



# CASTLE PUMPS LTD

Your process delivered.

The UK Agent of...  
**azcuepumps**



## Datasheet

**CM with spacer coupling** or easy maintenance of pump inner parts, and flexible coupling for easy alignment of pump and motor - reducing service time

**Interchangeable spare parts** with other Azcue models to reduce stock holding

Pump **manufactured in Spain** with materials from own foundry

Can be supplied with a vacuum or electric **priming pump on request** for difficult suction conditions

**Separate shafts** in pump head & motor - no need to replace entire pump & motor if the shaft wears

**Wearing rings** to improve pump efficiency & provide clearance between the casing & impeller, preventing their wear, meaning only the less costly wear rings need replacing



**Close coupled with lantern bracket** to separate the pump head and motor should the seal fail - prevents fluid from entering the motor

**Back pull out design** for easy maintenance - allows the internals to be removed without disconnecting the pump from the pipework.

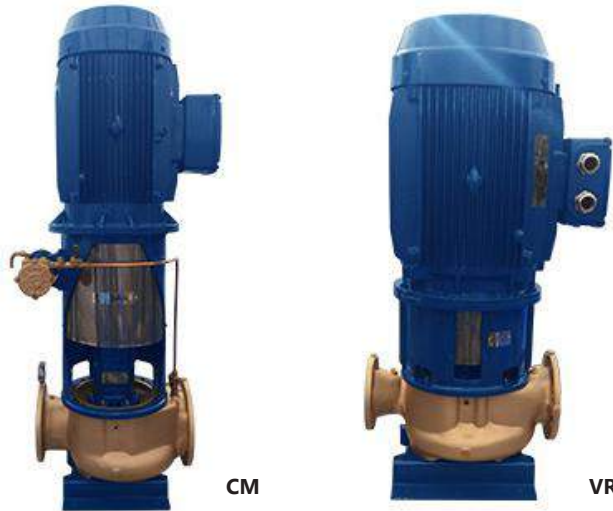
**Marine type approved** by all classification societies e.g. Lloyds/ABS

**Compact and space saving** vertical design making it ideal for installations which have limited space

**CM and VR have additional bearing** between pump and motor, to share the strain of operation

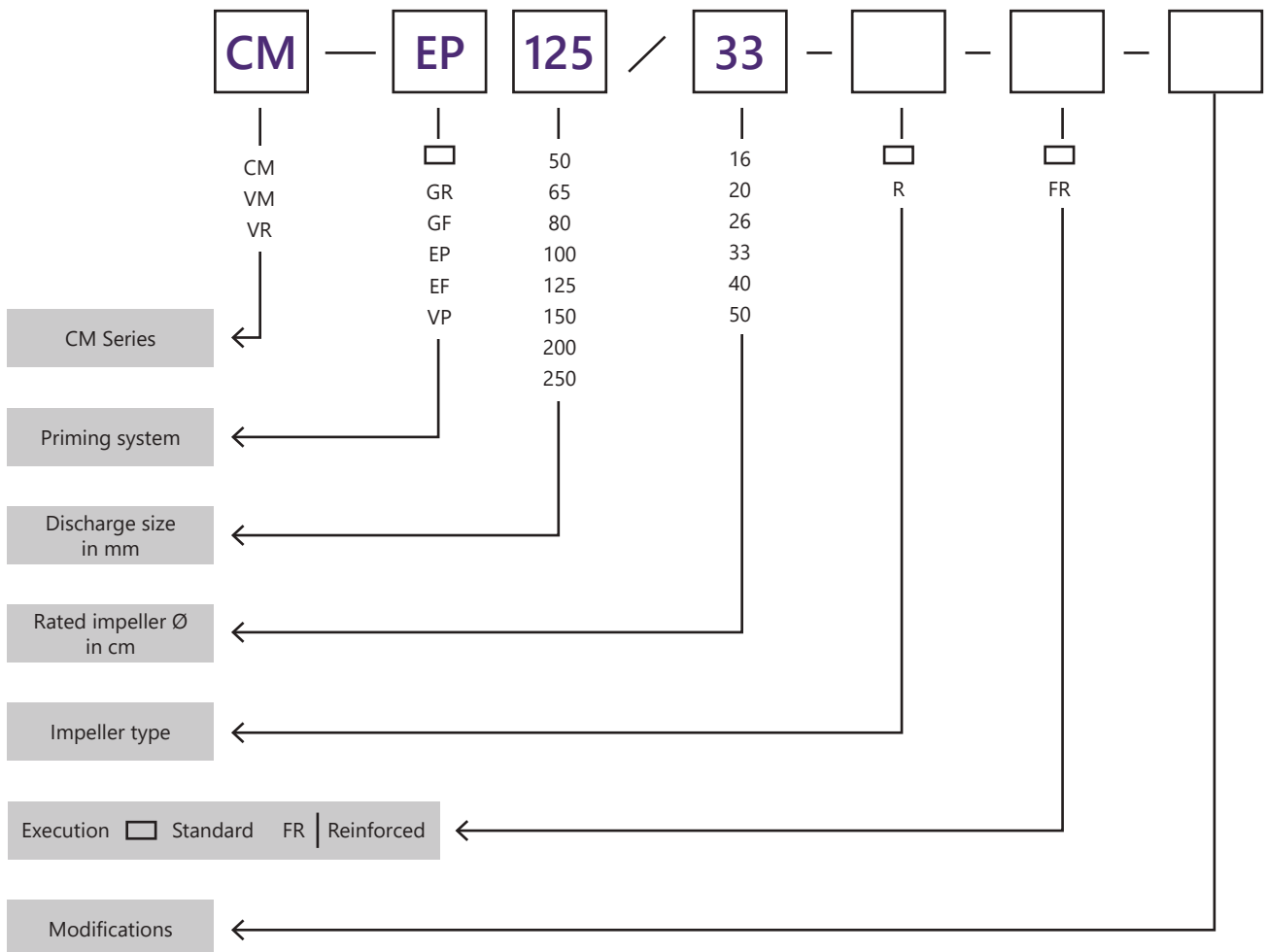
## Series **CM-VM-VR** Vertical Inline Centrifugal Pump

# CM-VM-VR Vertical Inline Centrifugal Pump – Close Coupled


**Performance:**


Max Flow rate	1500 m <sup>3</sup> /h
Max Pressure	130 M
Max Temperature	120°C-130°C
Sizes Available	DN50 - DN250 Outlet

