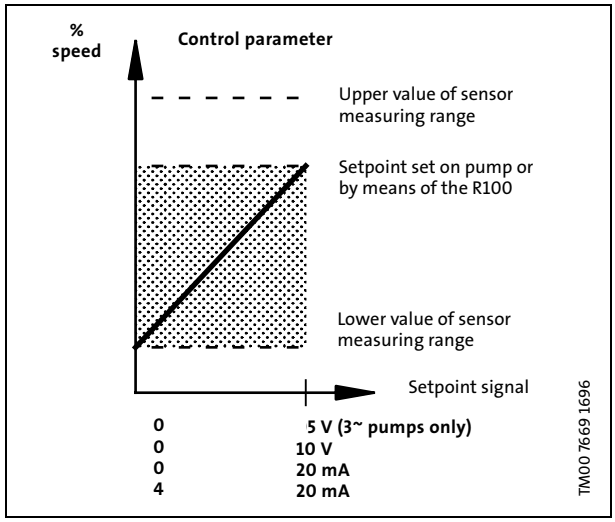
External setpoint signal

By connecting an analog signal transmitter to the input for the setpoint signal (terminal 4 and 6), it is possible to remote-set the setpoint.

The actual external signal (0-5 V (3~ pumps only), 0-10 V, 0-20 mA, 4-20 mA) must be selected via the R100.

If uncontrolled operation is selected by means of the R100, the pump can be controlled by any controller.

In **controlled** operating mode, the setpoint can be set externally within the range from the lower value of the sensor measuring range to the setpoint set on the pump or by means of the R100.



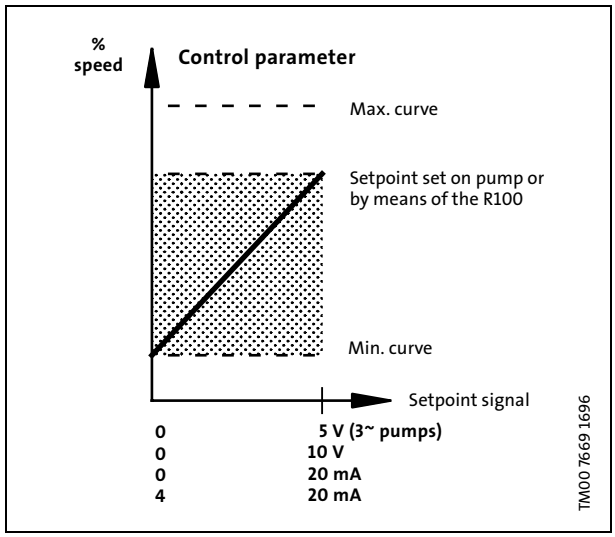
Example: At a lower pressure-sensor value of 0 bar, a setpoint set of 20 bar and an external setpoint of 80%, the actual setpoint will be as follows:

H_{actual} = $(H_{set} - H_{lower}) \times \%_{external\ setpoint} + H_{lower}$

= (20 - 0) x 80% + 0

= 16 bar

In **uncontrolled** operating mode, the setpoint can be set externally within the range from the min. curve to the setpoint set on the pump or by means of the R100.

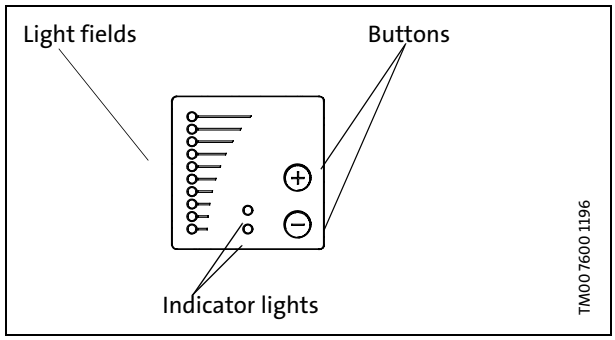


Indicator lights and signal relay

The operating condition of the pump is indicated by the green and red indicator lights on the pump control panel. The pump incorporates an output for a potential-free signal via an internal relay.

The signal relay of CRE, CRIE, CRNE can be set to fault indication, operating indication or ready indication by means of R100. The signal relay of CRE, CRIE, CRNE with pressure sensor is set to fault indication.

This setting cannot be changed. The functions of the two indicator lights on the terminal box and the signal relay are as shown in the following table:



Indicator lights		Signal relay activated during:			Description
Fault (red)	Operation (green)	Fault	Operation ★	Ready ★	
Off	Off	C NO NC	C NO NC	C NO NC	The electricity supply has been switched off.
Off	Perma-nently on	C NO NC	C NO NC	C NO NC	The pump is operating.
Off	Flashing	C NO NC	C NO NC	C NO NC	The pump has been set to stop.
Perma-nently on	Off	C NO NC	C NO NC	C NO NC	The pump has stopped because of a fault. Restarting will be attempted (it may be necessary to restart the pump by resetting the fault indication). In case of the fault causes "dry running" and "external fault", the pump must be restarted manually by resetting the fault indication.
Perma-nently on	Perma-nently on	C NO NC	C NO NC	C NO NC	The pump is operating, but it has been stopped because of a fault. If the cause is "sensor signal outside signal range", the pump will continue operating according to the max. curve and the fault indication cannot be reset until the signal is inside the signal range. If the cause is "setpoint signal outside signal range", the pump will continue operating according to the min. curve and the fault indication cannot be reset until the signal is inside the signal range.
Perma-nently on	Flashing	C NO NC	C NO NC	C NO NC	The pump has been set to stop, but it has been stopped because of a fault.

★ **Note:** Applies only to CRE, CRIE CRNE without sensor.

A fault indication can be reset in one of the following ways:

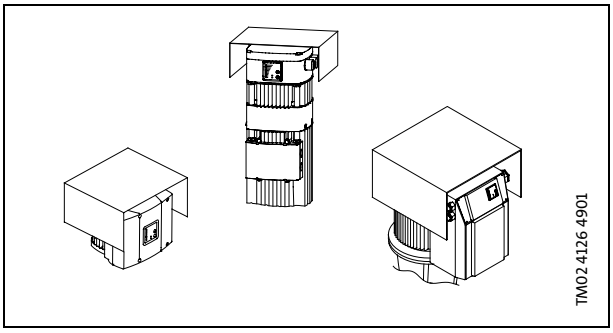
- By briefly pressing the buttons "+" or "–" on the pump. This will not change the setting of the pump. A fault indication cannot be reset by means of "+" or "–" if the buttons have been locked.
- By briefly switching off the electricity supply to the pump.
- By means of the R100. When the R100 communicates with the pump, the red indicator light will flash rapidly.

General

To ensure cooling of motor and electronics, the following must be observed:

- Place the pump in such a way that sufficient cooling is ensured.
- The temperature of the cooling air must not exceed 40°C.
- Motor cooling fins, holes in fan cover and fan blades must be kept clean.
- Min. frequency for the motor 6 Hz (12 % of max. flow).

When installed outdoors, the motor must be provided with a suitable cover to avoid condensation on the electronic components.



Electrical connection

The electrical connection and protection should be carried out in accordance with local regulations.

- The pump must be connected to an external mains switch.
- The E-pump must always be correctly earthed.
  Note: The 4.0 - 22 kW motors must be connected to especially reliable/sturdy earth connections due to an earth leakage current above 3.5 mA.
- The pump requires no external motor protection. The motor incorporates thermal protection against slow overloading and blocking (IEC 34-11: TP 211).
- When the pump is switched on via the mains, the pump will start after approx. 5 secs.

Note: The number of starts and stops via the mains voltage must not exceed 4 times per hour.

The pump mains connection must be made as shown in the diagrams shown on page 41.

Additional protection

If the pump is connected to an electric installation where an earth leakage circuit breaker (ELCB) is used as an additional protection the earth leakage circuit breaker must be marked with the following symbols.

- Single-phase:

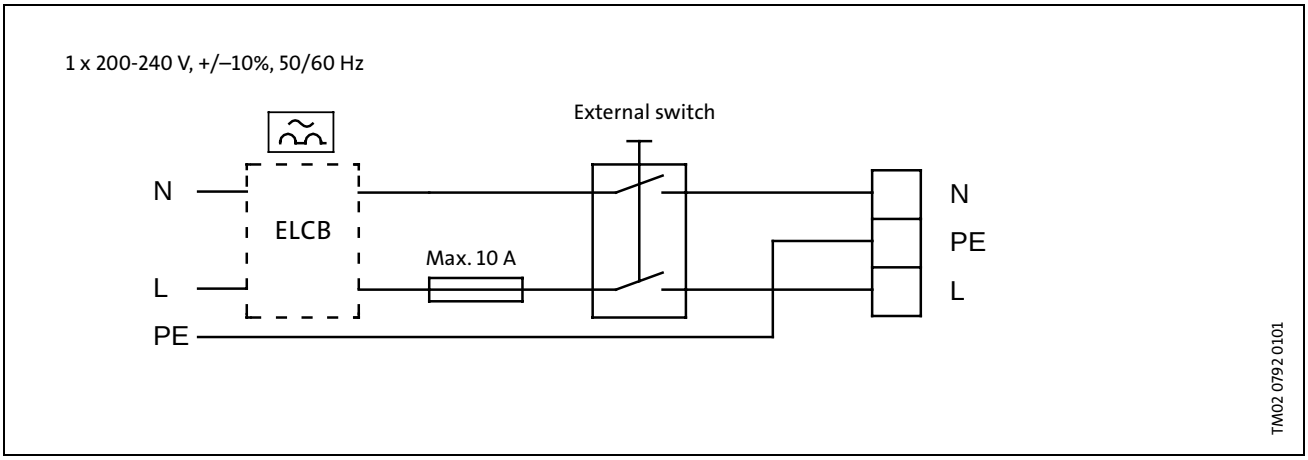
  

  The earth leakage circuit breaker must trip out when earth fault currents with DC content (pulsating DC) occur.
- Three-phase:

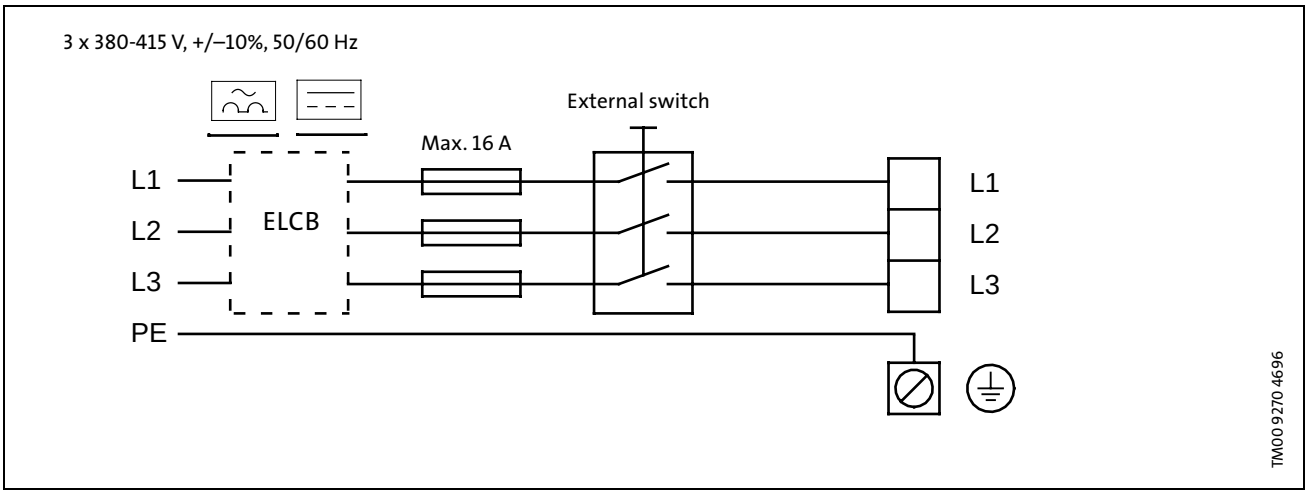
  

  The earth leakage circuit breaker **must** trip out when earth fault currents with DC content (pulsating DC) and smooth DC earth fault currents occur.

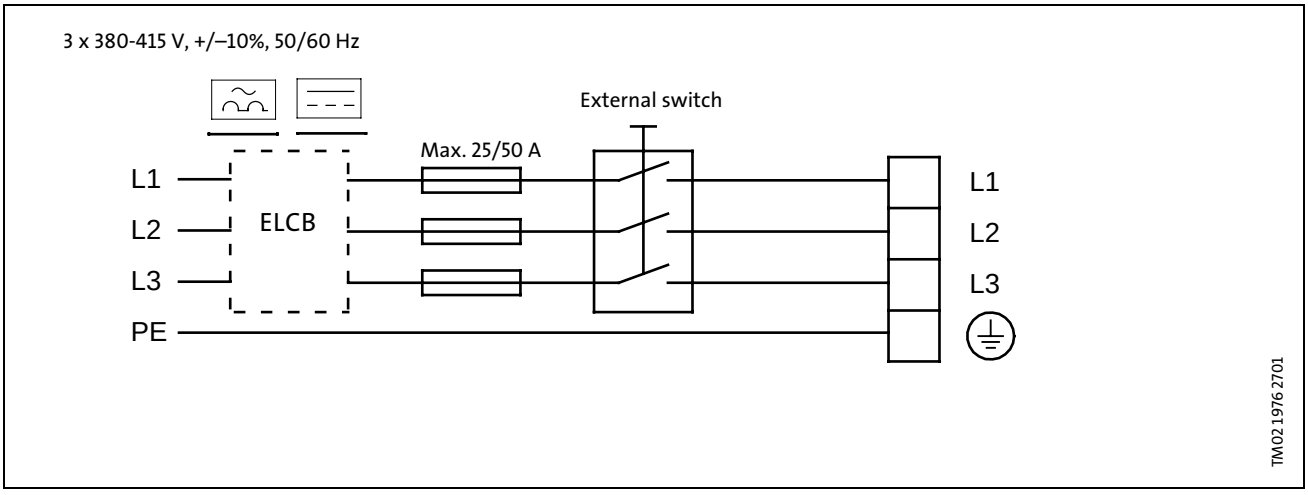
Wiring diagram, single-phase



Wiring diagram, three-phase 1.5 - 7.5 kW



Wiring diagram, three-phase 11 - 22 kW



Other connections

The connection of external potential-free contacts for start/stop and digital function, external setpoint signal and fault signal is shown in the wiring diagram.

The wires can be connected to the following connection groups:

Group 1: Inputs (external start/stop, digital function, setpoint and sensor signals, terminals 1-9 and bus connection, A, Y, B).

All inputs are separated from the mains-conducting parts by reinforced insulation.

Group 2: Output (signal relay).

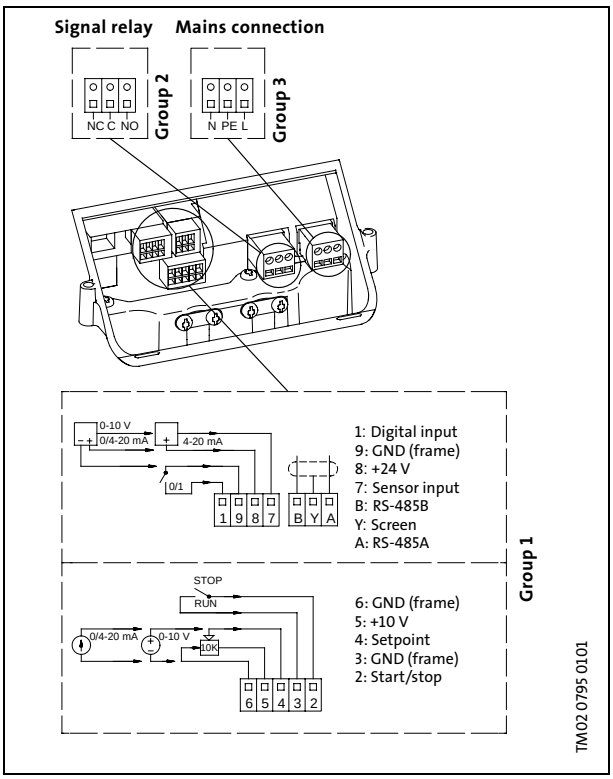
The output, terminals C, NO and NC, are galvanically separated from other circuits. Therefore, the supply voltage or protective extra-low voltage can be connected to the output as desired.

Group 3: Mains supply.

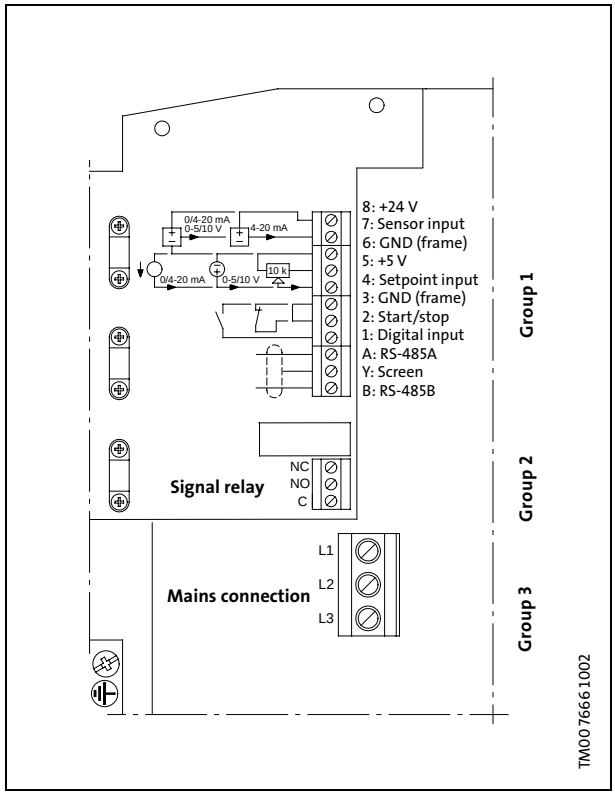
Note:

- As a precaution, the wires must be separated from each other by reinforced insulation in their entire lengths.
- Maintain the connection across terminals 2 and 3, if no external on/off switch is connected.

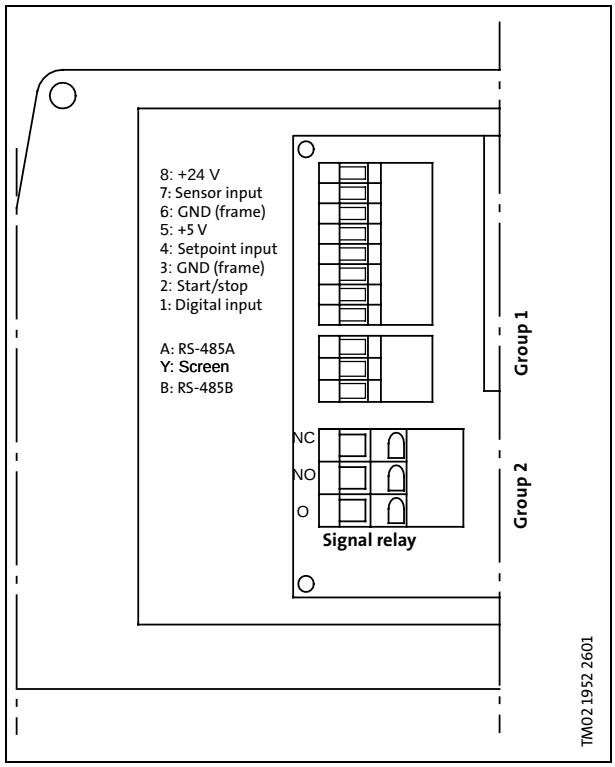
Wiring diagram, single-phase



Wiring diagram, three-phase 1.5 - 7.5 kW



Wiring diagram, three-phase 11 - 22 kW



External force control

Functional diagram: Start/stop input

Start/stop (terminals 2 and 3)		
	H Q	**Normal duty**
	H Q	**Stop**

Functional diagram: Input for digital function

Digital function (terminals 1 and 9 for 1~ pumps) (terminals 1 and 3 for 3~ pumps)		
	H Q	Normal duty
	H Q	Min. curve
	H Q	Max. curve

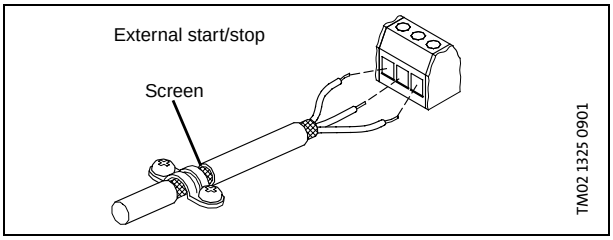
The function for digital input is selected using the R100.

CRE, CRIE, CRNE are supplied with external fault as factory setting.

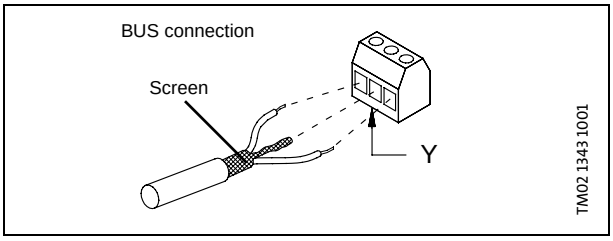
Cables

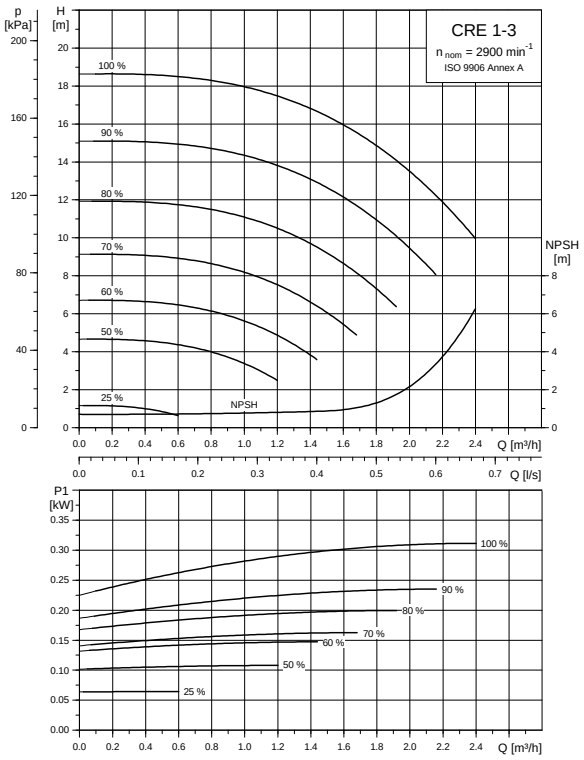
Use screened cables (min. 0.5 mm^2) for external on/off switch, digital input, sensor and and setpoint signals. The screens of the cables should be connected to frame at both ends.

The screen of the cable must have good frame connection and it must be as close as possible to the terminals.

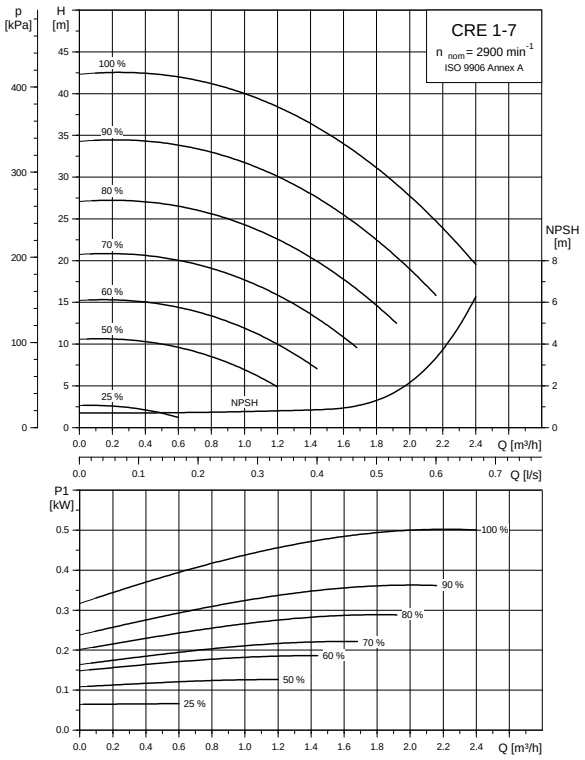


For the BUS connection a screened 2-core cable must be used. Connect the screen to terminal Y at both ends.

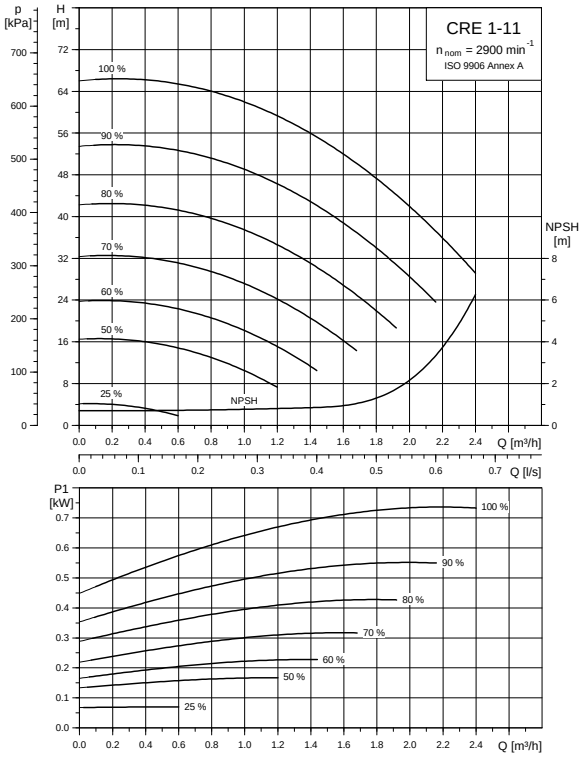




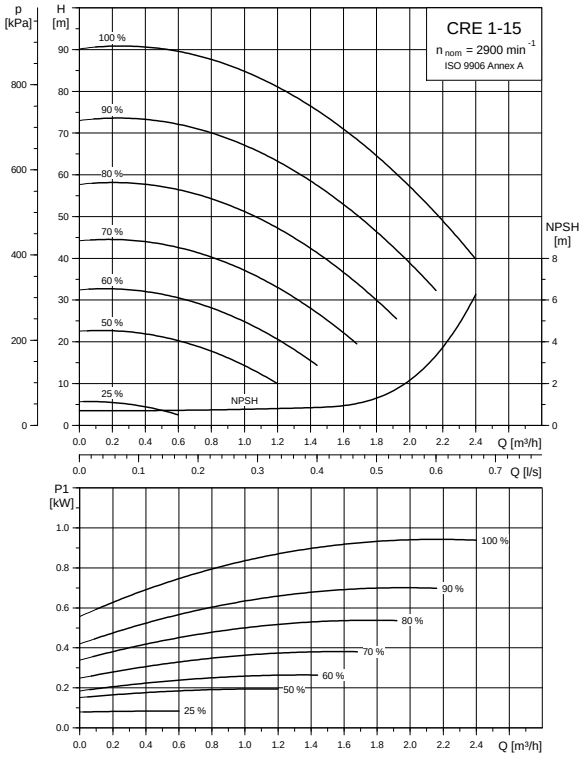
TM02 1148 2002



TM02 1149 2002



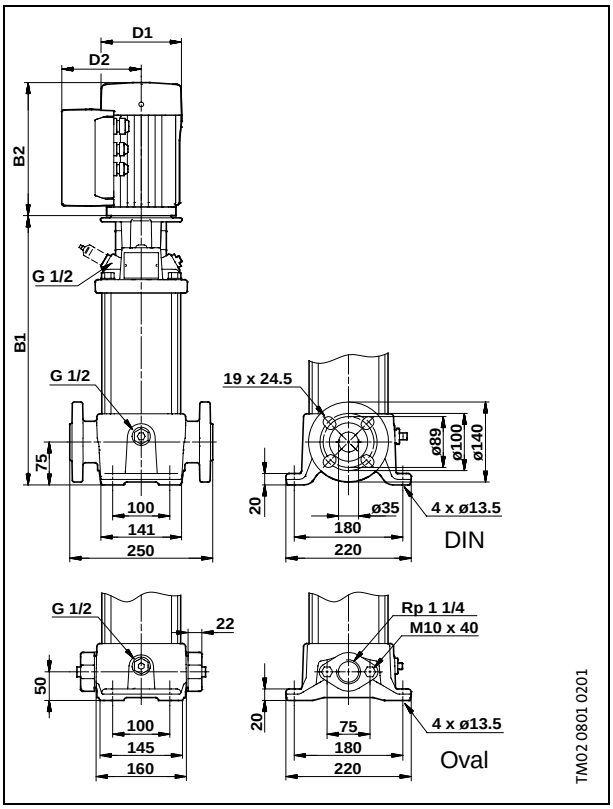
TM02 1150 2002



TM02 1151 2002

Technical data

CRE 1



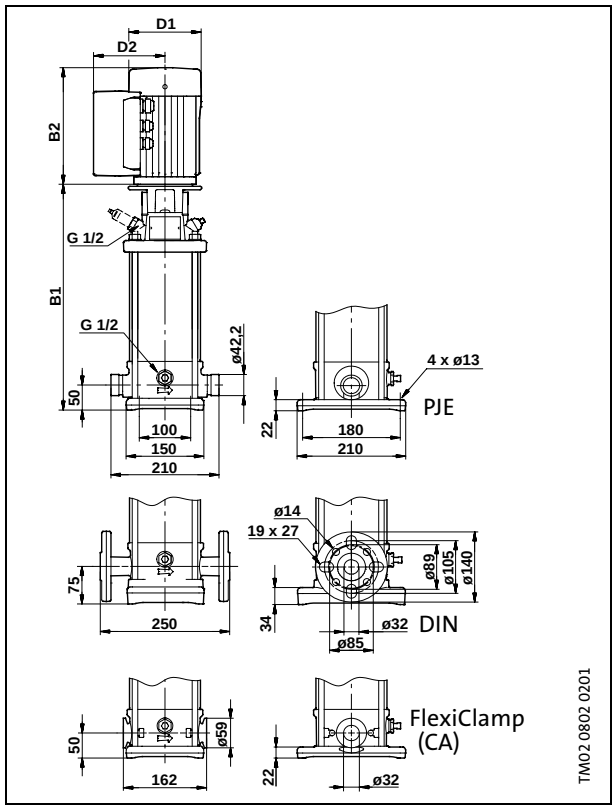
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 1-3	256	447	281	472	191	141	140
CRE 1-7	346	537	371	562	191	141	140
CRE 1-11	422	613	447	678	191	141	140
CRE 1-15	476	707	501	732	231	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 1-3	0.37	3.0-2.5	25.3	0.04
CRE 1-7	0.37	3.0-2.5	26.7	0.04
CRE 1-11	0.55	4.3-3.6	29.5	0.05
CRE 1-15	0.75	5.6-4.7	32.4	0.05

CRIE, CRNE 1



Dimensions and weights, 2900 min^{-1}

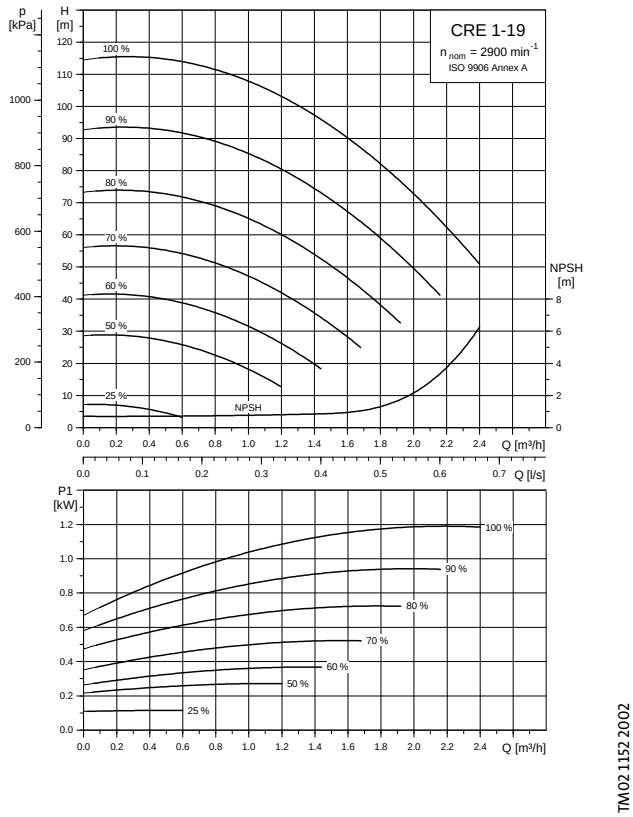
Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 1-3	254	445	279	470	191	141	140
CRIE, CRNE 1-7	344	535	369	560	191	141	140
CRIE, CRNE 1-11	422	653	447	678	231	141	140
CRIE, CRNE 1-15	476	707	501	732	231	141	140

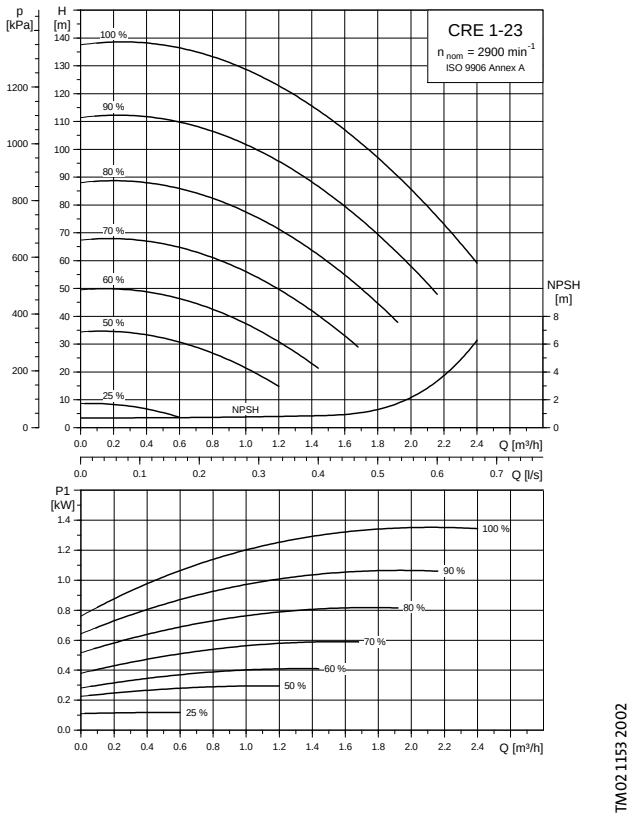
★ CA is the code for FlexiClamp coupling.

