



VR SERIES 50 HZ

VERTICAL MULTISTAGE PUMPS



VERTICAL MULTISTAGE PUMPS

FEATURES AND BENEFITS

APPLICATIONS



Water Distribution,
Pressure Boosting,
Drinking water



Irrigation
Water treatment plants
Gardening, Sprinklers



Wash down unit
Boiler Feed



Domestic, industrial and
agricultural systems



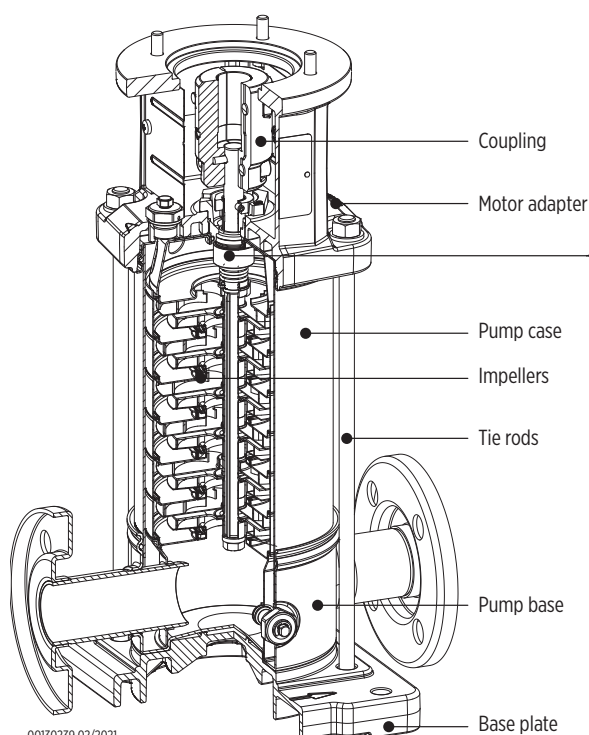
Circulation of hot and
cold water for heating,
cooling, conditioning systems

ROBUST AND RELIABLE

- Compact and solid structure
- Easy installation in-line ports
- All wetted parts in Stainless Steel
- Shaft bearing and journal sleeve made of tungsten carbide
- WRAS approved PPS (VR 1-3-6-10-15-20) / PTFE (VR 30-45-65-95)
- Easily replaceable cartridge mechanical seal, no need to disassemble the pump; for models higher than 4 kW no need to remove the motor
- Reduced service and maintenance time
- Replaceable Stainless Steel wear ring in the neck of the impeller (only for VR 30-45-65-95)

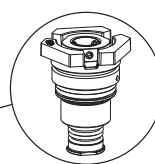
HIGH QUALITY MATERIALS

- Stainless steel impeller and diffuser for corrosion resistance
- Standard mechanical seal (EN 12756 ex DIN 24960) WRAS approved; balanced version for VR 30-45-65-95
- Standard IE3 motor, size B14 up to 4 kW / size B5 from 5.5 kW and above
- Tungsten carbide intermediate bearing to stabilize the hydraulic with large number of stages

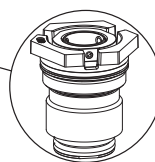


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CARTRIDGE MECHANICAL SEAL



Unbalanced
version



Balanced
version

Vertical multistage pumps are rotodynamic pumps, not self-priming, assembled with one or more stages with radial or semiaxial (mixed) flow. The pump consists in a pump body, with in-line connections to the pipes, an external waterproof shell, an upper bracket that supports the motor. The bottom base plate allows the ground fixing. The structural integrity is guaranteed by the tie rods. The motor shaft and the pump shaft (driven shaft) are connected to each other by rigid, removable coupling. The rigid coupling can be equipped with a ball bearing to support the axial thrust (thrust assembly). The mechanical seal, cartridge type, is free from periodic maintenance.

GENERAL FEATURES

Model		1	3	6	10	15	20	30	45	65	95
Nominal flow [m³/h]		2	3.6	6	11	17	20	36	48	70	90
Maximum liquid temperature [°C]	Domestic uses	85 °C									
	Other uses	120 °C									
Max. D hydraulic [%]		47.8	57.1	64.6	68.5	69.0	69.0	75.4	76.3	78.4	79.4
Range [m³/h]		0.8 - 2.8	1.4 - 4.2	2.8 - 7.2	7.0 - 14.0	8.0 - 24.0	9.0 - 28.0	25.0 - 42.0	34.0 - 64.0	30.0 - 88.0	45.0 - 115.0
Max. pressure [bar]	Standard version	26	26	26	26	26	26	32	32	25	25
	Motor power [kW] (2 poles)	0.37 - 2.2	0.37 - 3.0	0.37 - 5.5	0.75 - 7.5	1.1 - 15	1.1 - 18.5	2.2 - 30.0	3.0 - 45.0	4.0 - 45.0	5.5 - 45.0
Material versions	G (cast-iron + AISI 304 SS)	-	-	-	-	-	-	•	•	•	•
	H (AISI 304 SS)	•	•	•	•	•	•	-	-	-	-
	N (AISI 316L SS)	•	•	•	•	•	•	•	•	•	•
	P (AISI 316L SS passivated)	•	•	•	•	•	•	•	•	•	•
Hydraulic connection (dimensions)	F (round flange) H (AISI 304 SS) version N (AISI 316L SS) version	DN 25 PN 25/40	DN 25 PN 25/40	DN 32 PN 25/40	DN 40 PN 25/40	DN 50 PN 25/40	DN 50 PN 25/40	-	-	-	-
	F (round flange) G (cast-iron) version N (AISI 316L SS) version	-	-	-	-	-	-	DN 65 PN16 - PN 25/40	DN 80 PN16 - PN 25/40	DN 100 PN16 - PN 25/40	DN 100 PN16 - PN 25/40
	T (oval flange) H (AISI 304 SS) version	Rp 1" (DN 25) PN 16	Rp 1" (DN 25) PN 16	Rp 1" (DN 25) PN 16	Rp 1" ½ (DN 40) PN 16	Rp 2" (DN 50) PN 16	Rp 2" (DN 50) PN 16	-	-	-	-
	V (Victaulic) N (AISI 316L SS) version	1" (DN 25) PN 25	1" (DN 25) PN 25	1" ¼ (DN 32) PN 25	1" ½ (DN 40) PN 25	2" (DN 50) PN 25	2" (DN 50) PN 25	-	-	-	-
	C (Clamp) N (AISI 316L SS) version	1" (DN 25) PN 25	1" (DN 25) PN 25	1" ¼ (DN 32) PN 25	1" ½ (DN 40) PN 25	2" (DN 50) PN 25	2" (DN 50) PN 25	-	-	-	-