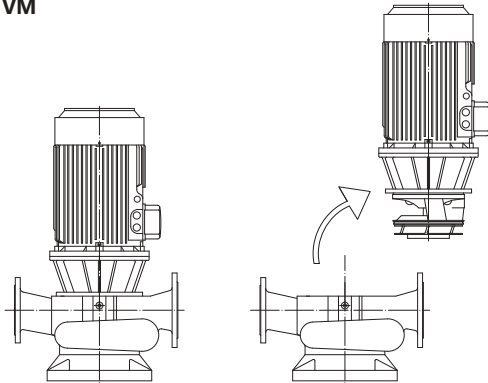
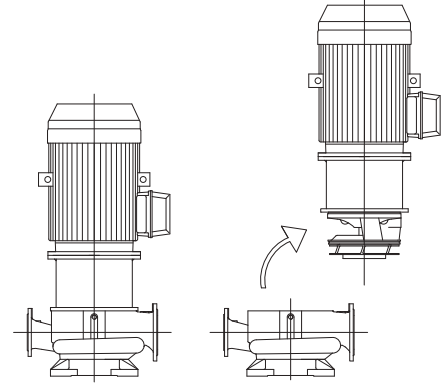
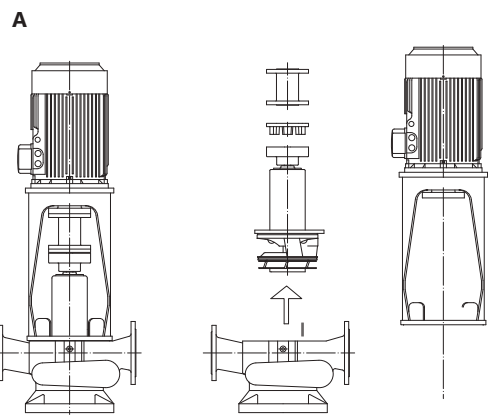
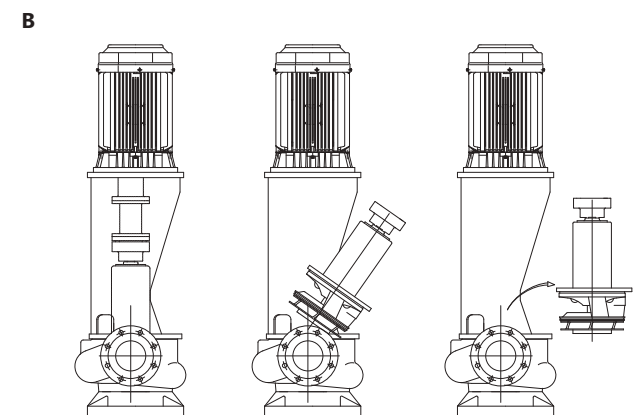
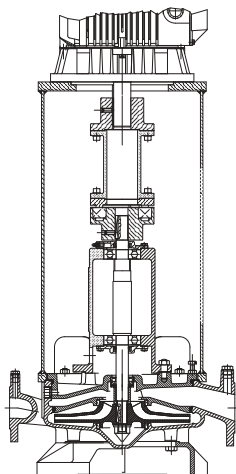
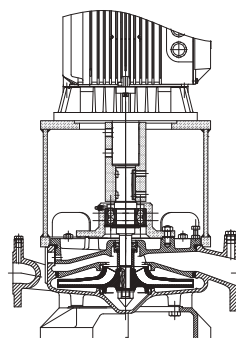
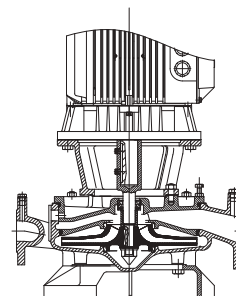
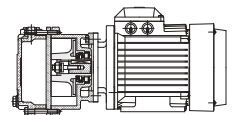
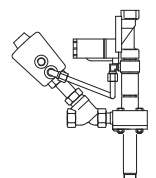
## Description



## Vertical Inline Centrifugal Pumps

### Available options -

- CM - Close coupled with flexible coupling and spacer
- VM - Close coupled with rigid coupling
- VR - Close coupled with rigid coupling and additional ball bearing between pump and motor
- ATEX approved 
- Supplied with priming pump for difficult suction conditions
  - » Vacuum priming - better solution for long suction distances thanks to its ability to dry run for short periods of time
  - » Electric priming pump

**VM**

**VR**

**CM**

**CM**

**CM**

**VR**

**VM**

**Self Priming Pump (EP)**

**Priming Ejector (VP)**


### Common Applications -

- Aquaculture
- Ballast
- Cooling
- Fire Fighting
- Fume Scrubber
- Grey Water
- Pressure Booster
- Reverse Osmosis
- Sea Water Cooling
- Sea Water Injection
- Sea Water Service
- Water Circulating
- Water Transfer

### Benefits -

- Manufactured in Spain by manufacturer with over 100 years' experience, using materials from their own foundry for complete control
- Marine type approved by all classification societies e.g. Lloyds/ABS for independent verification the pump meets quality standards
- Compact and space saving vertical design making it ideal for installations which have limited space
- Close coupled with a lantern bracket to separate the pump head from the motor, so should the seal fail fluid is prevented from entering the motor and causing damage to this part
- CM comes with spacer coupling for easier maintenance of the pump's inner parts without having to remove the motor or the suction/discharge pipework
- CM is fitted with a flexible coupling meaning the pump and motor are easily aligned reducing service time
- CM and VR has an additional ball bearing between the pump and motor to share the strain of operation, increasing service life and reducing maintenance costs cause by wear. CM FR has a triple ball bearing design to further reduce load.
- Interchangeable spare parts with other Azcue models to reduce stock holding required
- Spares available for a minimum of 15 years after model discontinuation for long term servicing even if the pump is no longer produced
- Bearings are greased for life with long service intervals to reduce maintenance costs – bearings replaced at 25,000 hours
- Back pull out design for easy maintenance - allows the motor to be removed without disconnecting the pump
- Wearing rings to improve pump efficiency and provide clearance between the casing and impeller, preventing their wear, meaning only the less costly wear rings need replacing
- Separate shafts in pump head and motor - no need to replace entire pump and motor if shaft wears, saving costs
- Motors are tropicalized as standard for operation up to 45°C meaning the motor is designed continue operating during higher than average temperature
- ATEX approved version for hazardous environments

