

# CM, CME

Horizontal, multistage centrifugal pumps

50/60 Hz



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## 8. Operating conditions

### Ambient temperature

The maximum ambient temperature depends on the liquid temperature. The table below shows the temperature limits of CM and CME pumps.

Note that the maximum permissible liquid temperature for CM-A and CME-A is 90 °C.

Minimum ambient temperature [°C]	Maximum ambient temperature [°C]	Liquid temperature [°C]	Pump type		
			CM	CM self-priming	CME <sup>1)</sup>
	55 °C	60 °C	•	•	-
	55 °C	90 °C	•	-	-
-20 °C <sup>2)</sup>	50 °C	100 °C <sup>1)</sup>	•	-	•
	45 °C	110 °C <sup>1)</sup>	•	-	•
	40 °C	120 °C <sup>1)</sup>	•	-	•

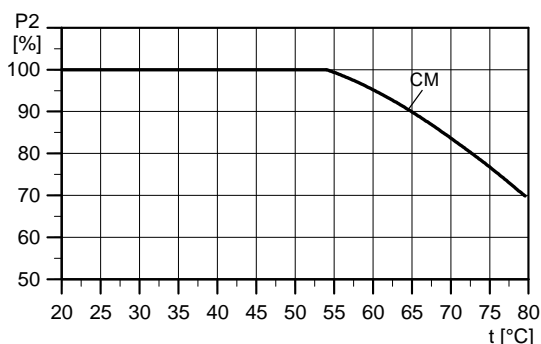
<sup>1)</sup> CME (supply voltages S, T, U)

<sup>2)</sup> Pumps for ambient temperatures below -20 °C are available on request.

### CM mains-operated motors

If the ambient temperature for CM pumps exceeds 55 °C, the motor must not be fully loaded due to the risk of overheating.

In such cases, it may be necessary to derate the motor output or use an oversize motor with higher rated output. The CM pumps can be derated in relation to ambient temperature without consequence. Contact Grundfos for further information.



TM05 7630 1313

Fig. 10 Derating of CM pump, in relation to ambient temperature

### CME speed-controlled motors

The electronics incorporated in the CME pumps are limiting the maximum ambient temperature. This means that the maximum ambient temperature must not be exceeded. If the pump is operated at temperatures exceeding the maximum ambient temperature, the motor life will be reduced.

### Maximum ambient temperature

CME, supply voltages S, T, U:

50 °C.

CME 0.37 to 7.5 kW, supply voltage V:

40 °C.

**Note:** Note that you can operate the new-generation CME pumps at 60 °C as well. In such case, contact Grundfos for further information.

### Storage and transport temperature

-30 to +60 °C.

### Maximum operating pressure and permissible liquid temperature

The maximum operating pressure and the permissible liquid temperature depend on the pump material, the type of shaft seal and the pumped liquid.

#### CM, CME pumps

Material variant	Shaft seal	Permissible liquid temperature <sup>1)</sup> [°C]	Maximum operating pressure [bar]
Cast iron (EN-GJL-200)	AVBx	-20 - +40 +41 - +90	10 6
	AQQx/AQBx	-20 - +90	10
	RUUx	-20 - +60	6
Stainless steel (EN 1.4301 / AISI 304)	AVBx	-20 - +40 +41 - +90	10 6
	AQQx/AQBx	-20 <sup>2)</sup> - +90 +91 - +120	16 10
	AUQX	-20 <sup>2)</sup> - +90	16
	RUUx	-20 - +60	6
Stainless steel (EN 1.4401 / AISI 316)	AVBx	-20 - +40 +41 - +90	10 6
	AQQx/AQBx	-20 <sup>2)</sup> - +90 +91 - +120	16 10
	AUQX	-20 <sup>2)</sup> - +90	16
	RUUx	-20 - +60	6

#### CM self-priming pumps

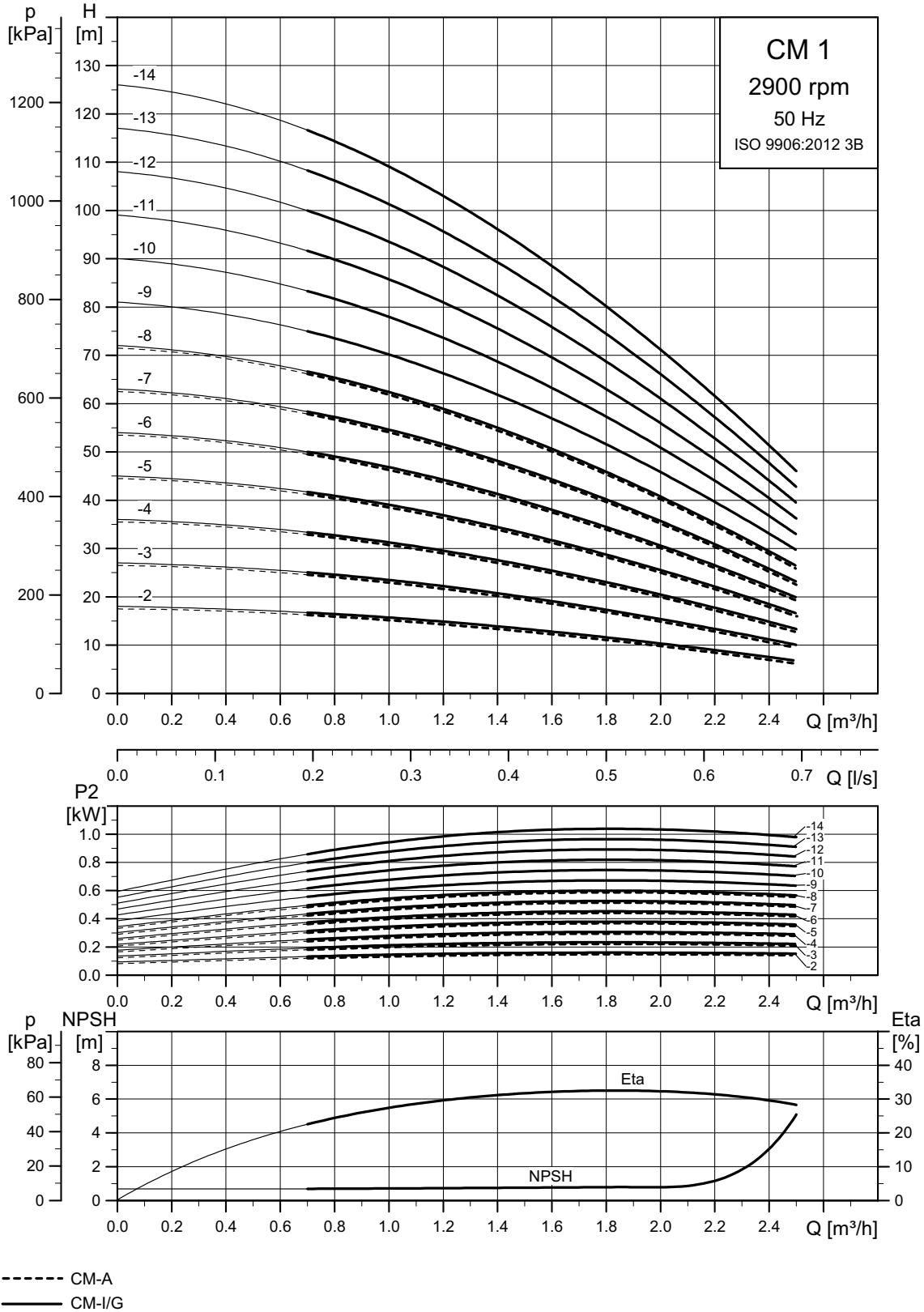
Material variant	Shaft seal	Permissible liquid temperature <sup>1)</sup> [°C]	Max. operating pressure [bar]
Stainless steel (EN 1.4301 / AISI 304)	AVBx	0-40 41-60	10 6
	AQQx	0-60	16