"-" = not available

• = available

15VR - 20VR

Pump model	No. Stages	RATED POWER		* P1 _{max}	Q = DELIVERY															
					l/min 0	120.0	133.3	150.0	166.7	183.3	200.0	216.7	233.3	266.7	300.0	350.0	400.0	433.3	466.7	500
		m³/h 0	7.2		8.0	9.0	10.0	11.0	12.0	13.0	14.0	16.0	18.0	21.0	24.0	26.0	28.0	30.0		
		US gpm 0	31.7	35.2	39.6	44.0	48.4	52.8	57.2	61.6	70.3	79.1	92.3	105.5	114.3	123.1	131.9			
		[kW]	[HP]	Bar	H = TOTAL METERS HEAD OF WATER COLUMN [m]															
15 VR	1	0.75	1	5	13.0		11.7	11.6	11.4	11.1	10.8	10.4	10.1	9.1	7.9	5.6	-			
	2	1.5	2	11	27.1		24.3	23.9	23.5	22.9	22.3	21.7	21.1	19.3	17.2	13.1	8.0			
	3	2.2	3	16	41.2		37.4	36.7	36.1	35.3	34.4	33.6	32.7	30.1	27.1	20.8	13.5			
	4	3	4	20	55.1		50.2	49.3	48.5	47.5	46.3	45.2	44.0	40.6	36.6	28.2	18.5			
	5	4	5.5	20	72.3		64.7	63.7	62.6	61.5	60.1	58.5	57.2	53.6	48.7	38.9	27.6			
	6	5.5	7.5	20	88.0		80.1	78.9	77.7	76.4	74.9	73.3	71.7	68.0	62.4	51.3	37.5			
	7	5.5	7.5	20	102.5		93.0	91.5	90.1	88.6	86.8	84.9	83.0	78.6	72.0	59.1	43.0			
	8	7.5	10	20	116.9		105.9	104.2	102.6	100.8	98.8	96.5	94.4	89.3	81.7	66.9	48.5			
	9	7.5	10	19	131.2		118.5	116.6	114.8	112.7	110.4	107.9	105.5	99.7	91.1	74.3	53.6			
	10	11	15	18	147.3		134.1	132.1	130.1	127.9	125.5	122.8	120.2	114.1	104.8	86.3	63.4			
	11	11	15	18	161.7		147.1	144.9	142.7	140.3	137.6	134.6	131.7	125.0	114.7	94.4	69.2			
	12	11	15	17	176.2		160.0	157.6	155.2	152.6	149.6	146.3	143.2	135.7	124.5	102.3	74.8			
	13	11	15	16	190.6		172.9	170.3	167.7	164.8	161.6	158.0	154.6	146.4	134.2	110.1	80.3			
	14	11	15	16	204.9		185.7	182.9	180.0	176.9	173.4	169.5	165.9	157.0	143.8	117.8	85.7			
	15	15	20	15	220.7		200.2	197.2	194.2	190.8	187.1	183.0	179.0	169.7	155.7	127.8	93.4			
	16	15	20	15	235.1		213.1	209.8	206.6	203.0	199.0	194.6	190.4	180.3	165.3	135.6	98.9			
	17	15	20	14	249.4		225.9	222.4	219.0	215.1	210.9	206.1	201.6	190.9	174.8	143.3	104.2			
20 VR	1	1.1	2	5	14.3				12.9	12.8	12.5	12.2	11.9	11.4	10.5	9.0	6.7	4.0	-	
	2	2.2	3	11	29.7				26.9	26.6	26.3	26.0	25.5	24.5	23.3	20.7	17.1	13.9	10.6	
	3	3	4	16	45.0				40.9	40.4	39.9	39.2	38.5	37.2	35.5	31.6	25.8	21.5	16.6	
	4	4	5.5	20	62.2				55.7	54.9	54.2	53.7	52.8	50.9	49.0	44.0	36.8	31.1	25.2	
	5	5.5	7.5	20	78.6				70.8	69.9	69.0	68.5	67.4	65.1	62.8	56.9	47.9	41.0	33.5	
	6	7.5	10	19	94.2				86.2	85.1	84.1	83.2	82.2	79.7	77.3	70.0	59.4	51.3	42.0	
	7	7.5	10	19	109.5				99.8	98.5	97.4	96.3	95.1	92.2	89.2	80.6	68.2	58.7	47.9	
	8	11	15	17	126.5				116.1	114.7	113.5	112.3	111.0	107.9	104.8	95.4	81.4	70.7	58.3	
	9	11	15	17	142.0				130.2	128.6	127.2	125.9	124.4	120.8	117.3	106.7	90.8	78.7	64.8	
	10	11	15	16	157.5				144.2	142.4	140.8	139.3	137.7	133.6	129.6	117.7	100.1	86.6	71.1	
	11	15	20	15	174.0				159.4	157.4	155.7	154.1	152.3	147.9	143.5	130.5	111.2	96.4	79.3	
	12	15	20	14	189.5				173.4	171.2	169.3	167.6	165.5	160.7	155.8	141.6	120.4	104.2	85.6	
	13	15	20	13	204.9				187.3	184.9	182.8	180.9	178.7	173.4	168.1	152.5	129.5	111.9	91.7	
	14	15	20	13	220.3				201.1	198.5	196.2	194.1	191.7	186.0	180.2	163.2	138.4	119.4	97.7	
	15	18.5	25	11	237.4				218.1	215.4	213.1	211.0	208.6	202.6	196.8	179.4	153.1	133.0	109.7	
	16	18.5	25	10	252.9				232.2	229.4	226.9	224.6	222.0	215.6	209.4	190.7	162.7	141.1	116.3	
	17	18.5	25	10	268.5				246.3	243.3	240.6	238.2	235.4	228.6	221.9	202.0	172.1	149.2	122.8	