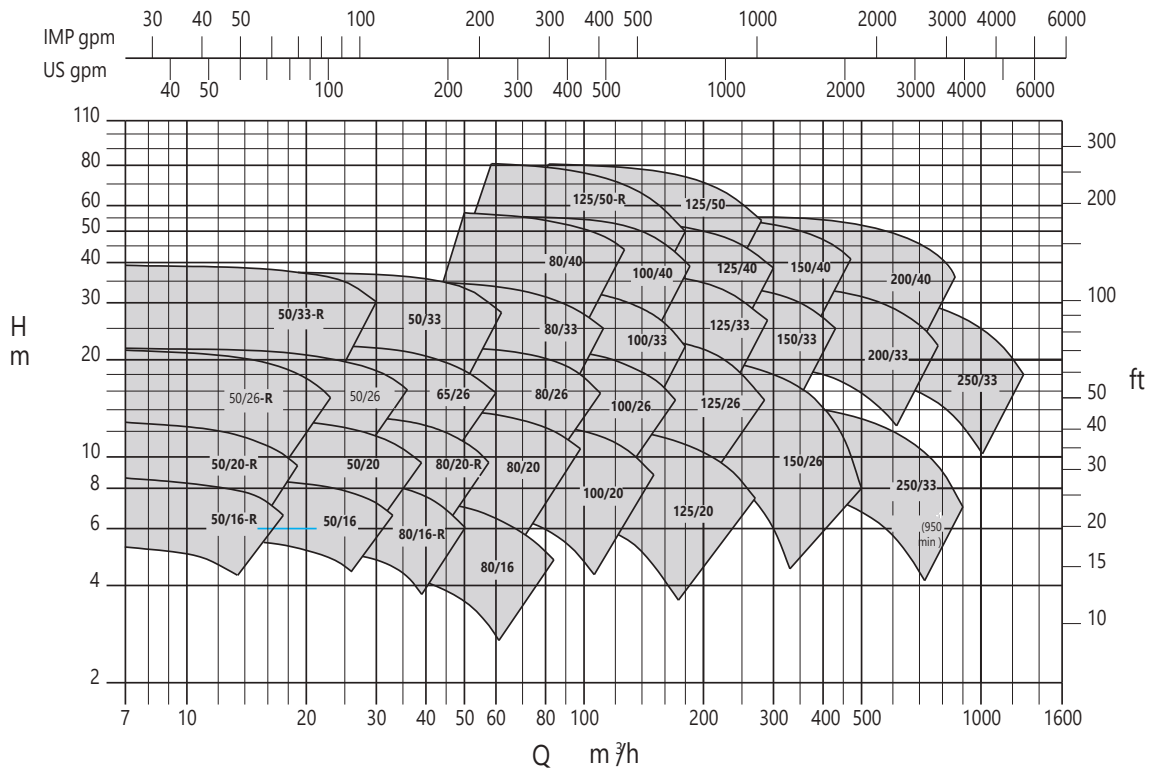


### Materials

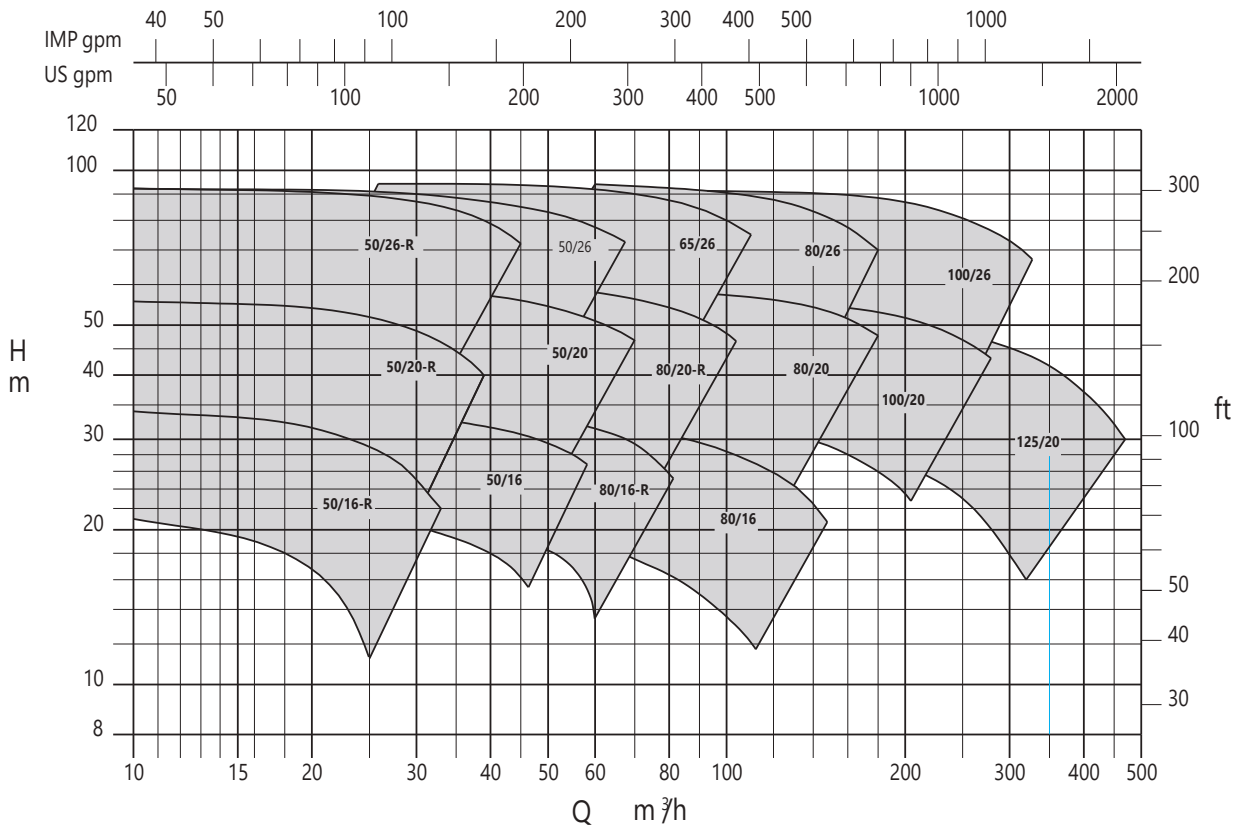
Volute	Bronze G-CuSn5ZnPB (RG5)	Cast iron GG25	Stainless steel
Impeller	Bronze G-CuSn5ZnPB (RG5)	Bronze G-CuSn5ZnPB (RG5)	Stainless steel
Casing Cover	Bronze G-CuSn5ZnPB (RG5)	Cast iron GG25	Stainless steel
Shaft	Stainless steel X5CrNiMo 18 10 (Aisi 316)	Stainless steel X5CrNiMo 18 10 (Aisi 316)	Stainless steel