<sup>1)</sup> At liquid temperatures below 0 °C (32 °F), higher motor outputs may be needed due to increased viscosity, for instance if glycol has been added to the water.

<sup>2)</sup> CM-I, -G and CME-I, -G pumps for liquid temperatures below -20 °C are available on request. Please contact Grundfos.

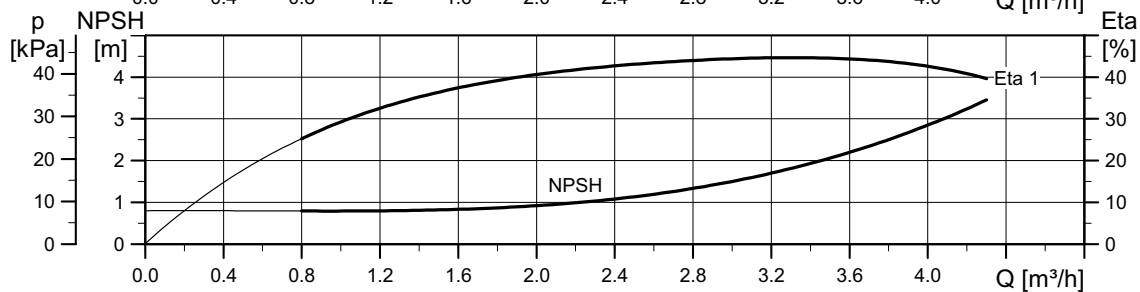
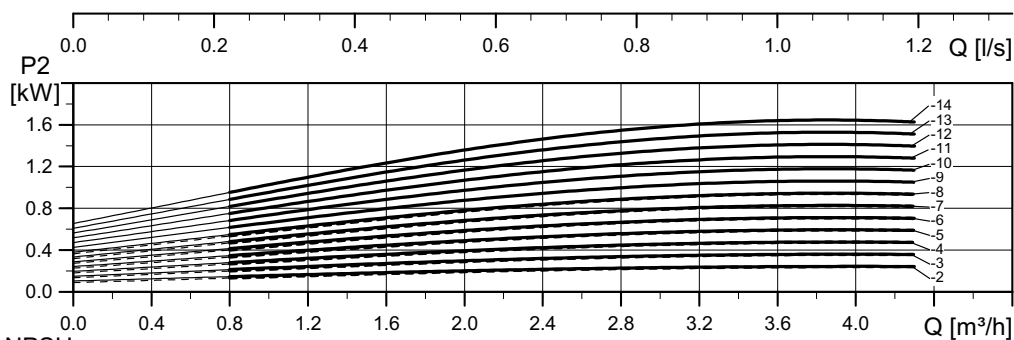
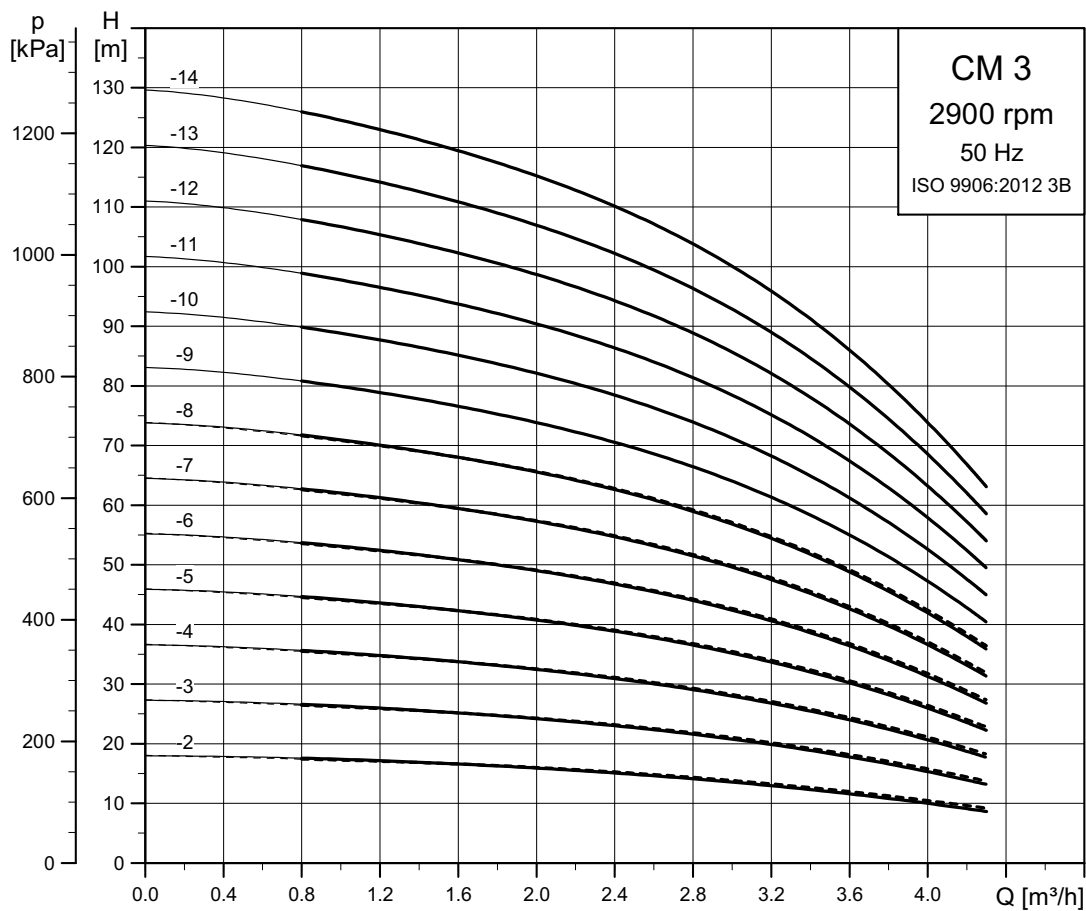
# 17. Performance curves, CM 50 Hz