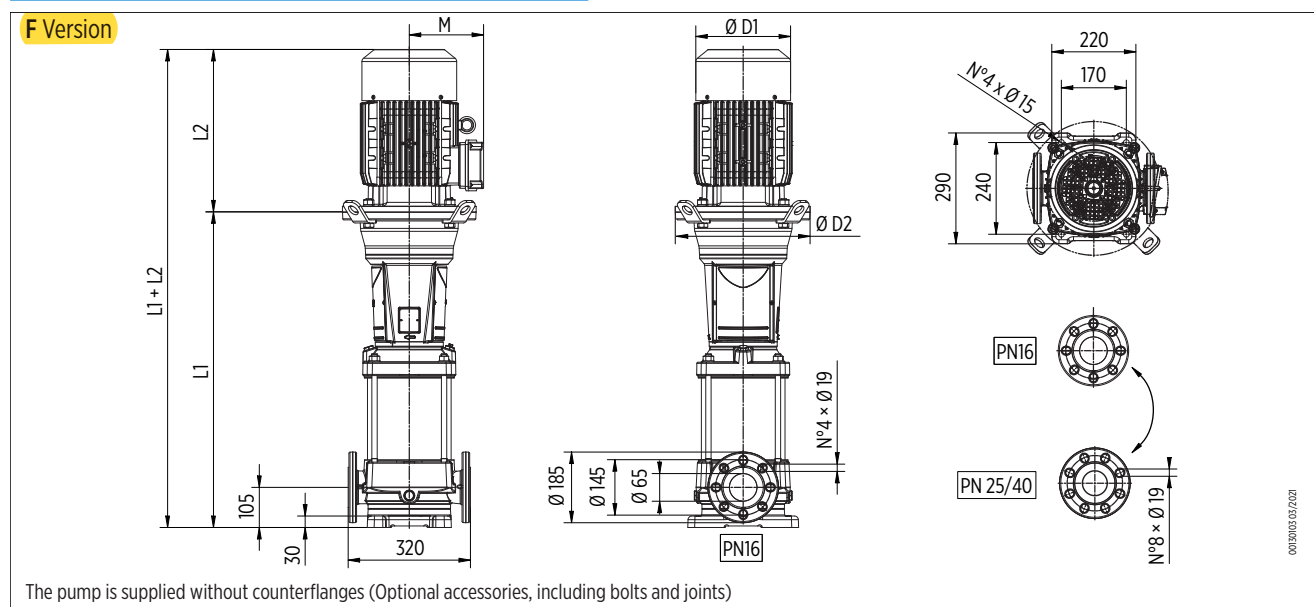
* P1_{max} = maximum suction pressure at full speed

30 VR - 50 Hz

TECHNICAL DATA

No. Stages	MOTOR		Dimensions [mm]						Weight [kg]		
	[kW]	Dim	L1	L2	M	D1	D2	L1+L2	Pump	Motor	Electric Pump
1	2.2	90	431	267	138	180	170	698	48.5	16	64.5
2-2a	4	112	513	306	145	196	170	819	52	26.5	78.5
2-1a	4	112	513	306	145	196	170	819	52	26.5	78.5
2	5.5	132	724	328	160	225	300	1052	72.5	33.6	106.1
3-2a	5.5	132	806	328	160	225	300	1134	76.5	33.6	110.1
3-1a	7.5	132	806	350	160	225	300	1156	76.5	36	112.5
3	7.5	132	806	350	160	225	300	1156	76.5	36	112.5
4-2a	7.5	132	888	350	160	225	300	1238	80.5	36	116.5
4-1a	11	160	908	425	194	248	350	1333	84	59	143
4	11	160	908	425	194	248	350	1333	84	59	143
5-2a	11	160	991	425	194	248	350	1416	88	59	147
5-1a	11	160	991	425	194	248	350	1416	88	59	147
5	15	160	991	476	194	248	350	1467	88	68	156
6-2a	15	160	1073	476	194	248	350	1549	92	68	160
6-1a	15	160	1073	476	194	248	350	1549	92	68	160
6	15	160	1073	476	194	248	350	1549	92	68	160
7-2a	15	160	1155	476	194	248	350	1631	96	68	164
7-1a	15	160	1155	476	194	248	350	1631	96	68	164
7	18.5	160	1155	542	238	317	350	1697	96	104	200
8-2a	18.5	160	1237	542	238	317	350	1779	100	104	204
8-1a	18.5	160	1237	542	238	317	350	1779	100	104	204
8	18.5	160	1237	542	238	317	350	1779	100	104	204
9-2a	22	180	1319	542	238	317	350	1861	103.5	106	209.5
9-1a	22	180	1319	542	238	317	350	1861	103.5	106	209.5
9	22	180	1319	542	238	317	350	1861	103.5	106	209.5
10-2a	22	180	1401	542	238	317	350	1943	107.5	106	213.5
10-1a	22	180	1401	542	238	317	350	1943	107.5	106	213.5
10	30	200	1406	658	297	399	400	2064	111	276	387
11-2a	30	200	1488	658	297	399	400	2146	115	276	391
11-1a	30	200	1488	658	297	399	400	2146	115	276	391
11	30	200	1488	658	297	399	400	2146	115	276	391
12-2a	30	200	1570	658	297	399	400	2228	119	276	395
12-1a	30	200	1570	658	297	399	400	2228	119	276	395
12	30	200	1570	658	297	399	400	2228	119	276	395
13-2a	30	200	1652	658	297	399	400	2310	122.5	276	398.5
13-1a	30	200	1652	658	297	399	400	2310	122.5	276	398.5
13	30	200	1652	658	297	399	400	2310	122.5	276	398.5