## Performance Curves - 50 Hz

1.450 Min<sup>-1</sup>



2.900 Min<sup>-1</sup>

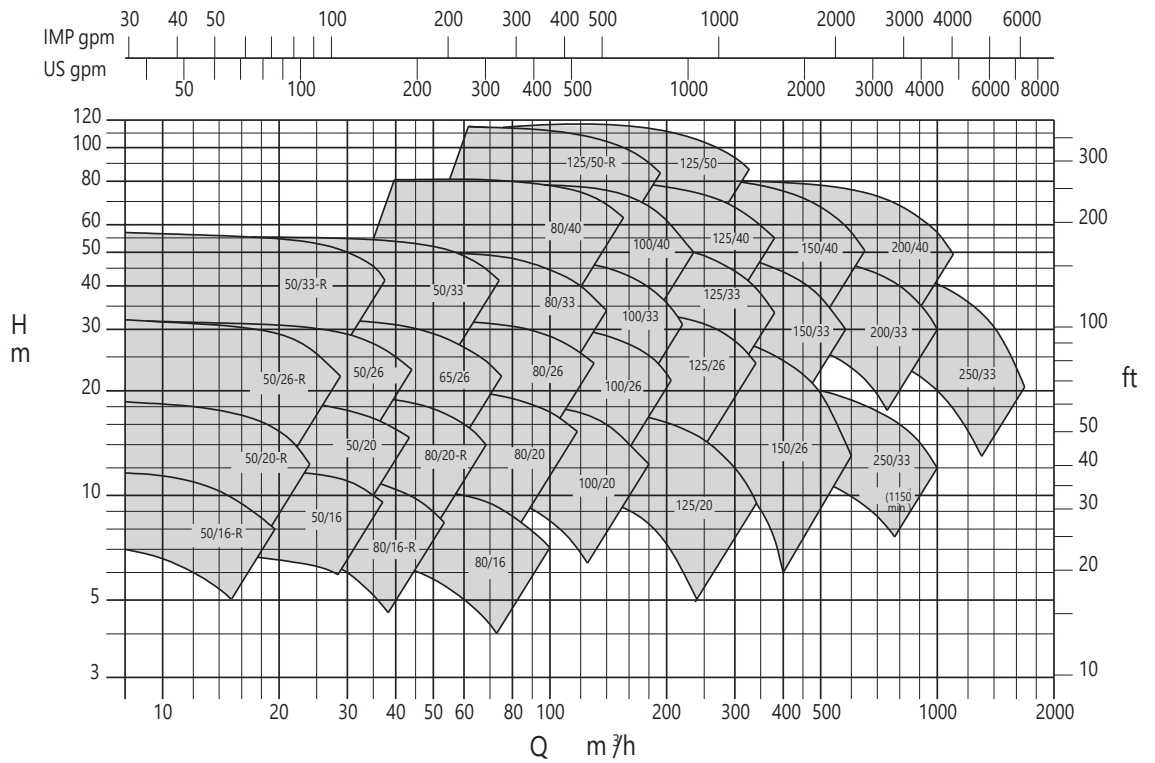




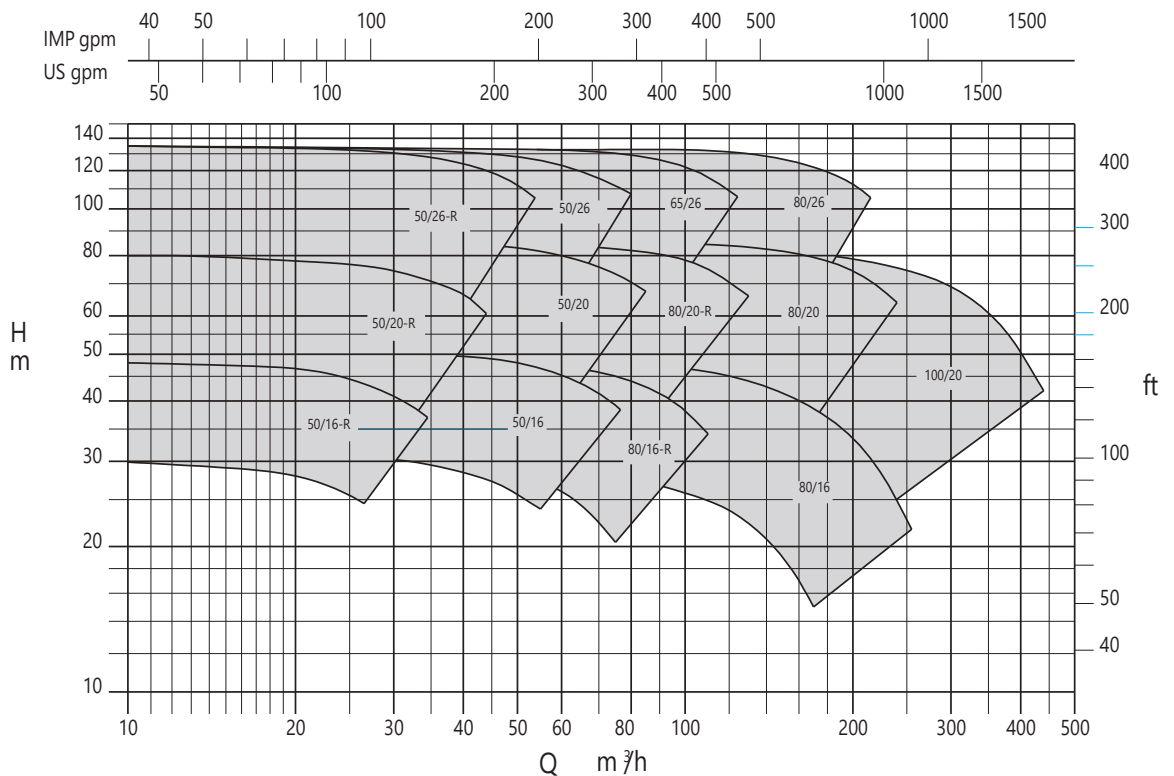


## Performance Curves - 60 Hz

1.750 Min<sup>-1</sup>



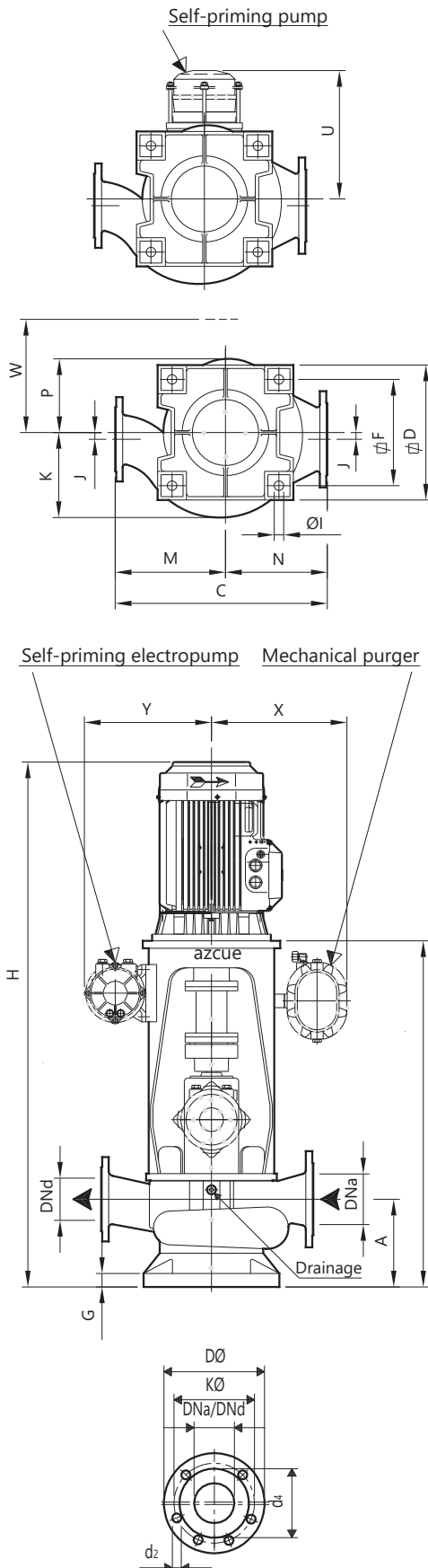
3.500 Min<sup>-1</sup>





## Dimensions

### CM Series



Subject to alterations

TYPE	DNa	DNd	A	B	D	F	G	I	J	M	N	C	K	P	U	W	X	Y	H	Kg
50/16 (R)	65	50	175	905	320	250	40	21	10	190	190	380	175	-	369	725	330	405	1185 1435	100
50/20 (R)	65	50	170	905	320	250	40	21	10	225	235	460	175	-	369	750	365	440	1165 1485	135
50/26 (R)	65	50	196	970	400	315	40	28	80	240	250	490	-	-	369	750	385	460	1215 1600	195
50/33	65	50	185	980	400	315	40	28	65	275	275	550	235	-	381	850	425	500	1320 1680	195
65/26	80	65	218	990	400	315	40	28	10	275	275	550	225	-	369	750	385	460	1230 1690	200
80/16 (R)	100	80	185	910	320	250	40	21	10	225	225	450	175	-	369	725	365	440	1190 1490	135
80/20 (R)	100	80	180	930	320	250	40	21	10	250	240	490	225	-	369	750	365	440	1190 1635	145
80/26	100	80	240	1030	400	315	40	28	20	300	300	600	275	-	381	775	385	460	1245 1805	185
80/33	100	80	230	1010	520	405	40	28	65	325	325	650	275	-	381	850	425	500	1350 1910	235
80/40	100	80	225	1015	520	405	40	28	65	350	350	700	-	-	381	900	450	525	1545 1715	265
100/20	125	100	225	1020	400	315	40	28	80	250	250	500	275	-	381	775	385	460	1265 1720	200
100/26	125	100	230	1055	400	315	40	28	10	300	300	600	275	-	381	775	385	460	1365 1950	195
100/33	125	100	235	1010	520	405	40	28	60	330	330	660	-	-	381	850	425	500	1540 2010	240
100/40	125	100	232	1190	520	405	40	28	10	405	380	785	275	-	391	925	450	525	1690 1965	360
125/20	150	125	255	1040	400	315	40	28	20	325	300	625	225	-	381	775	385	460	1285 1740	225
125/26	150	125	260	1030	400	315	40	28	20	325	300	625	255	210	381	775	385	460	1560 1660	205
125/33	150	125	280	1230	520	405	40	28	20	350	350	700	330	-	391	875	425	500	1780 2330	310
125/40	150	125	280	1215	520	405	40	28	20	425	400	825	320	290	391	925	450	525	1845 2115	375
125/50 (R)	150	125	265	1235	625	515	30	28	80	425	400	825	335	-	391	975	500	575	2100 2335	590
150/26	200	150	276	1250	520	405	40	28	80	315	315	630	300	-	391	875	425	500	1780 1950	350
150/33	200	150	292	1225	520	405	40	28	20	375	350	725	275	-	391	875	425	500	1805 2000	360
150/40	200	150	260	1265	520	405	40	28	80	400	375	775	330	290	391	925	450	525	1925 2265	385
200/33	250	200	249	1275	520	405	40	28	20	400	375	775	350	-	391	875	425	500	1945 2275	390
200/40	250	200	262	1300	520	405	40	28	20	525	500	1025	365	290	391	875	425	500	2070 2430	440
250/33	300	250	290	1350	520	405	40	28	80	400	400	800	375	290	391	925	450	525	2115 2350	475
250/40	300	250	290	1350	625	515	30	28	80	525	500	1025	410	330	391	950	500	575	2250 2450	550

"W": Minimum necessary space for pump dismantling.

"H": Approximate maximum and minimum total height for the different possible motors.