## CM 1



TM04 3334 3920

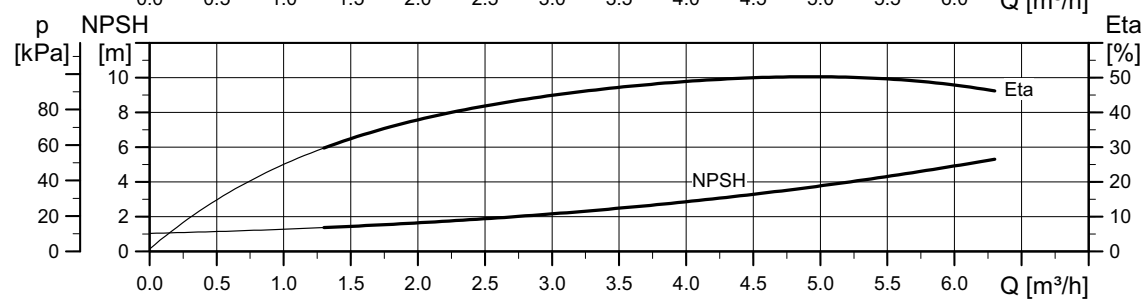
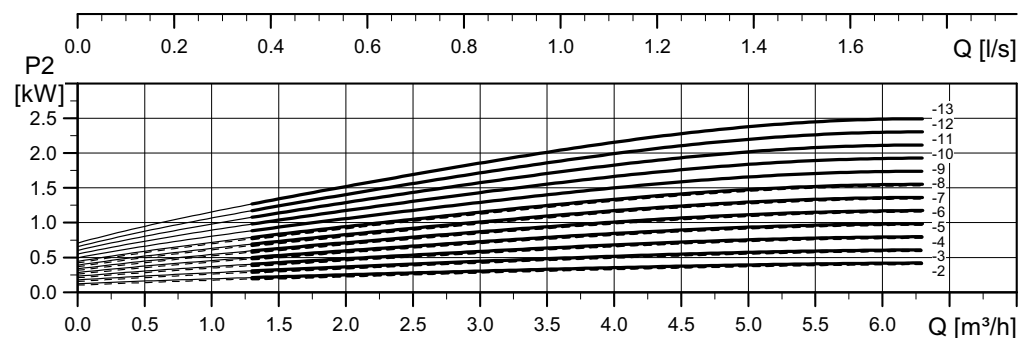
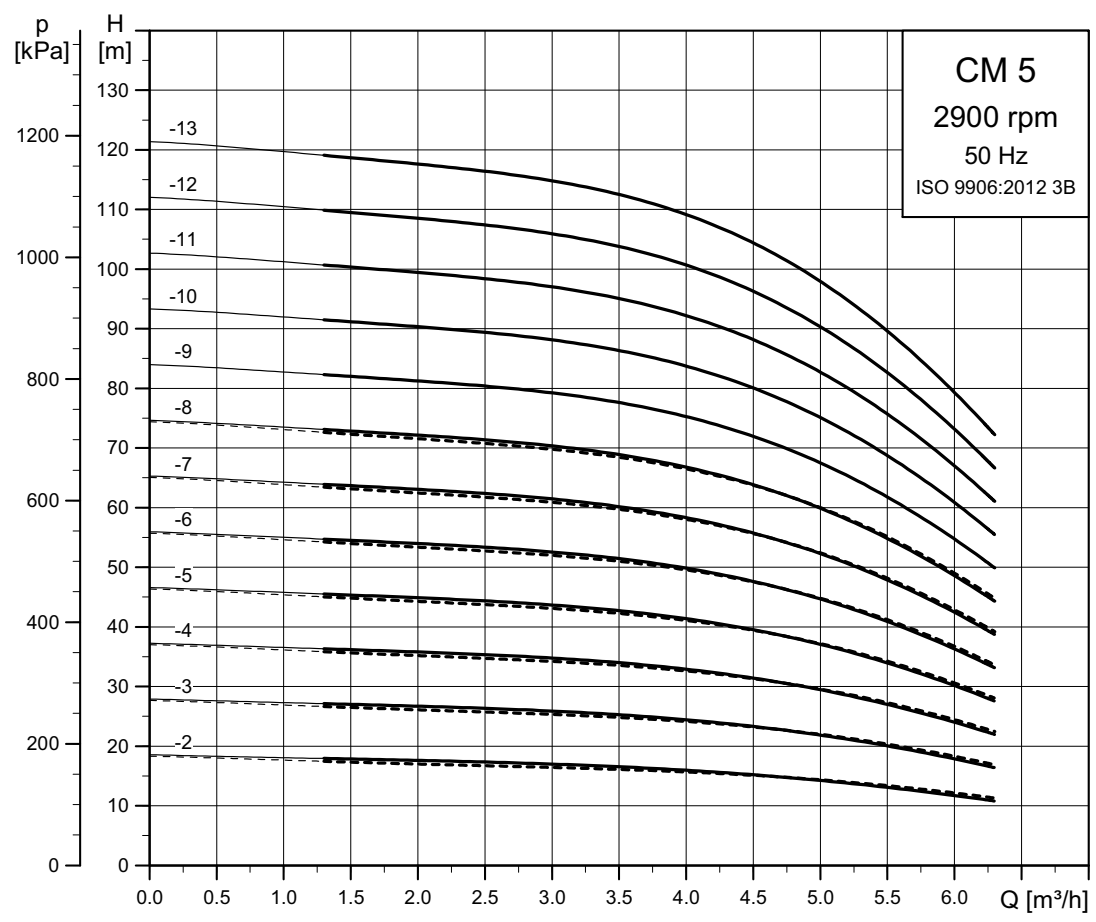
### CM 3