Technical data, 2900 min^{-1}

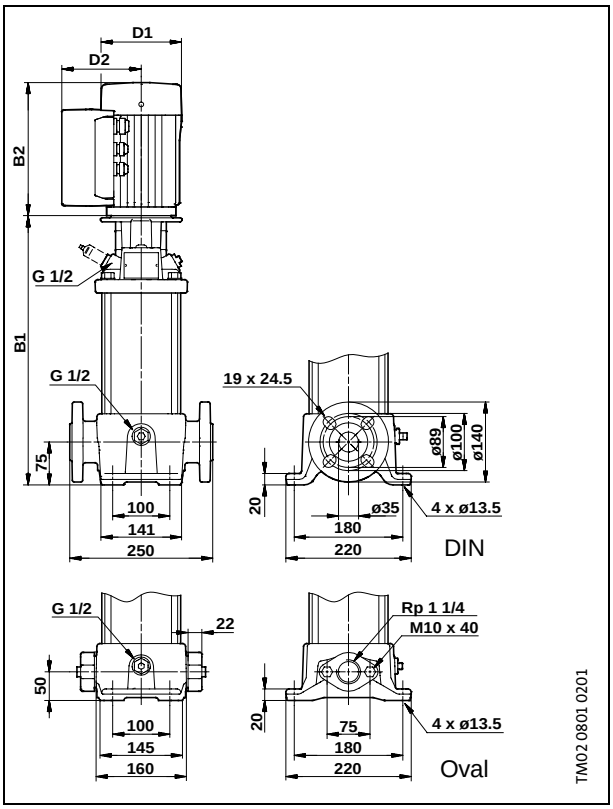
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 1-3	0.37	3.0-2.5	22.0	0.05
CRIE, CRNE 1-7	0.37	3.0-2.5	23.4	0.05
CRIE, CRNE 1-11	0.55	4.3-3.6	26.2	0.05
CRIE, CRNE 1-15	0.75	5.6-4.7	29.1	0.08

Performance curves





CRE 1



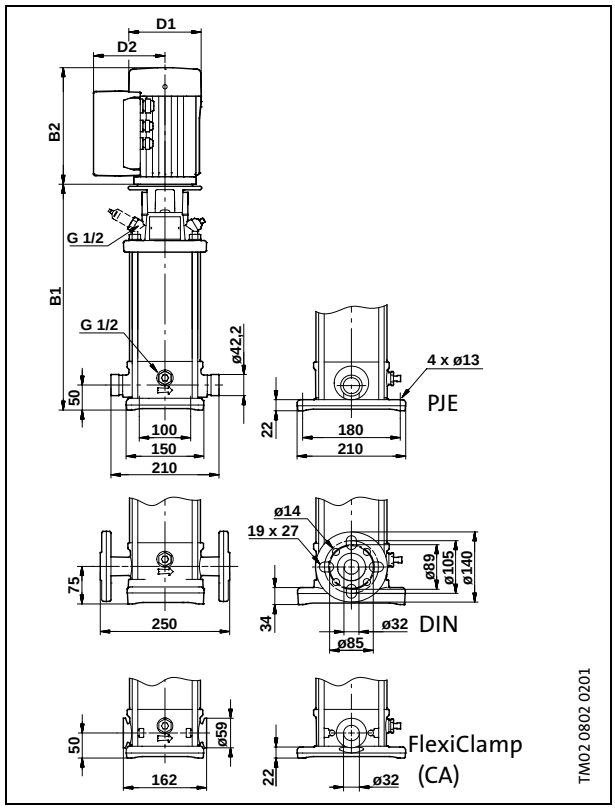
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 1-19	548	779	573	804	231	141	140
CRE 1-23	620	851	645	876	231	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 1-19	1.1	8.2-6.8	34.9	0.06
CRE 1-23	1.1	8.2-6.8	36.5	0.08

CRIE, CRNE 1



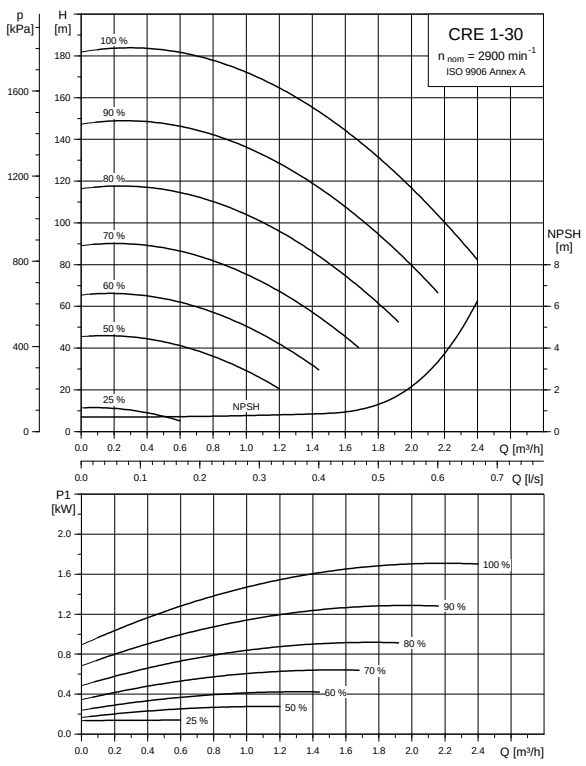
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 1-19	548	779	573	804	231	141	140
CRIE, CRNE 1-23	620	851	645	876	231	141	140

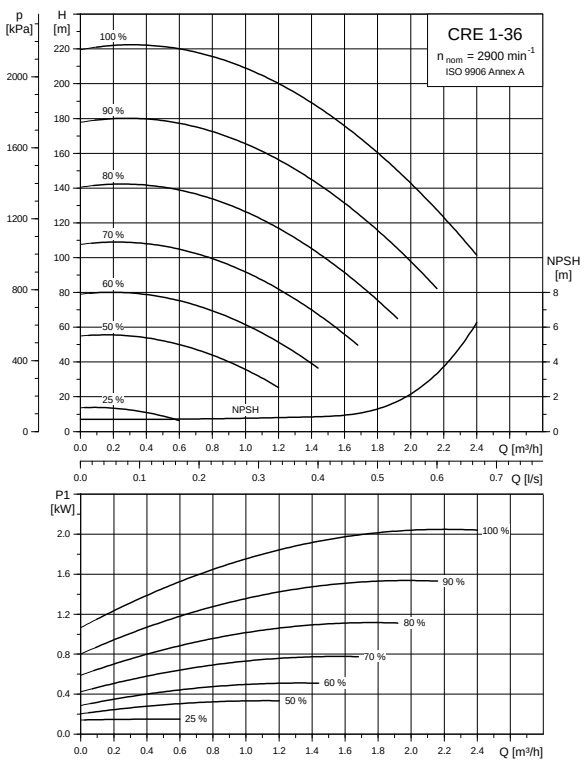
★ CA is the code for FlexiClamp coupling.

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 1-19	1.1	8.2-6.8	31.6	0.08
CRIE, CRNE 1-23	1.1	8.2-6.8	33.2	0.08

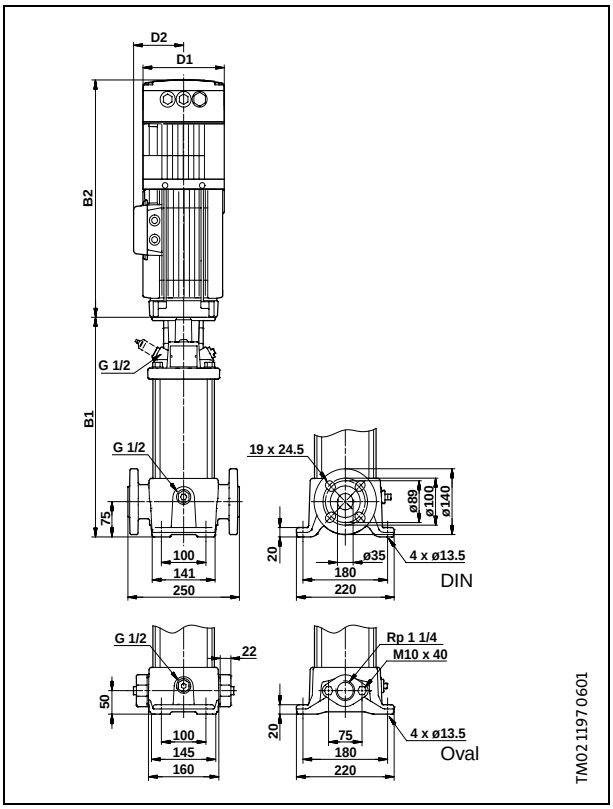


TM02 1154 2002



TM02 1155 2002

CRE 1



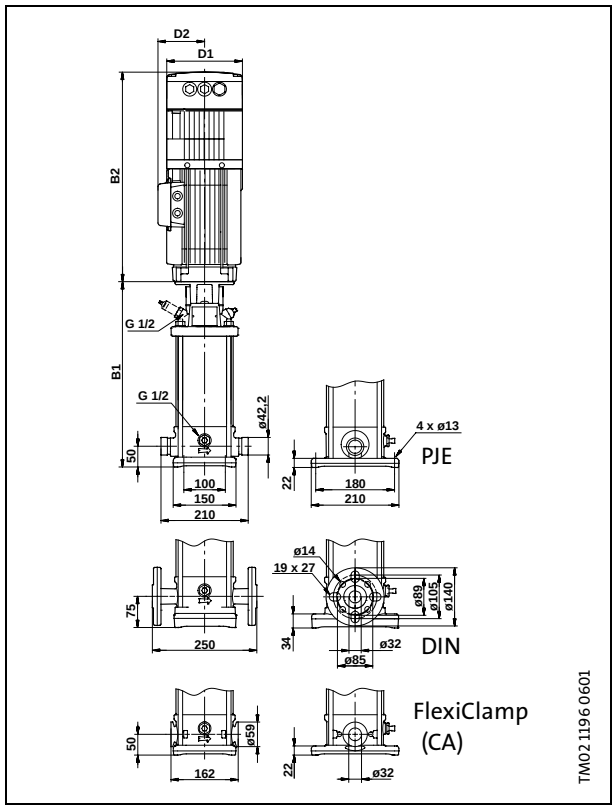
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 1-30			787	1228	441	141	140
CRE 1-36			895	1336	441	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 1-30	1.5	4.00	48.3	0.11
CRE 1-36	2.2	5.35	53.4	0.11

CRIE, CRNE 1



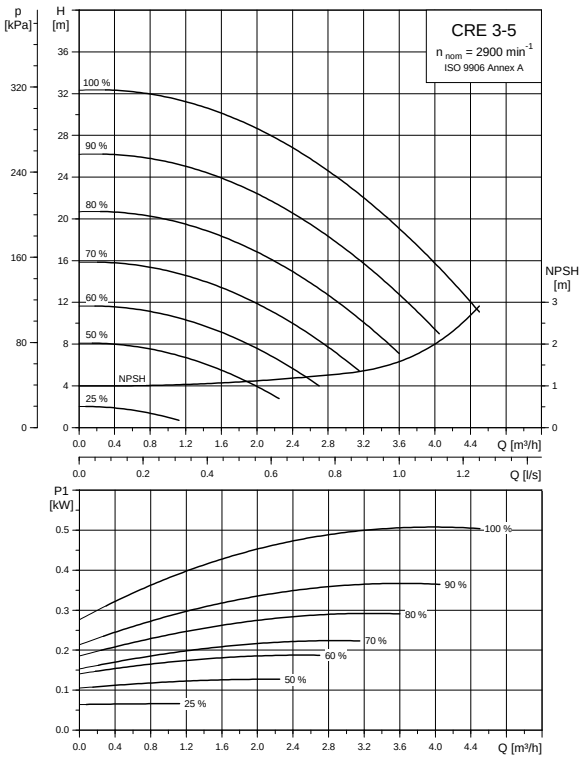
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 1-30	762	1203	787	1228	441	141	140
CRIE, CRNE 1-36	870	1311	895	1336	441	141	140

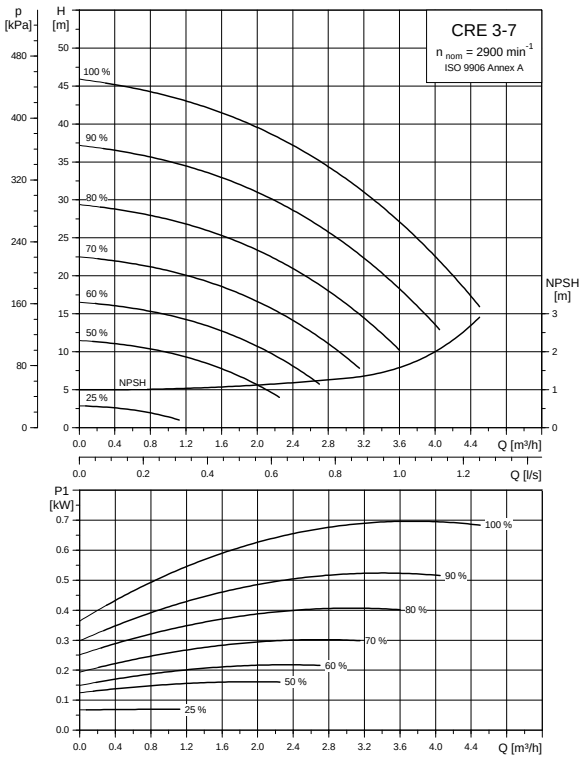
★ CA is the code for FlexiClamp coupling.

Technical data, 2900 min^{-1}

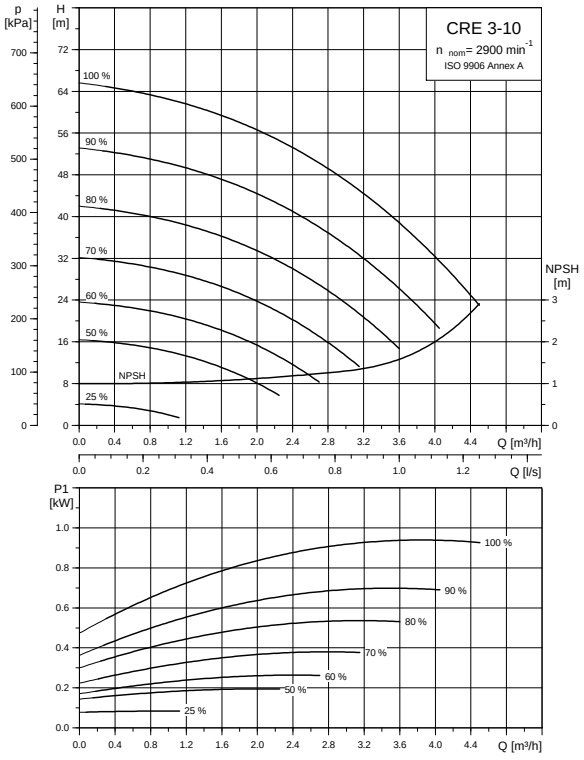
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 1-30	1.5	4.00	45.0	0.11
CRIE, CRNE 1-36	2.2	5.35	50.1	0.11



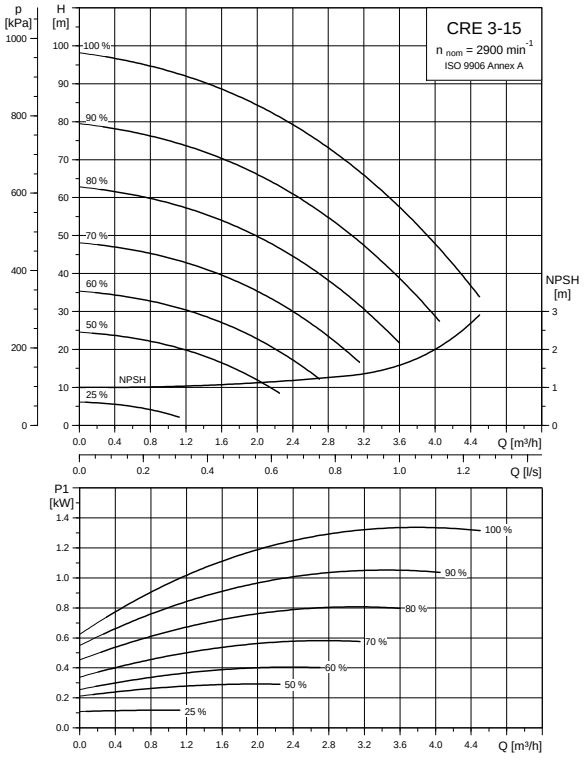
TM02 1164 1901



TM02 1165 1901



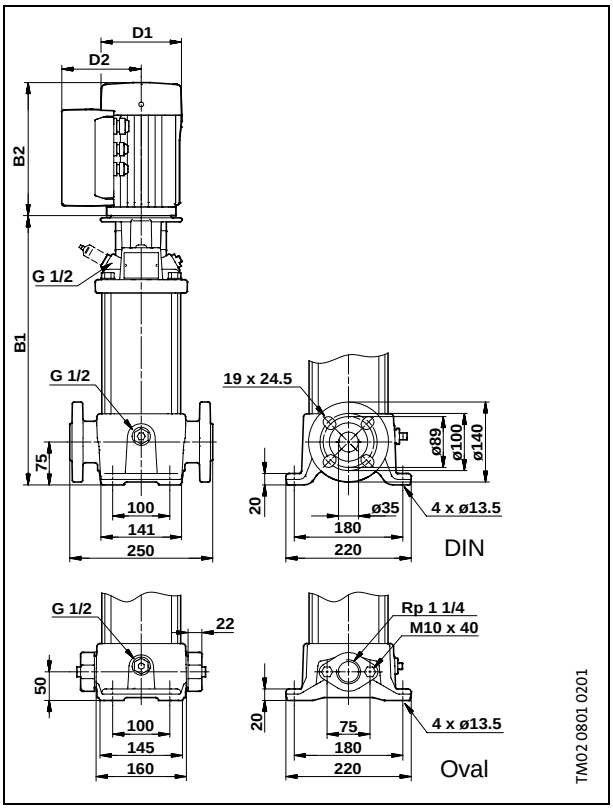
TM02 1166 1901



TM02 1167 1901

Technical data

CRE 3



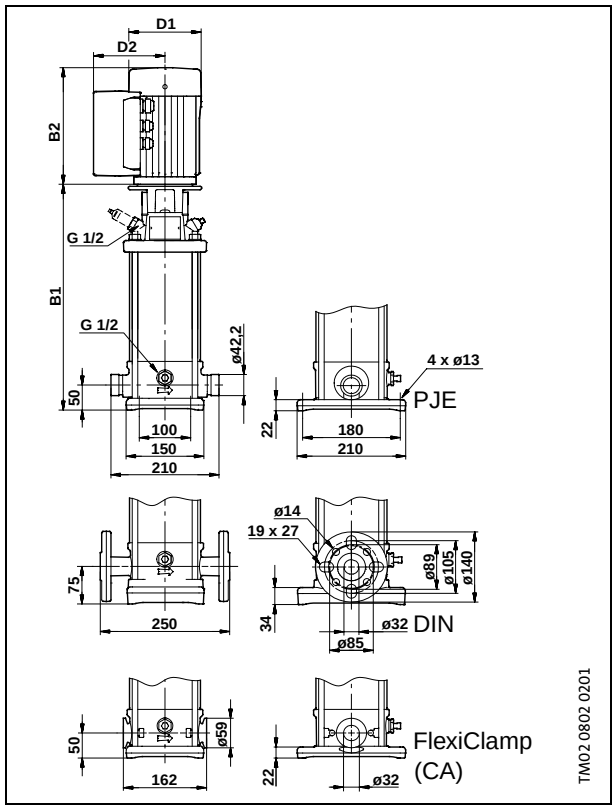
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 3-5	292	483	317	508	191	141	140
CRE 3-7	328	519	353	544	191	141	140
CRE 3-10	386	617	411	642	231	141	140
CRE 3-15	476	707	501	732	231	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 3-5	0.37	3.0-2.5	25.9	0.04
CRE 3-7	0.55	4.3-3.6	27.3	0.04
CRE 3-10	0.75	5.6-4.7	30.6	0.05
CRE 3-15	1.1	8.2-6.8	33.7	0.05

CRIE, CRNE 3



Dimensions and weights, 2900 min^{-1}

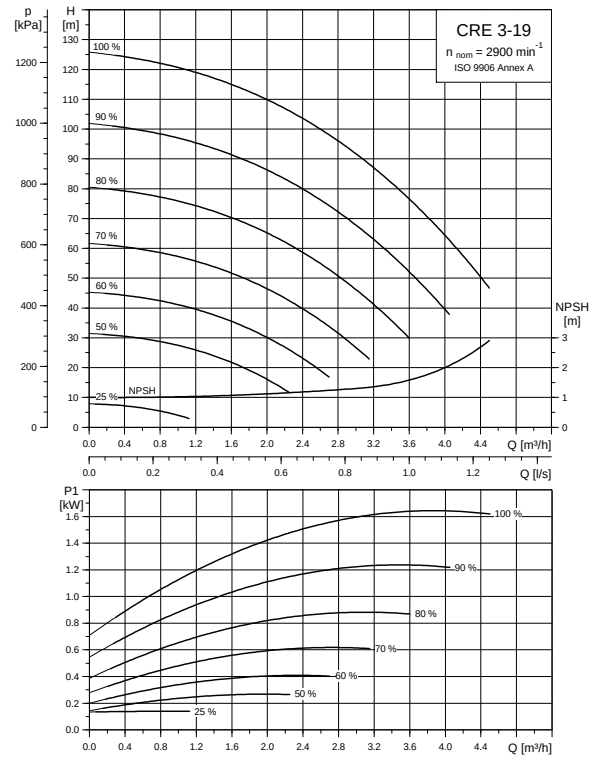
Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 3-5	290	481	315	506	191	141	140
CRIE, CRNE 3-7	326	517	351	542	191	141	140
CRIE, CRNE 3-10	386	617	411	642	231	141	140
CRIE, CRNE 3-15	476	707	501	732	231	141	140

★ CA is the code for FlexiClamp coupling.

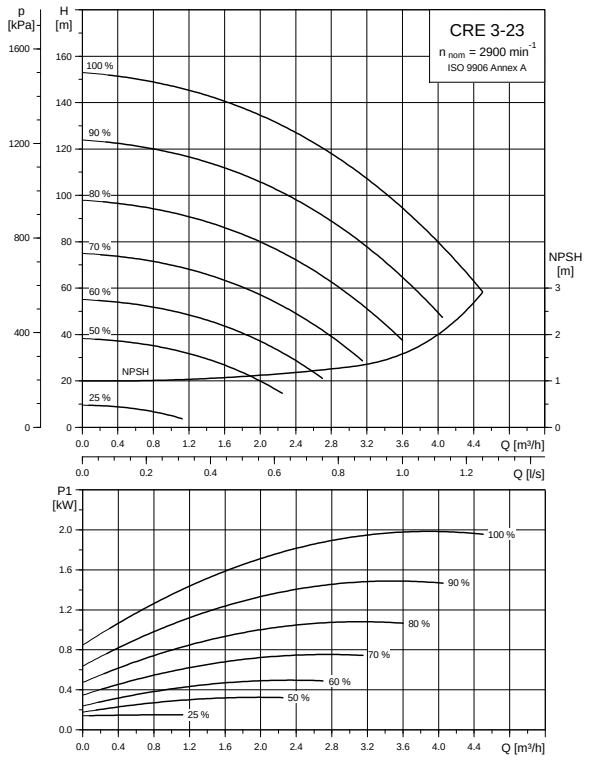
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 3-5	0.37	3.0-2.5	22.6	0.05
CRIE, CRNE 3-7	0.55	4.3-3.6	24.0	0.05
CRIE, CRNE 3-10	0.75	5.6-4.7	27.3	0.05
CRIE, CRNE 3-15	1.1	8.2-6.8	30.4	0.08

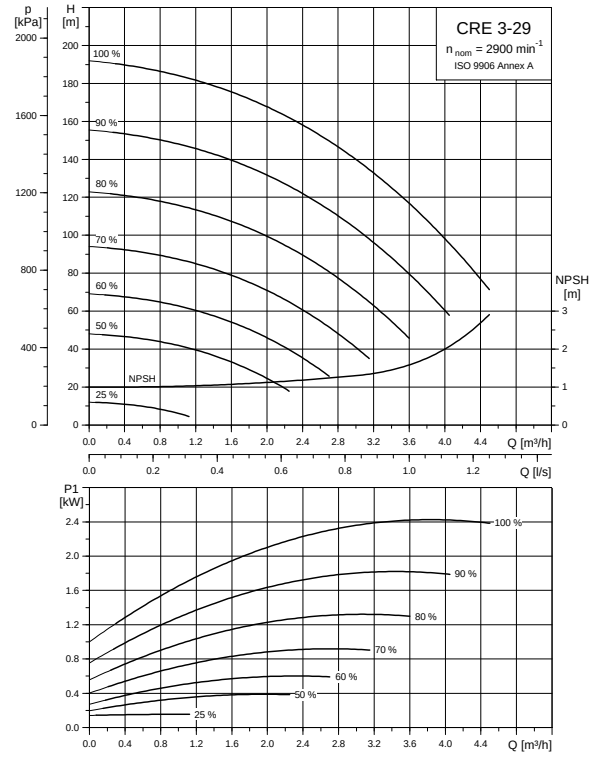
Performance curves



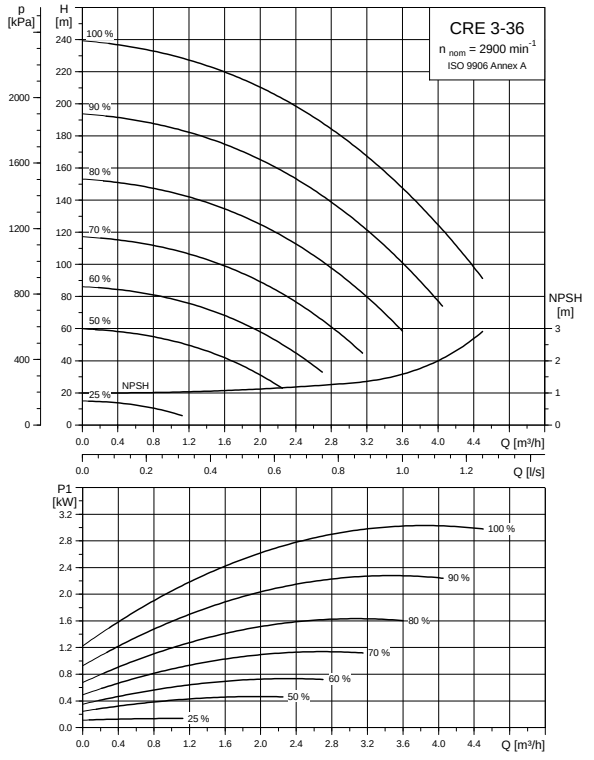
TM02 1168 1901



TM02 1169 1901

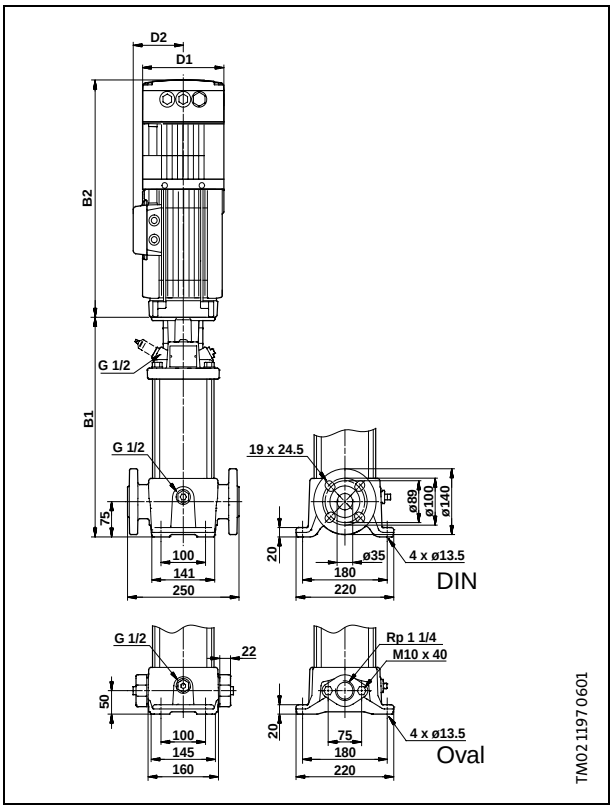


TM02 1170 1901



TM02 1171 1901

CRE 3



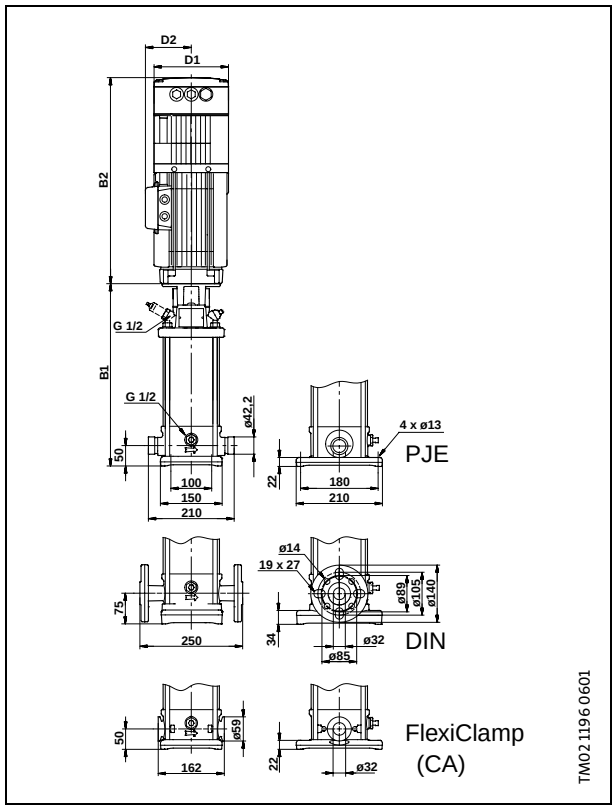
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 3-19	564	1153	589	1030	441	141	140
CRE 3-23	636	1077	661	1102	441	141	140
CRE 3-29			769	1210	441	141	140
CRE 3-36			899	1394	495	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 3-19	1.5	4.00	43.7	0.11
CRE 3-23	2.2	5.35	47.3	0.11
CRE 3-29	2.2	5.35	49.8	0.11
CRE 3-36	3.0	6.80	58.9	0.20

CRIE, CRNE 3



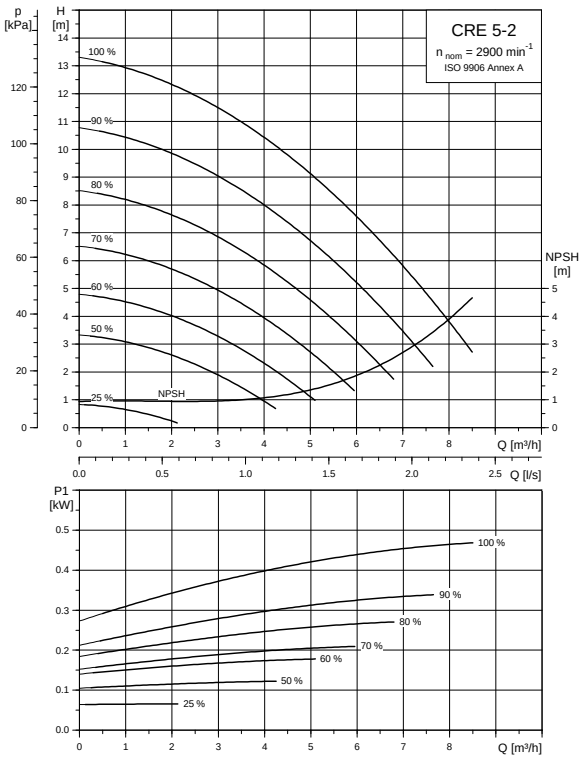
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 3-19	564	1153	589	1030	441	141	140
CRIE, CRNE 3-23	636	1077	661	1102	441	141	140
CRIE, CRNE 3-29	744	1185	769	1210	441	141	140
CRIE, CRNE 3-36	874	1369	899	1394	495	141	140

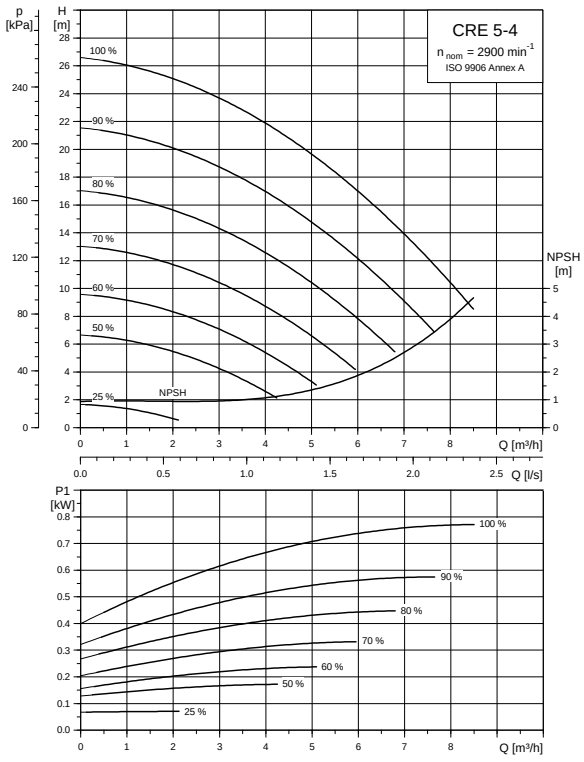
★ CA is the code for FlexiClamp coupling.