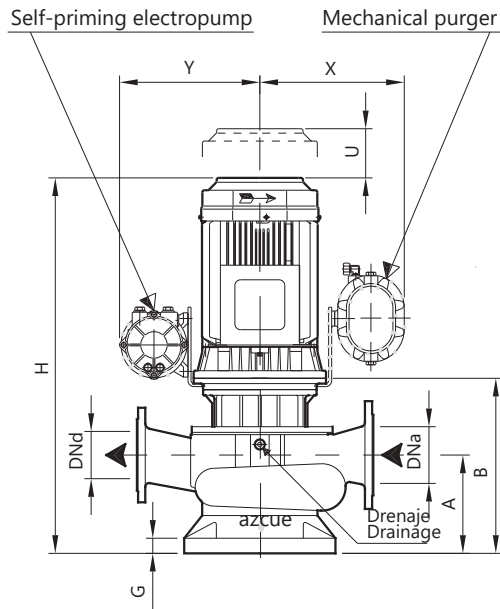
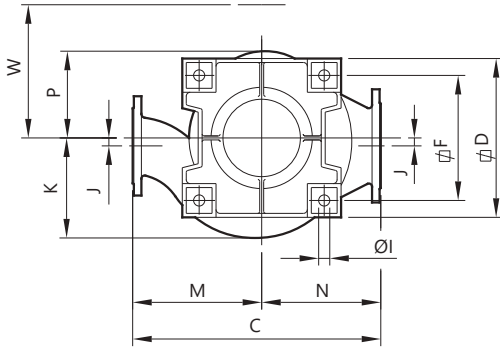
WEIGHTS: For CM series, without motor. CM-GR series add 28 kg.  
CM-GF series add 42 kg. CM-EP series add 48 kg.

DNa \ DNd	50	65	80	100	125	150	200	250	300
d <sub>4</sub>	102	122	138	158	188	212	268	320	370
K <sub>Ø</sub>	125	145	160	180	210	240	295	350	400
D <sub>Ø</sub>	165	185	200	220	250	285	340	395	445
N°	4	4	8	8	8	8	12	12	
d <sub>2</sub>	18	18	18	18	18	22	22	22	22

DN 50, 65, 80, 100, 125, .....	DIN 2501, PN 16
150 DN 200, 250, 300 .....	DIN 2501, PN10

## Dimensions

### VM Series

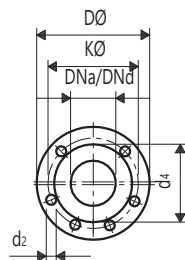


TYPE	DNa	DNd	A	B max.	D	F	G	I	J	M	N	C	K	P	U	W	Y	X	H max.	Kg
50/16 (R)	65	50	175	375	320	250	40	21	10	190	190	380	-	-	190	450	365	390	945	59
50/20 (R)	65	50	170	410	320	250	40	21	10	225	235	460	-	-	190	450	390	415	980	75
50/26 (R)	65	50	196	436	400	315	40	28	80	240	250	490	-	-	190	565	390	415	980	90
50/33	65	50	185	410	400	315	40	28	65	275	275	550	210	-	190	565	390	415	980	105
65/26	80	65	218	435	400	315	40	28	10	275	275	550	-	-	190	565	390	415	1050	135
80/16 (R)	100	80	185	420	320	250	40	21	10	225	225	450	-	-	210	450	390	415	990	75
80/20 (R)	100	80	180	415	320	250	40	21	10	250	240	490	175	-	190	450	390	415	1030	75
80/26	100	80	240	425	400	315	40	28	20	300	300	600	-	-	200	565	390	415	1040	115
80/33	100	80	230	420	520	405	40	28	65	325	325	650	-	-	200	565	390	415	1035	145
80/40	100	80	225	400	520	405	40	28	65	350	350	700	-	-	200	565	390	415	1015	170
100/20	125	100	225	440	400	315	40	28	80	250	250	500	-	-	210	565	390	415	1055	125
100/26	125	100	230	440	400	315	40	28	10	300	300	600	215	-	210	565	390	415	1055	130
100/33	125	100	235	410	520	405	40	28	60	330	330	660	-	-	225	565	390	415	1025	155
125/20	150	125	255	440	400	315	40	28	20	325	300	625	225	-	225	565	390	415	1055	145
125/26	150	125	260	430	400	315	40	28	20	325	300	625	255	210	225	565	390	415	1045	140

"W": Minimum necessary space for pump dismantling.

"H": Approximate maximum total height for the different possible motors.

**WEIGHTS:** For VM series. without motor. VM-EP series add 48 kg. VM-EF series add 62 kg.



Subject to alterations

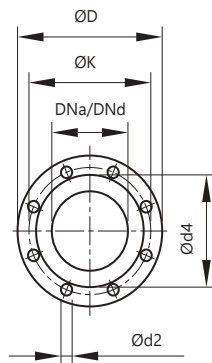
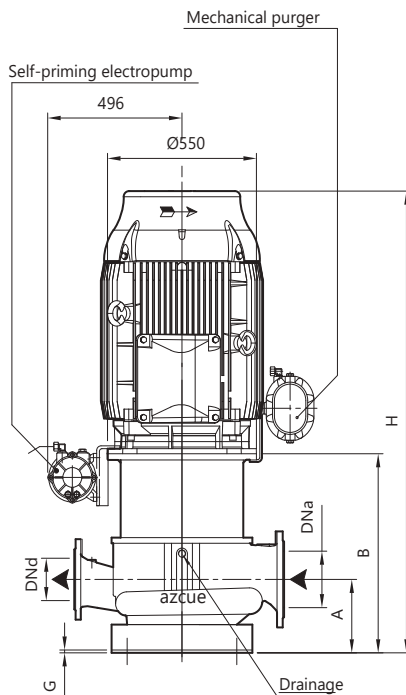
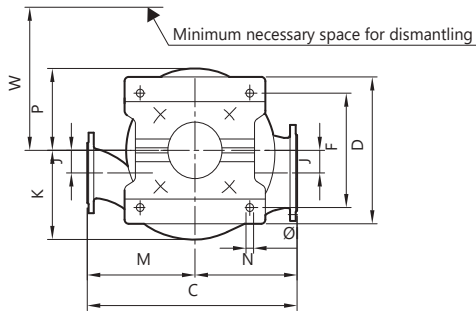
DNa	DNd	50	65	80	100	125	150
<b>d<sub>4</sub></b>		102	122	138	158	188	212
<b>KØ</b>		125	145	160	180	210	240
<b>DØ</b>		165	185	200	220	250	285
<b>N°</b>		4	4	8	8	8	8
<b>d<sub>2</sub></b>		18	18	18	18	18	22

DN 50, 65, 80, 100, 125, 150... DIN 2501, PN 16



## Dimensions

### VR Series



TYPE	DNa	DNd	A	B	D	F	G	I	J	M	N	C	K	P	W	H
80/26	100	80	240	600	400	315	10	28	20	300	300	600	-	-	775	1600
80/33	100	80	230	590	520	405	10	28	65	325	325	650	-	-	850	1590
100/26	125	100	230	625	400	315	10	28	10	300	300	600	215	-	775	1525
100/33	125	100	235	610	520	405	10	28	60	330	330	660	-	-	850	1610
125/40	150	125	280	698	520	405	10	28	20	425	400	825	-	-	925	1798
125/50	150	125	265	690	625	515	12	28	80	425	400	825	-	-	975	1690
150/33	200	150	292	704	520	405	10	28	20	375	350	725	-	-	875	1479
150/40	200	150	260	718	520	405	10	28	80	400	375	775	330	290	925	1618
150/50	200	150	265	700	625	515	12	28	80	450	425	900	382	-	975	1700
200/33	250	200	249	733	520	405	10	28	20	400	375	775	352	-	875	1833
250/33	300	250	290	791	520	415	10	28	80	400	400	800	-	-	825	1791
250/40	300	250	270	758	625	515	12	28	80	475	500	975	405	-	950	1758