----- CM-A  
———— CM-I/G

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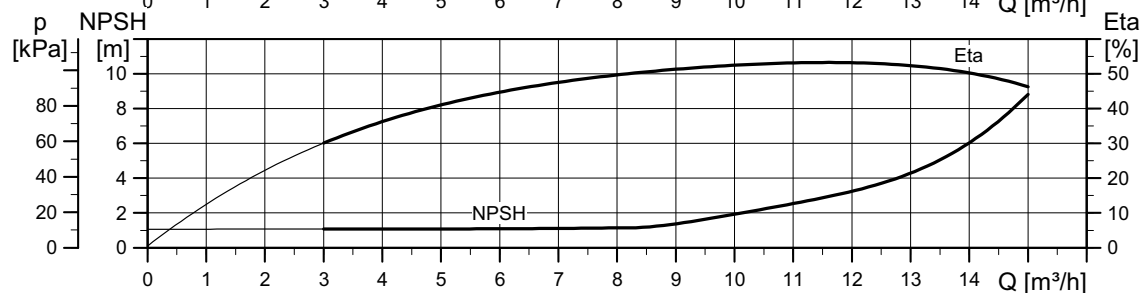
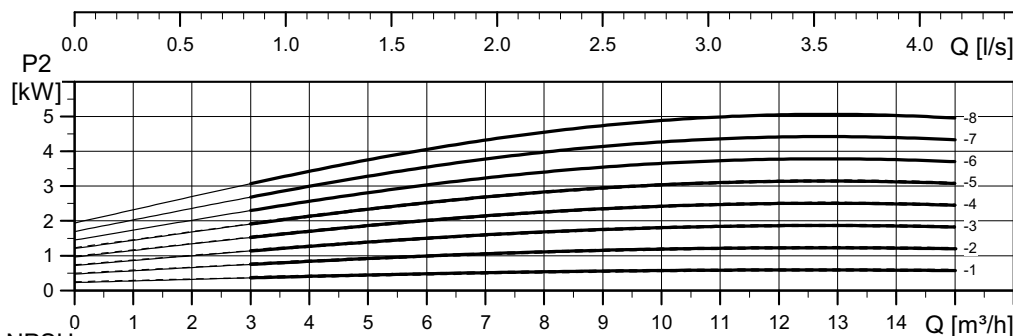
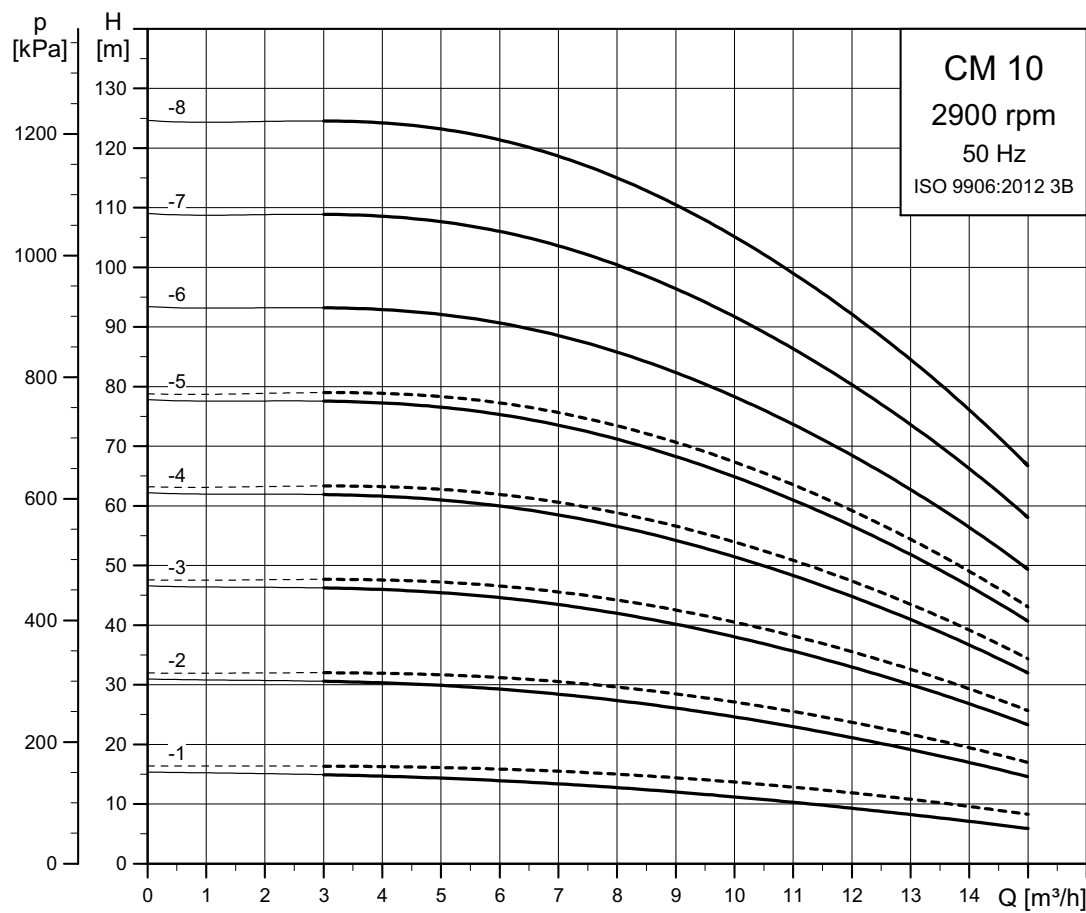
# CM 5



