



Japanese Technology since 1912

EVMS - Vertical Multistage Pumps


Data Book 50Hz



EVMS

1-3-5-10-15-20-32-45-64-90






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VERTICAL MULTISTAGE PUMPS

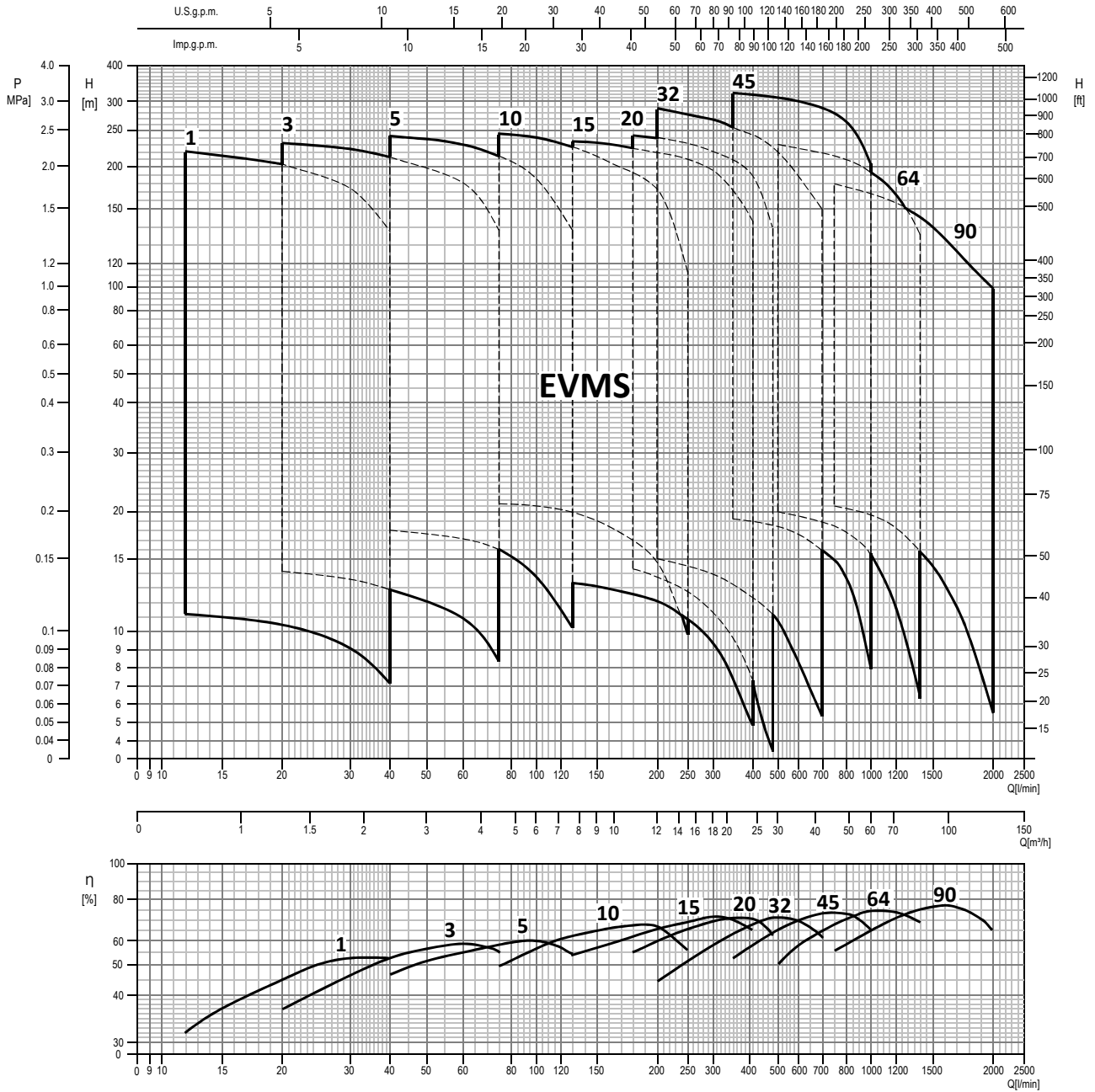
TYPICAL APPLICATIONS

1.1

TYPICAL APPLICATIONS

INDUSTRY	BUILDING SERVICE	WATER SUPPLY
		
<ul style="list-style-type: none"> • Water treatment reverse osmosis ultra-filtration water purification micro-filtration softening, ionizing and demineralising systems swimming pools separators • Boiler feeding steam systems condensate systems • Wash and clean vehicle washing systems industrial part washing laundry systems supply of liquids with acids and bases supply of chemical liquids • Chilling handling of refrigerants for cooling thermal control systems industrial cooling laser cooling • Machine tooling cooling lubricant supply for tooling machines • Pressure boosting pressure boosting for industrial use • Food & Beverage food washing systems bottle wash systems • Pharmaceutical industries • Marine applications freshwater, deckwash, high fog and fire fighting on ships 	<ul style="list-style-type: none"> • Pressure boosting pressure boosting for buildings pressure boosting for high rise buildings/hotels • Sprinkler systems • Fire fighting systems jockey pump • District heating • Heat exchangers / fan heaters • Air conditioning systems • Heating systems 	<ul style="list-style-type: none"> • Water treatment water treatment plants filtration water treatment plants transfer • Pressure boosting transfer from water treatment plants (mains) • Irrigation golf course / sport fields irrigation • Agriculture sprinkler irrigation drip irrigation

PERFORMANCE RANGE
EVMS(.)1-3-5-10-15-20-32-45-64-90



PRODUCT FEATURES

[General]

1. Pump Type

The EVMS is Non-self-priming, vertical multistage in line, centrifugal pumps.

2. Model range

The EVMS comes in **1,3,5,10,15,20,32,45,64 and 90 m³/h** flow sizes for the majority market needs.

3. Maximum operating pressure

The EVMS can be operated at **16, 25, 30 bar or 35 bar as maximum.**

4. Operating liquid temperature range

The EVMS can be operated **from - 30°C to + 140°C** as the maximum.
(please contact EBARA in case of -30°C to -15°C, or 120-140°C)

5. Material options

AISI 304, AISI 316L and Cast iron versions are available.

6. Motor







The EVMS can be coupled with **the commercial motors** that are acquired in the markets.