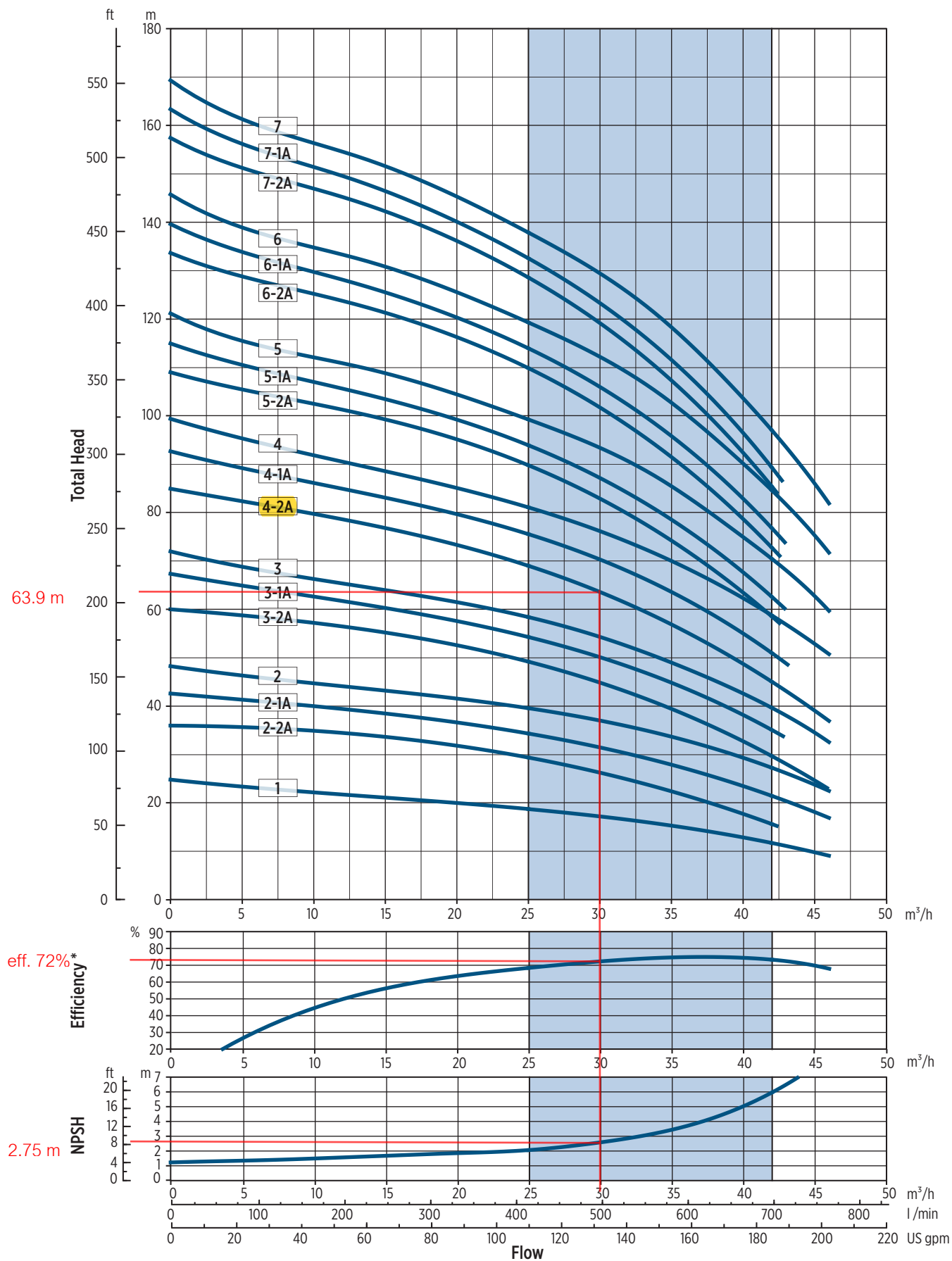
DIMENSIONAL DRAWINGS



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30 VR - PERFORMANCE CURVES AT 50 Hz

MEI ≥ 0,70



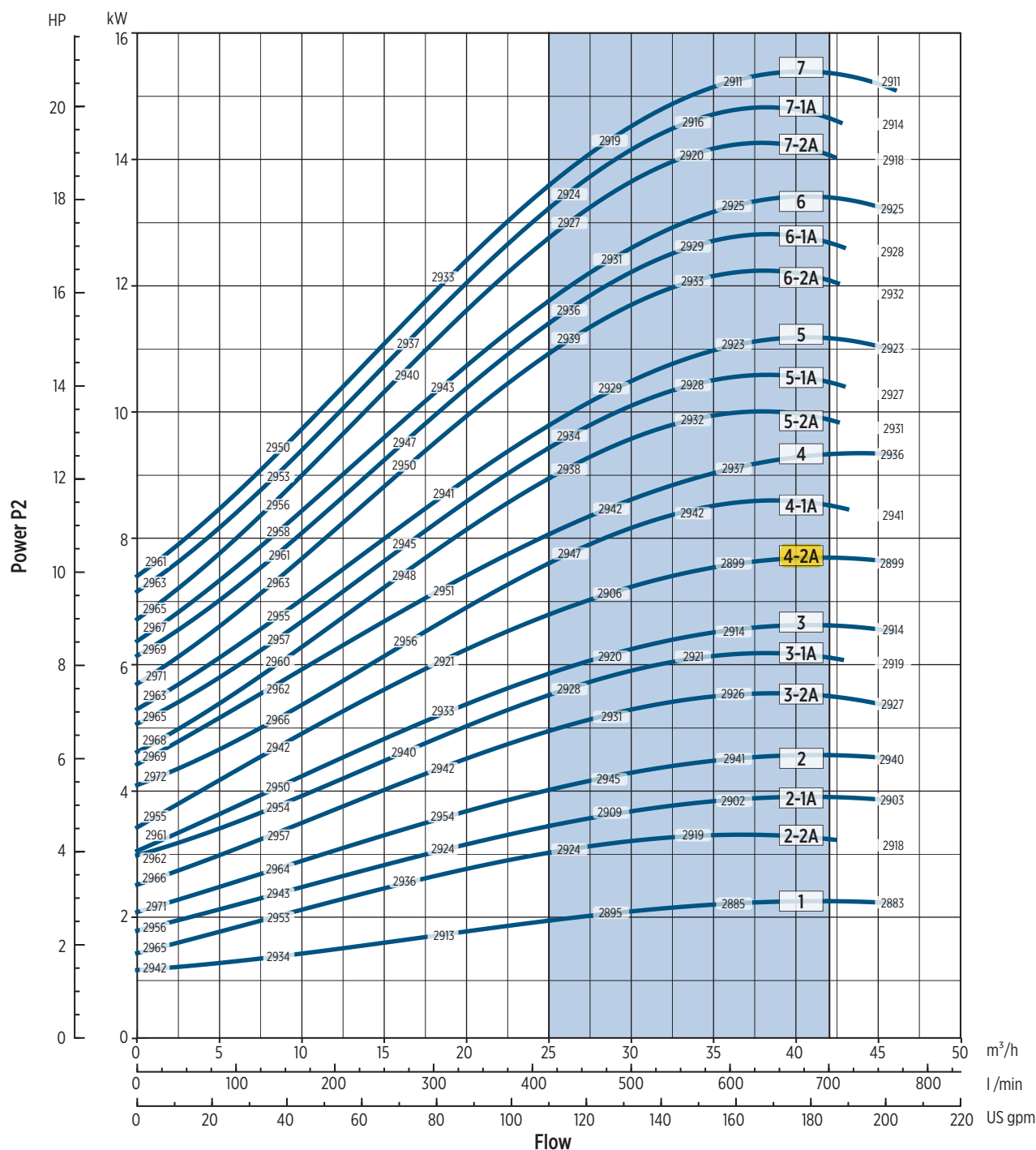
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The hydraulic characteristics are guaranteed, according to ISO Standard 9906:2012, grade 3B



30 VR - PERFORMANCE CURVES AT 50 Hz

MEI ≥ 0,70



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* The efficiency value is referred to 5 or more stages only for full diameter impeller

Performance curves of Q, H and P depend on the rpm number according to the following formula:

$$Q_2 = Q_1 \cdot \left(\frac{n_2}{n_1} \right), \quad H_2 = H_1 \cdot \left(\frac{n_2}{n_1} \right)^2, \quad P_2 = P_1 \cdot \left(\frac{n_2}{n_1} \right)^3, \quad \eta \text{ remains approximately the same.}$$

The rpm number related to the performance curves (Q-H-P) is indicated in the power chart.