Technical data, 2900 min^{-1}

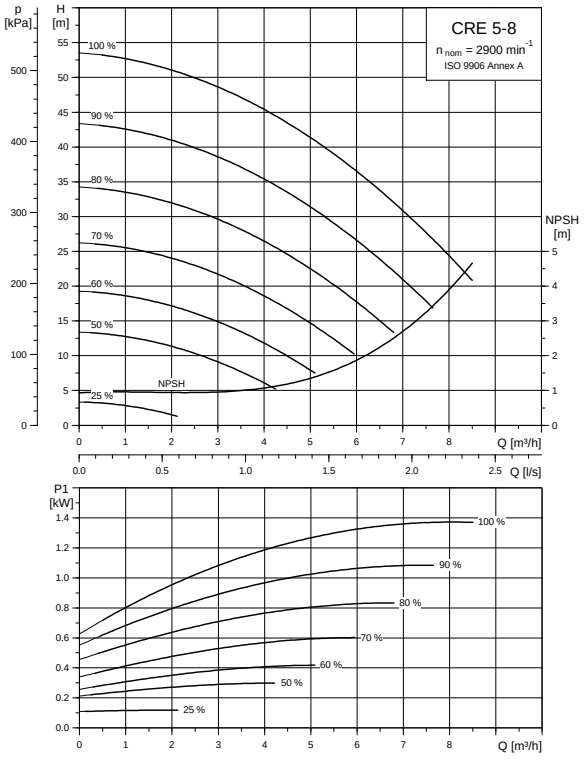
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 3-19	1.5	4.00	40.4	0.11
CRIE, CRNE 3-23	2.2	5.35	44.0	0.11
CRIE, CRNE 3-29	2.2	5.35	46.5	0.11
CRIE, CRNE 3-36	3.0	6.80	55.6	0.20



TM02 0864 3901



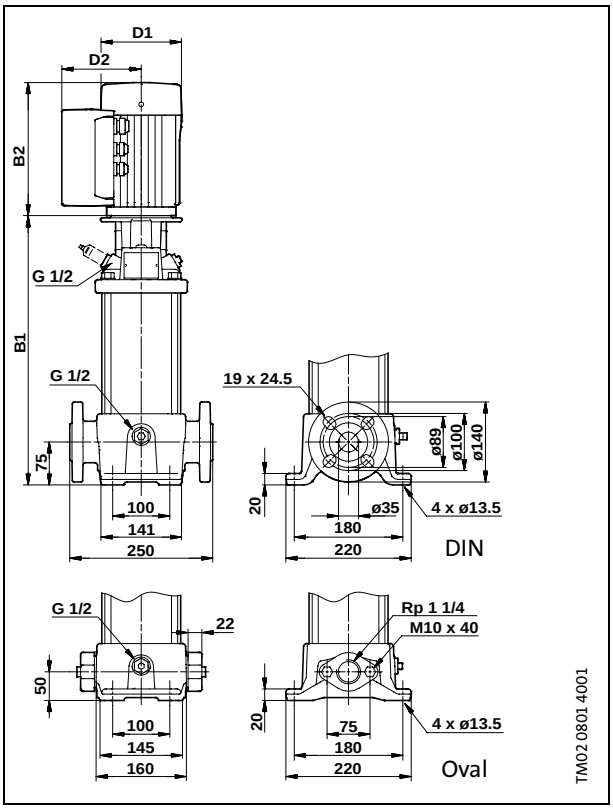
TM02 0865 3901



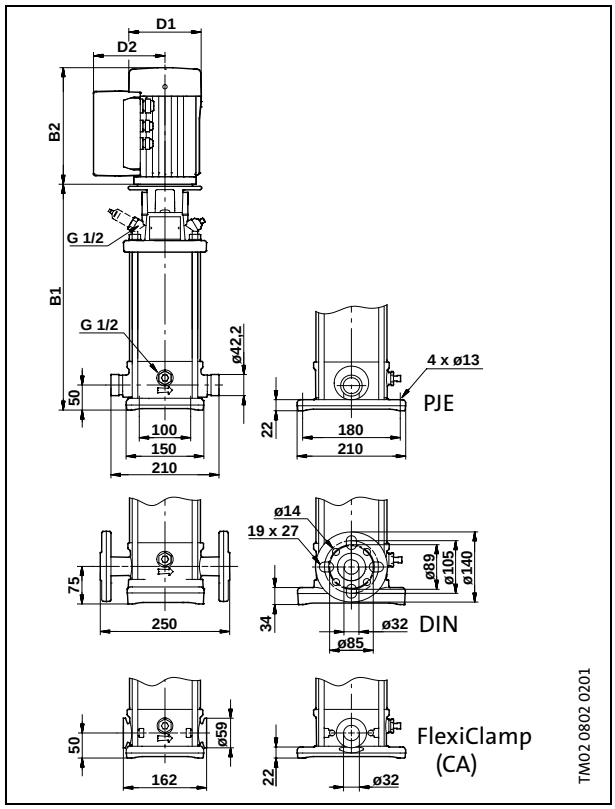
TM02 0866 3901

Technical data

CRE 5



CRIE, CRNE 5



Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 5-2	256	447	281	472	191	141	140
CRE 5-4	310	501	335	526	191	141	140
CRE 5-8	422	653	447	678	231	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 5-2	0.37	3.0-2.5	25.3	0.04
CRE 5-4	0.55	4.3-3.6	27.6	0.04
CRE 5-8	1.1	8.2-6.8	32.9	0.05

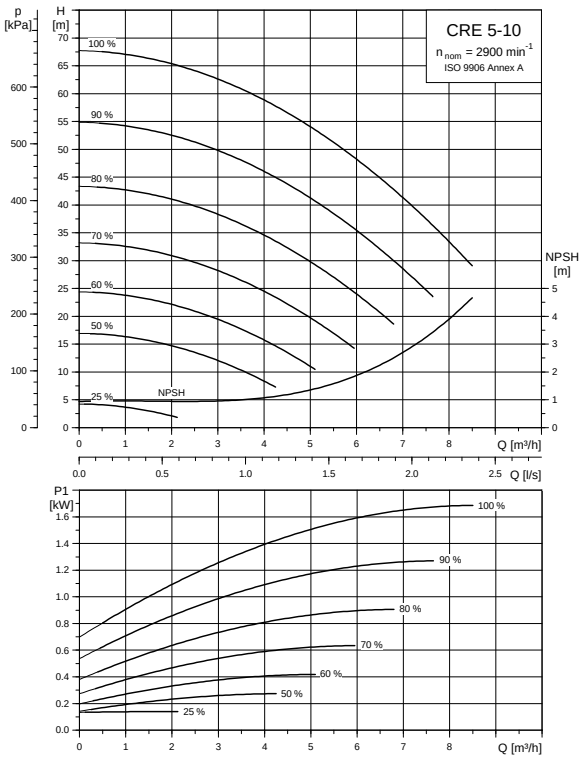
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 5-2	254	445	279	470	191	141	140
CRIE, CRNE 5-4	308	499	333	524	191	141	140
CRIE, CRNE 5-8	422	653	447	678	231	141	140

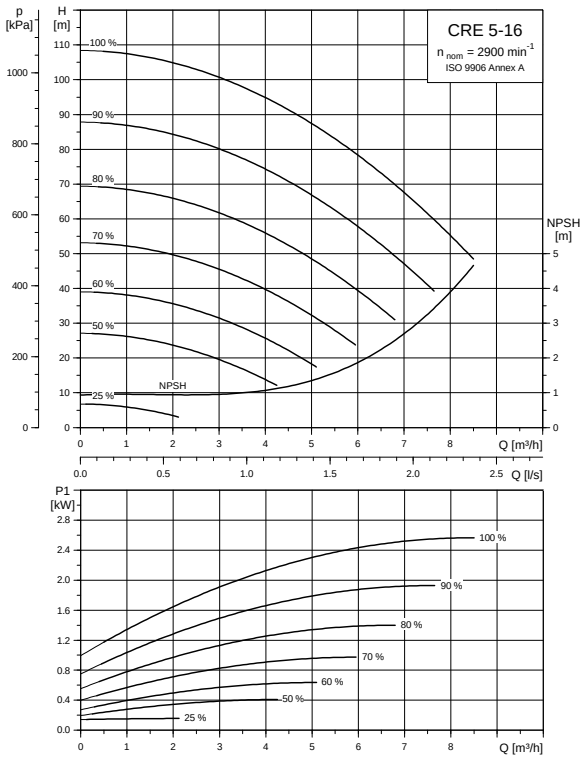
★ CA is the code for FlexiClamp coupling.

Technical data, 2900 min^{-1}

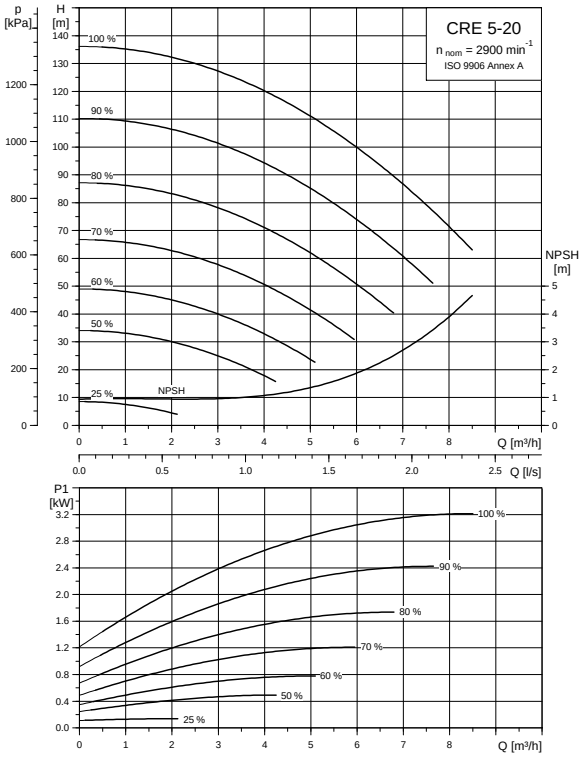
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 5-2	0.37	3.0-2.5	22.0	0.05
CRIE, CRNE 5-4	0.55	4.3-3.6	23.4	0.05
CRIE, CRNE 5-8	1.1	8.2-6.8	29.6	0.08



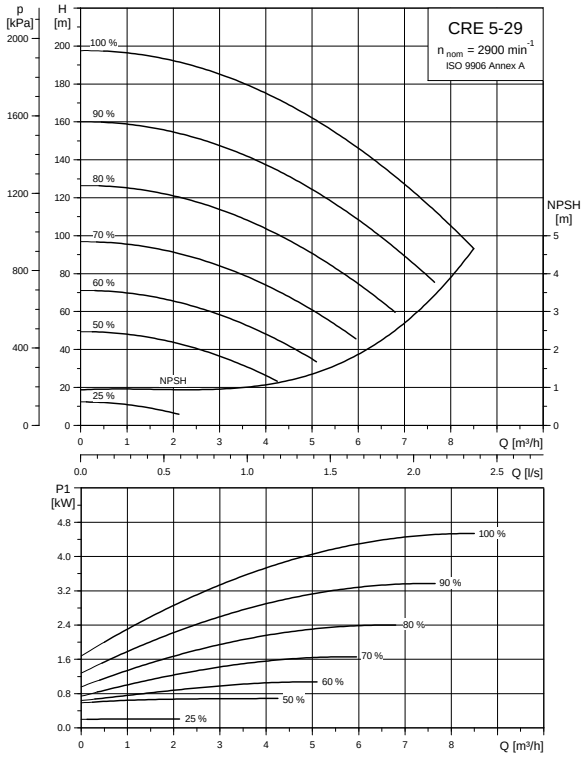
TM02 0867 3901



TM02 0868 3901

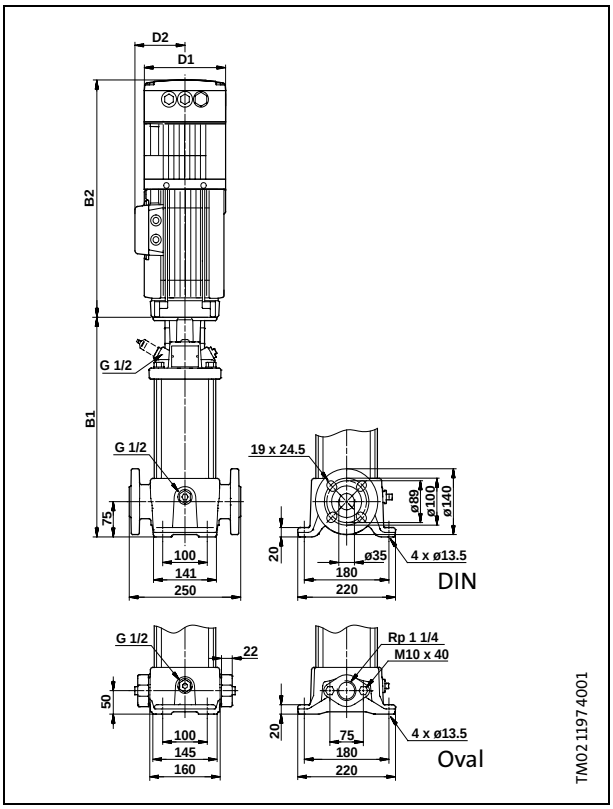


TM02 0869 3901



TM02 0870 3901

CRE 5



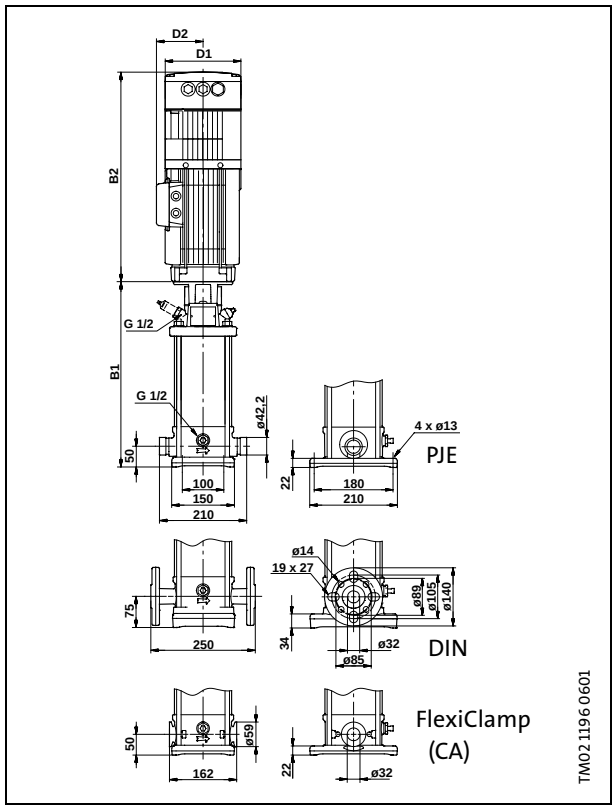
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 5-10	492	933	517	958	441	141	140
CRE 5-16	654	1095	679	1120	441	141	140
CRE 5-20	766	1261	791	1286	495	141	140
CRE 5-29			1034	1570	536	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 5-10	1.5	4.00	42.5	0.08
CRE 5-16	2.2	5.35	47.7	0.11
CRE 5-20	3.0	6.80	55.8	0.11
CRE 5-29	4.0	9.00	73.9	0.23

CRIE, CRNE 5



Dimensions and weights, 2900 min^{-1}

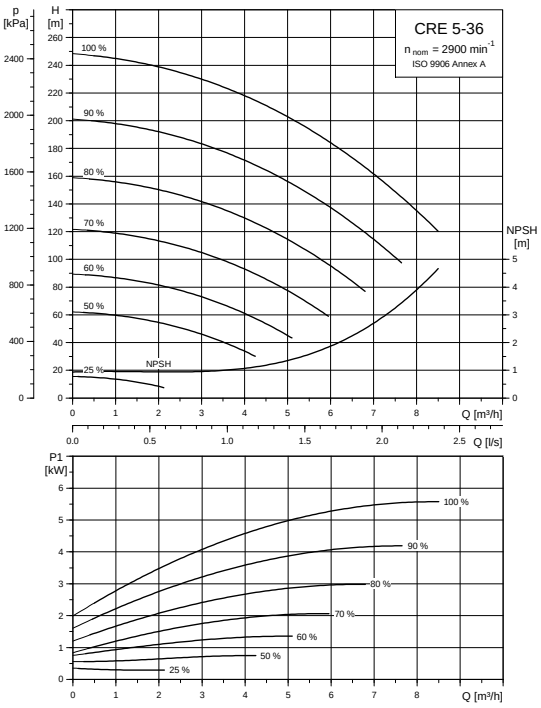
Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 5-10	492	933	517	958	441	141	140
CRIE, CRNE 5-16	654	1095	679	1120	441	141	140
CRIE, CRNE 5-20	766	1261	791	1286	495	141	140
CRIE, CRNE 5-29	1012	1548	1038	1573	536	141	140

★ CA is the code for FlexiClamp coupling.

Technical data, 2900 min^{-1}

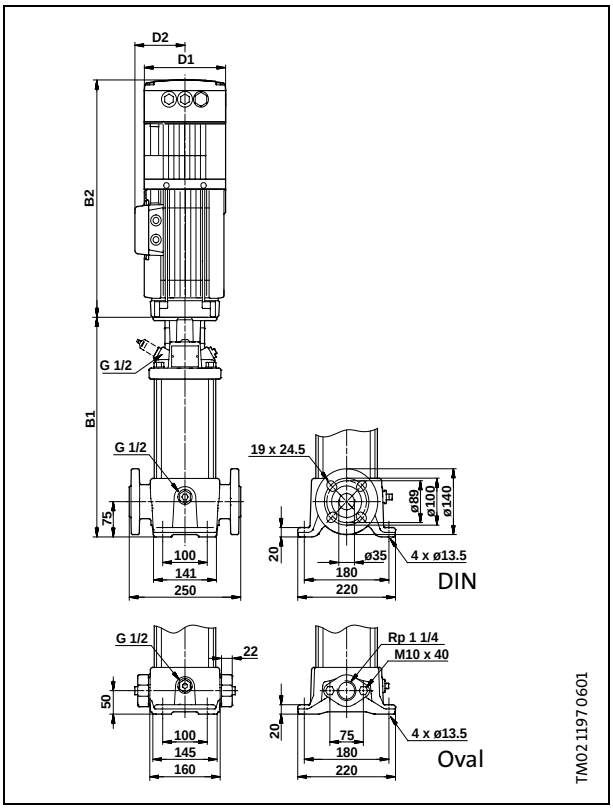
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 5-10	1.5	4.00	39.2	0.08
CRIE, CRNE 5-16	2.2	5.35	44.4	0.11
CRIE, CRNE 5-20	3.0	6.80	52.5	0.11
CRIE, CRNE 5-29	4.0	9.00	70.6	0.23

Performance curves



TM02 0871 3901

CRE 5



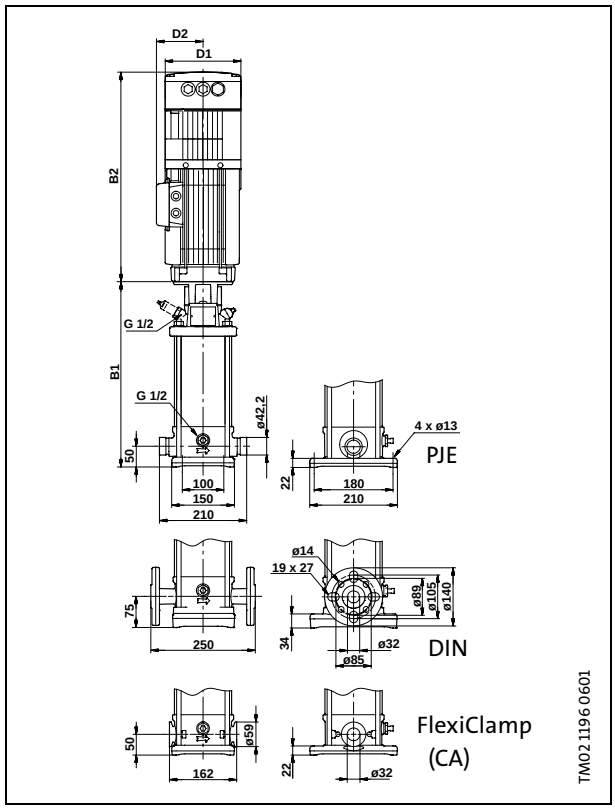
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 5-36			1253	1808	555	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 5-36	5.5	12.0	91.3	0.165

CRIE, CRNE 5



Dimensions and weights, 2900 min^{-1}

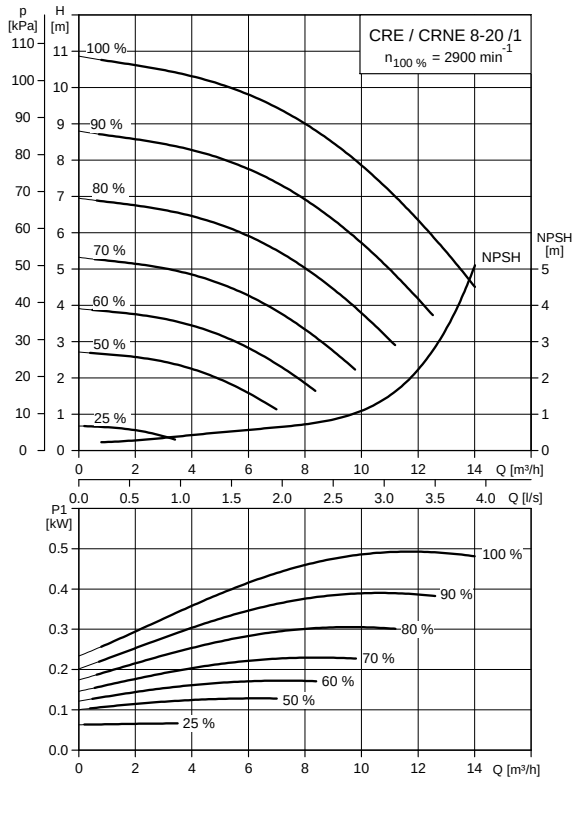
Pump type	Dimensions [mm]						
	PJE/CA★ coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRIE, CRNE 5-36	1228	1783	1253	1808	555	141	140

★ CA is the code for FlexiClamp coupling.

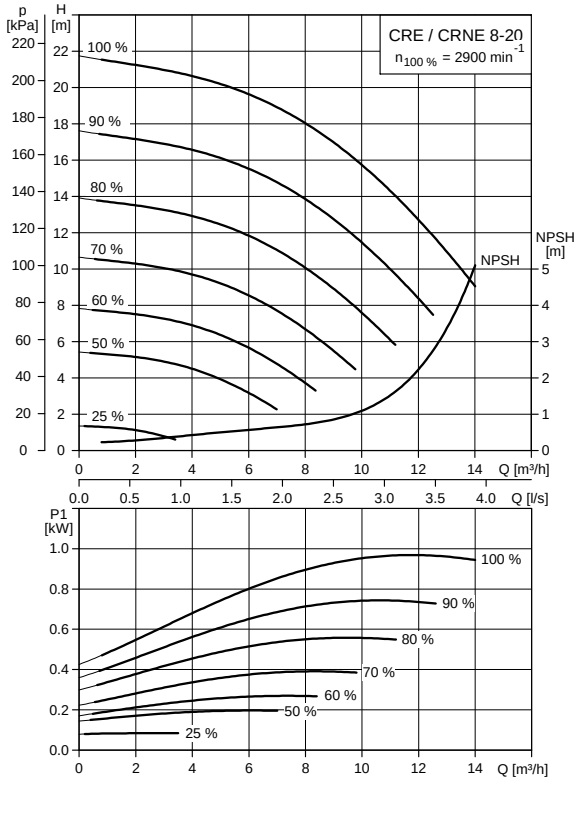
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRIE, CRNE 5-36	5.5	12.0	88.0	0.230

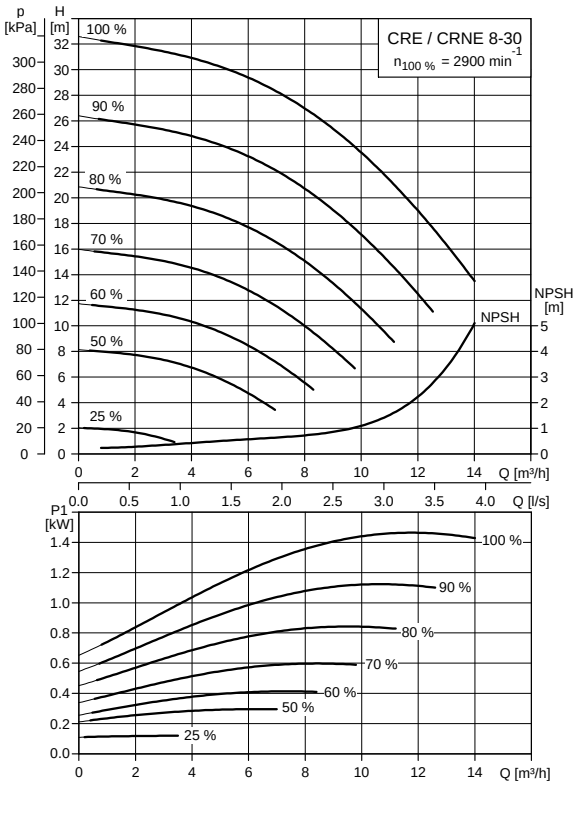
Performance curves



TM00 6582 4295



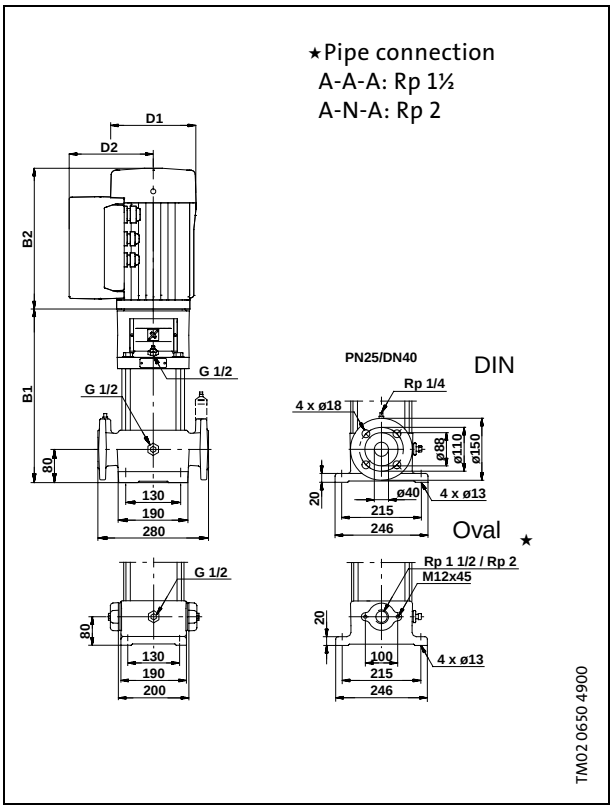
TM00 6585 4295



TM00 6587 4295

Technical data

CRE 8



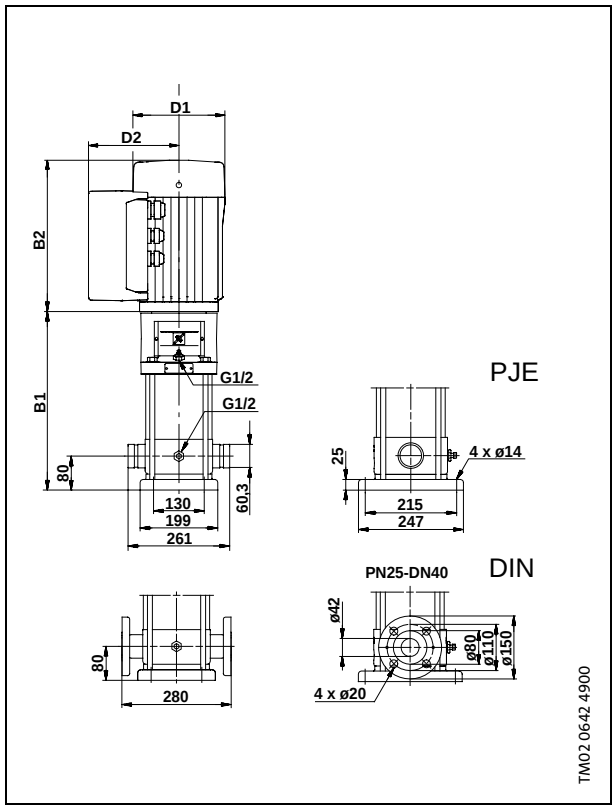
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 8-20/1	335	526	335	526	191	141	140
CRE 8-20	340	571	340	571	231	141	140
CRE 8-30	370	601	370	601	231	141	140

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 8-20/1	0.37	3.0-2.5	40	0.0718
CRE 8-20	0.75	5.6-4.7	40	0.0718
CRE 8-30	1.1	8.2-6.8	40	0.0718

CRNE 8



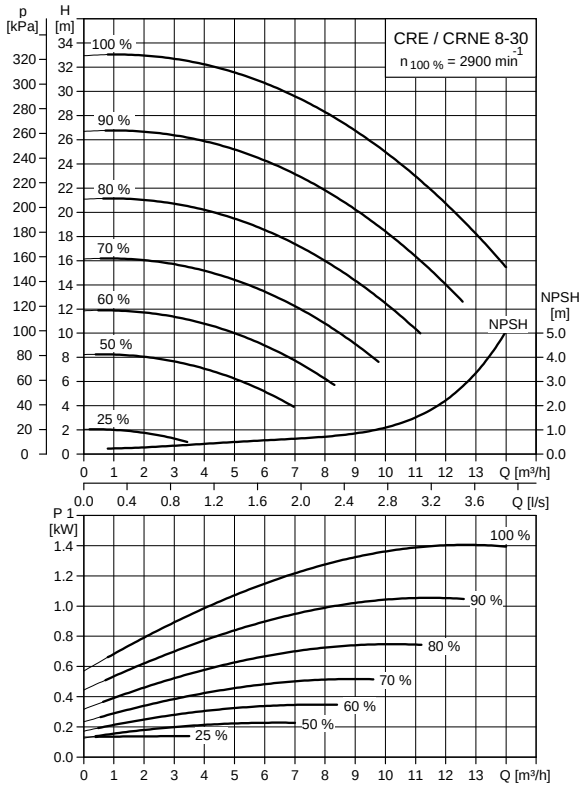
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	PJE coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRNE 8-20/1	335	526	335	526	191	141	140
CRNE 8-20	340	571	340	571	231	141	140
CRNE 8-30	370	601	370	601	231	141	140

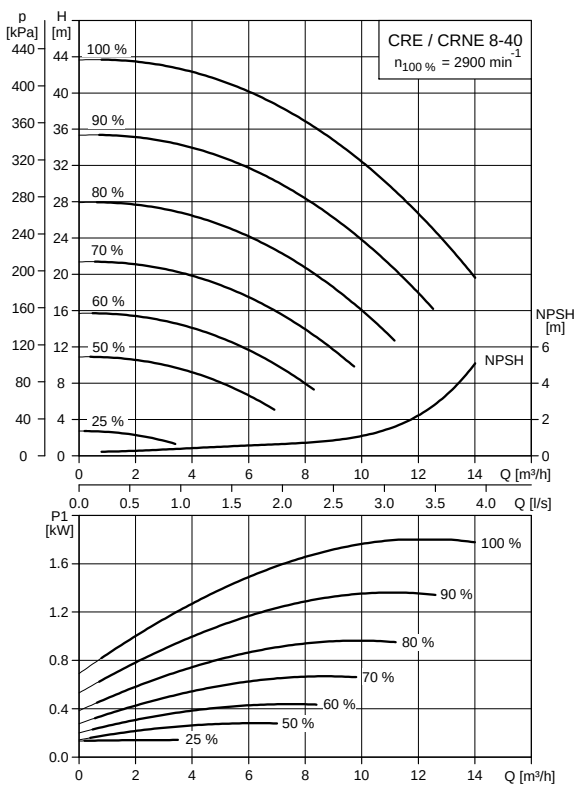
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 8-20/1	0.37	3.0-2.5	30	0.0718
CRNE 8-20	0.75	5.6-4.7	30	0.0718
CRNE 8-30	1.1	8.2-6.8	35	0.0718

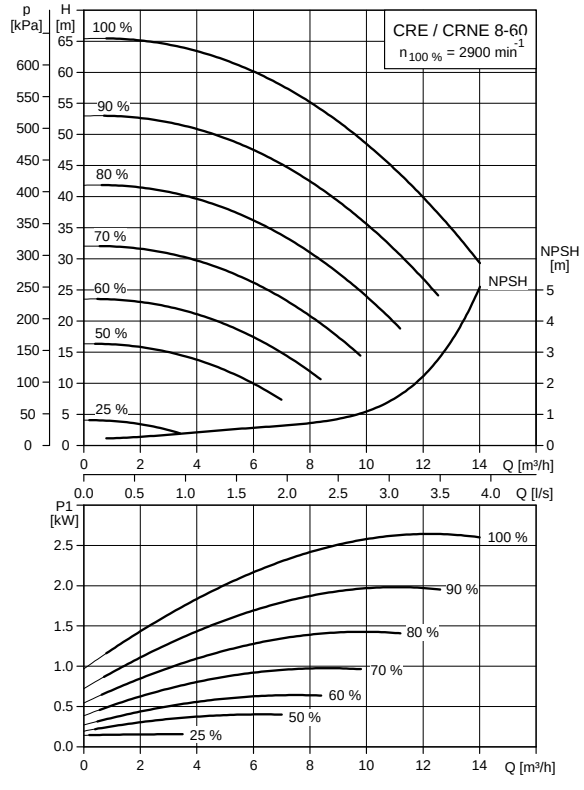
Performance curves



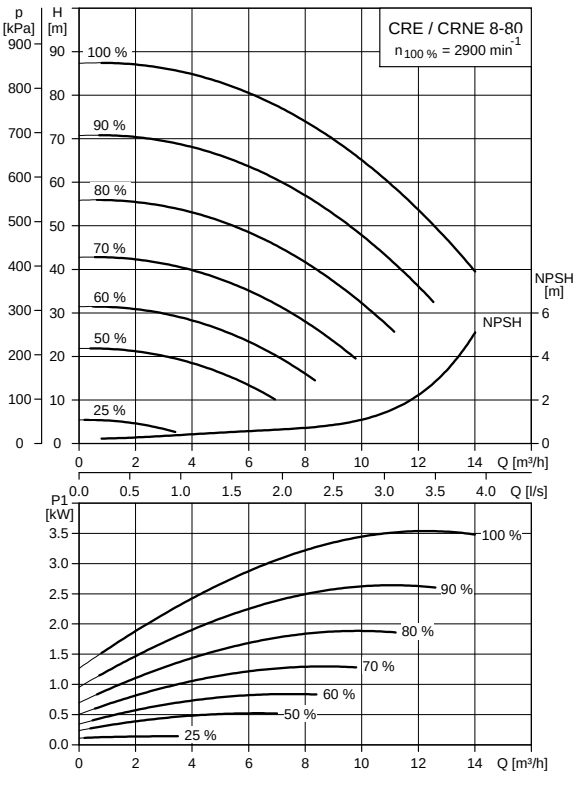
TM01 1532 4997



TM00 8479 3196



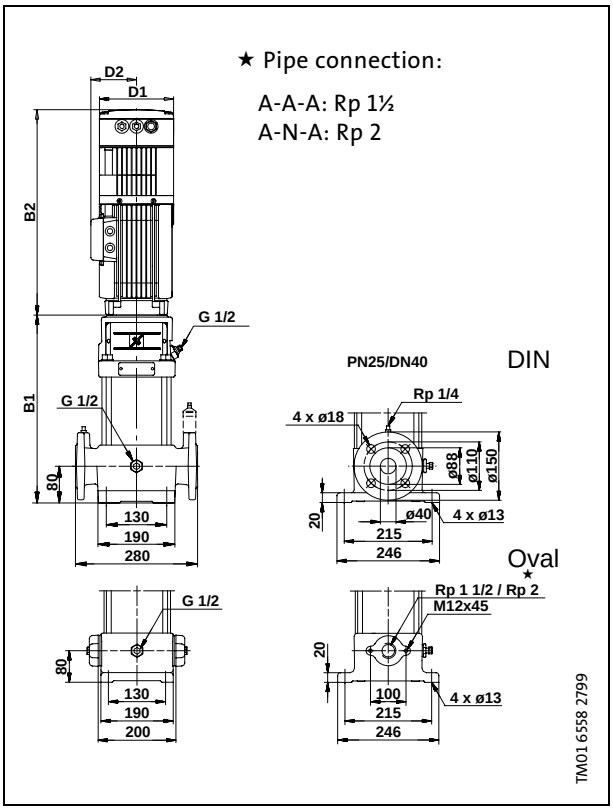
TM00 8492 3196



TM00 8493 3196

Technical data

CRE 8



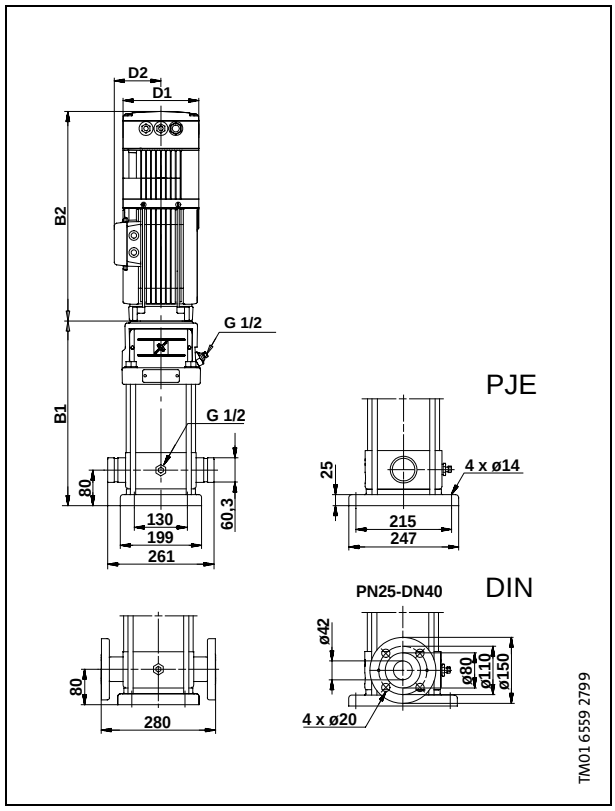
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	Oval flange		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRE 8-30	370	811	370	811	441	178	110
CRE 8-40	415	856	425	865	441	178	110
CRE 8-60	475	916	475	916	441	178	110
CRE 8-80	540	1035	540	1035	495	178	110