The EVMS is provide as the electric pumps with IE3 motors for the over 0.75 kW.

PTC sensor pre-installed for motors of 1.5 kW and above.

Unlosable screw and sealing from 0.75 kW to 45 kW are standard for terminal box fixing.

7. Certifications

	Drinking water approval					Atmospheres explosibles approval
	DM174/2004 	ACS 	DVGW * 	WRAS 	PZH 	ATEX 2014/34/UE 
<u>Mechanical seal</u>	SiC/Carbon_ EPDM	SiC/Carbon_ EPDM	All variations with EPDM on page 6-7	SiC/Carbon_ EPDM	All variations with EPDM on page 6-7	All variations on page 6-7
EVMSG	●	-	-	-	●	●
EVMS	**	●	●	●	●	●
EVMSL	**	●	●	●	●	●

Note: * DVGW W270 is certified for elastomers. Reg. Nr. DW-5253CR0217
KTW is certified for organic components.

** only for EVMS(.)1-20

● Available

8. Conform to the provisions of the European directives



[Main Product Features]

1. Innovative hydraulic solutions

- The **Commercial motors** can be fitted to all of the pump models without any modifications thanks to low pump axial thrust load.
- The low axial thrust load impellers can ensure **long life of the motor bearings**.
- **High pump efficiency** classified in MEI > 0.7 for all models.

2. Energy saving

- The **high efficiency IE3 motors** starting from 0.75 kW complied with the EuP 2005/32/EC and ErP 2009/125/EC directives.
- The **VFD (Variable frequency drive)** and the **commercial sensor** can be directly mounted on EVMS to **maintain physical constant operations** such as pumping pressure depending on the conditions of use.

3. Piping connection options

- The various pipe connections are available depending on the application requirements **Oval flange / Round flange / Loose flange / Victaulic® connection / Clamp connection.**
- The external dimensions can be adjusted to the replacement of the existing pump in the wide majority.

4. Shaft seal solutions

- Silicon carbide inclusions with graphite can be used as **dry lubricant to reduce friction.**
- It's conforming to EN12756 (ex DIN 24960)

5. Easy maintenance

- The **cartridge mechanical seal** enables the **plug in replacement** of the shaft seal without disassembling the motor bracket.
- The **spacer coupling** allows easy maintenance without having to remove heavy motors over 5.5 kW

6. Smart plug solutions

Air ventilation plug / Water filling & sensor plug / Commercial sensor fitting / Measurements for suction and discharge pressure / drain.