DN 80, 100, 125, 150 .....	DIN 2501, PN 16
DN 200, 250, 300 .....	DIN 2501, PN 10

DNa	80	100	125	150	200	250	300
d <sub>4</sub>	138	158	188	212	268	320	370
K <sub>Ø</sub>	160	180	210	240	295	350	400
D <sub>Ø</sub>	200	220	250	285	340	395	445
N <sup>º</sup>	8	8	8	8	8	12	12
d <sub>2</sub>	18	18	18	22	22	22	22

## Interchangeability

Description	1	1	2	3	4	1	1	1	1
	Volute casing and cover	Impeller	Shaft	Bearings	Mechanical seal	Cover wear ring	Volute wear ring	Set of joints	
<b>Ref.</b>	1112-1221.1	2200.1	2100.1	3011.1-2-3-4	4200.1	1500.1	1500.2		
<b>PUMP TYPE</b>	50/16-R	1	1	1A	1B	1	1	2	1
	50/16	1	2	1A	1B	1	1	3	3
	50/20-R	2	3	1A	1B	1	1	4	5
	50/20	2	4	1A	1B	1	1	3	3
	50/26-R	3	5	1A	1B	1	1	6	6
	50/26	3	6	1A	1B	1	1	3	3
	50/33	4	7	2A	2B	2	2	7	7
	65/26	5	8	1A	1B	1	1	8	8
	80/16-R	6	9	1A	1B	1	1	9	10
	80/16	6	10	1A	1B	1	1	7	7
	80/20-R	7	11	1A	1B	1	1	9	10
	80/20	7	12	1A	1B	1	1	7	7
	80/26	8	13	2A	2B	2	2	11	11
	80/33	9	14	2A	2B	2	2	7	7
	80/40	10	15	2A	2B	2	2	7	7
	100/20	11	16	2A	2B	2	2	12	12
	100/26	12	17	2A	2B	2	2	13	13
	100/33	13	18	2A	2B	2	2	13	13
	100/40	14	19	3A	3B	3	3	14	14
	125/20	15	20	2A	2B	2	2	15	16
	125/26	16	21	2A	2B	2	2	15	15
	125/33	17	22	3A	3B	3	3	17	17
	125/40	18	23	3A	3B	3	3	17	17
	125/50-R	19	24	4A	4B	4	4	18	19
	125/50	19	25	4A	4B	4	4	19	19
150/26	20	26	3A	3B	3	3	20	21	
150/33	21	27	3A	3B	3	3	19	19	
150/40	22	28	5A	5B	5	3	21	22	
200/33	23	29	3A	3B	3	3	23	24	
200/40	24	30	5A	5B	5	3	23	23	
250/33	25	31	5A	5B	5	3	25	26	

**1** Same pieces for CM and VM series.

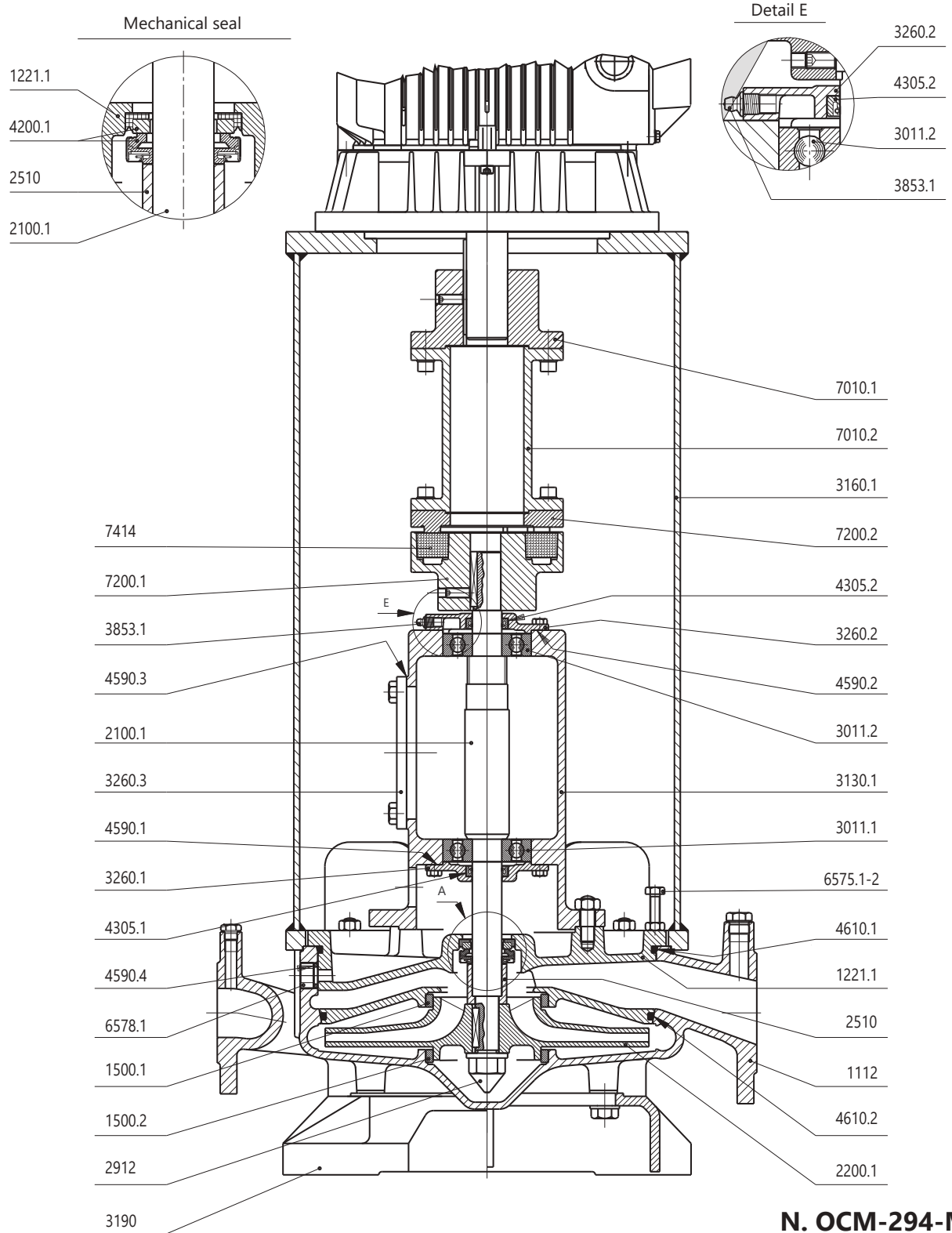
**2** Shaft for CM, CM-EP, VM-VP and CM-EF executions. VM series has different shafts for the same pump type, depending on the different motors.