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 8-30	1.1	3.10	50	0.093
CRE 8-40	1.5	4.00	50	0.108
CRE 8-60	2.2	5.35	55	0.108
CRE 8-80	3.0	6.80	60	0.156

CRNE 8



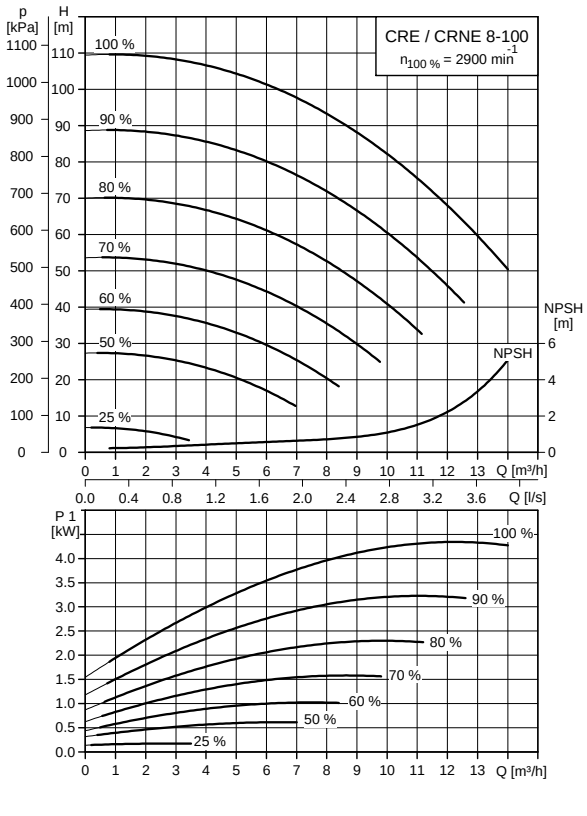
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]						
	PJE coupling		DIN flange		B2	D1	D2
	B1	B1+B2	B1	B1+B2			
CRNE 8-30	370	811	370	811	441	178	110
CRNE 8-40	415	856	415	856	441	178	110
CRNE 8-60	475	916	475	916	441	178	110
CRNE 8-80	540	1035	540	1035	495	178	110

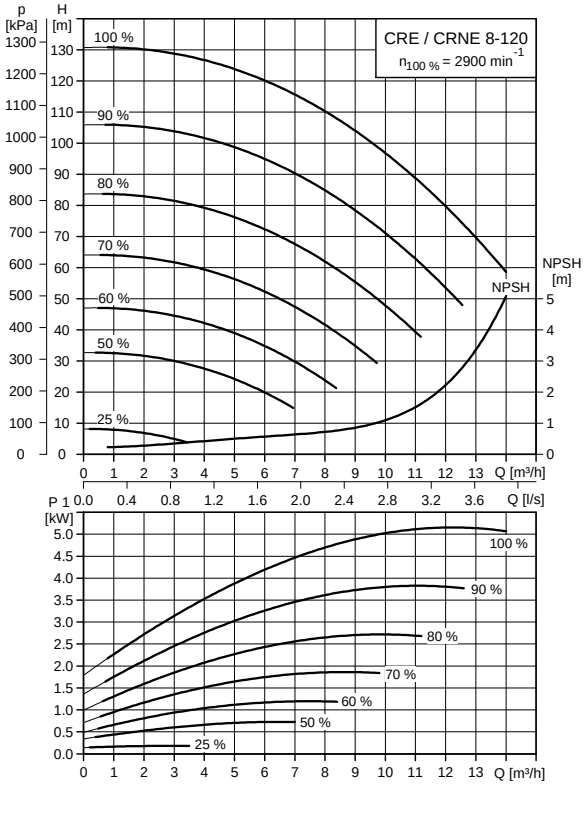
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 8-30	1.1	3.10	35	0.108
CRNE 8-40	1.5	4.00	35	0.108
CRNE 8-60	2.2	5.35	45	0.108
CRNE 8-80	3.0	6.80	50	0.156

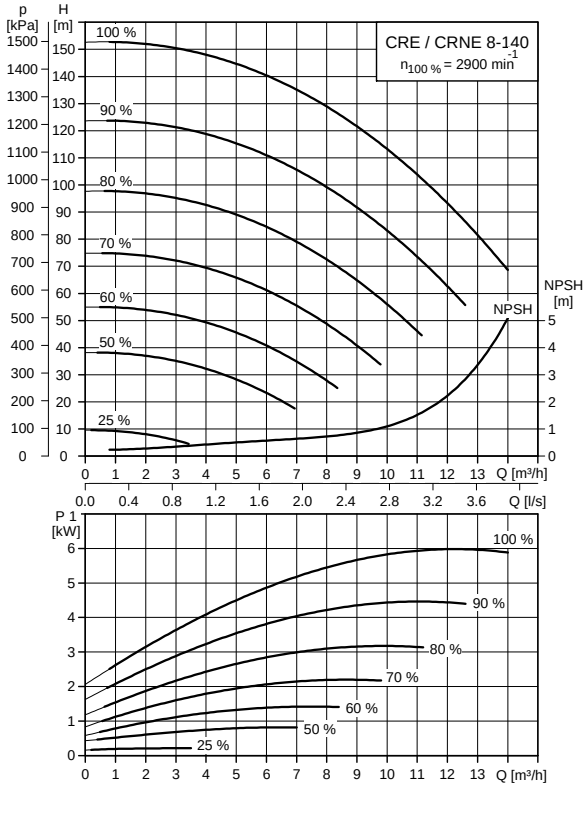
Performance curves



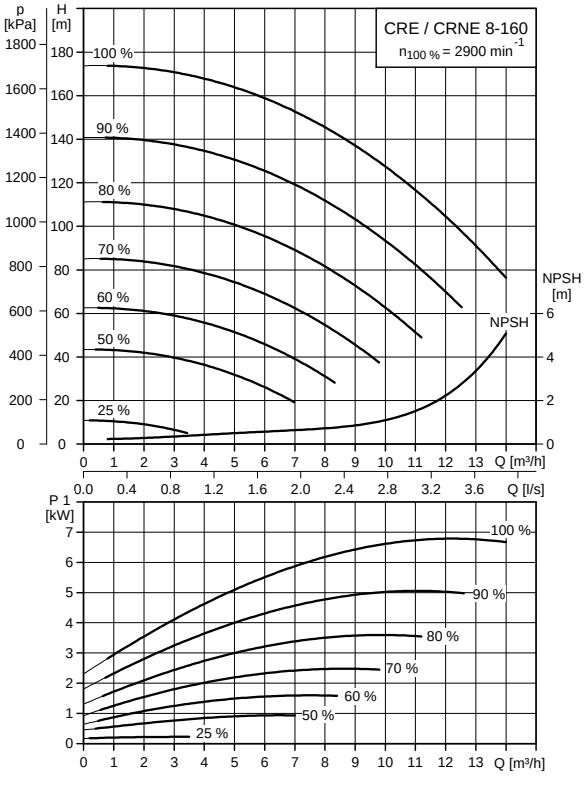
TM00 9637 5196



TM00 9638 5196



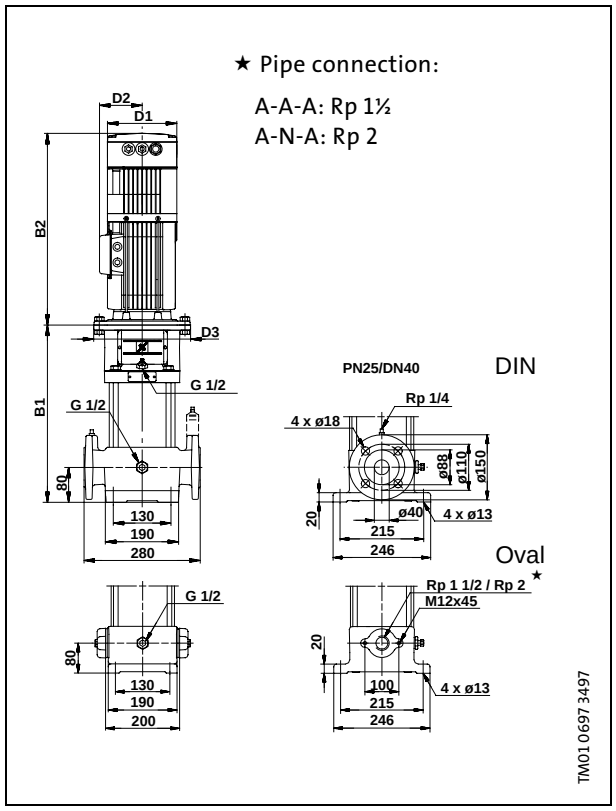
TM00 9639 5196



TM00 9640 5196

Technical data

CRE 8



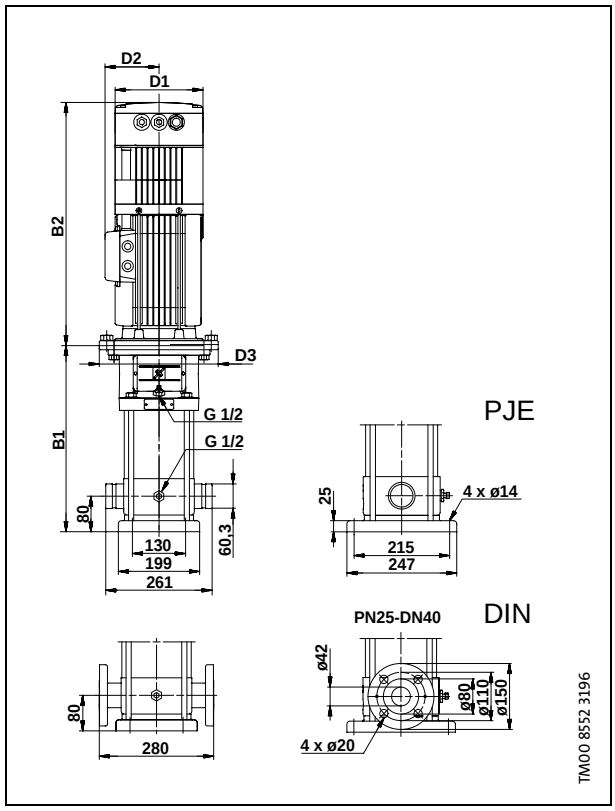
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]							
	Oval flange		DIN flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRE 8-100	600	1136	600	1136	536	220	134	
CRE 8-120	660	1136	660	1195	536	220	134	
CRE 8-140			740	1295	555	220	134	300
CRE 8-160			800	1355	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 8-100	4.0	9.00	60	0.181
CRE 8-120	4.0	9.00	75	0.181
CRE 8-140	5.5	12.0	95	0.181
CRE 8-160	5.5	12.0	95	0.181

CRNE 8



Dimensions and weights, 2900 min^{-1}

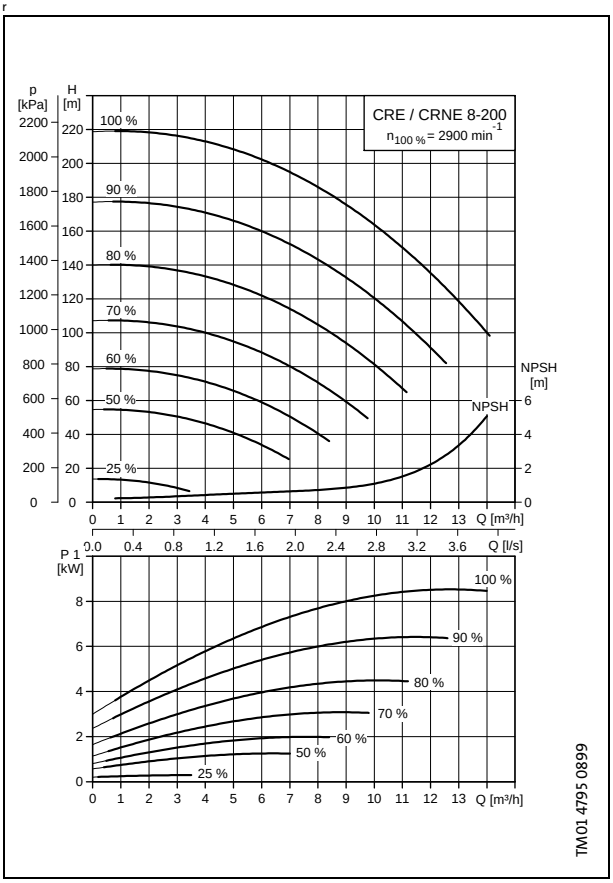
Pump type	Dimensions [mm]							
	PJE coupling		DIN flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRNE 8-100	600	1136	600	1136	536	220	134	
CRNE 8-120	660	1196	660	1196	536	220	134	
CRNE 8-140	740	1295	740	1295	555	220	134	300
CRNE 8-160	800	1355	800	1355	555	220	134	300

Technical data, 2900 min^{-1}

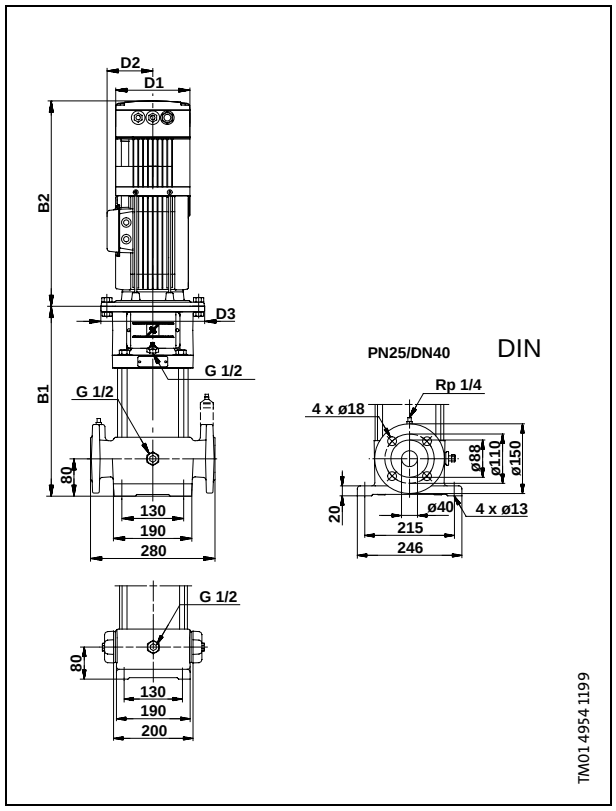
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 8-100	4.0	9.00	60	0.181
CRNE 8-120	4.0	9.00	60	0.181
CRNE 8-140	5.5	12.0	90	0.181
CRNE 8-160	5.5	12.0	90	0.181

Performance curves

r



CRE 8



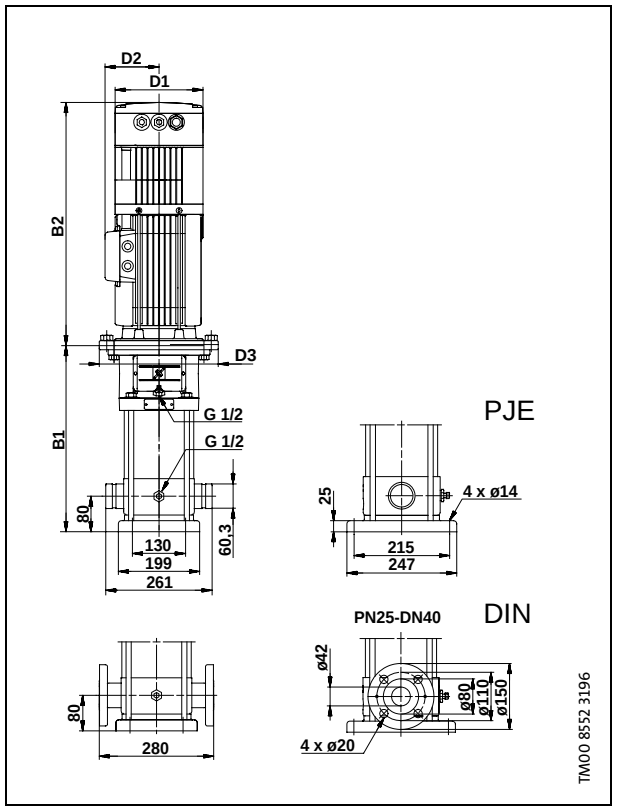
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 8-200	920	1475	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 8-200	7.5	16.0	100	0.330

CRNE 8

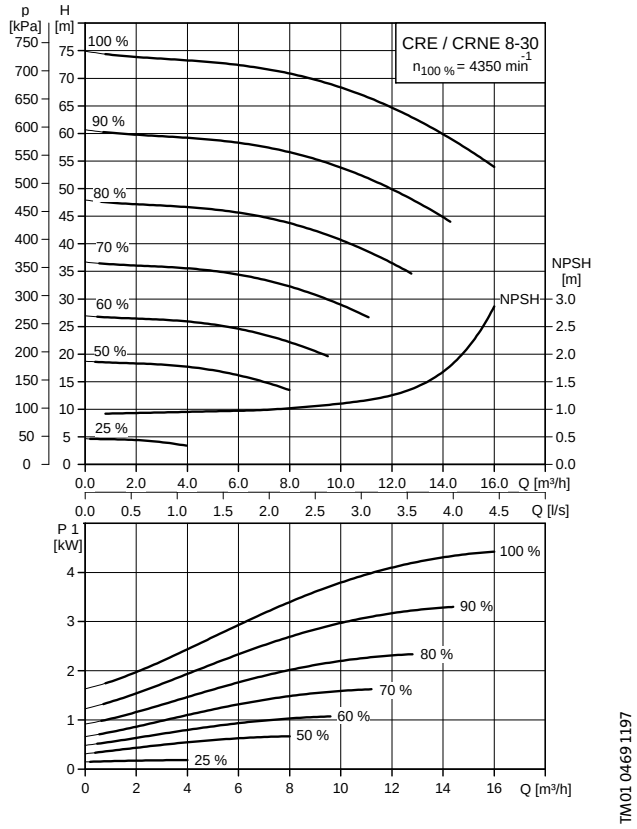


Dimensions and weights, 2900 min^{-1}

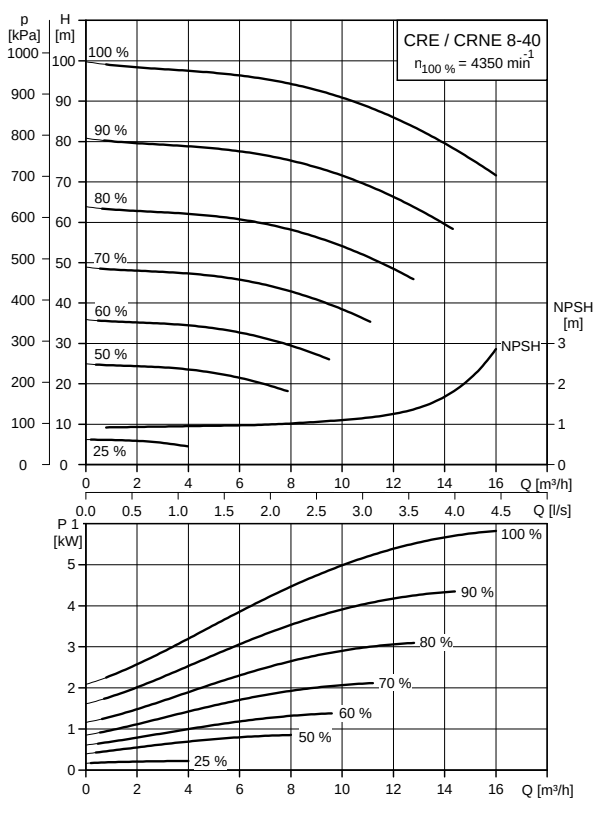
Pump type	Dimensions [mm]							
	PJE coupling		DIN flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRNE 8-200	920	1475	920	1475	555	220	134	300

Technical data, 2900 min^{-1}

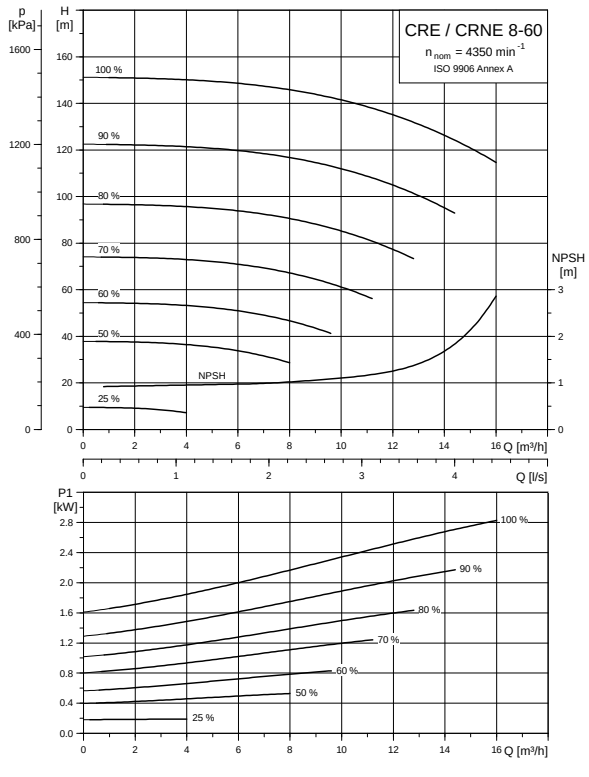
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 8-200	7.5	16.0	100	0.330



TM01 0469 1197

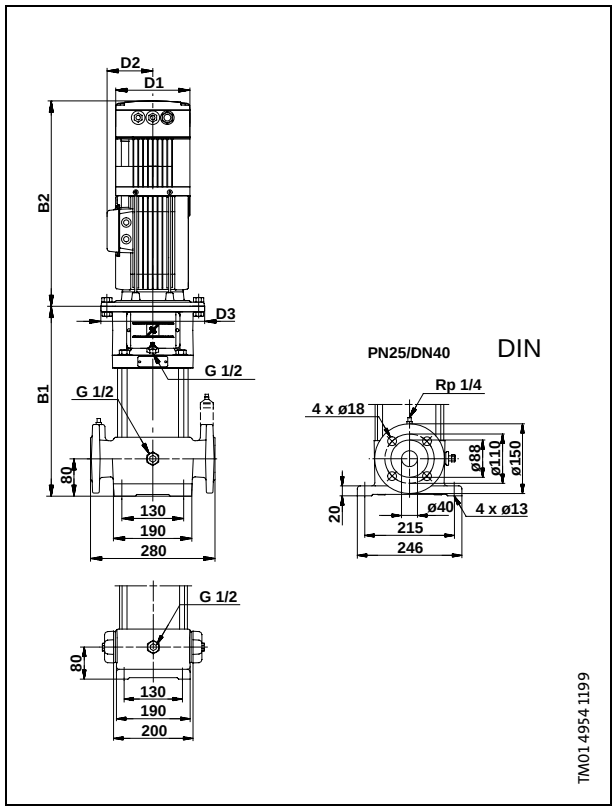


TM01 0470 1197



TM02 1356 1101

CRE 8



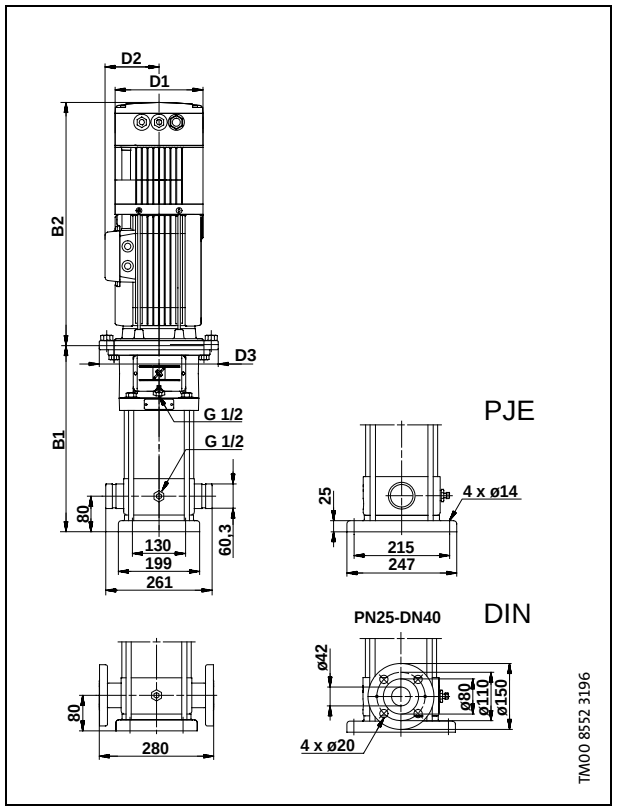
Dimensions and weights, 4350 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 8-30	370	906	536	220	134	
CRE 8-40	415	970	555	220	134	300
CRE 8-60	475	1030	555	220	134	300

Technical data, 4350 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 8-30	4.0	9.20	60	0.108
CRE 8-40	5.5	12.3	78	0.108
CRE 8-60	7.5	16.0	85	0.108

CRNE 8



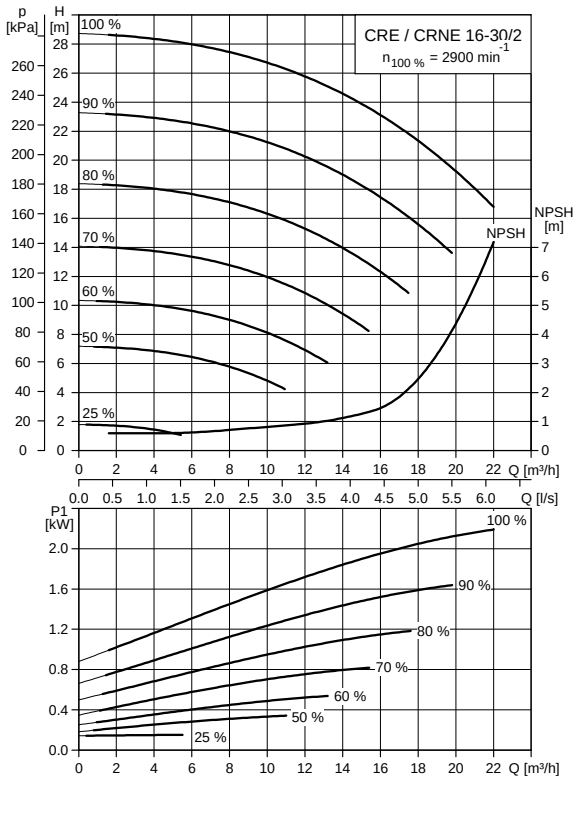
Dimensions and weights, 4350 min^{-1}

Pump type	Dimensions [mm]							
	PJE coupling		DIN flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRNE 8-30	370	906	370	906	536	220	134	
CRNE 8-40	415	970	415	970	555	220	134	300
CRNE 8-60	475	1030	475	1030	555	220	134	300

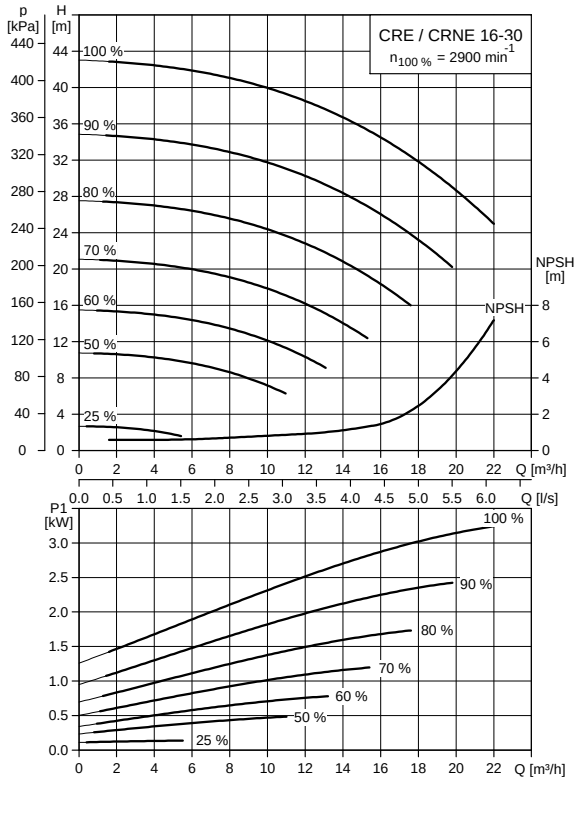
Technical data, 4350 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 8-30	4.0	9.20	55	0.108
CRNE 8-40	5.5	12.3	63	0.108
CRNE 8-60	7.5	16.0	75	0.108

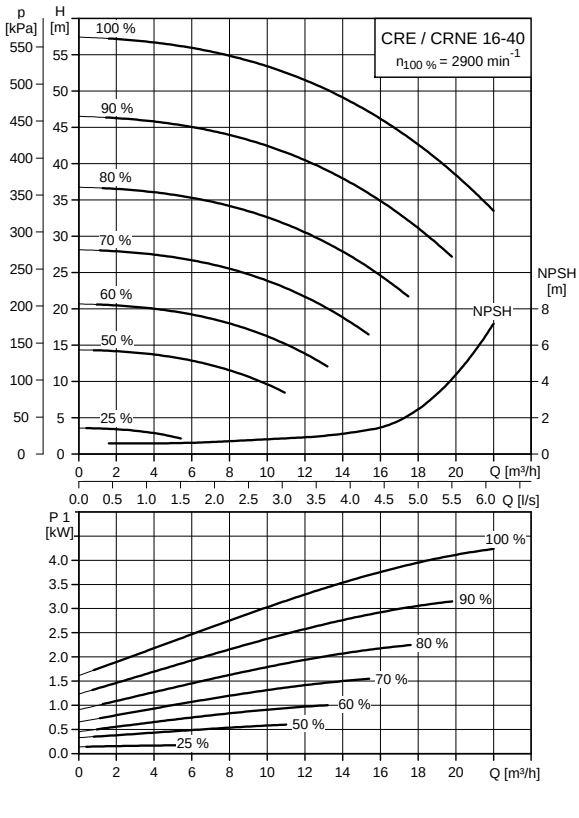
Performance curves



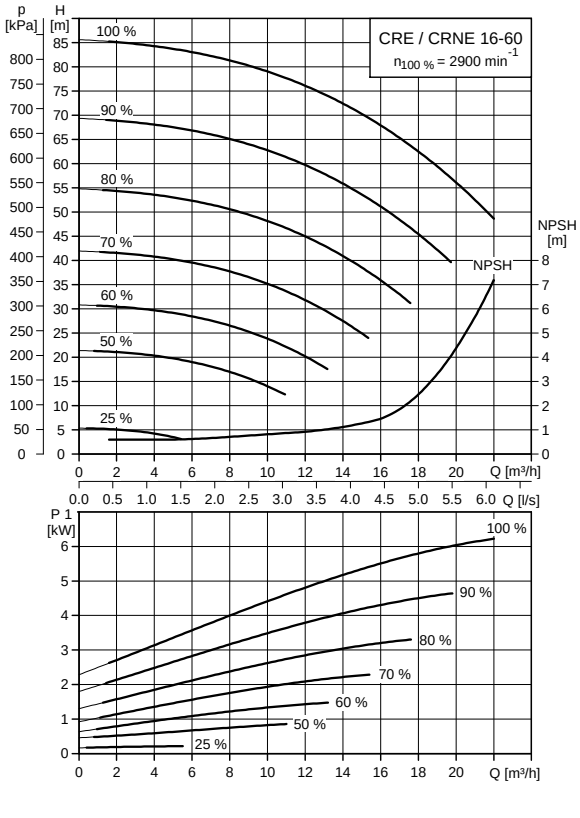
TM00 8494 3195



TM00 8495 3196



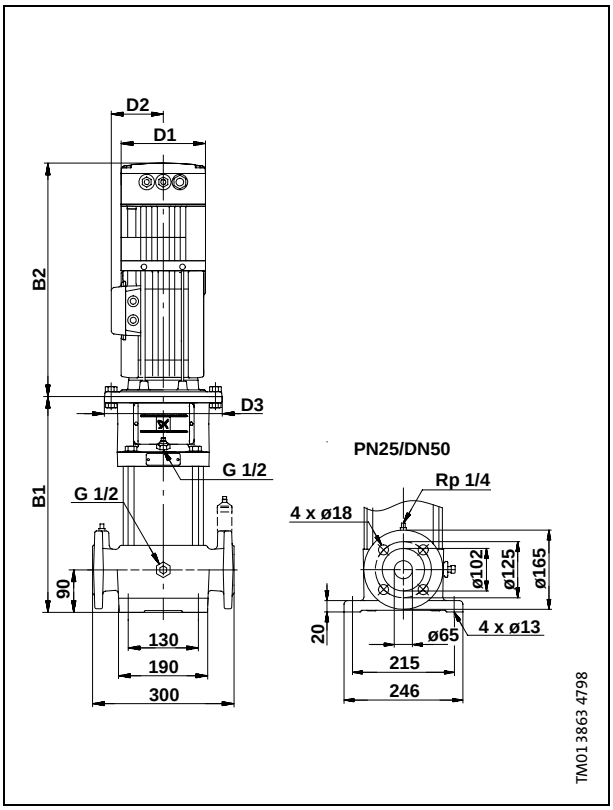
TM00 9643 5196



TM00 9645 5196

Technical data

CRE 16



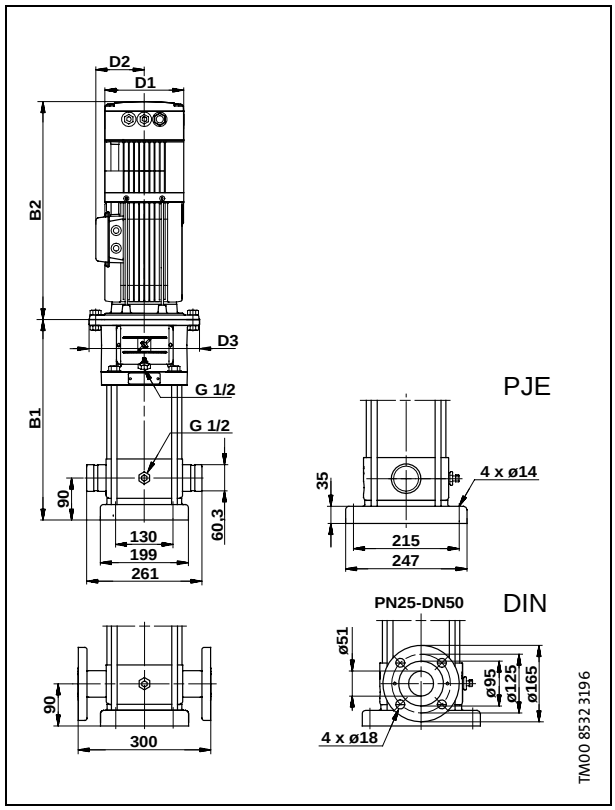
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 16-30/2	460	901	441	178	110	
CRE 16-30	460	955	495	178	110	
CRE 16-40	505	1041	536	178	134	
CRE 16-60	615	1170	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 16-30/2	2.2	5.35	55	0.108
CRE 16-30	3.0	6.80	60	0.108
CRE 16-40	4.0	9.00	65	0.122
CRE 16-60	5.5	12.0	95	0.181