Performance curves (Q-H-P) will change according to the formulas above.

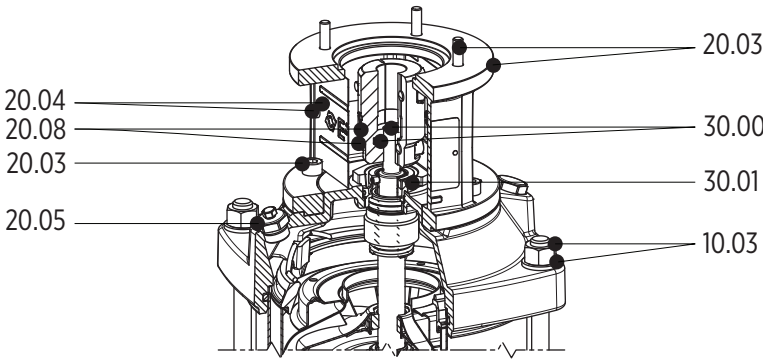
Q=Capacity, H=Head, P=Power, η=Efficiency



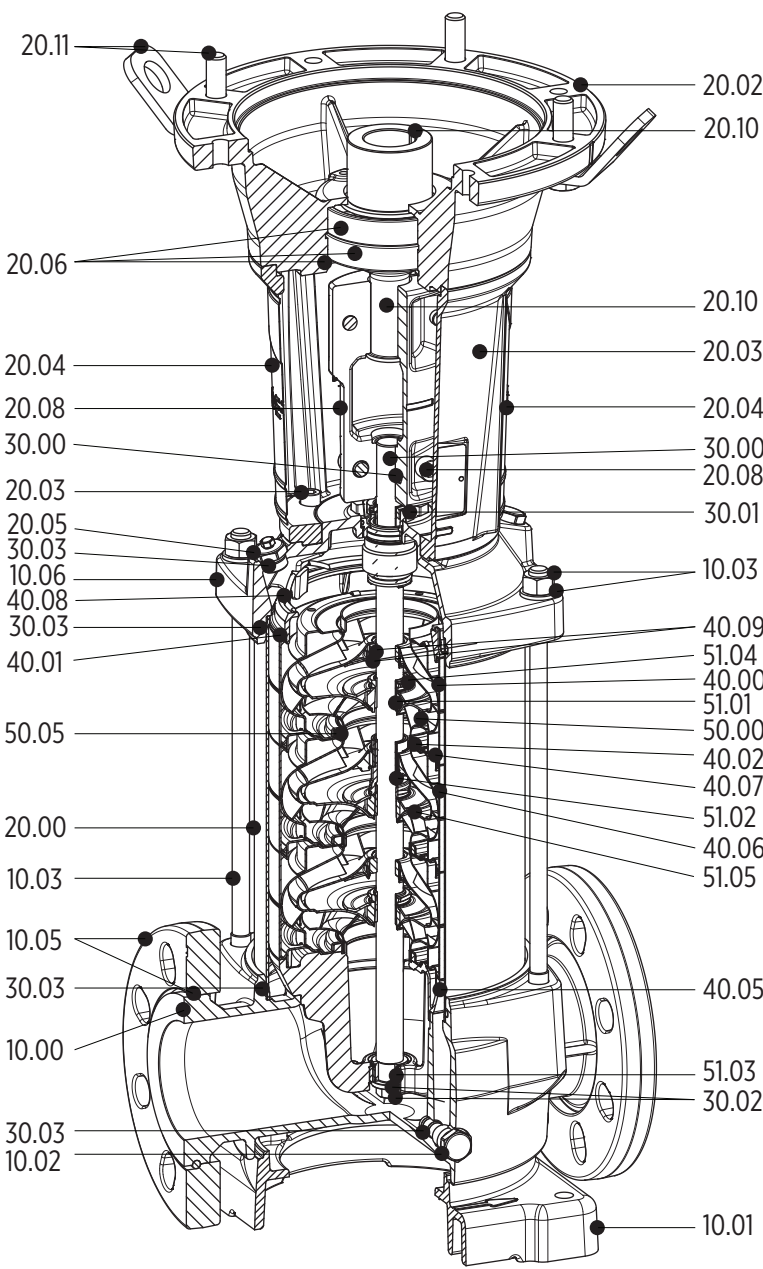
Franklin Electric

The hydraulic characteristics are guaranteed, according to ISO Standard 9906:2012, grade 3B

30VR - 45VR - 65VR - 95VR



CONFIGURATION UP TO 4 KW
WITHOUT THRUST BEARING



CONFIGURATION 5.5 KW AND ABOVE
WITH THRUST BEARING

0013012 02/2021

PARTS IN CONTACT WITH LIQUID

Ref. No	Parts description	Material	Reference standard			
			G version		N version	
			ASTM	DIN/EN	ASTM	DIN/EN
10.00	Pump casing	Cast Iron / Stainless Steel	A48 Class 35	GJL-250	CF 8M / AISI 316	1.4408
10.02	Drain plug	Stainless Steel	AISI 304	1.4301	AISI 316	1.4401
10.06	Upper flange	Cast Iron / Stainless Steel	A48 Class 35	GJL-250	CF 8M / AISI 316	1.4408
20.00	Outer case	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401
20.05	Filling plugs	Stainless Steel	AISI 304	1.4301	AISI 316	1.4401
30.00	Pump shaft & Pin	Stainless Steel	AISI 431	1.4057	AISI 329	1.4460
30.01	Cartridge mechanical seal	Stainless steel / Carbon graphite, Silicon Carbide / EPDM				
30.02	Mechanical seal fastening kit	Stainless Steel	AISI 316	1.4401	AISI 316	1.4401
30.03	Kit O-rings	EPDM				
40.00	Stage housing and diffuser	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401
40.01	Stage Centering outlet (ONLY 65/95 vers.)	Stainless Steel	CF 8 / AISI 304	1.4308	CF 8M / AISI 316	1.4408
40.02	Floating neck ring	PTFE				
40.05	Inlet spider bearing	Stainless Steel / Tungsten Carbide (WC)	AISI 316	1.4401	AISI 316	1.4401
40.06	Stage housing and diffuser with bearing	Stainless Steel / Tungsten Carbide (WC)	AISI 304	1.4301	AISI 316	1.4401
40.07	Flange clamping neck ring	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401
40.08	Spring ring	Stainless Steel	AISI 316	1.4401	AISI 316	1.4401
40.09	Secondary sleeve with ring	Stainless Steel, Carbon graphite	AISI 316	1.4401	AISI 316	1.4401
50.00	Impeller	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401
50.05	Wear ring	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401
51.01	Split cone	Stainless Steel	AISI 304	1.4301	AISI 316	1.4401
51.02	Intermediate sleeve nut	Stainless Steel / Tungsten Carbide (WC)	AISI 316	1.4401	AISI 316	1.4401
51.03	Journal sleeve	Stainless Steel / Tungsten Carbide (WC)	AISI 316	1.4401	AISI 316	1.4401
51.04	Split cone nut	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401
51.05	Intermediate impeller with screw	Stainless Steel	AISI 304	1.4301	AISI 316L	1.4401