**3** Shaft for CM-GR and CM-GF.

**4** The VM series does not include pump ball bearings..

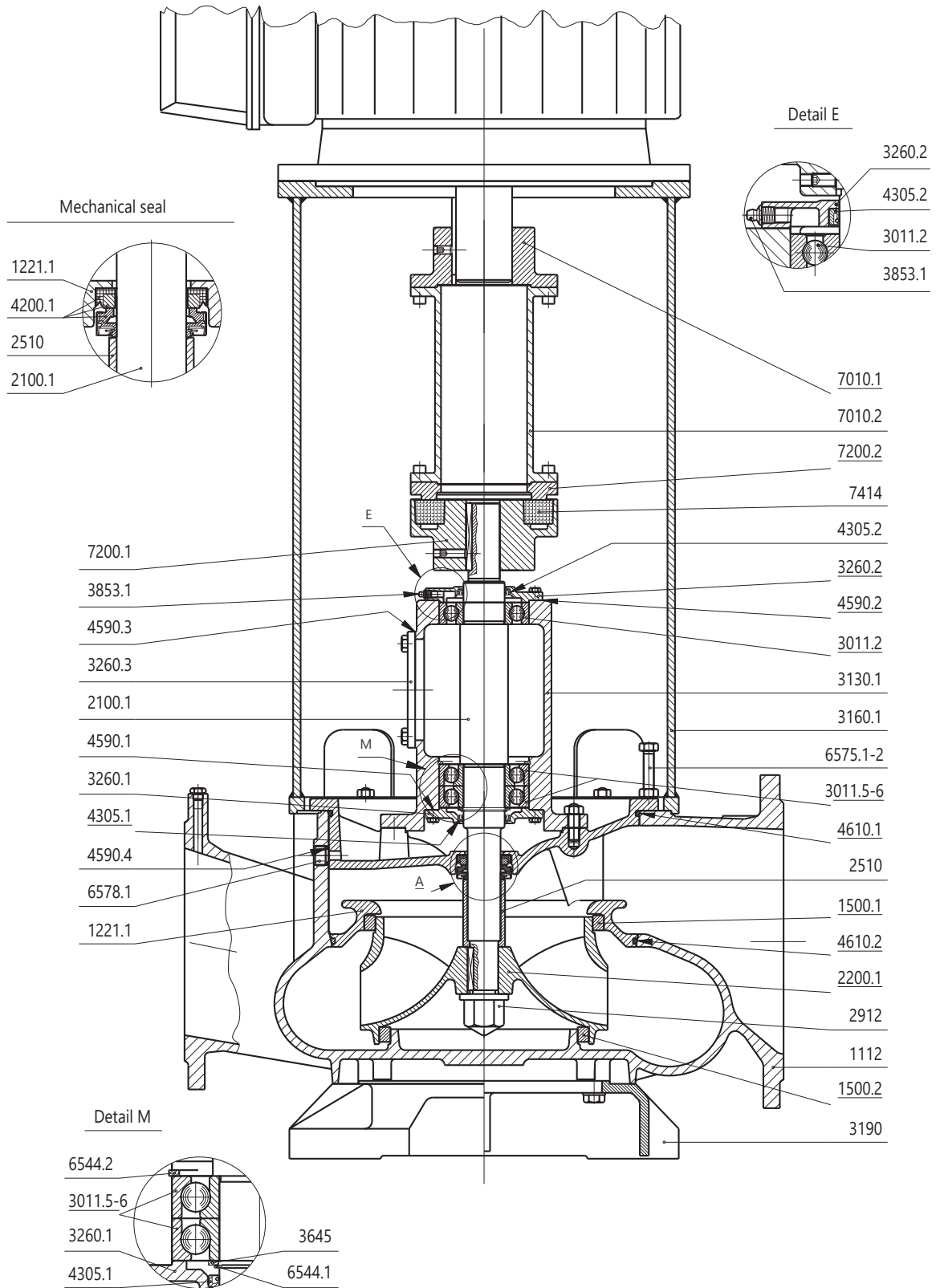
**Sectional Drawing**

CM Series



**Sectional Drawing**

CM-FR Series

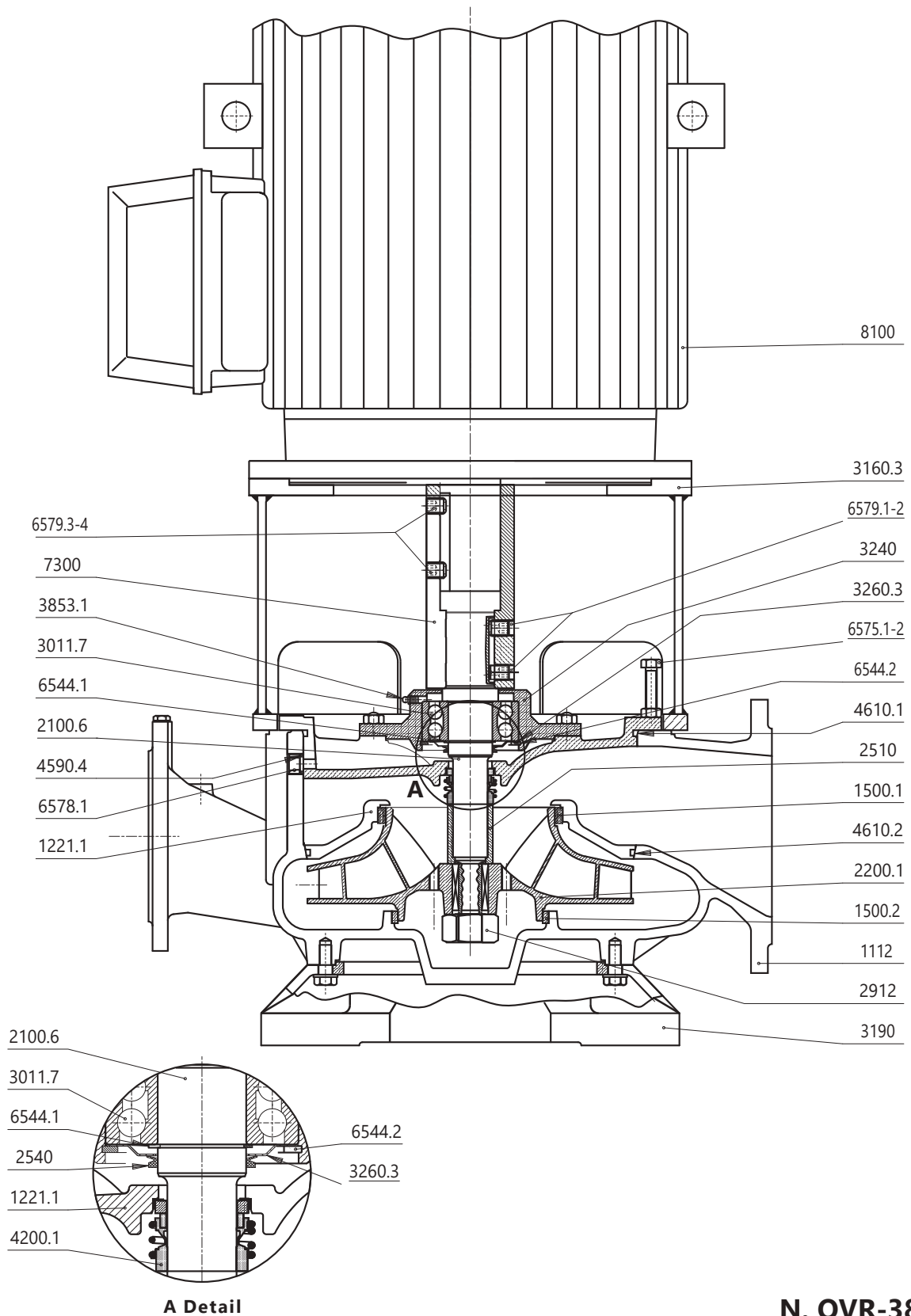


**N. OCM-309-M**



### Sectional Drawing

VR Series



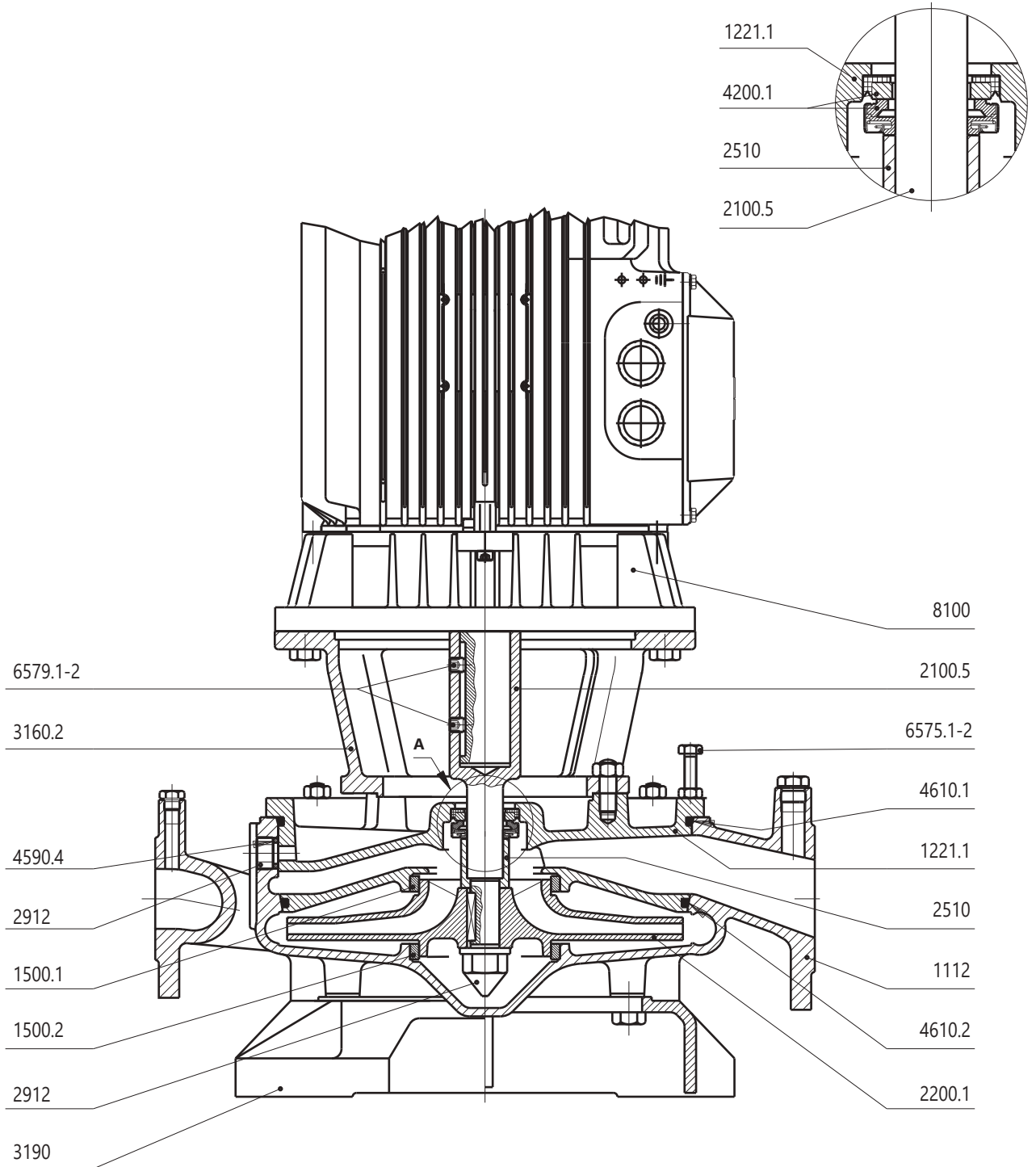
**N. OVR-384-M**



**Sectional Drawing**

VM Series

Detail A, mechanical seal

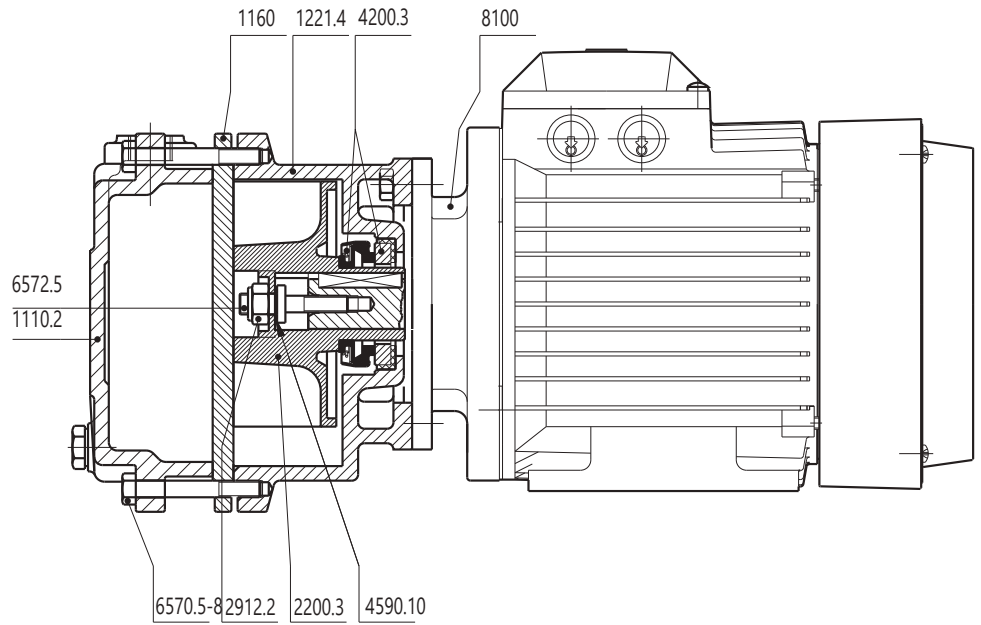


**N. OVM-306-M**

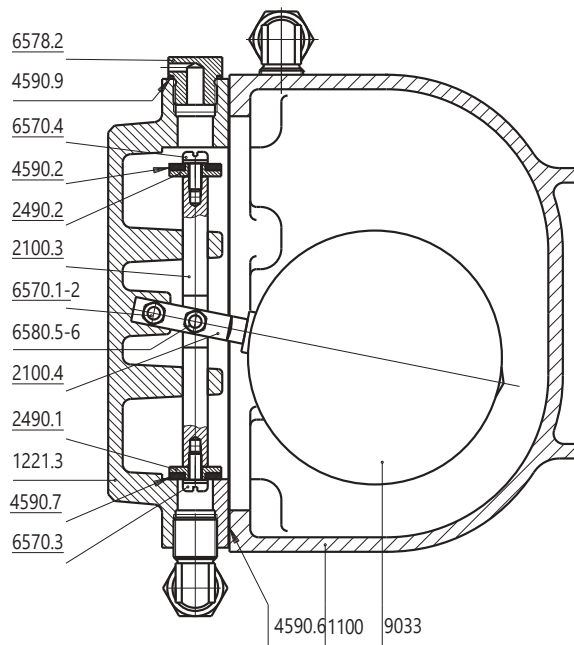
**Sectional Drawing**

EP Series

**VAC4-344-M**



GF Series



**N. FLT-310-M**

## Sectional Drawing

DESCRIPTION	Ref.
Pump casing	1100
Pump casing	1100.2
Volute casing	1112
Casing cover	1221.1
Casing cover	1221.3
Casing cover	1221.4
Interstage plate	1471
Casing wear ring	1500.1
Casing wear ring	1500.2
Shaft	2100.1
Shaft	2100.3
Shaft	2100.4
Shaft	2100.5
Shaft	2100.6
Impeller	2200.1
Impeller	2200.3