CRNE 16



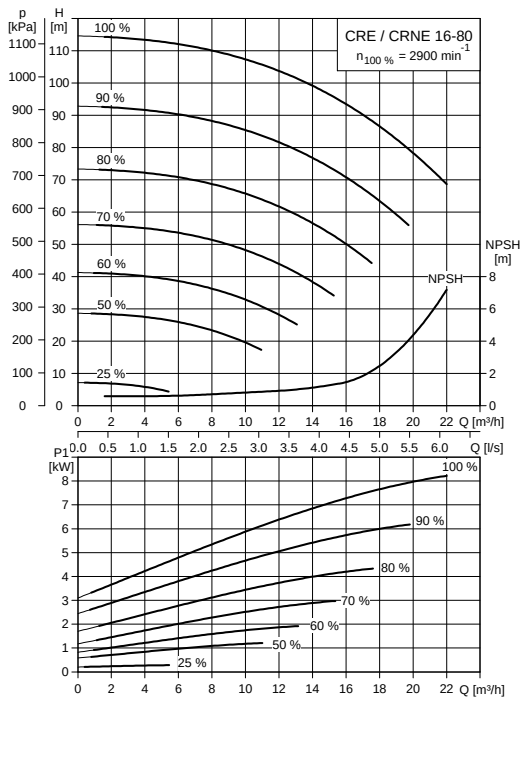
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]							
	PJE coupling		DIN flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRNE 16-30/2	460	901	460	901	441	178	110	
CRNE 16-30	460	955	460	955	495	178	110	
CRNE 16-40	505	1041	505	1041	536	178	134	
CRNE 16-60	615	1170	615	1170	555	220	134	300

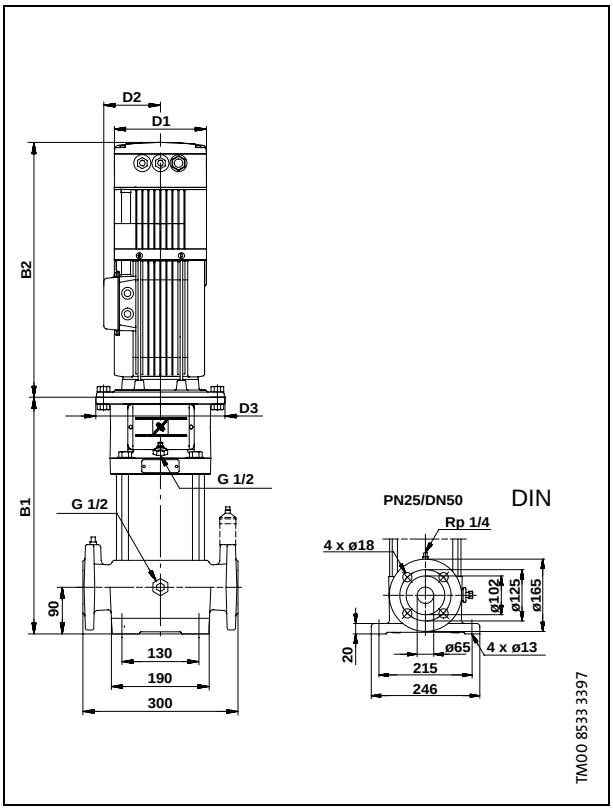
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 16-30/2	2.2	5.35	40	0.108
CRNE 16-30	3.0	6.80	55	0.108
CRNE 16-40	4.0	9.00	60	0.181
CRNE 16-60	5.5	12.0	85	0.181

Performance curves



CRE 16



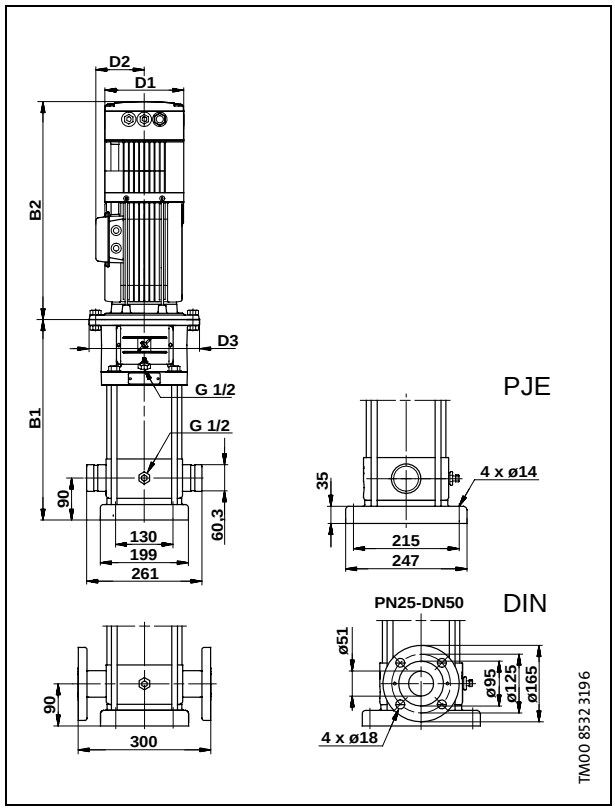
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 16-80	705	1260	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 16-80	7.5	16.0	100	0.181

CRNE 16



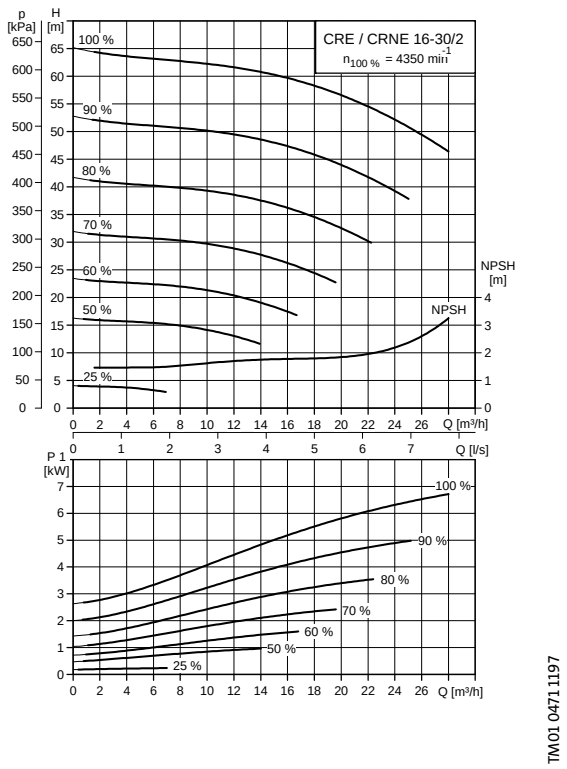
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]							
	PJE coupling		DIN flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRNE 16-80	705	1260	705	1260	555	220	134	300

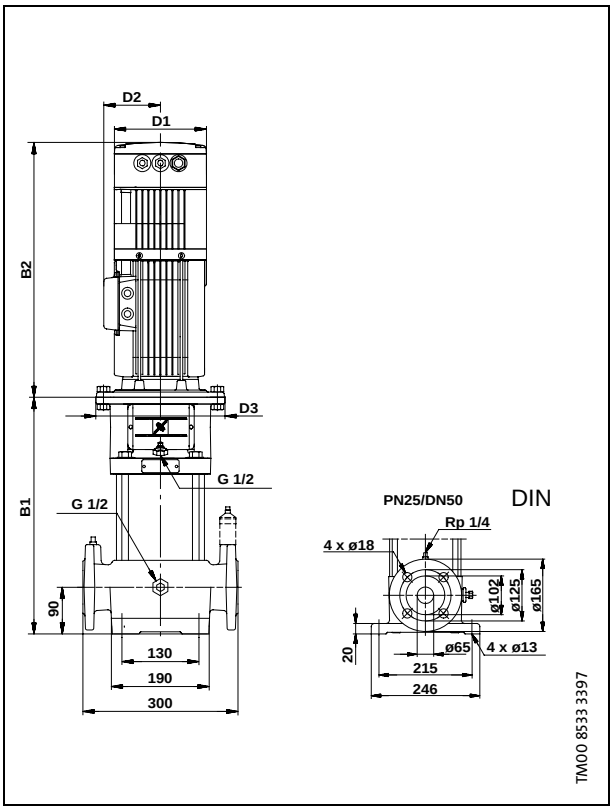
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 16-80	7.5	16.0	90	0.181

Performance curves



CRE 16



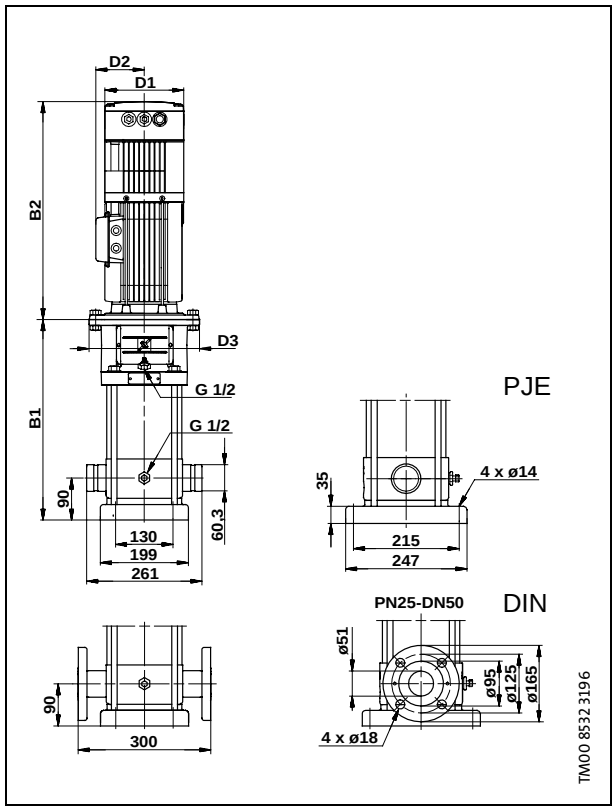
Dimensions and weights, 4350 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 16-30/2	460	1015	555	220	134	300

Technical data, 4350 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 16-30/2	5.5	12.3	81	0.108

CRNE 16



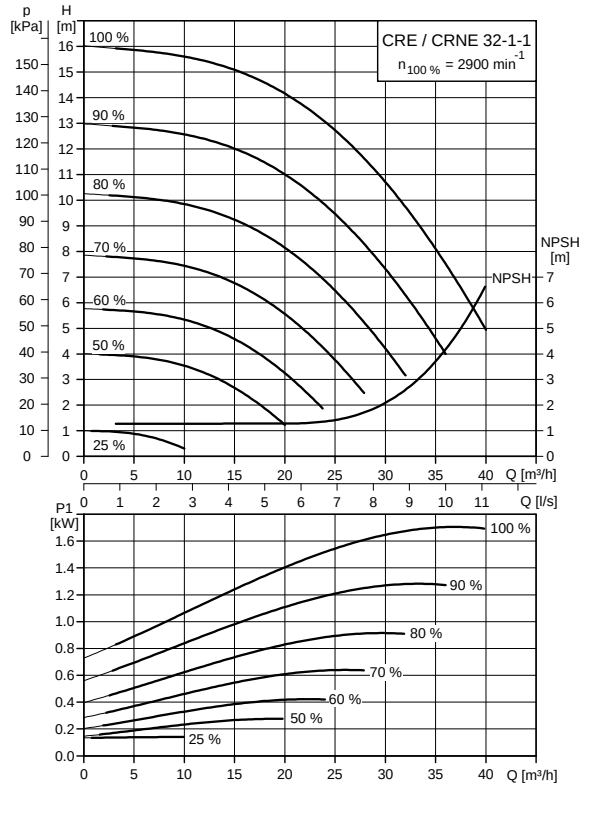
Dimensions and weights, 4350 min^{-1}

Pump type	Dimensions [mm]							
	PJE coupling		DIN Flange		B2	D1	D2	D3
	B1	B1+B2	B1	B1+B2				
CRNE 16-30/2	460	1015	460	1015	555	220	134	300

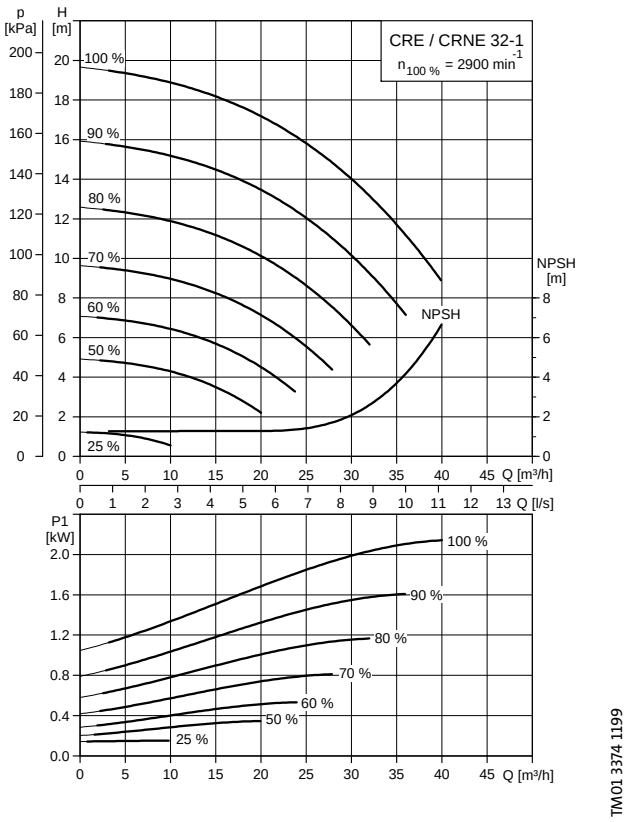
Technical data, 4350 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 16-30/2	5.5	12.3	71	0.108

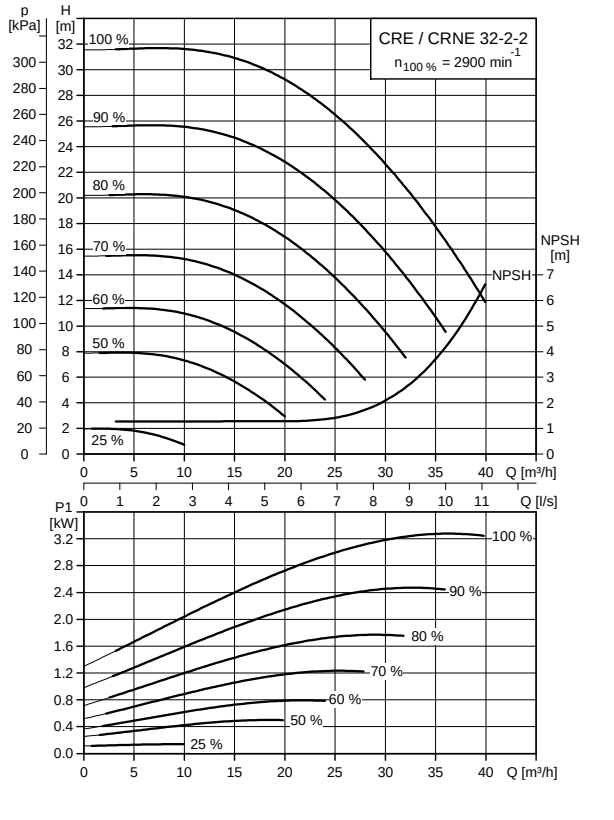
Performance curves



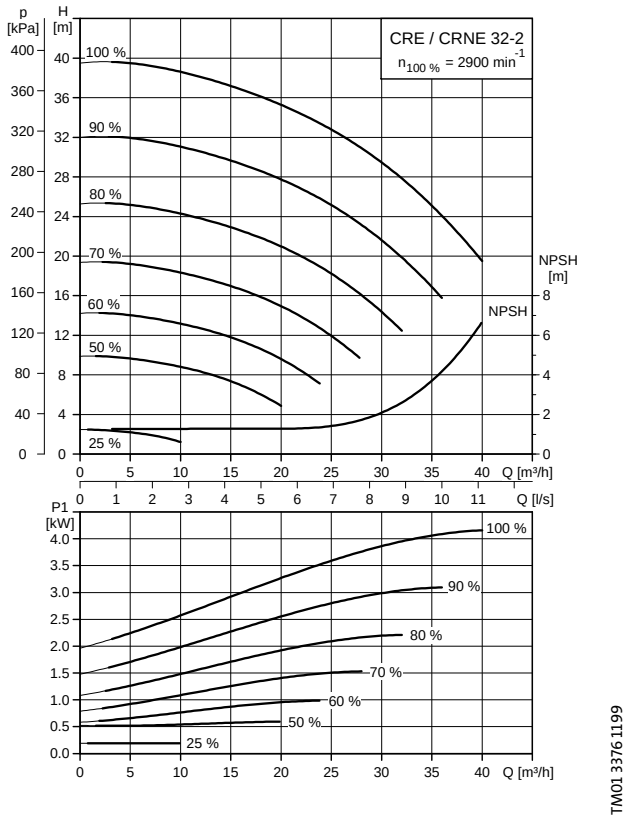
TM01 3373 1199



TM01 3374 1199



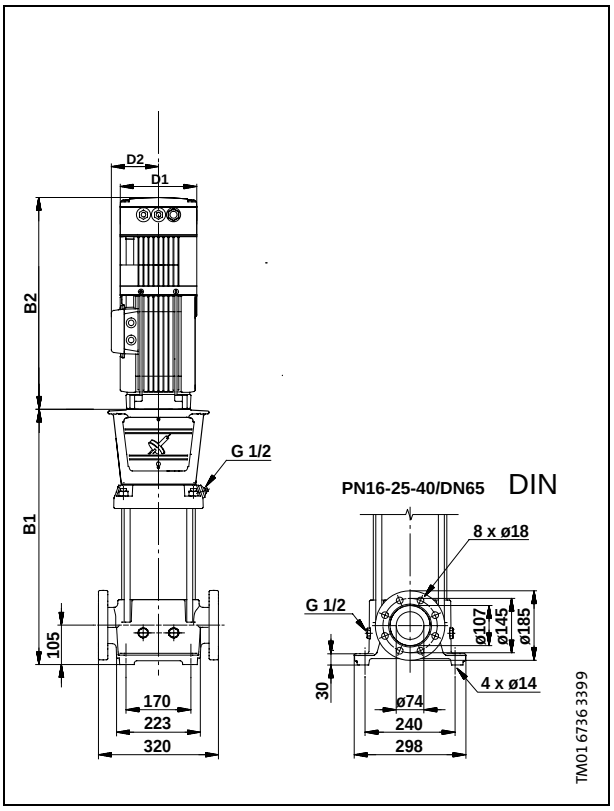
TM01 3375 1199



TM01 3376 1199

Technical data

CRE 32



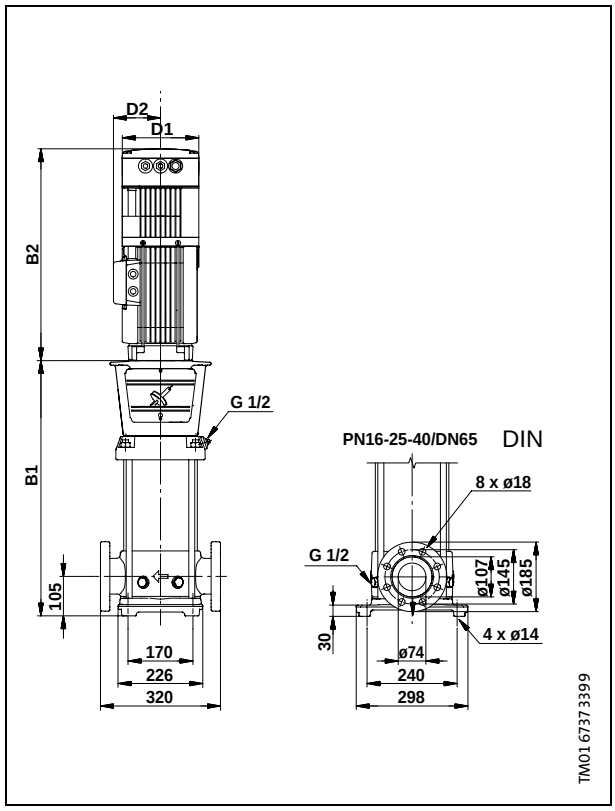
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]				
	DIN flange		B2	D1	D2
	B1	B1+B2			
CRE 32-1-1	505	946	441	178	110
CRE 32-1	505	946	441	178	110
CRE 32-2-2	575	1070	495	178	110
CRE 32-2	575	1111	536	220	134

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 32-1-1	1.5	4.00	75	0.149
CRE 32-1	2.2	5.35	84	0.149
CRE 32-2-2	3.0	6.80	94	0.149
CRE 32-2	4.0	9.00	103	0.149

CRNE 32



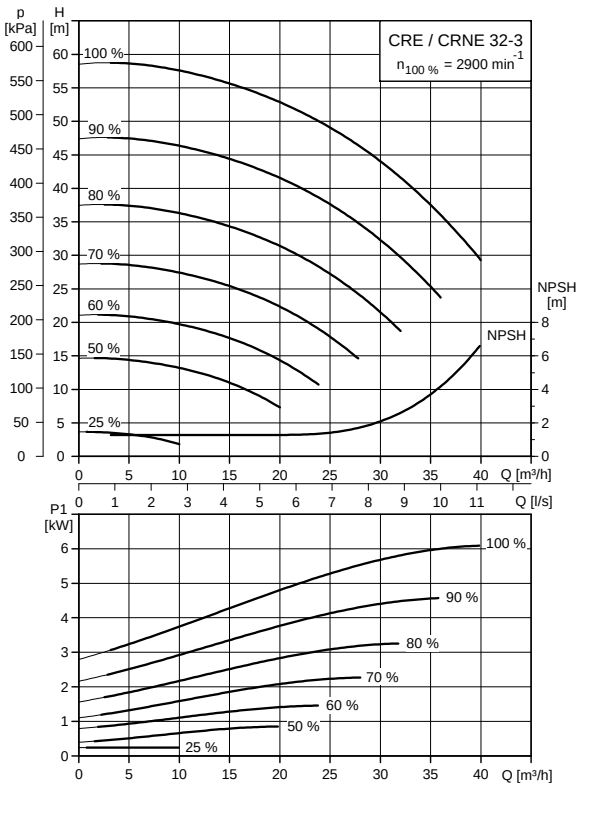
Dimensions and weights, 2900 min^{-1}

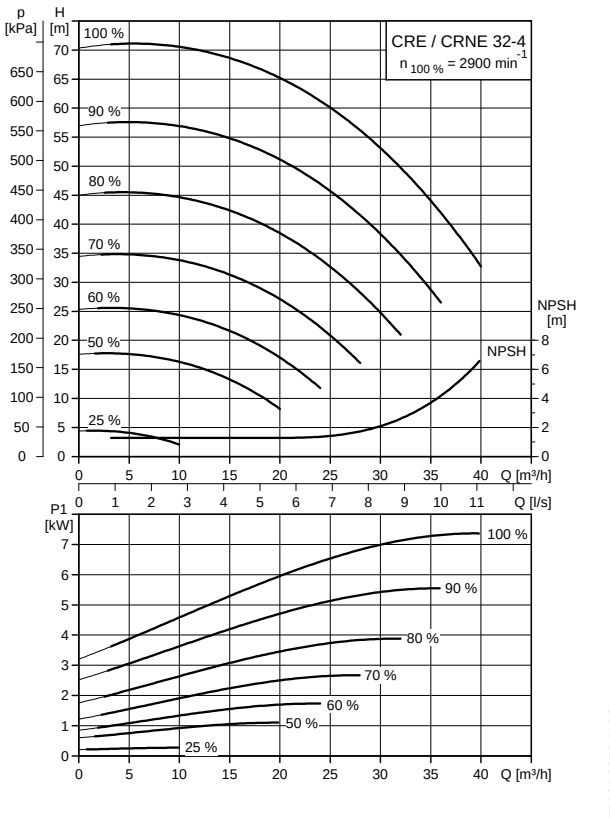
Pump type	Dimensions [mm]				
	DIN flange		B2	D1	D2
	B1	B1+B2			
CRNE 32-1-1	505	946	441	178	110
CRNE 32-1	505	946	441	178	110
CRNE 32-2-2	575	1070	495	178	110
CRNE 32-2	575	1111	536	220	134

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 32-1-1	1.5	4.00	75	0.149
CRNE 32-1	2.2	5.35	84	0.149
CRNE 32-2-2	3.0	6.80	93	0.149
CRNE 32-2	4.0	9.00	102	0.149

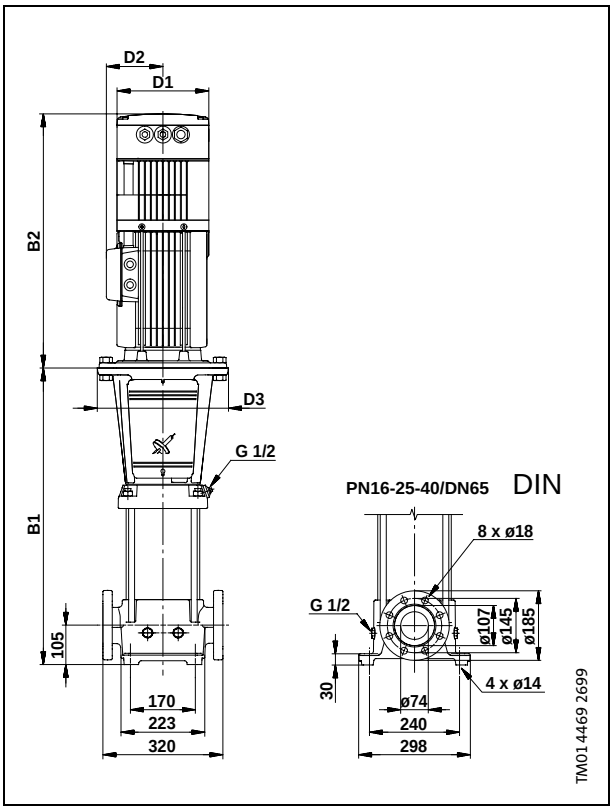
Performance curves





Technical data

CRE 32



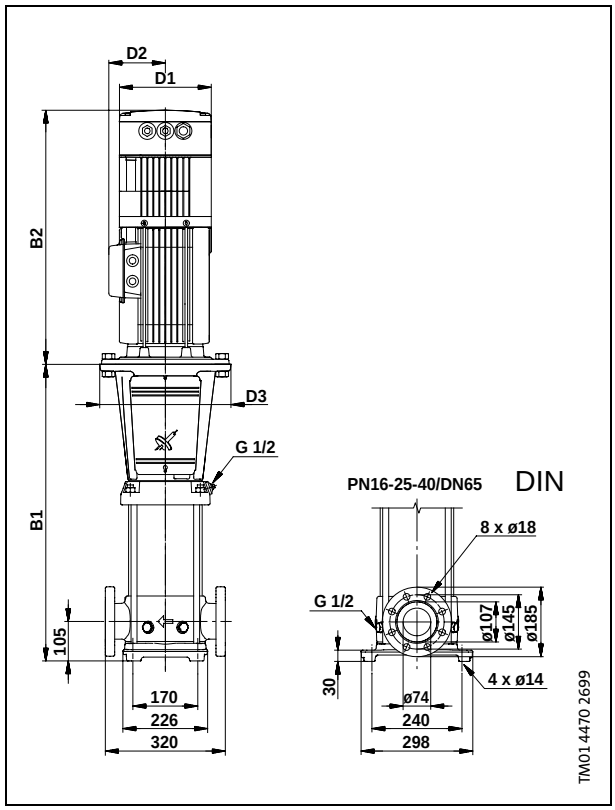
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 32-3	645	1200	555	220	134	300
CRE 32-4-2	715	1270	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 32-3	5.5	12.0	117	0.149
CRE 32-4-2	7.5	16.0	125	0.319

CRNE 32



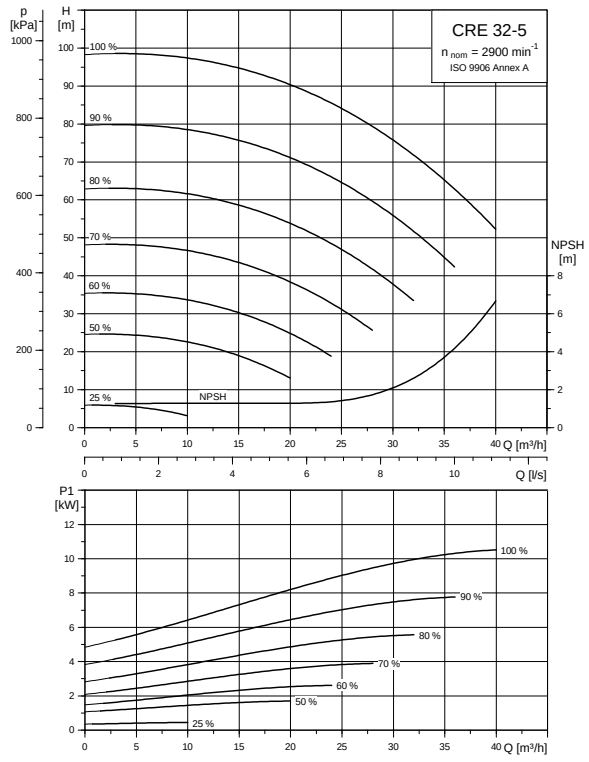
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 32-3	645	1200	555	220	134	300
CRNE 32-4	715	1270	555	220	134	300

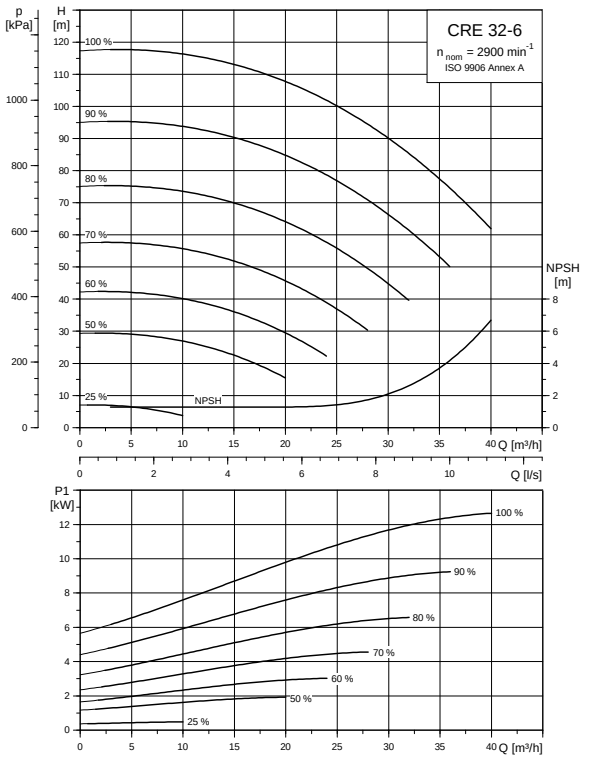
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 32-3	5.5	12.0	116	0.149
CRNE 32-4	7.5	16.0	125	0.319