SPARE PARTS LIST

Ref. No	Parts description
10.00	Pump casing
10.01	Pump base
10.02	Drain plug
10.03	Tie bolts, washers and nuts
10.05	Kit flanges ring
10.06	Upper flange
20.00	Outer case
20.02	Motor flange
20.03	Motor bracket
20.04	Coupling guard
20.05	Filling plugs
20.06	Kit bearings
20.08	Coupling
20.10	Motor shaft adapter
20.11	Lifting eyelets and bolts
30.00	Pump shaft & Pin
30.01	Cartridge mechanical seal

Ref. No	Parts description
30.02	Mechanical seal fastening kit
30.03	Kit O-rings
40.00	Stage housing and diffuser
40.01	Stage Centering outlet (ONLY 65/95 vers.)
40.02	Floating neck ring
40.05	Stage Centering inlet
40.06	Stage housing and diffuser with bearing
40.07	Flange clamping neck ring
40.08	Spring ring
40.09	Secondary sleeve with ring
50.00	Impeller
50.05	Wear ring
51.01	Split cone
51.02	Intermediate sleeve nut
51.03	Journal sleeve
51.04	Split cone nut
51.05	Intermediate impeller with screw

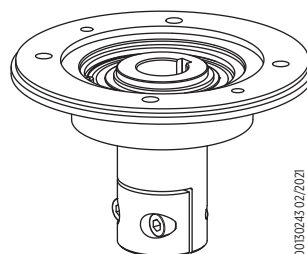
MOTORS

The pump must be coupled with a synchronous or asynchronous electric motor single-phase (up to 2.2 kW) or three-phase (up to 45 kW); dimensions according to IEC 60034-1 or Nema standard, based on motor type.

The default motors are **Totally Enclosed Fan Cooled, air cooled, asynchronous, for non-explosive risk environments**. However, explosion proof (ATEX) and three-phase synchronous motors are available on request.

The features of the original equipment motors up to 4 kW are indicated in the table below. If a different motor is used, it must have equivalent features. The drive-end side bearing must be blocked and the non drive-end side bearing must be spring loaded, otherwise you can order the up thrust bearing kit as optional device (see example in figure).

PTC 155 °C sensor are available on request from 0.75 kW up to 7.5 kW.
PTC is standard from 11 kW.

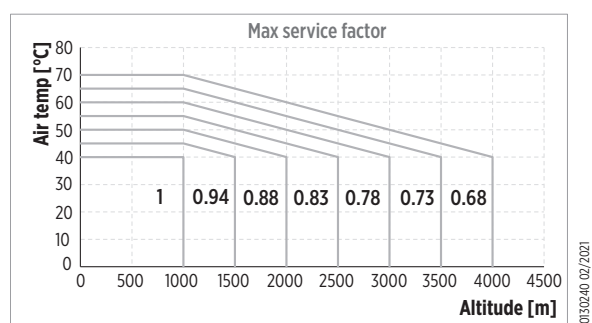


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For IEC 60034-1 standard, available:
MEC 71/ MEC 80 / MEC 90 / MEC 100-112

Power		Phases	IEC	Design	min ⁻¹	Pump side bearing	Starting torque [Nm]	N %
[kW]	[HP]							
SINGLE-PHASE MOTORS								
0.37	0.5	1	71	B14	2780	6203-2Z	1.0	57.6
0.55	0.75	1	71	B14	2740	6203-2Z	1.3	69.0
0.75	1	1	80	B14	2800	6204-2Z	1.6	65.0
1.1	1.5	1	80	B14	2730	6204-2Z	1.9	74.0
1.5	2	1	90	B14	2835	6205-2Z	2.6	73.0
2.2	3	1	90	B14	2770	6205-2Z	1.5	73.0
THREE-PHASE MOTORS								
0.37	0.5	3	71	B14	2810	6203-2Z	3.6	69.5
0.55	0.75	3	71	B14	2790	6203-2Z	3.2	74.1
0.75	1	3	80	B14	2910	6204-2Z	12	82.0
1.1	1.5	3	80	B14	2870	6204-2Z	18	82.7
1.5	2	3	90	B14	2875	6205-2Z	18	84.2
2.2	3	3	90	B14	2880	6205-2Z	29	86.5
3	4	3	100	B14	2900	6206-2Z	54	87.1
4	5.5	3	112	B14	2900	6206-27	66	88.1

HEAVY DUTY MOTOR SIZING



All values indicated on motor label and in the table refer to clean water and maximum working temperature according to the nameplate.

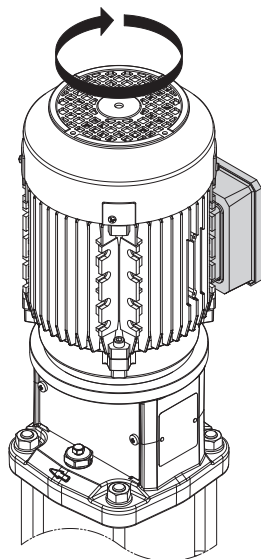
In case of high density and viscous liquids, please contact the manufacturer. When the ambient temperature and/or altitude overcome the nameplate values, it's necessary to reduce the motor service factor below the nominal power.

The graph shows how to choose the right maximum service factor applicable (share of the nominal power).

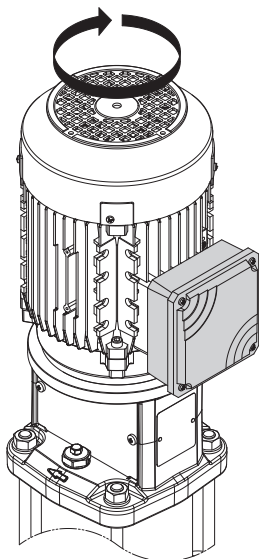
TERMINAL BOX POSITION *

It's possible to rotate the position of the motor in order to change the position of the terminal box.