Locating collar	2490.1-2
Spacer ring	2510
Thrower	2540
Impeller nut	2912
Impeller nut	2912.2
Radial ball bearing	3011.1-2
Radial ball bearing	3011.5-6
Radial ball bearing	3011.7
Bearing bracket	3130.1
Motor stool	3160.1
Motor stool	3160.2
Motor stool	3160.3
Foot	3190
Bearing cover	3240
Bearing cover	3260.1-2
Bearing cover	3260.3
Disc spacer	3645
Grease nipple	3853.1-2
Mechanical seal	4200.1
Mechanical seal	4200.3
Shaft seal ring	4305.1-2
Gasket	4590.1-2
Gasket	4590.4
Gasket	4590.6
Gasket	4590.7-8
Gasket	4590.9
Gasket	4590.10
O-ring	4610.1
O-ring	4610.2
Circlip	6544.1
Circlip	6544.2
Screw	6570.1-2
Screw	6570.3-4
Screw	6570.5-8
Stud	6572.5
Jack screw	6575.1-2
Threaded plug	6578.1
Threaded plug	6578.2
Socket head cap screw	6579.1-2
Socket head cap screw	6579.3-4
Nut	6580.5-6
Drive coupling	7010.1
Spacer coupling	7010.2
Coupling half	7200.1
Coupling half	7200.2
Semi-elastic coupling	7300
Coupling bush	7414
Motor	8100
Float	9033