----- CM-A  
———— CM-I/G

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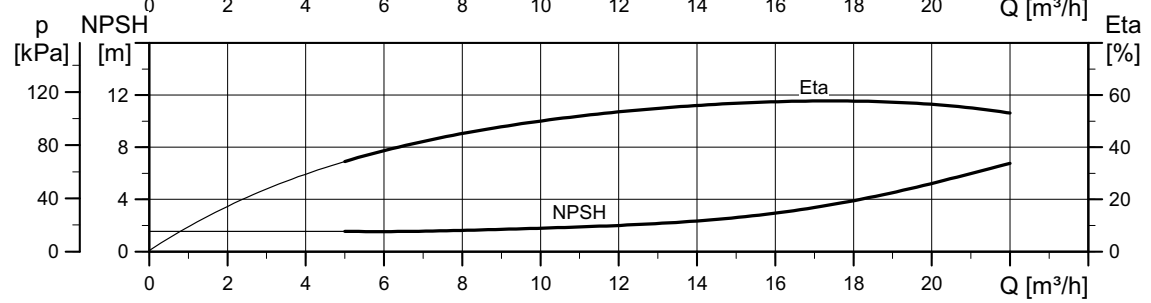
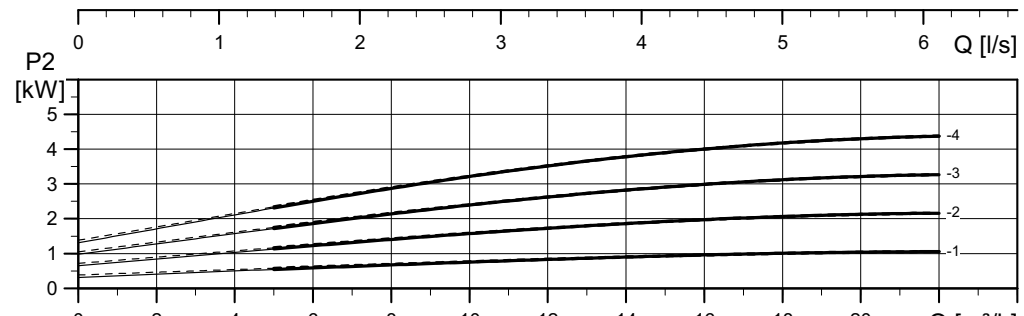
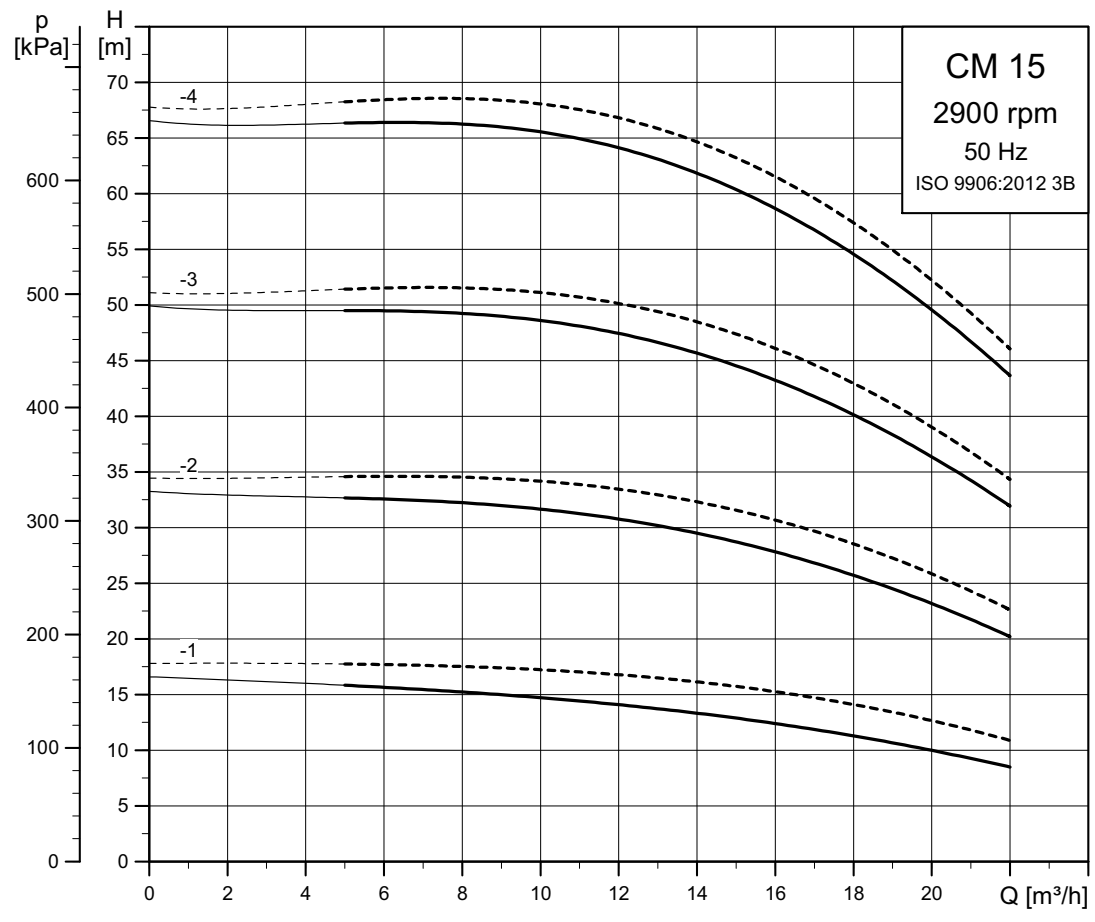
# CM 10