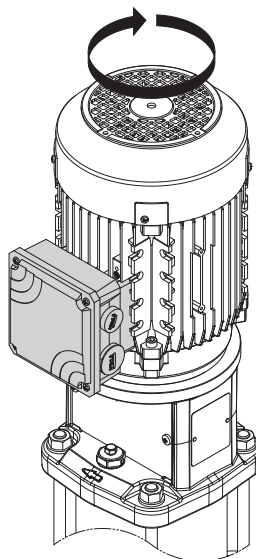
* See operation manual for instructions



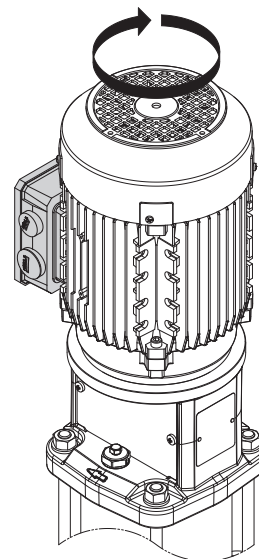
RIGHT
(Standard)



FRONT



LEFT



BACK

00130242 02/2021

MOTORS

FEATURES

- Protection degree: IP55
- Max ambient temperature: 40 °C
- Insulation class: F
- Size B14 up to 4 kW, size B5 from 5.5 kW and above
- PTC 155°C default from MEC160 (from 11 kW)



SINGLE-PHASE MOTORS

- Voltage: 230 V
- Capacitor inside terminal box

SINGLE-PHASE MOTORS DESIGNED FOR RANGE OF RATED VOLTAGE 230 V 50 Hz											
POWER		IEC Size	Constr.design	I _N [A] 230 V	min ⁻¹	M _N [Nm]	η %	cos φ	I _A /I _N	M _A /M _N	Weight [Kg]
[kW]	[HP]										
0.37	0.5	71	B14	3.1	2780	1.3	57.6	0.89	3.1	0.8	7.1
0.55	0.75	71	B14	3.9	2740	1.9	69.0	0.89	3.5	0.7	8.5
0.75	1	80	B14	5.3	2800	2.6	65.0	0.95	4.1	0.6	11.4
1.1	1.5	80	B14	6.5	2730	3.8	74.0	0.97	3.6	0.5	11.8
1.5	2	90	B14	9.3	2835	5.1	73.0	0.90	3.9	0.5	17.3
2.2	3	90	B14	14.6	2770	7.6	73.0	0.90	4.3	0.2	19.3

THREE-PHASE MOTORS – ENERGY EFFICIENT

- High Efficiency three-phase motors from 0.75 kW in compliance with Eco design Directive N. 640/2009.
- The standard design includes the following basic features to give a high level of flexibility:
- Multi Mount Construction for an easy change of terminal box position
- Terminal box rotates by 90° to allow cable entry from any direction
- Voltage: up to 3 kW 230/400 V, 400/690 V from 4 kW and above
- Special voltage and special version on request

THREE-PHASE MOTORS DESIGNED FOR RANGE OF RATED VOLTAGE 400 V 50 Hz															
Efficiency class	POWER		IEC Size	Constr. Design	I _N [A] Δ 230 V	I _N [A] Y 400 V	I _N [A] Δ 400V	I _N [A] Y 690V	min ⁻¹	M _N [Nm]	η %	cos φ	I _A /I _N	M _A /M _N	Weight [Kg]
	[kW]	[HP]													
IE2	0.37	0.5	71	B14	1.7	1.0	-	-	2810	1.3	69.5	0.78	2.7	2.8	5.8
	0.55	0.75	71	B14	2.4	1.4	-	-	2780	1.9	74.1	0.77	2.0	1.7	6.2
IE3	0.75	1	80	B14	2.9	1.7	-	-	2910	2.5	82.0	0.78	8.9	4.7	9.5
	1.1	1.5	80	B14	4.2	2.4	-	-	2870	3.7	82.7	0.76	9.3	5	11.1
	1.5	2	90	B14	5.2	3.0	-	-	2875	5.0	84.2	0.85	8.4	3.6	14.0
	2.2	3	90	B14	8.0	4.6	-	-	2880	7.3	86.5	0.82	9.2	4	16.0
	3	4	100	B14	9.7	5.6	-	-	2900	9.9	87.1	0.89	8.8	5.5	22.8
	4	5.5	112	B14	-	-	8	4.6	2900	13	88.1	0.83	10.7	5.1	26.5
	5.5	7.5	132	B5	-	-	10.2	5.9	2935	17.9	89.2	0.87	11.2	4.2	33.6
	7.5	10	132	B5	-	-	14.4	8.3	2930	24.5	90.1	0.84	10.4	4.5	36.0
	11	15	160	B5	-	-	19.9	11.5	2935	35.8	91.2	0.89	9.7	4.4	62.0
	15	20	160	B5	-	-	26.8	15.5	2915	49.2	91.9	0.88	9.6	3.7	68.0
	18.5	25	160	B5	-	-	33.0	19.1	2950	59.9	92.4	0.88	10.7	4.6	104.0
	22	30	180	B5	-	-	39.4	22.8	2950	71.3	92.7	0.87	10.4	4.5	106.0
	30	40	200	B5	-	-	52.7	30.5	2925	97.9	93.3	0.88	6.7	2.4	276.0
	37	50	200	B5	-	-	63.3	36.6	2930	120.6	93.7	0.90	6.3	2.3	283.0
	45	60	225	B5	-	-	78.5	45.4	2930	146.7	94.0	0.88	6.9	2.3	370.0

NOISE

The noise level of an electrical machine is determined by measuring the sound pressure level in accordance with curve A of the sound level meter to EN 60651 and is indicated in dB (A). The permitted noise levels of electrical machines are fixed in EN 60034 - 9 (IEC 34-9). The noise level of the motors is below these limit values. Structure-borne sound measurements are carried out in an anechoic testing chamber to EN 21680-ISO 1680. The speed is corresponding to a main frequency of 50 Hz and the number of poles.