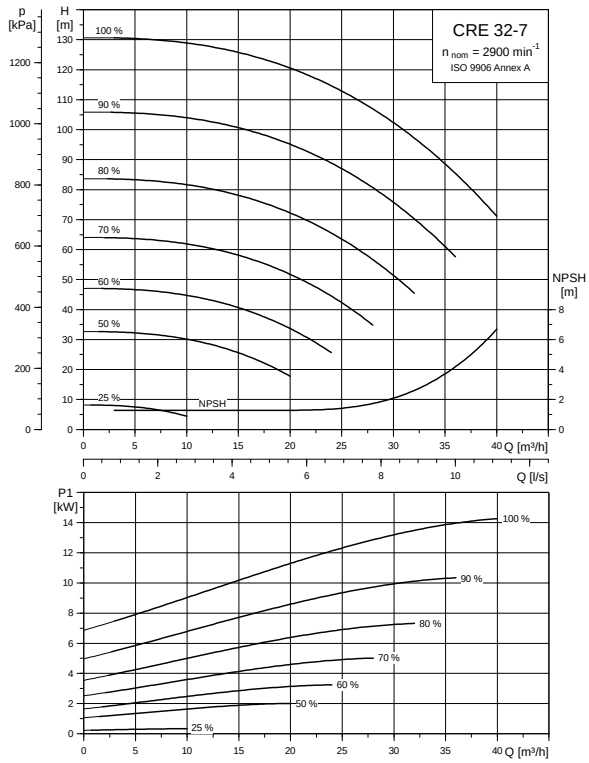
Performance curves



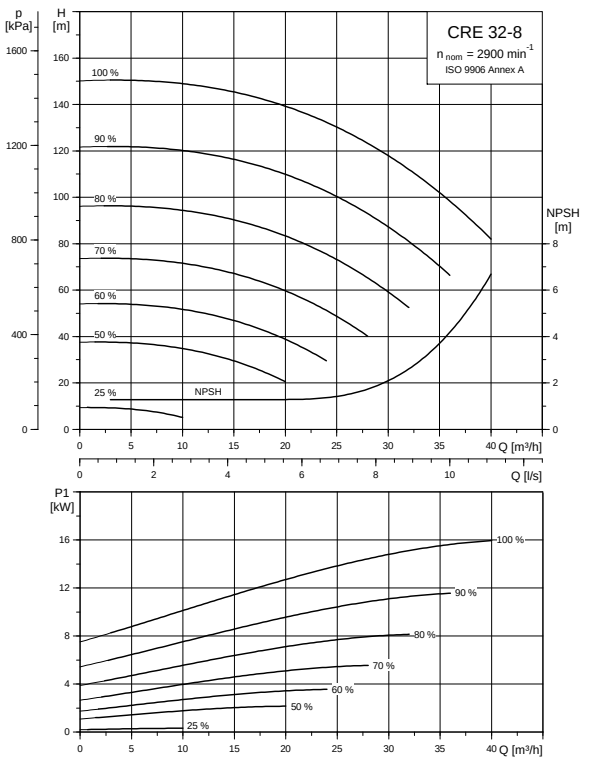
TM02 2273 2002



TM02 2274 2002



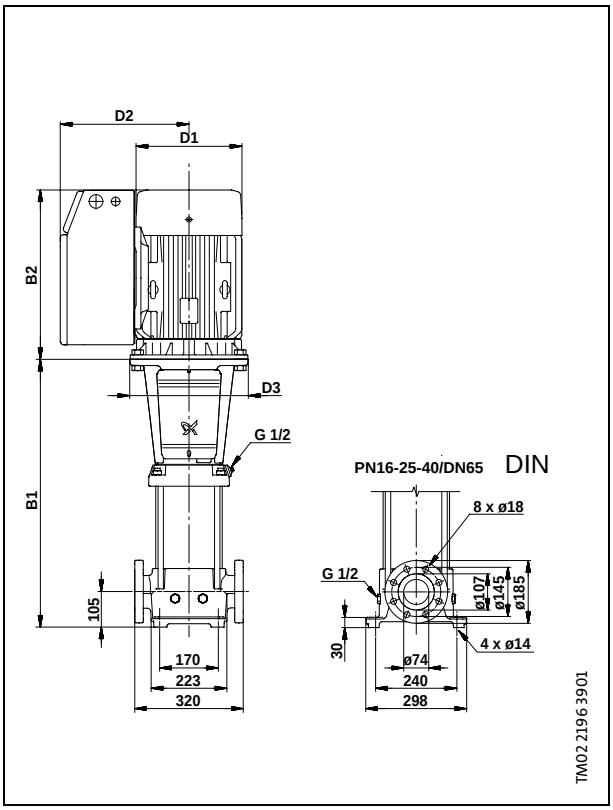
TM02 2275 2002



TM02 2276 4001

Technical data

CRE 32



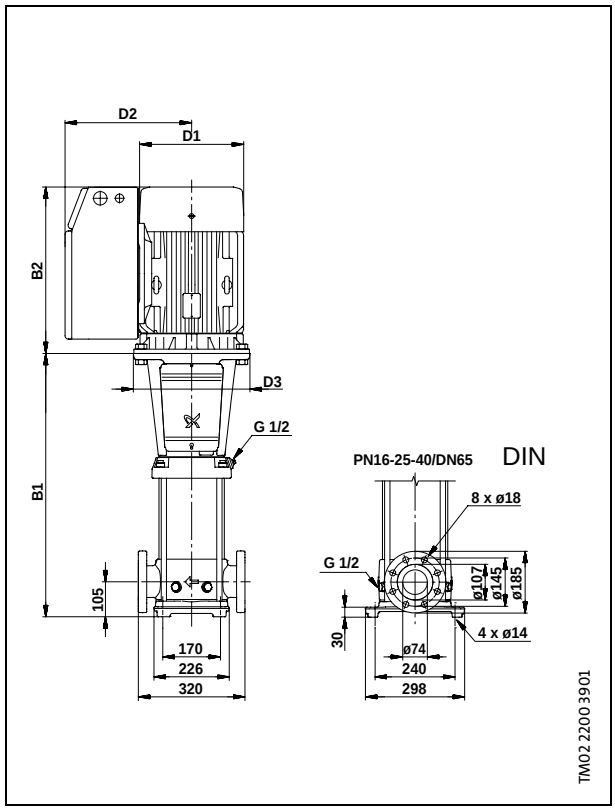
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]				
	DIN flange		B2	D1	D2
	B1	B1+B2			
CRE 32-5	895	1333	438	258	344
CRE 32-6	965	1403	438	258	344
CRE 32-7	1035	1486	451	313	372
CRE 32-8	1105	1556	451	313	372

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 32-5	11.0	21.3	207.5	0.8
CRE 32-6	11.0	21.3	211.5	0.8
CRE 32-7	15.0	28.1	232.5	0.8
CRE 32-8	15.0	28.1	236.5	0.8

CRNE 32



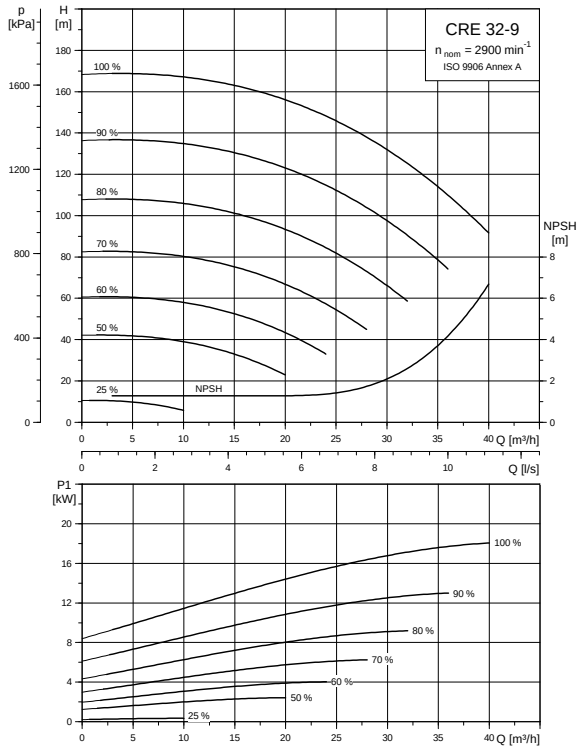
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]				
	DIN flange		B2	D1	D2
	B1	B1+B2			
CRNE 32-5	895	1333	438	258	344
CRNE 32-6	965	1403	438	258	344
CRNE 32-7	1035	1486	451	313	372
CRNE 32-8	1105	1556	451	313	372

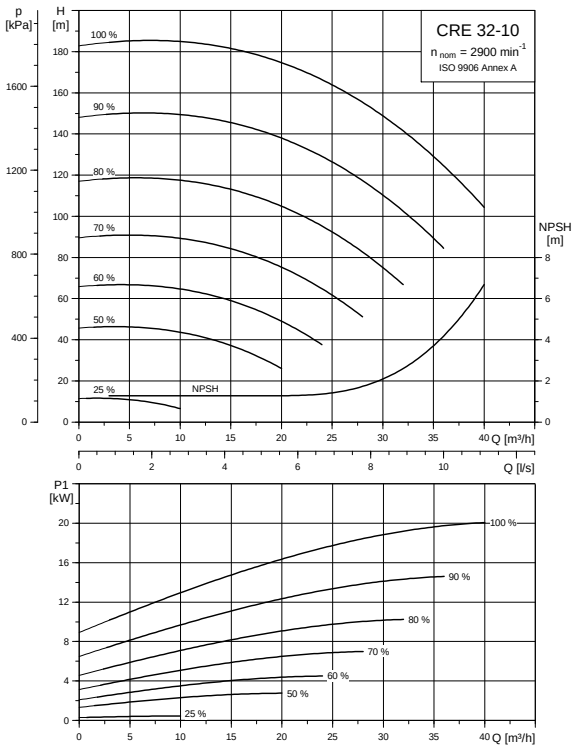
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 32-5	11.0	21.3	207.5	0.8
CRNE 32-6	11.0	21.3	211.5	0.8
CRNE 32-7	15.0	28.1	232.5	0.8
CRNE 32-8	15.0	28.1	236.5	0.8

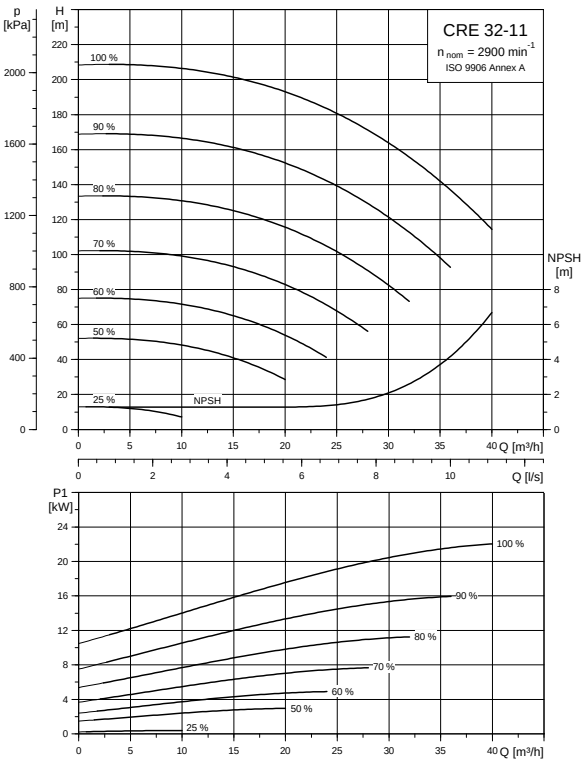
Performance curves



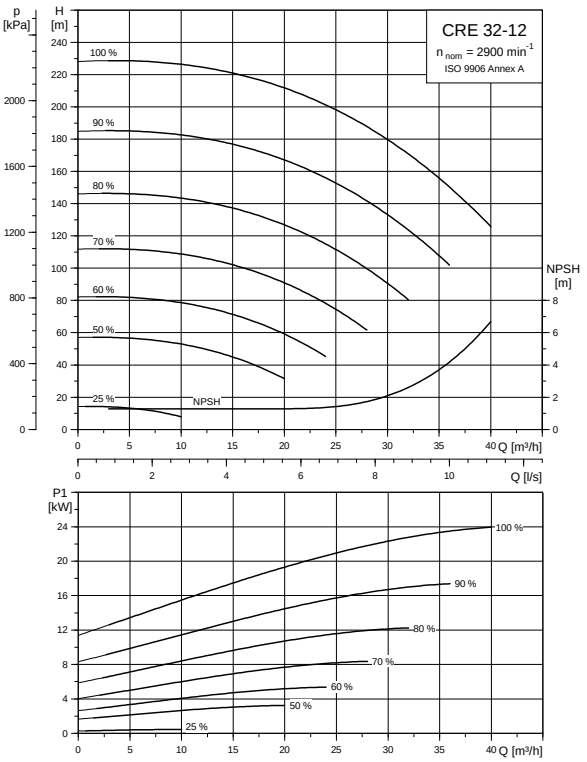
TM02 2277 4001



TM02 2278 4001



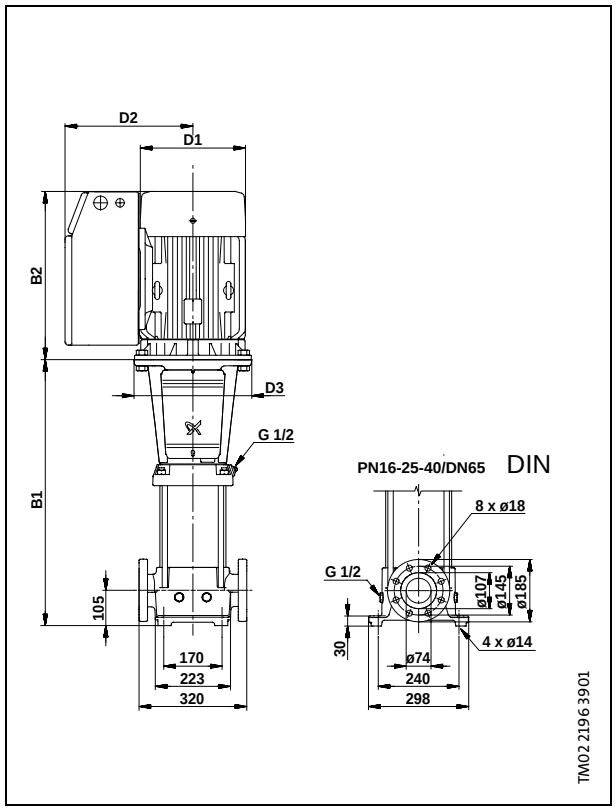
TM02 2279 4001



TM02 2280 4001

Technical data

CRE 32



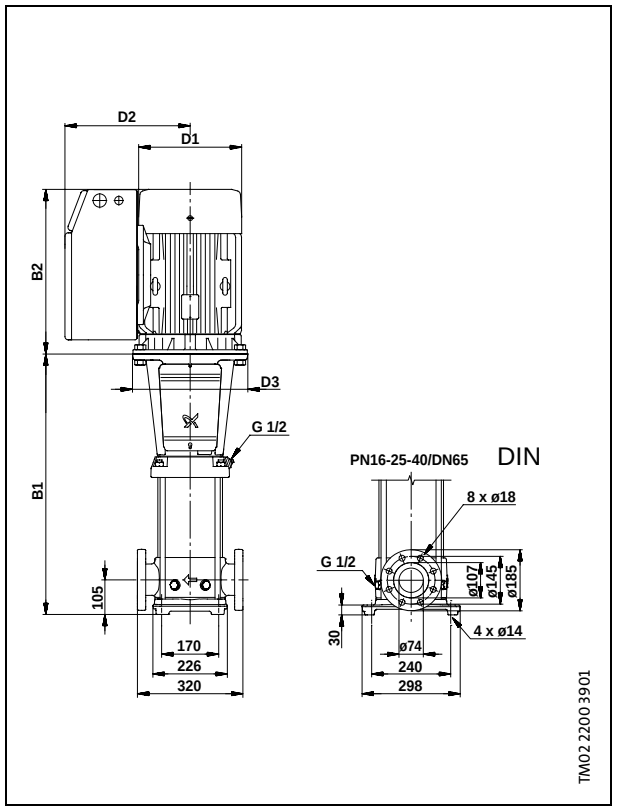
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]				
	DIN flange		B2	D1	D2
	B1	B1+B2			
CRE 32-9	1175	1628	453	313	372
CRE 32-10	1245	1698	453	313	372
CRE 32-11	1315	1823	508	351	385
CRE 32-12	1385	1893	508	351	385

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 32-9	18.5	34.2	284	0.8
CRE 32-10	18.5	34.2	288	0.8
CRE 32-11	22.0	41.9	323	1.06
CRE 32-12	22.0	41.9	327	1.06

CRNE 32

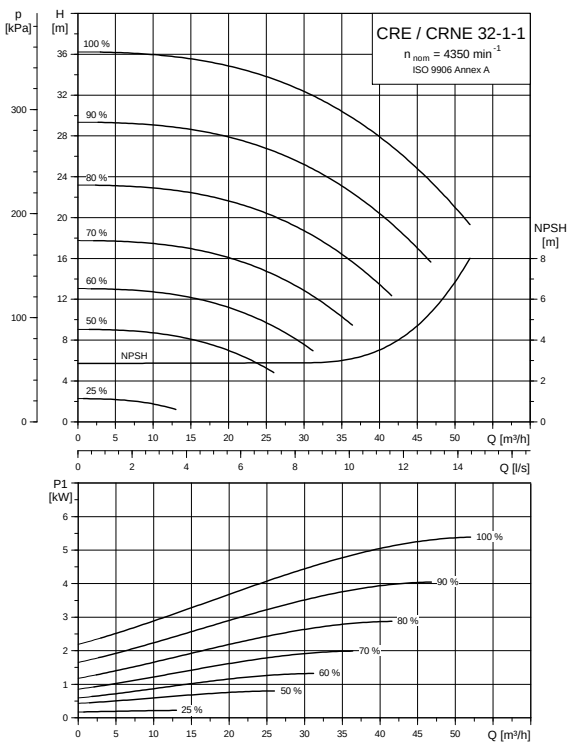


Dimensions and weights, 2900 min^{-1}

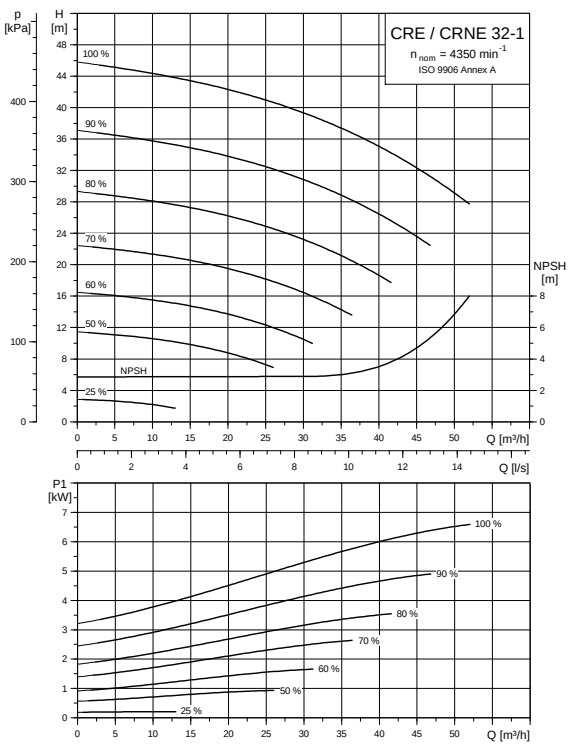
Pump type	Dimensions [mm]				
	DIN flange		B2	D1	D2
	B1	B1+B2			
CRNE 32-9	1175	1628	453	313	372
CRNE 32-10	1245	1698	453	313	372
CRNE 32-11	1315	1823	508	351	385
CRNE 32-12	1385	1893	508	351	385

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 32-9	18.5	34.2	284	0.8
CRNE 32-10	18.5	34.2	288	0.8
CRNE 32-11	22.0	41.9	323	1.06
CRNE 32-12	22.0	41.9	327	1.06



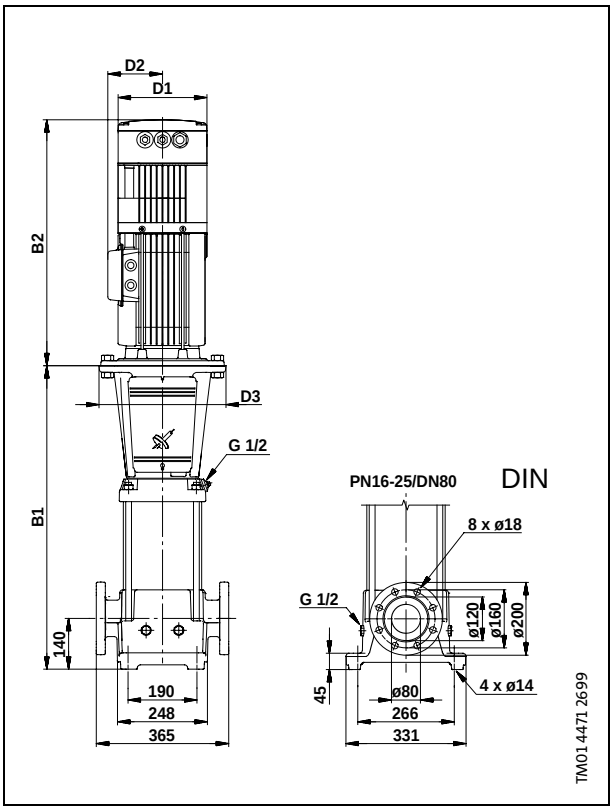
TM02 1357 1101



TM02 1358 1101

Technical data

CRE 32



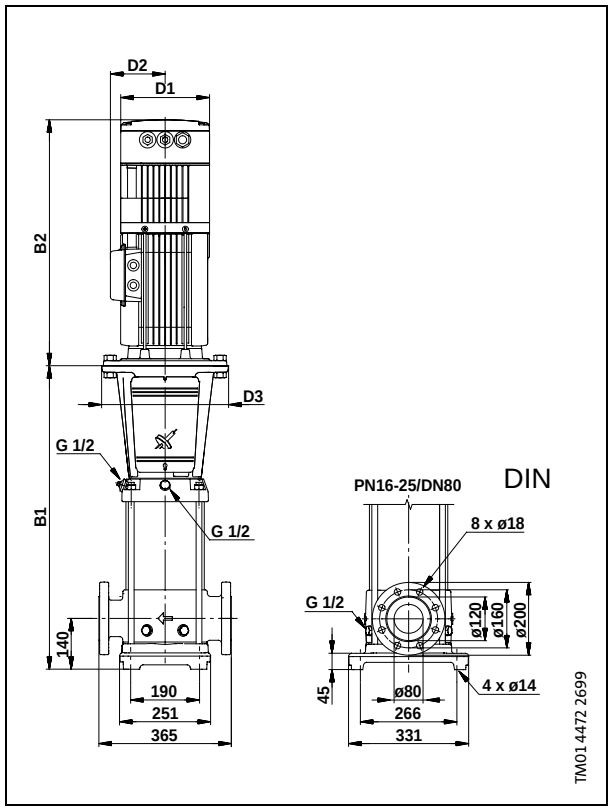
Dimensions and weights, 4350 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 32-1-1	505	1060	555	220	134	300
CRE 32-1	505	1060	555	220	134	300

Technical data, 4350 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 32-1-1	5.5	12.3	103	0.190
CRE 32-1	7.5	16.0	114	0.190

CRNE 32

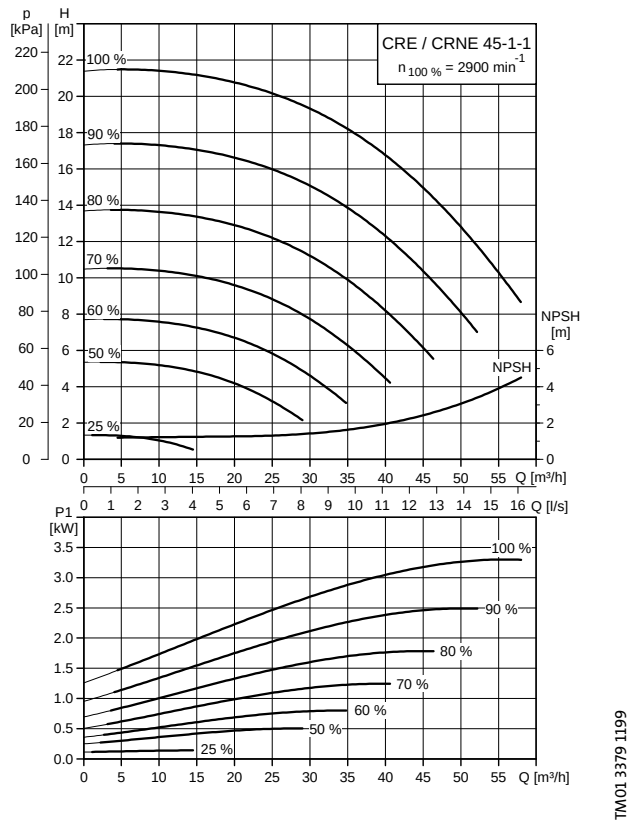


Dimensions and weights, 4350 min^{-1}

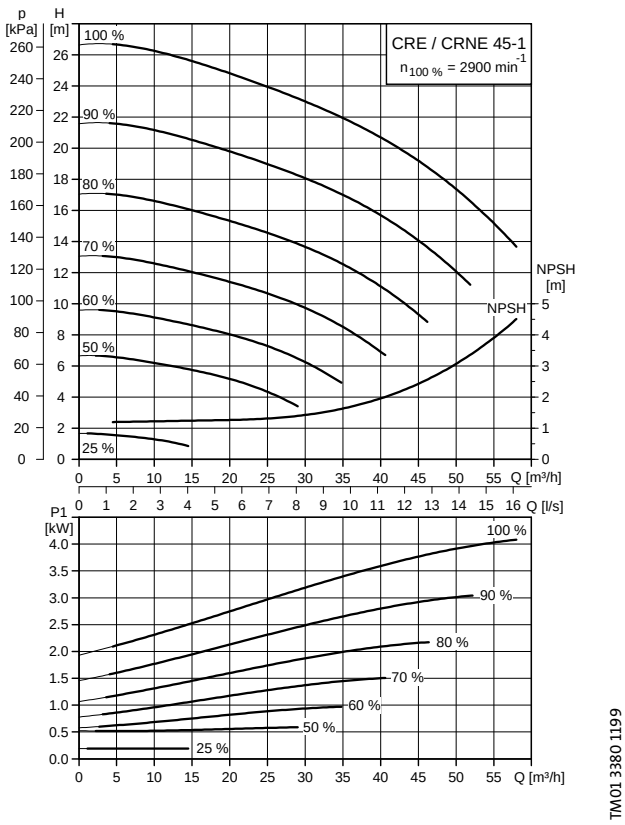
Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 32-1-1	505	1060	555	220	134	300
CRNE 32-1	505	1060	555	220	134	300

Technical data, 4350 min^{-1}

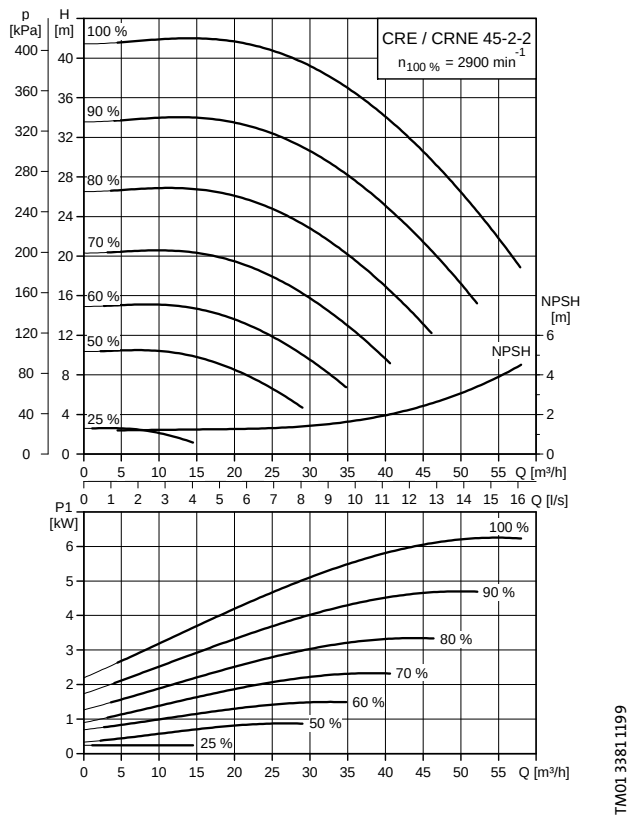
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 32-1-1	5.5	12.3	103	0.190
CRNE 32-1	7.5	16.0	114	0.190



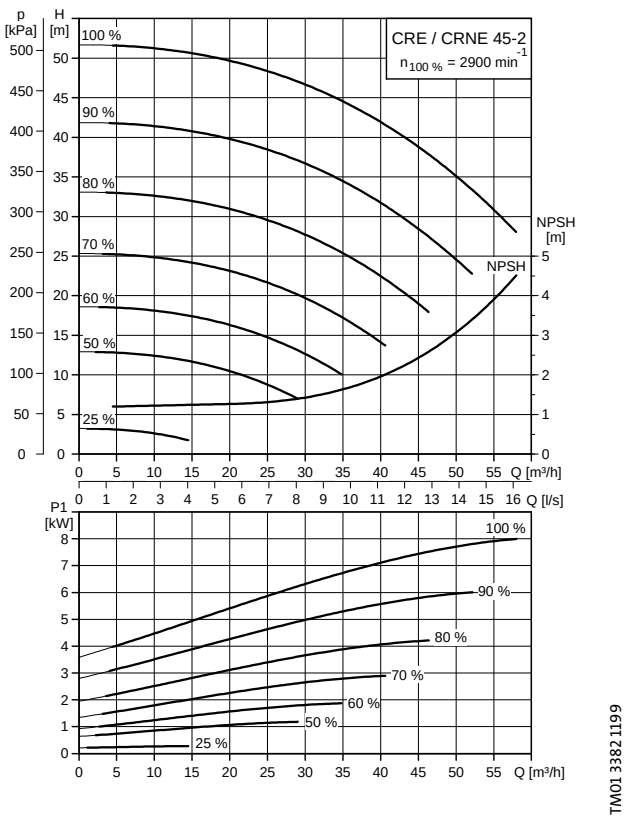
TM01 3379 1199



TM01 3380 1199

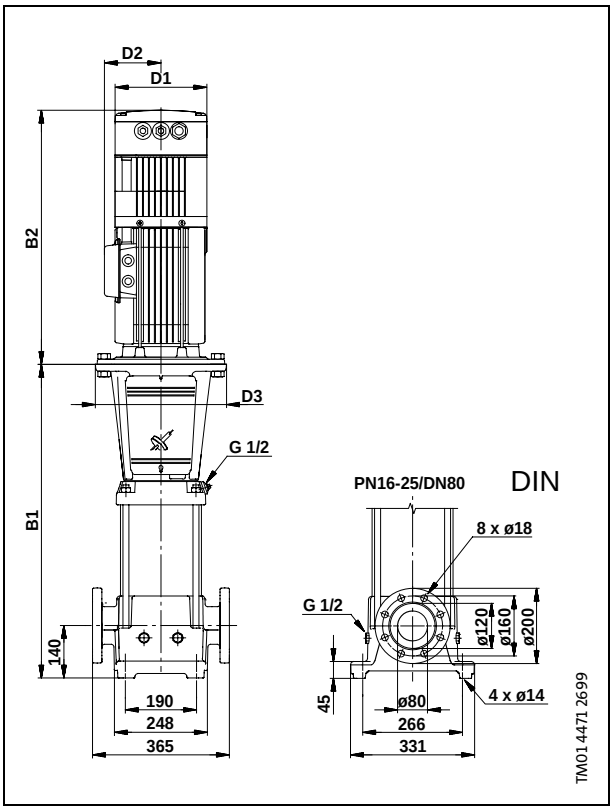


TM01 3381 1199



TM01 3382 1199

CRE 45



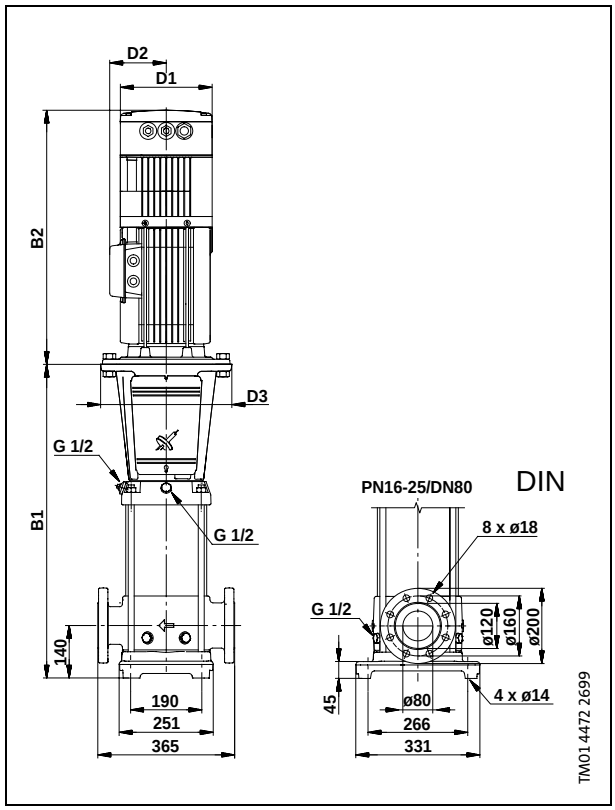
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 45-1-1	558	1053	495	178	110	
CRE 45-1	558	1094	536	220	134	
CRE 45-2-2	638	1193	555	220	134	
CRE 45-2	638	1193	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 45-1-1	3.0	6.80	100	0.319
CRE 45-1	4.0	9.00	109	0.319
CRE 45-2-2	5.5	12.0	123	0.319
CRE 45-2	7.5	16.0	128	0.319

CRNE 45

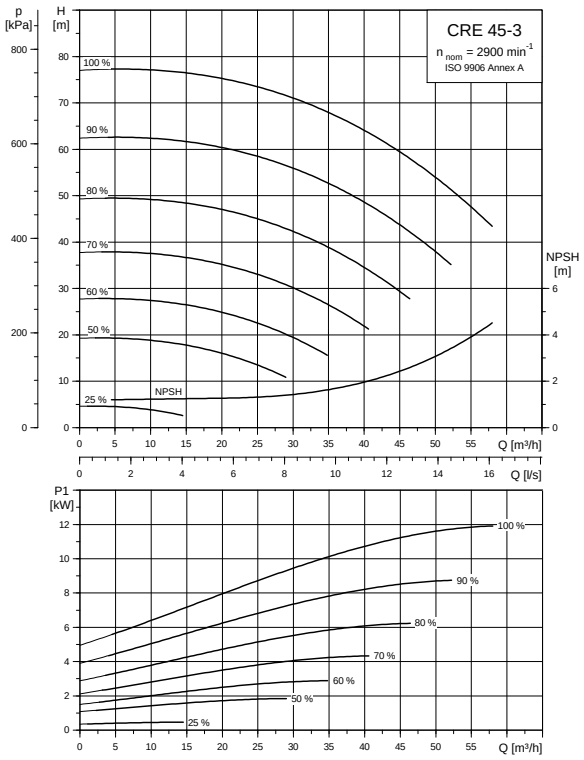


Dimensions and weights, 2900 min^{-1}

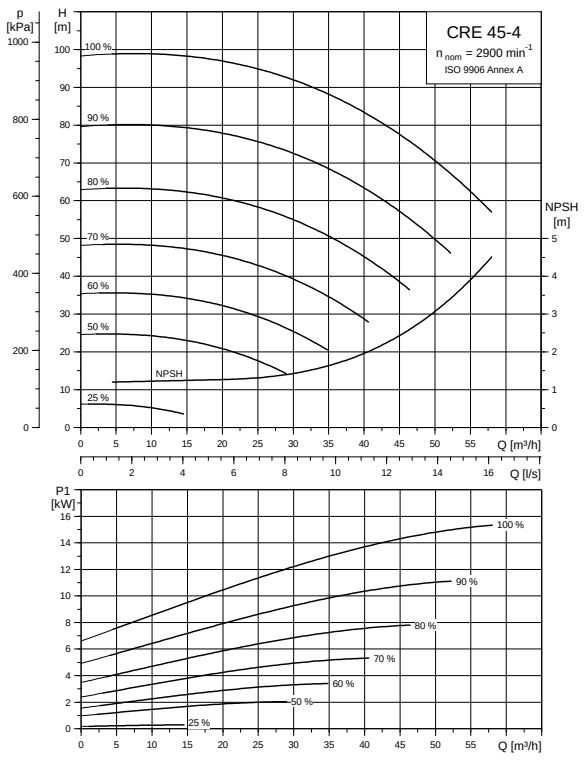
Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 45-1-1	558	1053	495	178	110	
CRNE 45-1	558	1094	536	220	134	
CRNE 45-2-2	638	1193	555	220	134	
CRNE 45-2	638	1193	555	220	134	300

Technical data, 2900 min^{-1}

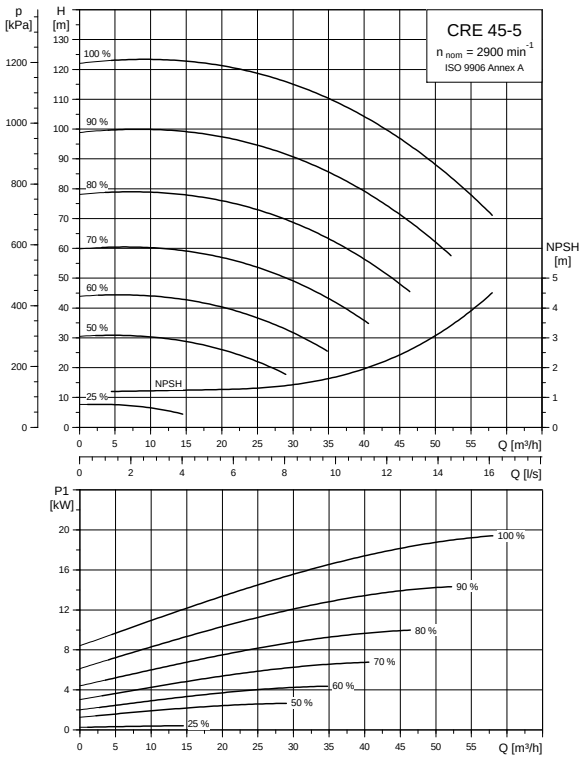
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 45-1-1	3.0	6.80	100	0.319
CRNE 45-1	4.0	9.00	105	0.319
CRNE 45-2-2	5.5	12.0	123	0.319
CRNE 45-2	7.5	16.0	128	0.319