----- CM-A  
———— CM-I/G

TM04 3337 3920

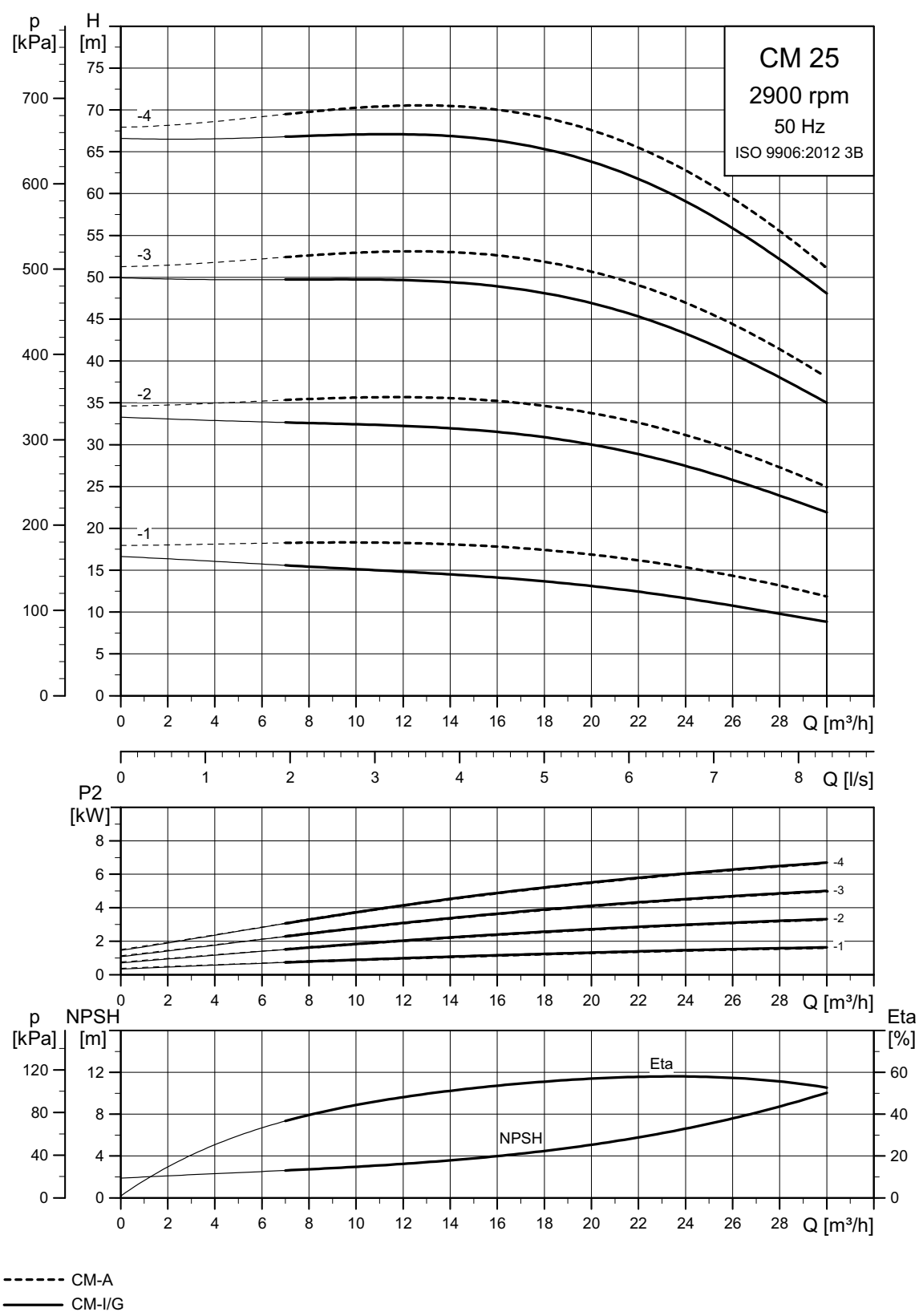
# CM 15



----- CM-A  
———— CM-I/G

TM04 3338 3920

### CM 25



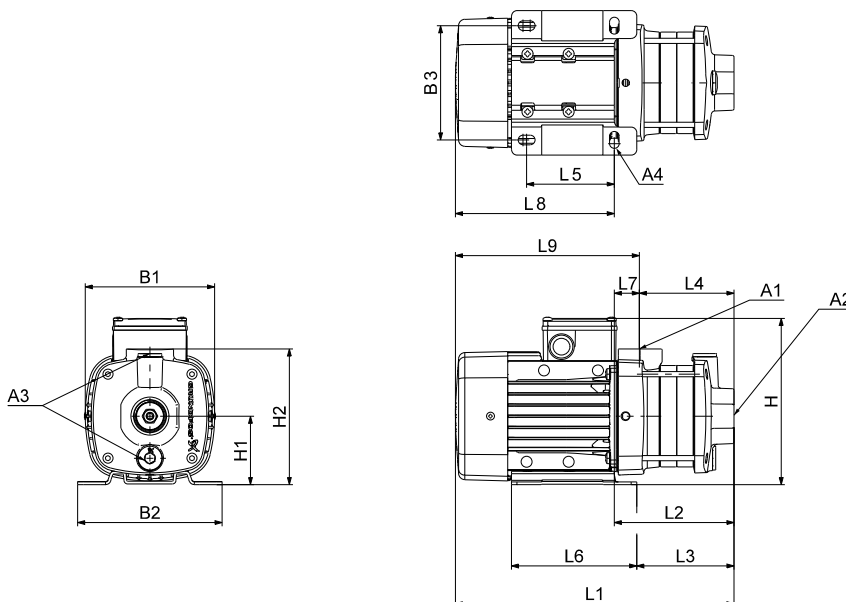
TM04 3339 3920



## 22. Dimensions, CM 50 Hz

### CM 1-A

(A = cast iron EN-GJL-200)



TM06 7509 3616

#### Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	286	112	88	85	96	137	27	174	201
CM1-3	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	304	130	106	103	96	137	27	174	201
CM1-4	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	322	148	124	121	96	137	27	174	201
CM1-5	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	340	166	142	139	96	137	27	174	201
CM1-6	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	358	184	160	157	96	137	27	174	201
CM1-7	71	0.65	1"	1"	3/8"	10.5	141	158	125	184	75	149	376	202	178	175	96	137	27	174	201
CM1-8	71	0.65	1"	1"	3/8"	10.5	141	158	125	184	75	149	394	220	196	193	96	137	27	174	201

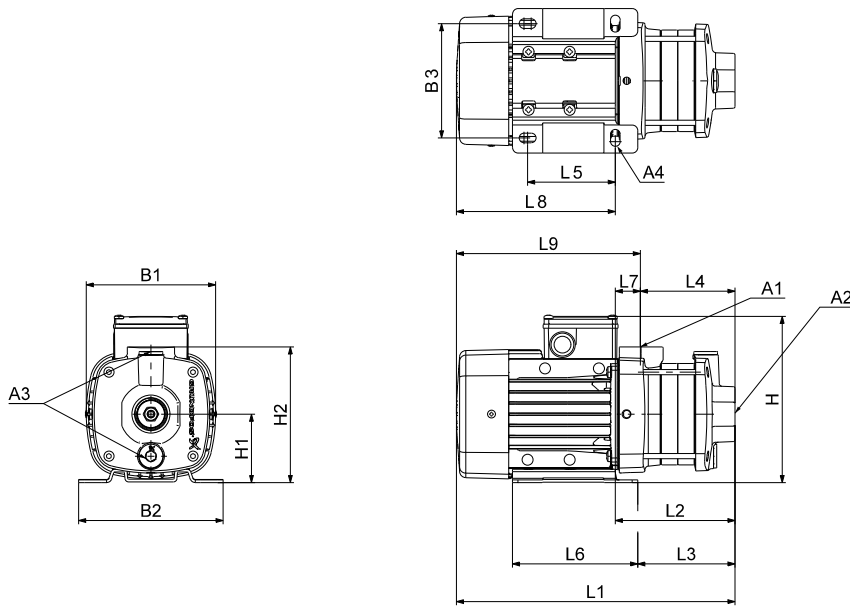
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM1-2	71	0.30	1"	1"	3/8"	10.5	141	158	125	208	75	149	286	112	88	85	96	137	27	174	201
CM1-3	71	0.30	1"	1"	3/8"	10.5	141	158	125	208	75	149	304	130	106	103	96	137	27	174	201
CM1-4	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	322	148	124	121	96	137	27	174	201
CM1-5	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	340	166	142	139	96	137	27	174	201
CM1-6	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	358	184	160	157	96	137	27	174	201
CM1-7	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	376	202	178	175	96	137	27	174	201
CM1-8	80	0.67	1"	1"	3/8"	10.5	141	158	125	208	75	149	434	220	196	193	96	137	27	214	241

All dimensions are in mm unless otherwise stated.