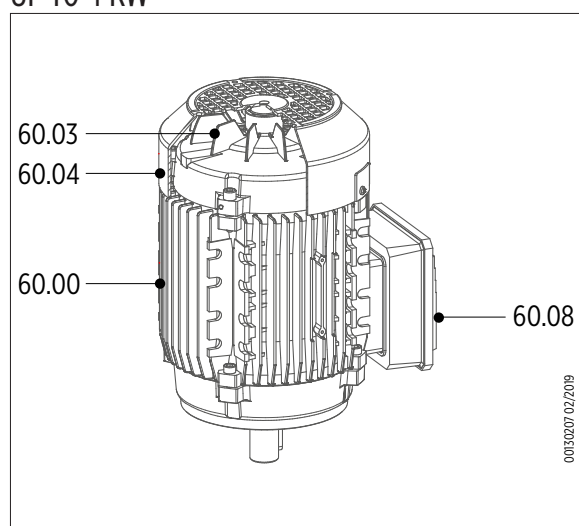
Noise levels

The noise values listed below refer to 50 Hz at rated voltage with a tolerance of up to +3 dB (A). Values for pole-changing motors are available on request. Sound pressure level (LpA) and sound power level (LWA) refers to three-phase motors with single-speed, dimensions and output ratings as per IEC 60072.

Frame size	2 pole		4 pole	
	LWA	LpA	LWA	LpA
56	57	48	47	38
63	58	49	47	38
71	61	52	51	42
80	72	60	60	48
90	74	62	61	49
100	78	66	62	50
112	80	68	65	53
132	81	72	71	59
160	87	74	75	62
180	90	77	78	66
200	91	78	80	68
225	92	80	88	76

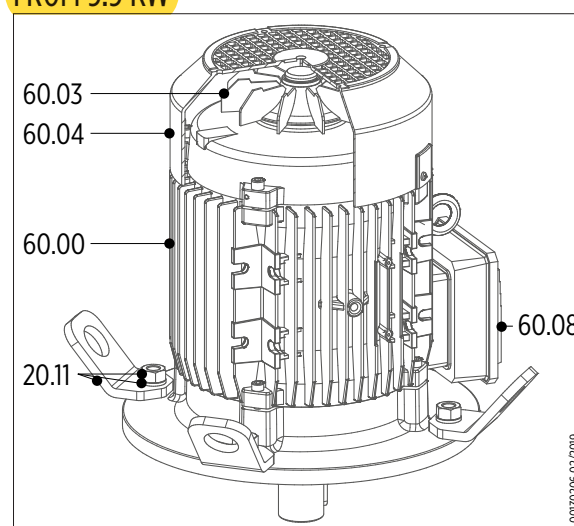
MOTORS SPARE PARTS

UP TO 4 KW



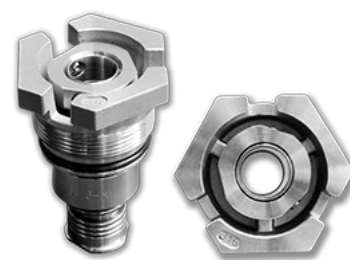
Ref. N.	Parts description
20.11	Lifting eyelets and bolts
60.00	Motor assembly
60.03	Fan
60.04	Fan cover and screws
60.08	Terminal box cover and base

FROM 5.5 KW

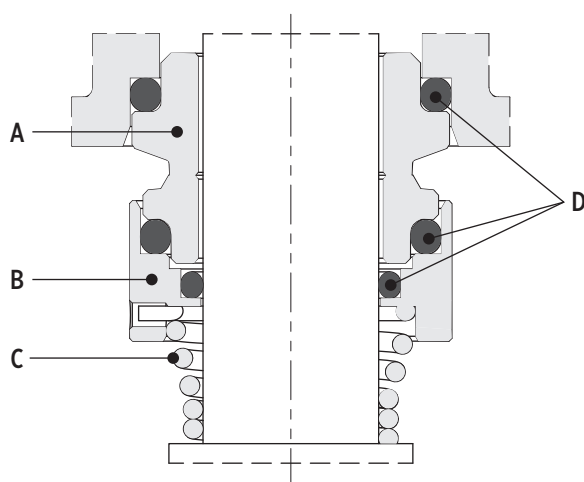


CARTRIDGE MECHANICAL SEAL SPECIFICATIONS

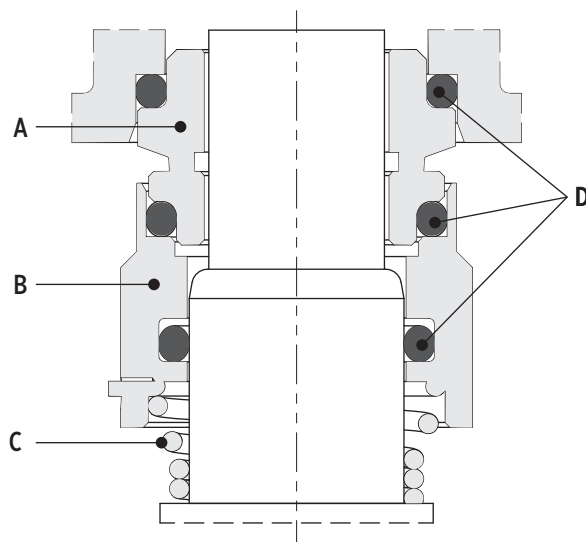
(fixed and rotating parts according to EN 12756)



UNBALANCED



BALANCED



00190241 02/2021

STANDARD VERSION (UNBALANCED)

Model	Type				Position				Temperature
					A Stationary part	B Rotating part	C Spring	D Elastomers	
E1*	B	Q	G	E	Graphite	Silicon carbide	AISI 316	EPDM	-30 °C / +120 °C

AVAILABLE ON REQUEST

Model	Type				Position				Temperature
					A Stationary part	B Rotating part	C Spring	D Elastomers	
E2*	Q	Q	G	E	Silicon carbide	Silicon carbide	AISI 316	EPDM	-30 °C / +120 °C
V3*	Q	Q	G	V	Silicon carbide	Silicon carbide	AISI 316	FKM	-10 °C / +120 °C
V4*	B	Q	G	V	Graphite	Silicon carbide	AISI 316	FKM	-10 °C / +120 °C
E5*	U	U	G	E	Tungsten carbide	Tungsten carbide	AISI 316	EPDM	-30 °C / +120 °C
E7 *	Q	U	G	E	Silicon carbide	Tungsten carbide	AISI 316	EPDM	-30 °C / +120 °C
V6*	U	U	V	G	Tungsten carbide	Tungsten carbide	AISI 316	FKM	-10 °C / +120 °C
V8 *	Q	U	V	G	Silicon carbide	Tungsten carbide	AISI 316	FKM	-10 °C / +120 °C

* Available in balanced version "B..." (ex. E1 - standard version --> BE1 - balanced version)

Type	Material
B	Graphite
E	EPDM
G	AISI 316
Q	Silicon carbide
V	FKM
U	Tungsten carbide