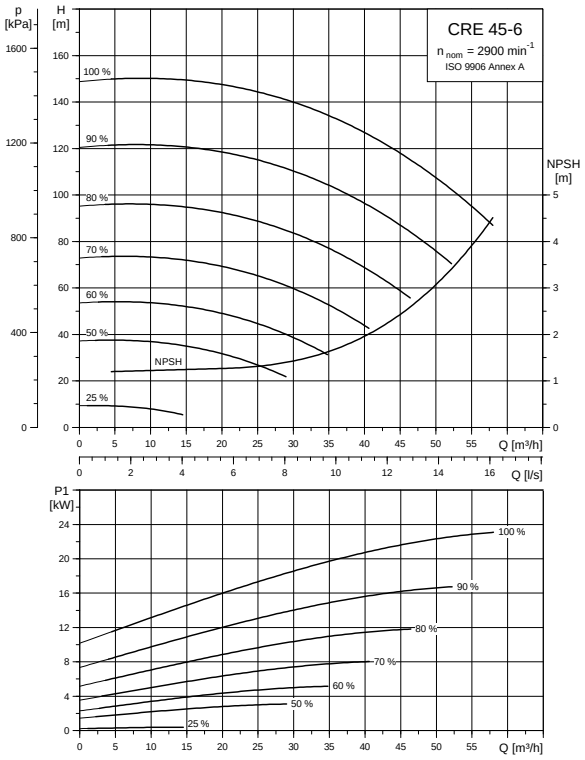
TM02 2281 2002



TM02 2282 4001



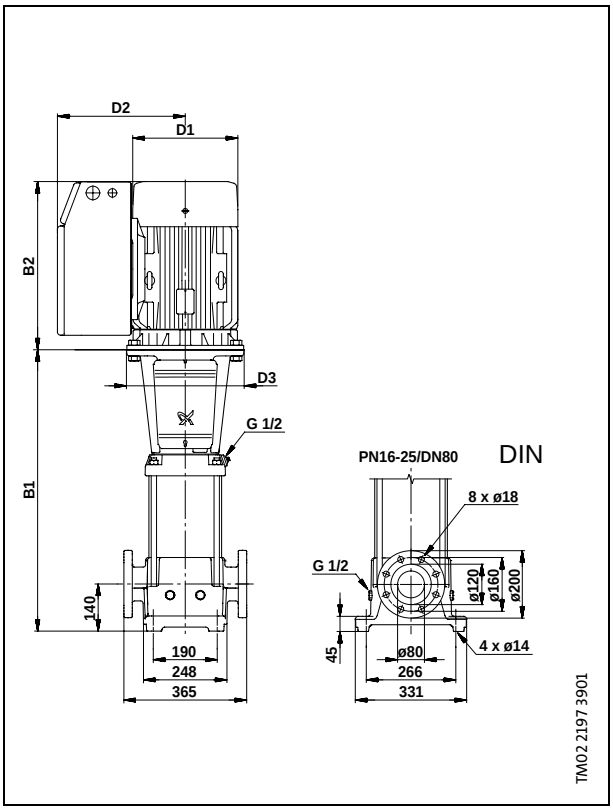
TM02 2283 4001



TM02 2284 4001

Technical data

CRE 45



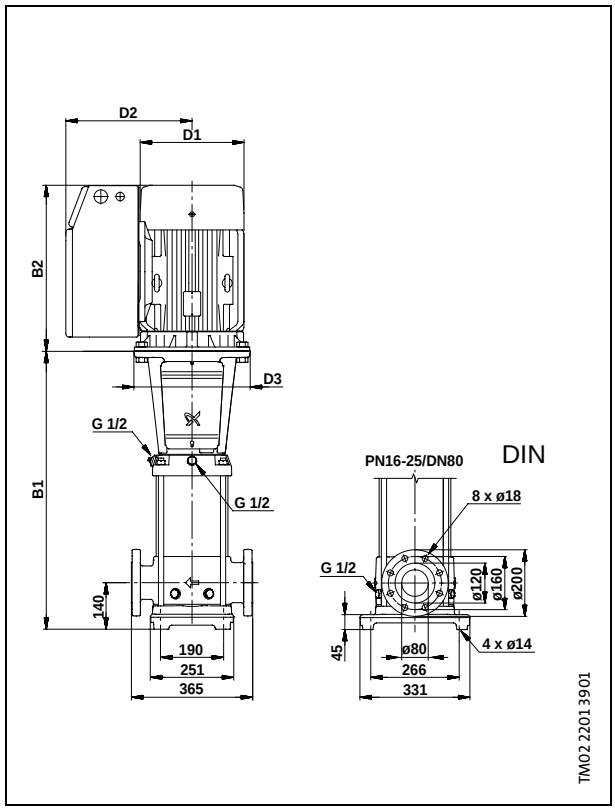
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 45-3	828	1266	438	258	344	350
CRE 45-4	908	1359	451	313	372	350
CRE 45-5	988	1441	453	313	372	350
CRE 45-6	1068	1576	508	351	385	350

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 45-3	11.0	21.3	210.5	0.8
CRE 45-4	15.0	28.1	231.5	0.8
CRE 45-5	18.5	34.2	279	0.8
CRE 45-6	22.0	41.9	314	0.8

CRNE 45

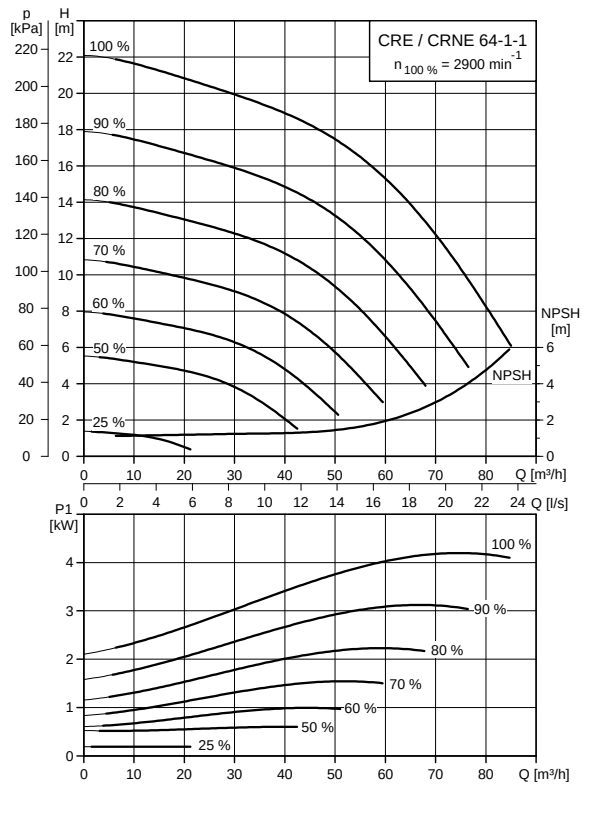


Dimensions and weights, 2900 min^{-1}

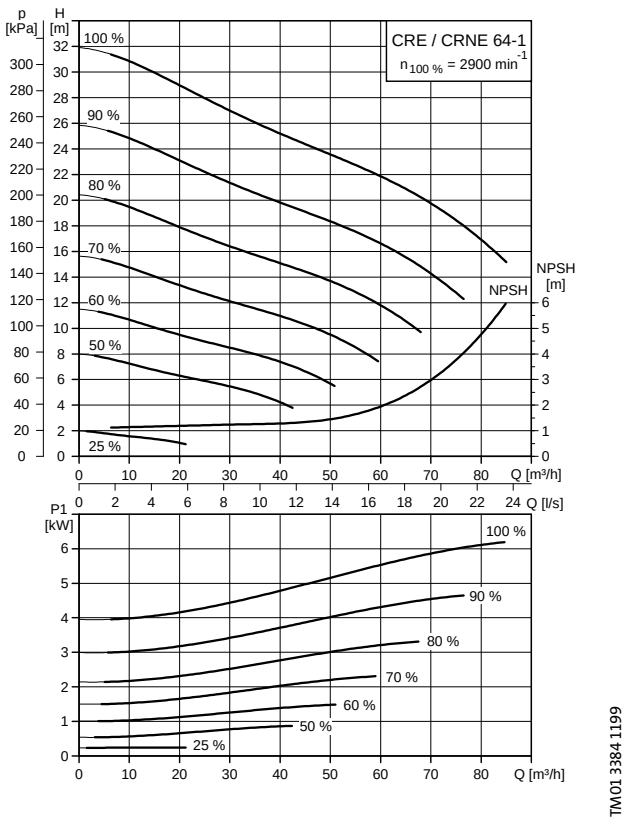
Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 45-3	828	1266	438	258	344	350
CRNE 45-4	908	1359	451	313	372	350
CRNE 45-5	988	1441	453	313	372	350
CRNE 45-6	1068	1576	508	351	385	350

Technical data, 2900 min^{-1}

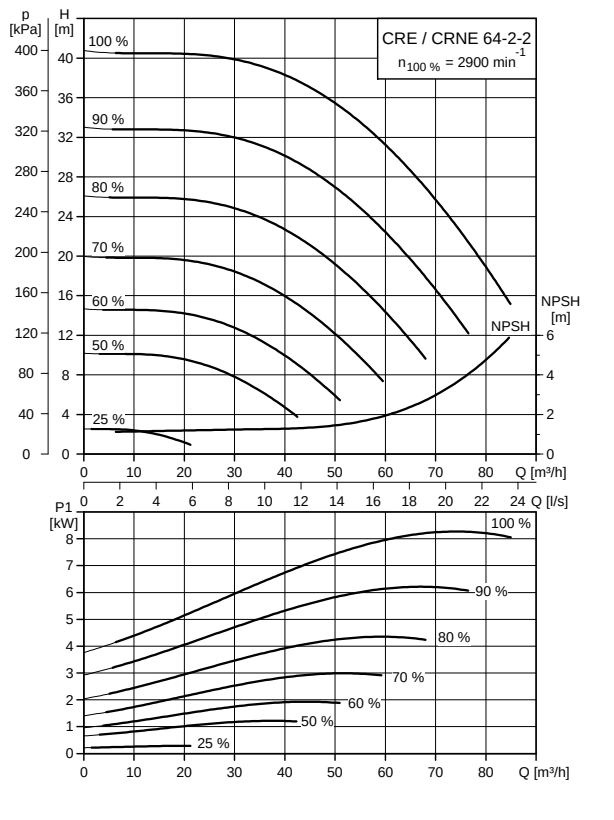
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 45-3	11.0	21.3	210.5	0.8
CRNE 45-4	15.0	28.1	231.5	0.8
CRNE 45-5	18.5	34.2	279	0.8
CRNE 45-6	22.0	41.9	314	0.8



TM01 3383 1199

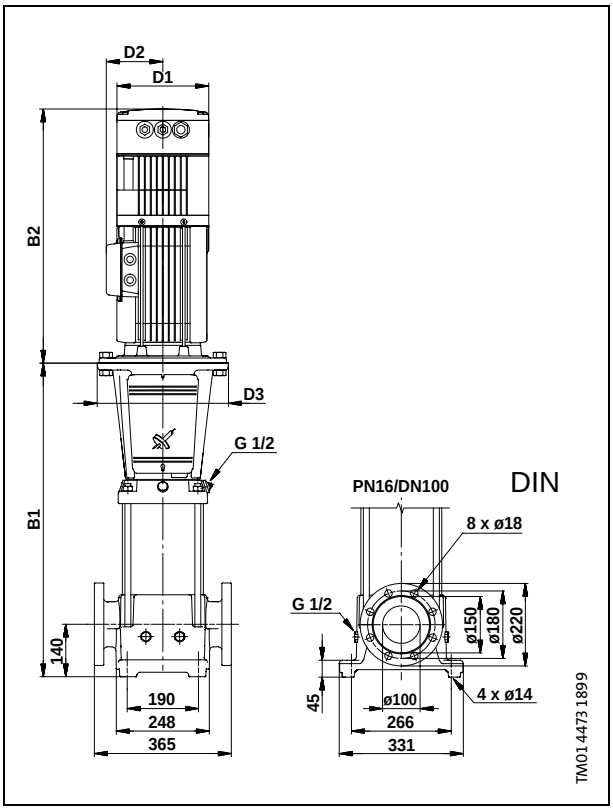


TM01 3384 1199



TM01 3385 1199

CRE 64



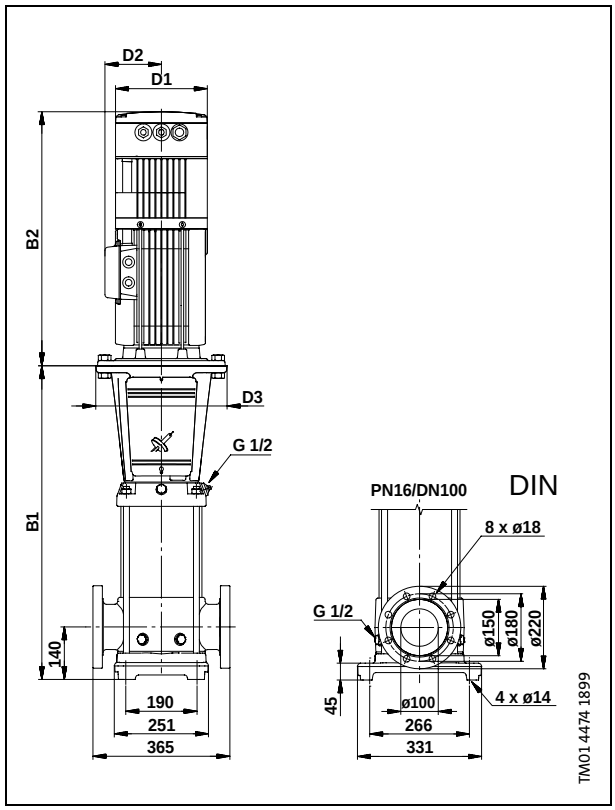
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 64-1-1	561	1097	536	220	134	
CRE 64-1	561	1116	555	220	134	300
CRE 64-2-2	644	1199	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 64-1-1	4.0	9.00	112	0.319
CRE 64-1	5.5	12.0	122	0.319
CRE 64-2-2	7.5	16.0	131	0.319

CRNE 64

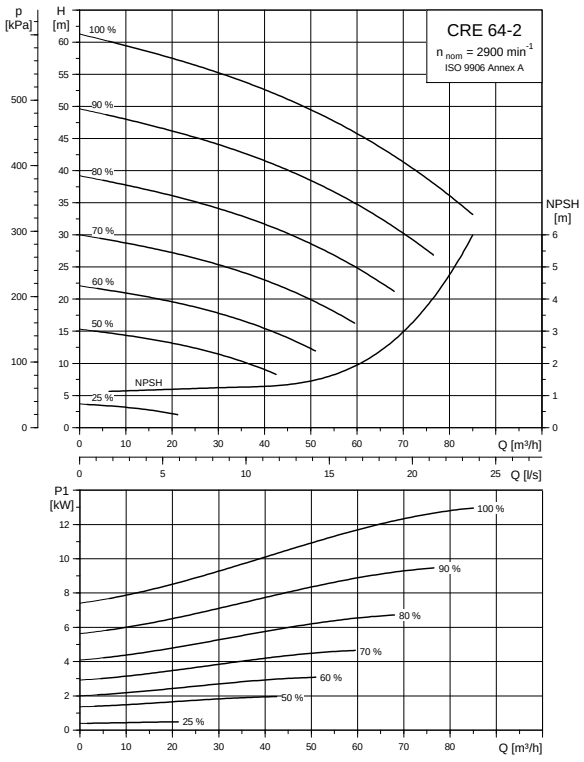


Dimensions and weights, 2900 min^{-1}

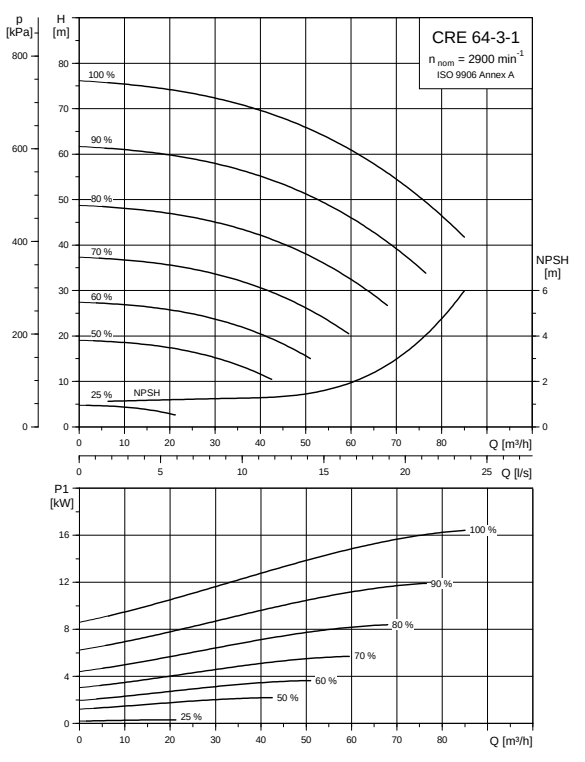
Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 64-1-1	561	1097	536	220	134	
CRNE 64-1	561	1116	555	220	134	300
CRNE 64-2-2	644	1199	555	220	134	300

Technical data, 2900 min^{-1}

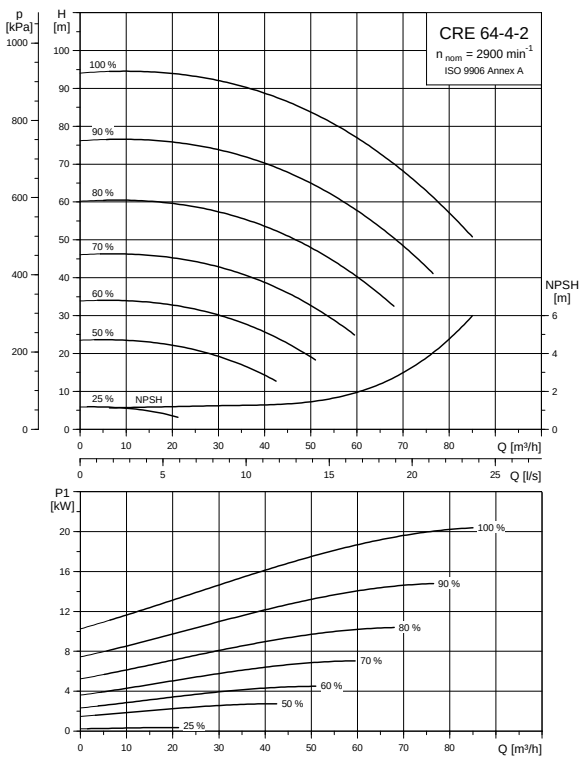
Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 64-1-1	4.0	9.00	112	0.319
CRNE 64-1	5.5	12.0	122	0.319
CRNE 64-2-2	7.5	16.0	131	0.319



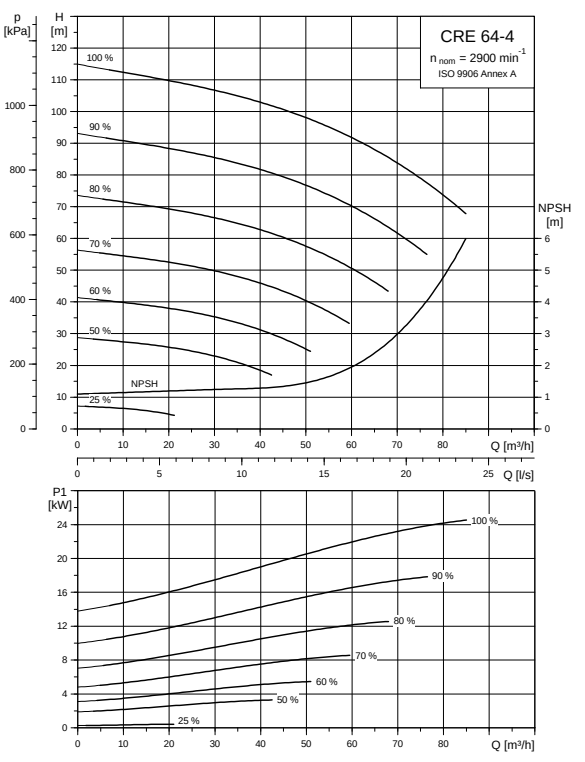
TM02 2285 2002



TM02 2286 4001



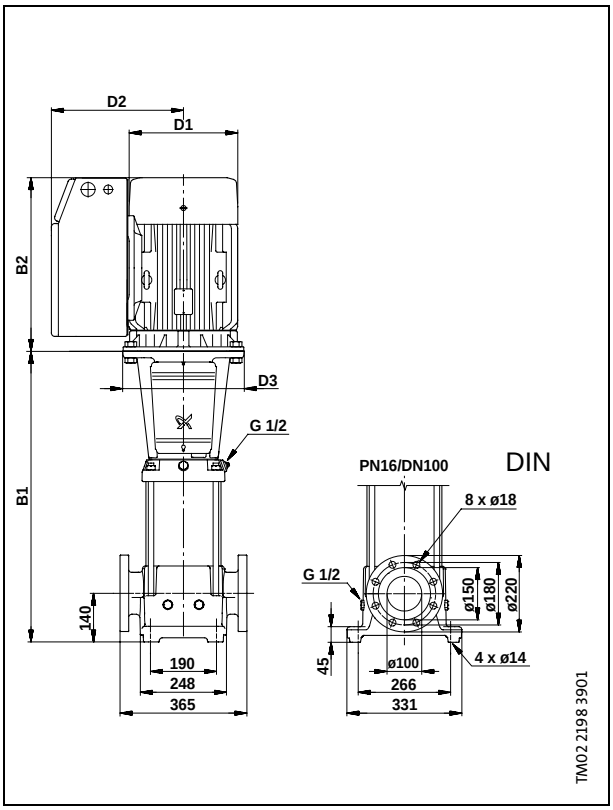
TM02 2287 4001



TM02 2288 4001

Technical data

CRE 64



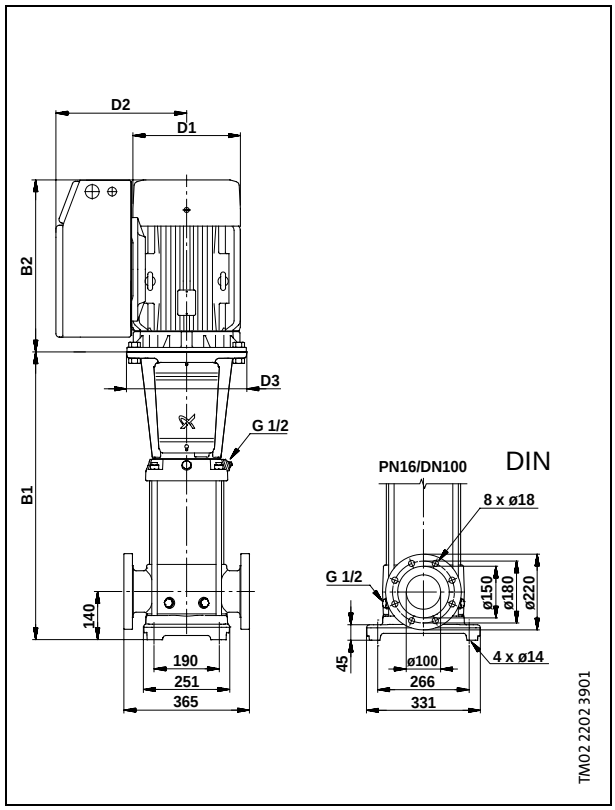
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 64-2	754	1192	438	258	344	350
CRE 64-3-1	836	1287	451	313	372	350
CRE 64-4-2	919	1372	453	313	372	350
CRE 64-4	919	1427	508	351	385	350

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 64-2	11.0	21.3	209.5	0.8
CRE 64-3-1	15.0	28.1	231.5	0.8
CRE 64-4-2	18.5	34.2	278	0.8
CRE 64-4	22.0	41.9	309	0.8

CRNE 64



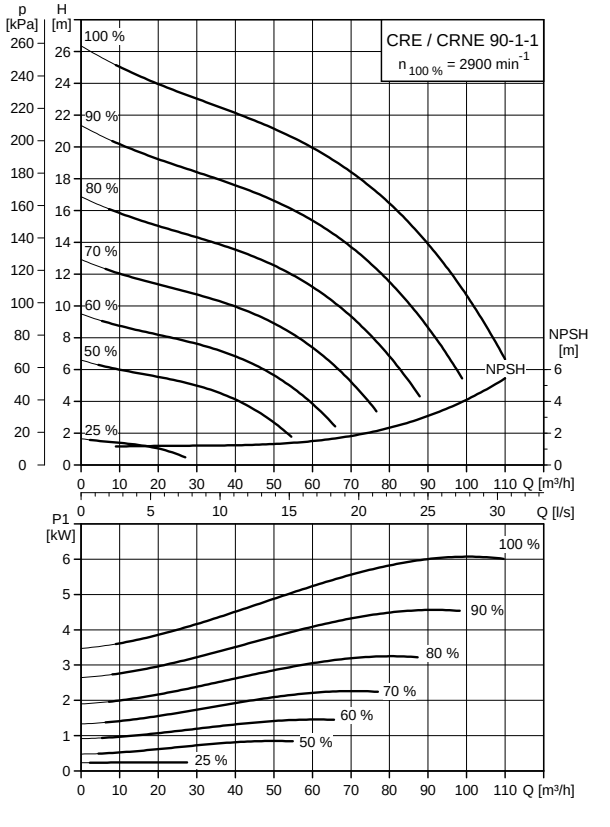
Dimensions and weights, 2900 min^{-1}

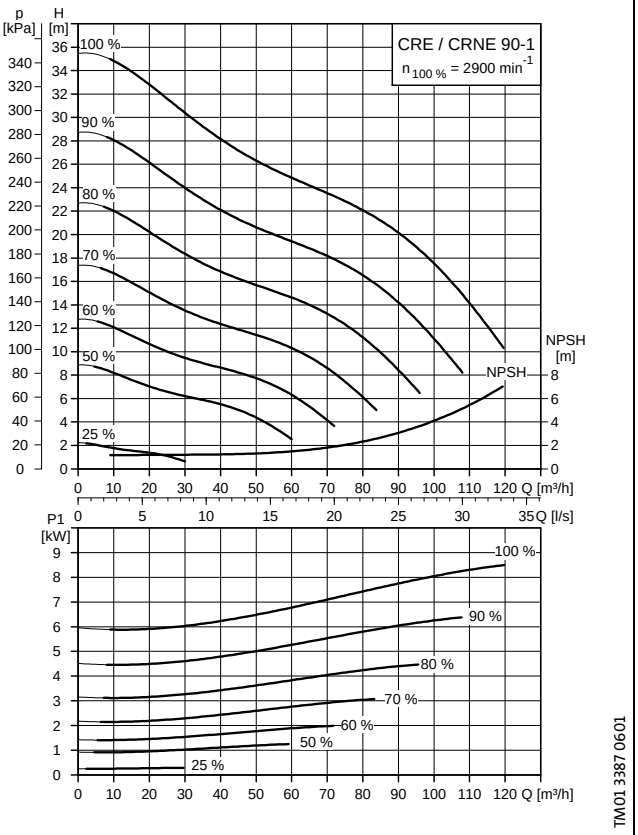
Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 64-2	754	1192	438	258	344	350
CRNE 64-3-1	836	1287	451	313	372	350
CRNE 64-4-2	919	1372	453	313	372	350
CRNE 64-4	919	1427	508	351	385	350

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 64-2	11.0	21.3	209.5	0.8
CRNE 64-3-1	15.0	28.1	231.5	0.8
CRNE 64-4-2	18.5	34.2	278	0.8
CRNE 64-4	22.0	41.9	309	0.8

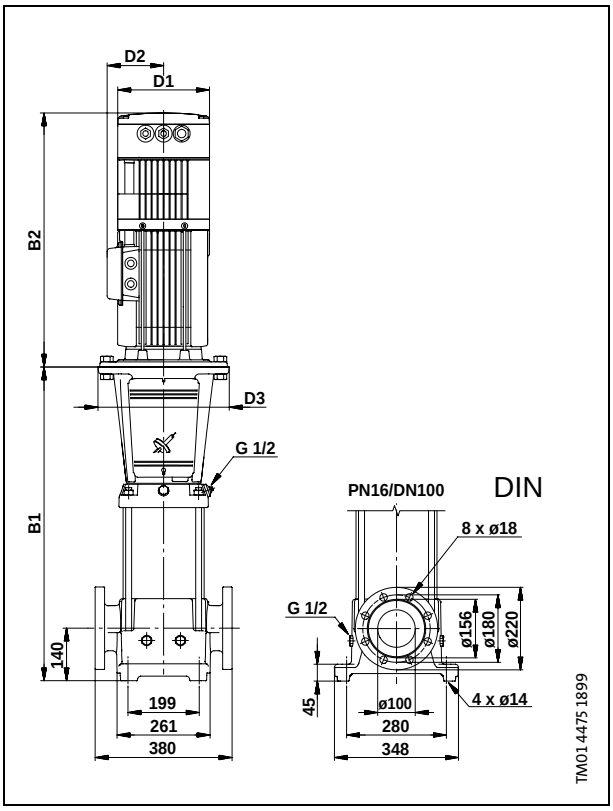
Performance curves





Technical data

CRE 90



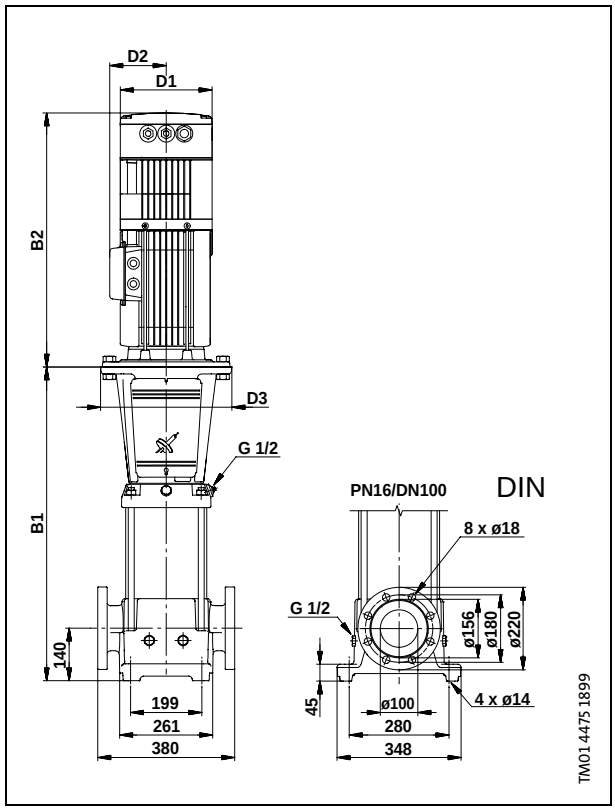
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 90-1-1	571	1126	555	220	134	300
CRE 90-1	571	1126	555	220	134	300

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 90-1-1	5.5	12.0	128	0.319
CRE 90-1	7.5	16.0	142	0.319

CRNE 90



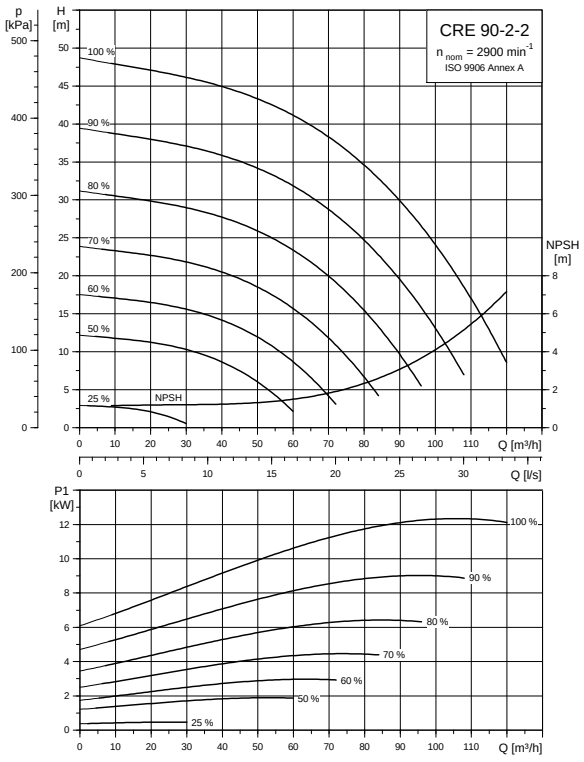
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 90-1-1	571	1126	555	220	134	300
CRNE 90-1	571	1126	555	220	134	300

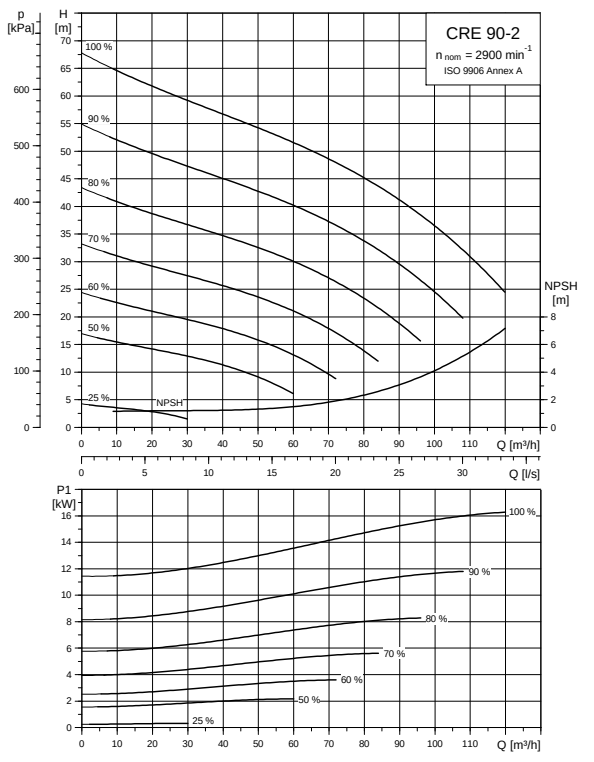
Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 90-1-1	5.5	12.0	128	0.319
CRNE 90-1	7.5	16.0	132	0.319