## CM 3-A

(A = cast iron EN-GJL-200)



TM06 7509 3616

### Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	286	112	88	85	96	137	27	174	201
CM3-3	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	304	130	106	103	96	137	27	174	201
CM3-4	71	0.46	1"	1"	3/8"	10.5	141	158	125	184	75	149	322	148	124	121	96	137	27	174	201
CM3-5	71	0.65	1"	1"	3/8"	10.5	141	158	125	184	75	149	340	166	142	139	96	137	27	174	201
CM3-6	71	0.65	1"	1"	3/8"	10.5	141	158	125	184	75	149	358	184	160	157	96	137	27	174	201
CM3-7	80	1.10	1"	1"	3/8"	10.5	141	158	125	184	75	149	436	202	178	175	96	137	27	234	261
CM3-8	80	1.10	1"	1"	3/8"	10.5	141	158	125	184	75	149	454	220	196	193	96	137	27	234	261

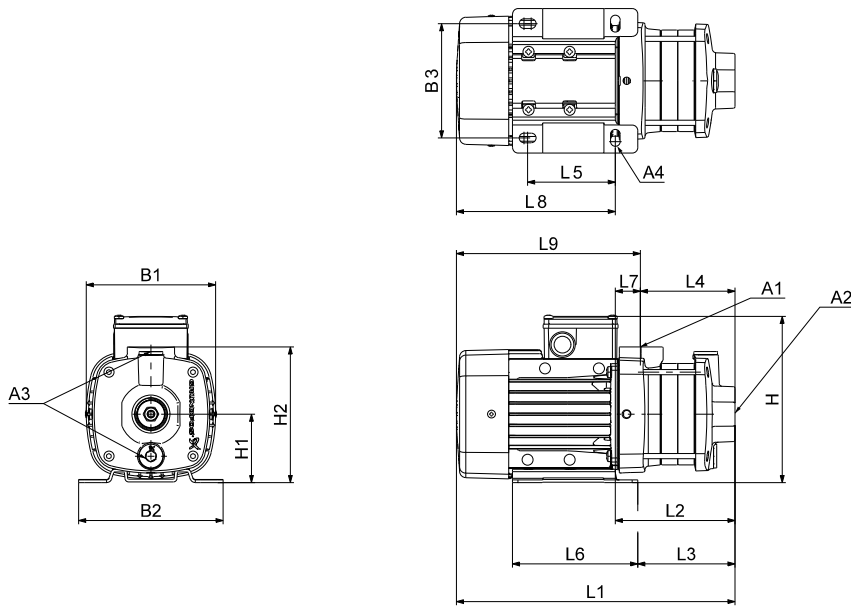
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM3-2	71	0.30	1"	1"	3/8"	10.5	141	158	125	208	75	149	286	112	88	85	96	137	27	174	201
CM3-3	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	304	130	106	103	96	137	27	174	201
CM3-4	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	322	148	124	121	96	137	27	174	201
CM3-5	71	0.50	1"	1"	3/8"	10.5	141	158	125	208	75	149	340	166	142	139	96	137	27	174	201
CM3-6	80	0.67	1"	1"	3/8"	10.5	141	158	125	208	75	149	398	184	160	157	96	137	27	214	241
CM3-7	80	0.90	1"	1"	3/8"	10.5	141	158	125	208	75	149	416	202	178	175	96	137	27	214	241
CM3-8	80	0.90	1"	1"	3/8"	10.5	141	158	125	208	75	149	434	220	196	193	96	137	27	214	241

All dimensions are in mm unless otherwise stated.

## CM 5-A

(A = cast iron EN-GJL-200)



TM06 7509 3616

### Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.46	1"	1 1/4"	3/8"	10.5	141	158	125	184	75	149	286	112	88	85	96	137	27	174	201
CM5-3	71	0.65	1"	1 1/4"	3/8"	10.5	141	158	125	184	75	149	304	130	106	103	96	137	27	174	201
CM5-4	80	1.10	1"	1 1/4"	3/8"	10.5	141	158	125	184	75	149	382	148	124	121	96	137	27	234	261
CM5-5	80	1.10	1"	1 1/4"	3/8"	10.5	141	158	125	184	75	149	400	166	142	139	96	137	27	234	261
CM5-6	90	1.50	1"	1 1/4"	3/8"	10.0	178	178	140	200	90	201	449	225	210	144	125	155	81	224	306
CM5-7	90	1.50	1"	1 1/4"	3/8"	10.0	178	178	140	200	90	201	467	243	228	162	125	155	81	224	306
CM5-8	90	2.20	1"	1 1/4"	3/8"	10.0	178	178	140	200	90	201	525	261	246	180	125	155	81	264	346

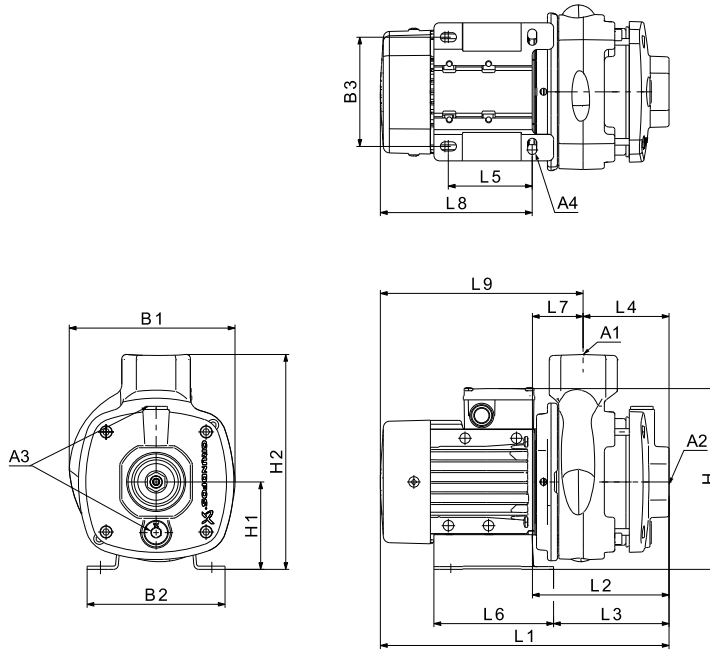
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM5-2	71	0.50	1"	1 1/4"	3/8"	10.5	141	158	125	208	75	149	286	112	88	85	96	137	27	174	201
CM5-3	71	0.50	1"	1 1/4"	3/8"	10.5	141	158	125	208	75	149	304	130	106	103	96	137	27	174	201
CM5-4	80	0.67	1"	1 1/4"	3/8"	10.5	141	158	125	208	75	149	362	148	124	121	96	137	27	214	241
CM5-5	80	0.90	1"	1 1/4"	3/8"	10.5	141	158	125	208	75	149	380	166	142	139	96	137	27	214	241
CM5-6	90	1.30	1"	1 1/4"	3/8"	10.0	178	178	140	229	90	201	449	225	210	144	125	155	81	224	306
CM5-7	90	1.30	1"	1 1/4"	3/8"	10.0	178	178	140	229	90	201	467	243	228	162	125	155	81	224	306
CM5-8	90	1.70	1"	1 1/4"	3/8"	10.0	178	178	140	229	90	201	485	261	246	180	125	155	81	224	306

All dimensions are in mm unless otherwise stated.