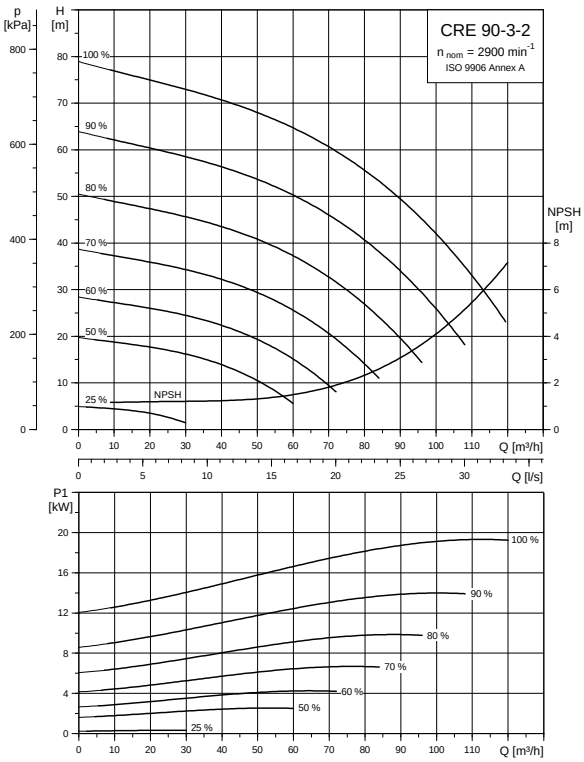
Performance curves



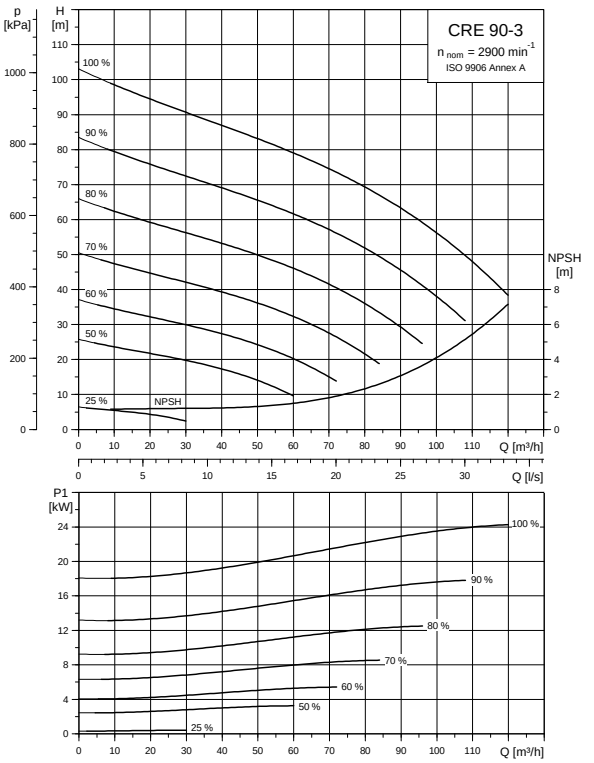
TM02 2289 2002



TM02 2290 4001

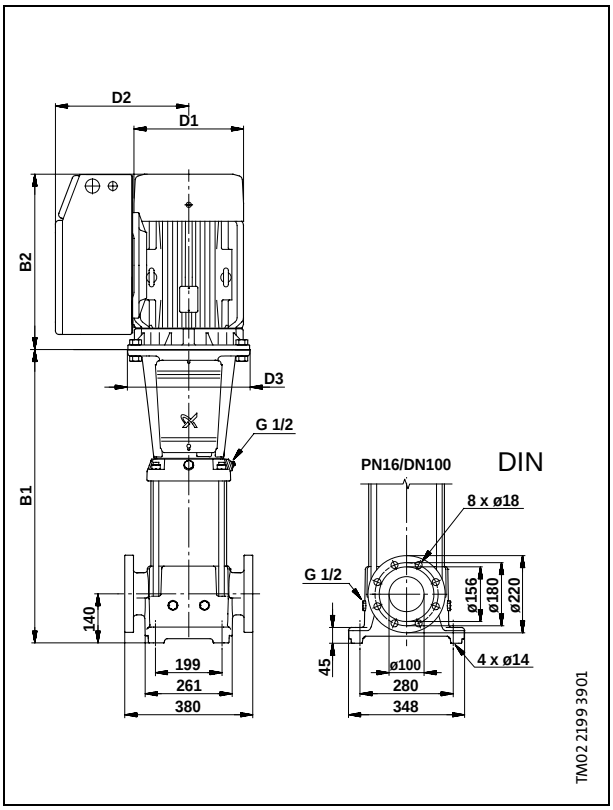


TM02 2291 4001



TM02 2292 4001

CRE 90



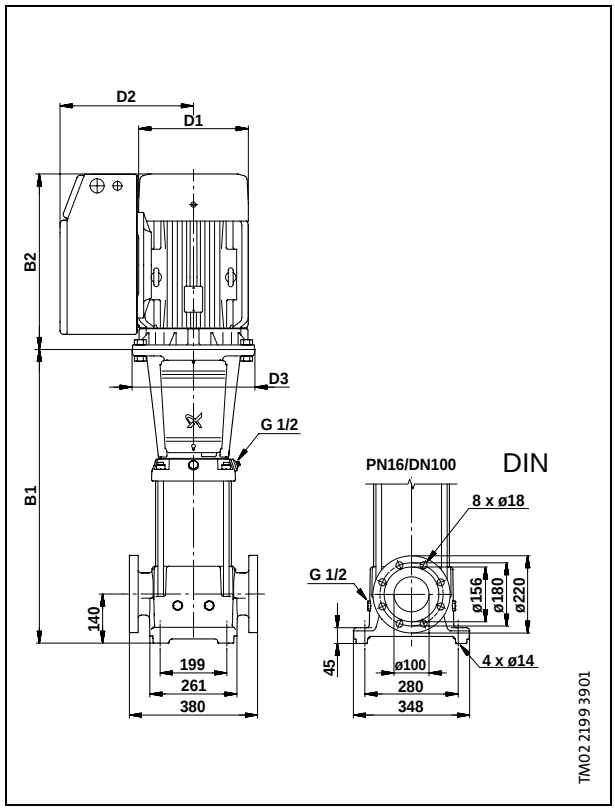
Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRE 90-2-2	773	1211	438	258	344	350
CRE 90-2	773	1224	451	313	372	350
CRE 90-3-2	865	1318	453	313	372	350
CRE 90-3	865	1373	508	351	385	350

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRE 90-2-2	11.0	21.3	215.5	0.8
CRE 90-2	15.0	28.1	232.5	0.8
CRE 90-3-2	18.5	34.2	280	0.8
CRE 90-3	22.0	41.9	311	0.8

CRNE 90



Dimensions and weights, 2900 min^{-1}

Pump type	Dimensions [mm]					
	DIN flange		B2	D1	D2	D3
	B1	B1+B2				
CRNE 90-2-2	773	1211	438	258	344	350
CRNE 90-2	773	1224	451	313	372	350
CRNE 90-3-2	865	1318	453	313	372	350
CRNE 90-3	865	1373	508	351	385	350

Technical data, 2900 min^{-1}

Pump type	Motor power P_2 [kW]	Full load current $I_{1/1}$ [A]	Net weight [kg]	Shipping volume [m^3]
CRNE 90-2-2	11.0	21.3	215.5	0.8
CRNE 90-2	15.0	28.1	232.5	0.8
CRNE 90-3-2	18.5	34.2	280	0.8
CRNE 90-3	22.0	41.9	311	0.8

Electrical data

	Single-phase	Three-phase
Electricity supply to pump	1 x 200-240 V -10%/+10%, 50/60 Hz, PE.	3 x 380-415 V -10%/+10%, 50/60 Hz, PE.
Back-up fuse	Motor sizes from 0.37 to 1.1 kW: Max. 10 A. Standard as well as quick-blow or slow-blow fuses may be used.	Motor sizes from 0.75 to 5.5 kW: Max. 16 A Motor size 7.5 kW: Max. 32 A Motor size 11 kW: Max. 25 A Motor size 15 kW: Max. 35 A Motor size 18.5 kW: Max. 50 A Motor size 22 kW: Max. 50 A Standard as well as quick-blow or slow-blow fuses may be used.
External start/stop input	External potential-free contact. Maximum contact load: Voltage 5 VDC, current < 5 mA. Screened cable*.	
Digital input	External potential-free contact. Maximum contact load: Voltage 5 VDC, current < 5 mA. Screened cable*.	
Setpoint signals	• **Potentiometer** 0-10 VDC, 10 kΩ (via internal voltage supply). Screened cable*. Maximum cable length: 100 m. • **Voltage signal** 0-10 VDC, R_i > 50 kΩ. Tolerance: +0%/−3% at maximum voltage signal. Screened cable*. Maximum cable length: 500 m. • **Current signal** DC 0-20 mA/4-20 mA, R_i = 175 Ω. Tolerance: +0%/−3% at maximum current signal. Screened cable*. Maximum cable length: 500 m.	• **Potentiometer** 0-5 VDC, 10 kW (via internal voltage supply). Screened cable*. Maximum cable length: 100 m. • **Voltage signal** 0-5 VDC/0-10 VDC, R_i > 50 kΩ. Tolerance: +0%/−3% at maximum voltage signal. Screened cable*. Maximum cable length: 500 m. • **Current signal** DC 0-20 mA/4-20 mA, R_i = 250 Ω. Tolerance: +0%/−3% at maximum current signal. Screened cable*. Maximum cable length: 500 m.
Electricity supply to sensors	The sensors are supplied with electricity via the motor terminal box. • 24 VDC ± 10% Maximum load: 40 mA.	The sensors are supplied with electricity via the motor terminal box. • 24 VDC ± 10% Maximum load: 40 mA.
Sensor signals	• **Voltage signal** 0-10 VDC, R_i > 50 kΩ. Tolerance: +0%/−3% at maximum voltage signal. Screened cable*. Maximum cable length: 500 m. • **Current signal** DC 0-20 mA/4-20 mA, R_i = 175 Ω. Tolerance: +0%/−3% at maximum current signal. Screened cable*. Maximum cable length: 500 m.	• **Voltage signal** 0-5 VDC/0-10 V, R_i > 50 kΩ. Tolerance: +0%/−3% at maximum voltage signal. Screened cable*. Maximum cable length: 500 m. • **Current signal** DC 0-20 mA/4-20 mA, R_i = 250 Ω. Tolerance: +0%/−3% at maximum current signal. Screened cable*. Maximum cable length: 500 m.
Signal output	Potential-free changeover contact. Maximum contact load: 250 VAC, 2 A. Minimum contact load: 5 VDC, 1 mA. Screened cable: 0.5-2.5 mm^2. Maximum cable length: 500 m.	
Bus input	Grundfos BUS protocol, GENIbus protocol, RS-485. 0.5-1.5 mm^2 screened 2-core cable. Maximum cable length: 500 m	
EMC	EN 61800-3 **Note:** When pumps fitted with 7.5 - 22 kW motors are installed in first environment (residential areas), an additional EMC filter is required to obtain class B, group 1 status. **Motors of 0.37 - 5.5 kW:** Electromagnetic disturbance - first environment (residential areas) - unrestricted distribution, corresponding to CISPR 11, class B, group 1. **Motors of 7.5 kW:** Electromagnetic disturbance - first environment (residential areas) - restricted distribution. Immunity to electromagnetic disturbance - second environment (industrial areas) - unrestricted distribution, corresponding to CISPR 11, class A, group 1.	
Enclosure class	0.37 - 7.5 kW: IP 55 (IEC 34-5). 11 - 22 kW: IP 54 (IEC 34-5).	
Insulation class	F (IEC 85).	
Ambient temperature	During operation: −20°C to +40°C. During storage/transport: −40°C to +60°C.	
Relative air humidity	Maximum 95%.	

*Cross section min. 0.5 mm^2 and max. 1.5 mm^2.

Pumped liquids

Thin, non-explosive liquids, not containing solid particles or fibres. The liquid must not chemically attack the pump materials.

When pumping liquids with a density and/or viscosity higher than that of water, oversized motors must be used, if required.

Whether a pump is suitable for a particular liquid depends on a number of factors of which the most important are the chloride content, pH value, temperature and content of chemicals, oils, etc.

Please note that aggressive liquids (e.g. sea water and some acids) may attack or dissolve the protective oxide film of the stainless steel and thus cause corrosion.

The CRE, CRIE, CRNE pump types are suitable for the following liquids:

CRE, CRIE

- Non-corrosive liquids.

For liquid transfer, circulation and pressure boosting of cold or hot clean water.

CRNE

- Industrial liquids.

In systems where all parts in contact with the liquid must be made of high-grade stainless steel.

List of pumped liquids

A number of typical liquids are listed below.

Other pump versions may be applicable, but those stated in the list are considered to be the best choices.

The table is intended as a general guide only, and cannot replace actual testing of the pumped liquids and pump materials under specific working conditions.

The list should, however, be applied with some caution as factors such as

- concentration of the pumped liquid
- liquid temperature or
- pressure

may affect the chemical resistance of a specific pump version.

Notes

D	Often with additives.
E	Density and/or viscosity differ from that of water. Allow for this when calculating motor output and pump performance.
F	Pump selection depends on many factors. Please contact Grundfos.
H	Risk of chrystallization/precipitation in shaft seal
2	Corrosion. The pumped liquid attacks all standard metals. Use a shaft seal with no metal components in contact with the pumped liquid.
4	Poor lubricating properties. The pumped liquid has so poor lubricating properties that dry running should be avoided.
7	The pumped liquid is easily ignited.
8	The pumped liquid is flammable.
9	Insoluble in water

Pumped liquids	Notes	Additional information	Shaft seal	
			CRE	CRNE
Acetic acid, CH_3COOH		5%, 20°C		HQQE, BQQE, EQQE
Acetone, CH_3COCH_3	4, 7	100%, 20°C		HUBE, BUBE, AUUE, EUBE
Alcaline degreasing agent	D, F		HUUE, AUUE, EUUE	
Ammonium bicarbonate, NH_4HCO_3	E	20%, 30°C		HUUE, AUUE, EUUE
Ammonium hydroxide, NH_4OH		20%, 40°C	HUUE, AUUE, EUUE	
Aviation fuel	7, 9	100%, 20°C	HUBV, BUBV, AUUV, EUBV	
Benzoic acid, C_6H_5COOH	H	0.5%, 20°C		HUUV, AUUV, EUUV
Boiler feed water		<120°C	HUBE, BUBE, AUUE, EUBE	
Calcareous water		<90°C	HUUE, AUUE, EUUE	
Calcium acetate (as coolant), $Ca(CH_3COO)_2$	D, E	30%, 50°C		HUUE, RUUE, EUUE
Calcium hydroxide, $Ca(OH)_2$	E	Saturated solution, 50°C	HUUE, AUUE, EUUE	
Chloride-containing water	F	<30°C, max. 500 ppm		HUUE, AUUE, EUUE
Chromic acid, H_2CrO_4	H	1%, 20°C		HQQV, BQQV, EQQV
Citric acid, $HOC(CH_2CO_2H)_2COOH$	H	5%, 40°C		HUUE, AUUE, EUUE
Completely desalinated water (demineralized)		<90°C		HUUE, AUUE, EUUE
		90 - 120°C		HUBE, BUBE, AUUE, EUBE
Condensate		<90°C	HUUE, AUUE, EUUE	
Copper sulfate, $CuSO_4$	E	10%, 50°C		HUUE, AUUE, EUUE
Corn oil	D, E, 9	100%, 80°C	HUUV, AUUV, EUUV	
Diesel oil	8, 9	100%, 20°C	HUBV, BUBV, AUUV, EUBV	

Pumped liquids

Pumped liquids	Notes	Additional information	Shaft seal	
			CRE	CRNE
Domestic hot water (potable water)		<90°C	HUUE, AUUE, EUUE	
		90°C - 120°C	HUBE, BUBE, AUUE, EUBE	
	F	120°C - 150°C	HUUE, AUUE, EUUE	
Ethanol (ethyl alcohol), C_2H_5OH	7	100%, 20°C	HUBE, BUBE, AUUE, EUBE	
Ethylene glycol, $HOCH_2CH_2OH$	D, E	50%, 50°C	HUUE, RUUE, EUUE	
Formic acid, HCOOH		5%, 20°C		HQQE, BQQE, EQQE
Glycerine (glycerol), $OHCH_2CH(OH)CH_2OH$	D, E	50%, 50°C	HUUE, RUUE, EUUE	
Hydraulic oil (mineral)	E, 9	100%, 100°C	HUUV, AUUV, EUUV	
Hydraulic oil (synthetic)	E, 9	100%, 100°C	HUUV, AUUV, EUUV	
Isopropyl alcohol, $CH_3CHOHCH_3$	7	100%, 20°C	HUBE, BUBE, AUUE, EUBE	
Lactic acid, $CH_3CH(OH)COOH$	E, H	10%, 20°C		HUUV, AUUV, EUUV
Linoleic acid, $C_{17}H_{31}COOH$	E, 9	100%, 20°C	HUUV, AUUV, EUUV	
Methanol (methyl alcohol), CH_3OH	4, 7	100%, 20 °C	HUBE, BUBE, AUUE, EUBE	
Motor oil	E, 9	100%, 80°C	HUUV, AUUV, EUUV	
Naphtalene, $C_{10}H_8$	E, H	100%, 80°C	HUUV, AUUV, EUUV	
Nitric acid, HNO_3	F	1%, 20°C		HQQE, BQQE, EQQE
Oil-containing water		<100°C	HUUV, AUUV, EUUV	
Olive oil	D, E, 9	100%, 80°C	HUUV, AUUV, EUUV	
Oxalic acid, $(COOH)_2$	H	1%, 20°C		HQQE, BQQE, EQQE
Ozone-containing water, (O_3)		<100°C		HUUE, AUUE, EUUE
Peanut oil	D, E, 9	100%, 80°C	HUUV, AUUV, EUUV	
Petrol	7, 9	100%, 20°C	HUBV, BUBV, AUUV, EUBV	
Phosphoric acid, H_3PO_4	E	20%, 20°C		HUUE, AUUE, EUUE
Potassium carbonate, K_2CO_3	E	20% 50°C	HUUE AUUE, EUUE	
Potassium formate (as coolant), KOOCH	D, E	30%, 50°C		HUUE, RUUE, EUUE
Potassium hydroxide, KOH	E	20%, 50°C		HUUE, AUUE, EUUE
Potassium permanganate, $KMnO_4$		5%, 20°C		HUUE, AUUE, EUUE
Propanol, C_3H_7OH	7	100%, 20°C	HUBE, BUBE, AUUE, EUUE	
Propylene glycol, $CH_3CH(OH)CH_2OH$	D, E	50%, 90°C	HUUE, RUUE, EUUE	
Rape seed oil	D, E, 9	100%, 80°C	HUUV, AUUV, EUUV	
Salicylic acid, $C_6H_4(OH)COOH$	H	0.1%, 20°C		HUUE, AUUE, EUUE
Silicone oil	E, 9	100%	HUUV, AUUV, EUUV	
Sodium bicarbonate, $NaHCO_3$	E	10%, 60°C		HUUE, AUUE, EUUE
Sodium chloride (as coolant), NaCl	D, E	30%, <5°C, pH>8	HUUE, RUUE, EUUE	
Sodium hydroxide, NaOH	E	20%, 50°C		HUUE, AUUE, EUUE
Sodium hypochlorite, NaOCl	F	0.1%, 20°C		HQQV, BQQV, EQQV
Sodium nitrate, $NaNO_3$	E	10%, 60°C		HUUE, AUUE, EUUE
Sodium phosphate, Na_3PO_4	E, H	10%, 60°C		HUUE, AUUE, EUUE
Sodium sulfate, Na_2SO_4	E, H	10%, 60°C		HUUE, AUUE, EUUE
Softened water		<90°C		HUUE, AUUE, EUUE
		90°C - 120°C		HUBE, BUBE, AUUE, EUBE
Soya bean oil	D, E, 9	100%, 80°C	HUUV, AUUV, EUUV	
Sulfuric acid, H_2SO_4	F	1%, 20°C		HQQV, BQQV, EQQV
Sulphurous acid, H_2SO_3		1%, 20°C		HQQE, BQQE, EQQE
Unsalted swimming pool water		Approx. 2 ppm free chlorine (Cl_2)	HUUE, AUUE, EUUE	

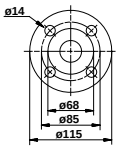
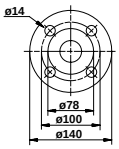
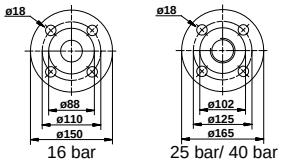
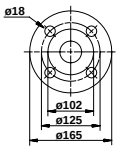
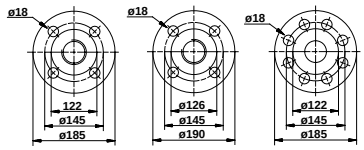
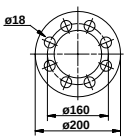
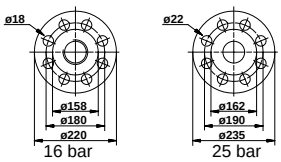
For information about other liquids or special conditions, please contact Grundfos.

Pipework connection

For pipework connection various sets of counter flanges and couplings are available.

CRE counter flanges

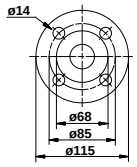
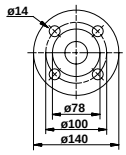
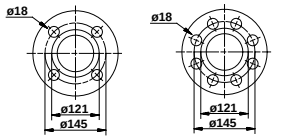
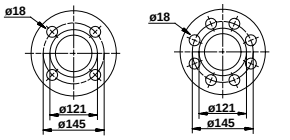
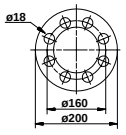
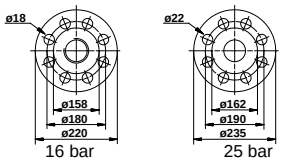
A set consists of one counter flange, one gasket, bolts and nuts.

Counter flange	Pump type	Description	Rated pressure	Pipework connection	Product number
 TM00 3800 1094	**CRE 1 CRE 3 CRE 5**	Threaded	16 bar, EN 1092-2	Rp 1	40 99 01
		For welding	25 bar, EN 1092-2	25 mm, nominal	40 99 02
 TM00 3801 1094	**CRE 1 CRE 3 CRE 5**	Threaded	16 bar, EN 1092-2	Rp 1¼	41 99 01
		For welding	25 bar, EN 1092-2	32 mm, nominal	41 99 02
 TM00 3802 1094	**CRE 8**	Threaded	16 bar, EN 1092-2	Rp 1½	42 99 02
		Threaded	16 bar, EN 1092-2	Rp 2	42 99 04
		For welding	25 bar, EN 1092-2	40 mm, nominal	42 99 01
		For welding	40 bar, EN 1092-2	50 mm, nominal	42 99 03
 TM00 3803 1094	**CRE 16**	Threaded	16 bar, EN 1092-2	Rp 2	33 99 03
		Threaded	16 bar, special flange	Rp 2½	33 99 04
		For welding	25 bar, EN 1092-2	50 mm, nominal	33 99 01
		For welding	25 bar, special flange	65 mm, nominal	33 99 02
 TM00 3804 1094	**CRE 32**	Threaded	16 bar, EN 1092-2	Rp 2½	34 99 02
		Threaded	16 bar, special flange	Rp 3	34 99 01
		For welding	16 bar, EN 1092-2	65 mm, nominal	34 99 04
		For welding	40 bar, DIN 2635	65 mm, nominal	34 99 05
		For welding	16 bar, special flange	80 mm, nominal	34 99 03
 TM01 2162 3498	**CRE 45**	Threaded	16 bar	Rp 3	35 05 40
		For welding	16 bar	80 mm, nominal	35 05 41
		For welding	40 bar	80 mm, nominal	35 05 42
 TM00 3806 3498	**CRE 64 CRE 90**	Threaded	16 bar, EN 1092-2	Rp 4	36 99 01
		For welding	16 bar, EN 1092-2	100 mm, nominal	36 99 02
		For welding	40 bar, EN 1092-2	100 mm, nominal	36 99 05

CRNE counter flanges

Counterflanges for CRNE pumps are made of stainless steel according to DIN W.-Nr. 1.4401 (AISI 316).

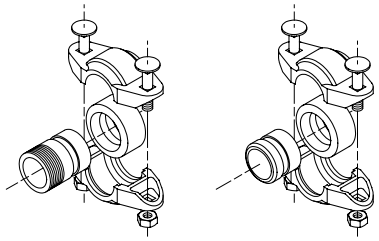
A set consists of one counter flange, one gasket, bolts and nuts.

Counter flange	Pump type	Description	Rated pressure	Pipework connection	Product number
 TM00 3800 1094	**CRIE, CRNE 1, 3 and 5**	Threaded	16 bar, EN 1092-2	Rp 1	40 52 84
		For welding	25 bar, EN 1092-2	25 mm, nominal	40 52 85
 TM00 3801 1094	**CRIE, CRNE 1, 3 and 5**	Threaded	16 bar, EN 1092-2	Rp 1¼	41 53 04
		For welding	25 bar, EN 1092-2	32 mm, nominal	41 53 05
 TM00 3805 1094	**CRNE 8**	Threaded	16 bar, EN 1092-2	Rp 1½	42 52 45
		For welding	25 bar, EN 1092-2	40 mm, nominal	42 52 46
	CRNE 16	Threaded	16 bar, EN 1092-2	Rp 2	33 52 54
		For welding	25 bar, EN 1092-2	50 mm, nominal	33 52 55
 TM00 3805 1094	**CRNE 32**	Threaded	16 bar	Rp 2½	34 99 10
		Threaded	16 bar, Special flange	Rp 3	34 99 11
		For welding	16 bar	65 mm, nominal	34 99 06
		For welding	40 bar	65 mm, nominal	34 99 08
		For welding	16 bar, Special flange	80 mm, nominal	34 99 07
		For welding	25 bar, Special flange	80 mm, nominal	34 99 09
 TM01 2162 3498	**CRNE 45**	Threaded	16 bar	Rp 3	35 05 43
		For welding	16 bar	80 mm, nominal	35 05 44
		For welding	40 bar	80 mm, nominal	35 05 45
 TM00 3806 3498	**CRNE 64 CRNE 90**	Threaded	16 bar	Rp 4	36 99 04
		For welding	16 bar	100 mm, nominal	36 99 03
		For welding	25 bar	100 mm, nominal	36 99 06

PJE couplings

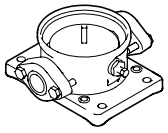
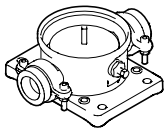
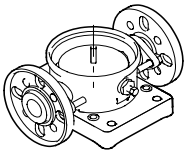
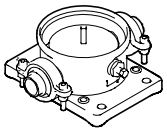
Couplings for CRNE pumps are made of stainless steel according to DIN W.-Nr. 1.4401 (AISI 316).

A set consists of one coupling, one gasket, one pipe stub and bolts and nuts.

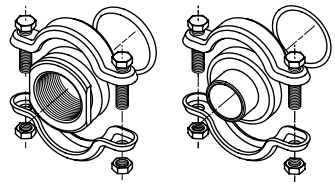
Couplings	Pump type	Pipe stub	PN	Pipework connection	Rubber parts	Product number
 TM00 3808 1094	CRIE, CRNE 1, 3 and 5	Threaded	80 bar	R 1¼	EPDM	41 99 11
					FKM	41 99 05
		For welding	80 bar	DN 32	EPDM	41 99 12
					FKM	41 99 04
	CRNE 8 CRNE 16	Threaded	70 bar	R 2	EPDM	33 99 11
					FKM	33 99 18
		For welding	70 bar	DN 50	EPDM	33 99 10
					FKM	33 99 17

FlexiClamp base connections

All sets comprise the necessary number of bolts and nuts as well as a gasket/O-ring.

Couplings	Pump type	Connection	Pipework connection	Rubber parts	Product number
 TM02 1144 0601	CRIE, CRNE 1, 3 and 5	Oval (cast iron)	Rp 1	Klingersil	96 44 97 48
			RP 1¼	Klingersil	96 44 97 49
		Oval (stainless steel)	RP 1	Klingersil	96 44 97 46
			RP 1¼	Klingersil	96 44 97 47
 TM02 1145 0601	CRIE, CRNE 1, 3 and 5	Union	G 2	EPDM	96 44 97 43
				FKM	96 44 97 44
 TM02 1146 0601	CRIE, CRNE 1, 3 and 5	DIN (stainless steel)	DN 25 DN 32	EPDM	96 44 97 45
				FKM	96 44 99 00
 TM02 1147 0601	CRIE, CRNE 1, 3 and 5	Clamp, threaded pipe stub	Rp 1	EPDM	40 52 80
				FKM	40 52 81
			RP 1¼	EPDM	41 52 96
				FKM	41 52 97
			NPT 1	EPDM	40 52 91
				FKM	40 52 92
			NPT 1¼	EPDM	41 53 11
				FKM	41 53 12
		Clamp pipe stub for welding	28.5	EPDM	40 52 82
				FKM	40 52 83
			37.2	EPDM	41 53 00
				FKM	41 53 01

Clamp couplings

Couplings	Pump type	Pipe stub	Pipework connection	Rubber parts	Product number
 TM00 3809 1094	CRNE 8	Threaded	Rp 1½	EPDM	42 52 38
				FKM	42 52 39
		For welding	ø43.1 mm	EPDM	42 52 42
				FKM	42 52 43
	CRNE 16	Threaded	Rp 2	EPDM	33 52 41
				FKM	33 52 42
		For welding	ø54.5 mm	EPDM	33 52 51
				FKM	33 52 52

Potentiometer

Potentiometer for setpoint setting and start/stop of the pump.

Product	Product number
External potentiometer with cabinet for wall mounting	62 54 68

G10-LON interface

The G10-LON interface is used in connection with data transmission between a Locally Operating Network (LON) and electronically controlled Grundfos pumps applying the Grundfos bus-protocol GENIbus.

Product	Product number
G10-LON interface	00 60 57 26

LiqTec

A dry-running protection device, the LiqTec protects pump and process against dry running.

LiqTec is prepared for DIN rail mounting in control cabinet.

Enclosure class: IP X0.

R100

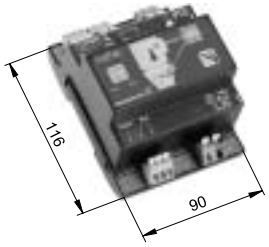
R100 is used for wireless communication. The communication takes place by means of infrared light.

Product	Product number
R100	62 53 33

EMC-filter

EMC-filter required for installation of 7.5 - 22 kW pumps in residential areas.

Product	Product number
EMC-filter (7.5 kW)	96 04 10 47
EMC-filter (11 kW)	96 47 83 09
EMC-filter (15 kW)	96 47 83 09
EMC-filter (18.5 kW)	96 47 83 09
EMC-filter (22 kW)	96 47 83 09

Dry-running protection	Pump type	Voltage [V]	LiqTec	Sensor ½"	Cable 5 m	Extension cable 15 m	Product number
 TM02 1731 2001	CRE CRIE CRNE	200-240	●	●	●		96 44 36 74
		80-130	●	●	●		96 46 39 12
						●	96 44 36 76

Sensors

Accessory	Type	Supplier	Measuring range	Product number
Pressure sensor • Connection: G ½ A (DIN 16288 - B6kt) • Electrical connection: plug (DIN 43650)	MBS 3000	Danfoss	0 - 2.5 bar	96 47 81 88
			0 - 4 bar	91 07 20 75
			0 - 6 bar	91 07 20 76
			0 - 10 bar	91 07 20 77
			0 - 16 bar	91 07 20 78
			0 - 25 bar	91 07 20 79
Flowmeter	MAGFLO MAG 3100/5000	Danfoss	1 - 5 m^2 (DN 25)	ID8285
Flowmeter	MAGFLO MAG 3100/5000	Danfoss	3 - 10 m^2 (DN 40)	ID8286
Flowmeter	MAGFLO MAG 3100/5000	Danfoss	6 - 30 m^2 (DN 65)	ID8287
Flowmeter	MAGFLO MAG 3100/5000	Danfoss	20 - 75 m^2 (DN 100)	ID8288
Temperature sensor	TTA (0) 25	Carlo Gavazzi	0°C to +25°C	96 43 25 91
Temperature sensor	TTA (-25) 25	Carlo Gavazzi	–25°C to +25°C	96 43 01 94
Temperature sensor	TTA (50) 100	Carlo Gavazzi	50°C to 100°C	96 43 25 92
Temperature sensor	TTA (0) 150	Carlo Gavazzi	0°C to 150°C	96 43 01 95
Accessory for temperature sensor. All with ½ RG connection	Protecting tube ø9 x 50 mm	Carlo Gavazzi		96 43 02 01
	Protecting tube ø9 x 100 mm	Carlo Gavazzi		96 43 02 02
	Cutting ring bush	Carlo Gavazzi		96 43 02 03
Temperature sensor, ambient temperature	WR 52	tmg (DK: Plesner)	–50°C to +50°C	ID8295
Differential temperature sensor	ETSD	Honsberg	0°C to 20°C	96 40 93 62
Differential temperature sensor	ETSD	Honsberg	0°C to 50°C	96 40 93 63

Note: All sensors have 4-20 mA signal out-put.

Danfoss pressure sensor kits for CRE 8 and CRE 16		
Kit consisting of..	**Pressure range**	**Product number**
• Danfoss pressure transmitter, type MBS 3000, with 2 m screened cable Connection: G ¼ A (DIN 16288 - B6kt) • 5 cable clips (black) • Instruction manual PT (00 40 02 12)	0 - 2.5 bar	40 51 59
	0 - 4 bar	40 51 60
	0 - 6 bar	40 51 61
	0 - 10 bar	40 51 62
	0 - 16 bar	40 51 63

Danfoss pressure sensor kits for CRE 1, 3, 5, 32, 45, 64 and 90		
Kit consisting of..	**Pressure range**	**Product number**
• Danfoss pressure transmitter, type MBS 3000, with 2 m screened cable Connection: G ½ A (DIN 16288 - B6kt) • 5 cable clips (black) • Instruction manual PT (00 40 02 12)	0 - 4 bar	96 42 80 14
	0 - 6 bar	96 42 80 15
	0 - 10 bar	96 42 80 16
	0 - 16 bar	96 42 80 17
	0 - 25 bar	96 42 80 18

HUBA differential pressure sensor kit		
Kit consisting of..	**Pressure range**	**Product number**
• 1 sensor incl. 1.5 m screened cable (7/16" connections) • 1 original HUBA bracket (for wall mounting) • 1 GRUNDFOS bracket (for mounting on motor) • 2 M4 screws for mounting of sensor on bracket • 1 M6 screw (self-cutting) for mounting on MGE 90/100 • 1 M8 screw (self-cutting) for mounting on MGE 112/132 • 2 capillary tubes (short/long) • 2 brackets (1/4" - 7/16") • 5 cable clips (black)	0 - 0.6 bar	48 54 50
	0 - 1 bar	48 54 41
	0 - 1.6 bar	48 54 42
	0 - 2.5 bar	48 54 43
	0 - 4 bar	48 54 44
	0 - 6 bar	48 54 45

V7 12 87 66 06 03	GB
Repl.: V7 12 87 66 06 02	

GRUNDFOS A/S . DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00.

www.grundfos.com

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