# CM 10-A

(A = cast iron EN-GJL-200)



TM06 7512 3616

## Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	71	0.65	1 1/2"	1 1/2"	3/8"	10.5	190	158	125	209	100	242	330	156	131	97	95	137	59	174	232
CM10-2	90	1.50	1 1/2"	1 1/2"	3/8"	12.0	190	199	160	210	100	242	411	179	164	97	140	170	82	232	314
CM10-3	90	2.20	1 1/2"	1 1/2"	3/8"	12.0	190	199	160	210	100	242	481	209	194	127	140	170	82	272	354
CM10-4	100	3.0	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	242	527	254	239	157	140	170	97	273	370
CM10-5	100	3.0	1 1/2"	1 1/2"	3/8"	12.0	198	199	160	220	100	242	557	284	269	187	140	170	97	273	370

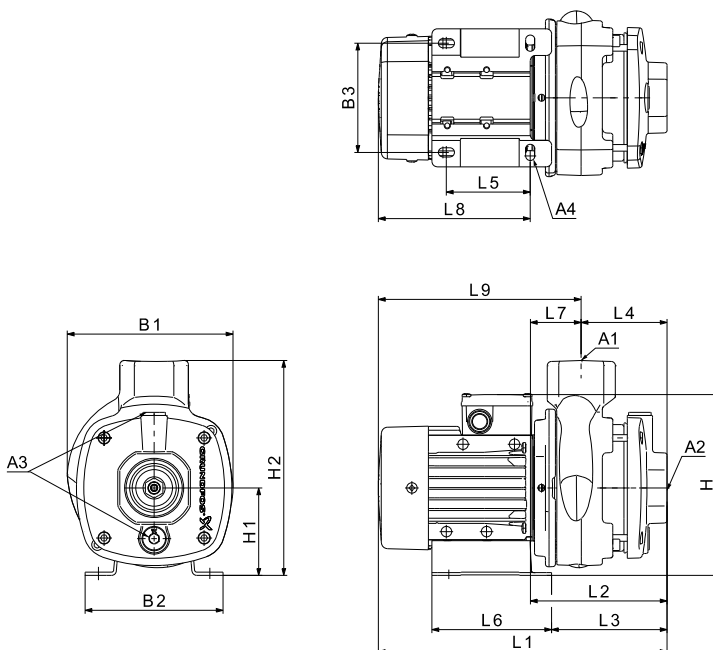
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM10-1	80	0.67	1 1/2"	1 1/2"	3/8"	10.5	190	158	125	233	100	242	370	156	131	97	95	137	59	214	272
CM10-2	90	1.30	1 1/2"	1 1/2"	3/8"	12.0	190	199	160	239	100	242	411	179	164	97	140	170	82	232	314
CM10-3	90	1.70	1 1/2"	1 1/2"	3/8"	12.0	190	199	160	239	100	242	441	209	194	127	140	170	82	232	314

All dimensions are in mm unless otherwise stated.

# CM 15-A

(A = cast iron EN-GJL-200)



TM06 7512 3616

## Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	80	1.1	2"	2"	3/8"	10.5	190	158	125	209	100	242	390	156	131	97	95	137	59	234	292
CM15-2	90	2.2	2"	2"	3/8"	12.0	190	199	160	210	100	242	451	179	164	97	140	170	82	272	354
CM15-3	112	4.0	2"	2"	3/8"	12.0	220	228	190	246	112	254	550	248	232	127	140	172	120	302	423
CM15-4	132	5.5	2"	2"	3/8"	12.0	220	228	190	246	112	254	580	278	262	157	140	172	120	302	423

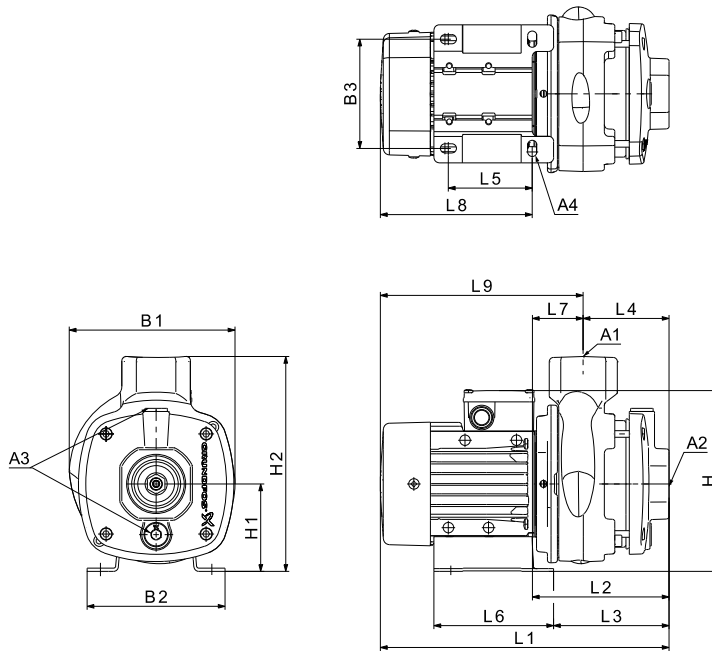
1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM15-1	90	1.30	2"	2"	3/8"	12.0	190	199	160	239	100	242	411	179	164	97	140	170	82	232	314
CM15-2	90	1.70	2"	2"	3/8"	12.0	190	199	160	239	100	242	411	179	164	97	140	170	82	232	314

All dimensions are in mm unless otherwise stated.

## CM 25-A

(A = cast iron EN-GJL-200)



TM06 7512 3616

### Dimensions

3 x 220-240/380-415 V, 50 Hz (supply voltage F)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	90	2.20	2"	2"	3/8"	12.0	190	199	160	210	100	242	451	179	164	97	140	170	82	272	354
CM25-2	112	4.0	2"	2"	3/8"	12.0	220	228	190	246	112	254	520	218	202	97	140	172	120	302	423
CM25-3	132	5.50	2"	2"	3/8"	12.0	220	228	190	246	112	254	550	248	232	127	140	172	120	302	423
CM25-4	132	7.50	2"	2"	3/8"	12.0	263	244	216	291	132	273	559	269	257	157	140	164	112	290	402

1 x 220-240 V, 50 Hz (supply voltage C)

Pump type	Frame size	P <sub>2</sub> [kW]	Dimensions [mm]																		
			A1	A2	A3	A4	B1	B2	B3	H	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
CM25-1	90	1.70	2"	2"	3/8"	12.0	190	199	160	239	100	242	411	179	164	97	140	170	82	232	314

All dimensions are in mm unless otherwise stated.