PRODUCT SPECIFICATIONS
EVMS(.)1-3-5-10-15-20

PUMP																			
Version		EVMSG						EVMS						EVMSL					
Operating range	Nominal flow rate (m ³ /h)	1	3	5	10	15	20	1	3	5	10	15	20	1	3	5	10	15	20
	Maximum working pressure	1.6 / 2.5 MPa (16 / 25 bar)																	
	Liquid temperature range	-30°C to 140°C (please contact EBARA in case of -30°C to -15°C, or 120-140°C)																	
Key Components Material	Impeller	EN 1.4301 (AISI 304)						EN 1.4404 (AISI 316L)											
	Intermediate casing	EN 1.4301 (AISI 304)						EN 1.4404 (AISI 316L)											
	Liner ring	EN 1.4301 (AISI 304) + PPS						EN 1.4404 (AISI 316L) + PPS											
	Bottom casing	Cast Iron			EN 1.4301 (AISI 304)			EN 1.4301 (AISI 304)			EN 1.4404 (AISI 316L)								
	Casing cover	EN 1.4301 (AISI 304)						EN 1.4404 (AISI 316L)											
	Shaft	EN 1.4301 (AISI 304)	EVMSG / EVMS 1-3-10, EVMSG / EVMS 5-15-20 (depend on models)																
		EN 1.4404 (AISI 316L)	EVMSL 1-3-10, EVMSL 5-15-20 (depend on models)																
		EN 1.4462 (AISI 329A)	EVMSG / EVMS / EVMSL 5-15-20 (depend on models)																
	Shaft sleeve bearing	Tungsten carbide																	
	Shaft Seal	See the shaft seal options																	
	O-ring	EPDM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		FPM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Outer casing	EN 1.4301 (AISI 304)						EN 1.4404 (AISI 316L)											
	Motor Bracket	Cast Iron																	
	Tie rod	EN 1.4057 (AISI 431)																	
Coupling	up to 4.0 kW	Die cast aluminium																	
	from 5.5 kW	Cast Iron																	
Base	Cast Iron						Die cast aluminium												
Pipe connection	Oval flange up to 16 bar	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Round flange (DIN)	up to 16 bar	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
		from 16 bar to 25 bar	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Loose round flange (DIN)	up to 16 bar							●	●	●	●	●	●	●	●	●	●	●
		from 16 bar to 25 bar							●	●	●	●	●	●	●	●	●	●	●
	Victaulic® up to 16/25 bar								●	●	●	●	●	●	●	●	●	●	●
Clamp up to 16/25 bar								●	●	●	●	●	●	●	●	●	●	●	

● Available

MOTOR			
Power Source	Frequency	50 Hz	
	Phase	Single Phase	Three Phase
	Power rating	0.37 ÷ 2.2 kW	0.37 ÷ 18.5 kW
		0.5 ÷ 3.0 HP	0.5 ÷ 25 HP
Voltage	230 ± 10% V	230/400 ± 10% V (up to 4.0 kW) 400/690 ± 10% V (above 5.5 kW)	
Type	Type	IC411 - TEFC	
	Efficiency Level	from 0.37 kW up to 2.2 kW	- : from 0.37 kW up to 0.55 kW IE3 : above 0.75 kW
	No° of poles	2	
	Protection degree	IP55 : up to 11 kW IP56 : above 15 kW	
	Insulation Class	F (temperature rise class B)	
Others	Thermal Protection	-	PTC sensor pre-installed for motors of 1.5 kW and above
	Casing Material	Aluminium	
	Flange mount (IEC motor)	IM B14 : up to 4.0 kW IM B5 : above 5.5 kW	
	Terminal Box fixing	-	Unlosable screw and sealing from 0.75 kW to 18.5 kW

PRODUCT SPECIFICATIONS EVMS(.).32-45-64-90

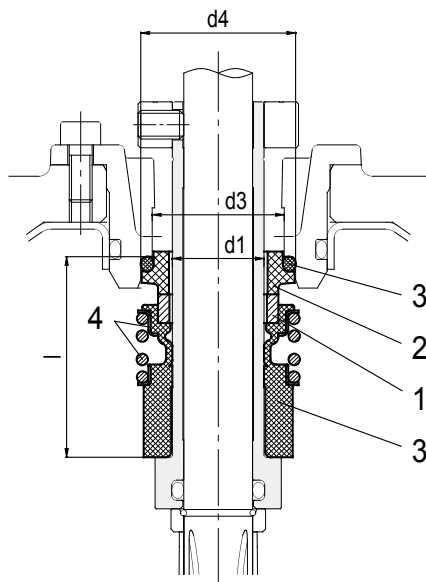
PUMP														
Version		EVMSG				EVMS				EVMSL				
Nominal flow rate (m³/h)		32	45	64	90	32	45	64	90	32	45	64	90	
Operating range	Maximum working pressure	1.6 / 2.5 / 3.0 / 3.5 MPa (16 / 25 / 30 / 35 bar)												
	Liquid temperature range	-30°C to 140°C (please contact EBARA in case of -30°C to -15°C, or 120-140°C)												
	Impeller	EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
Key Components Material *	Intermediate casing	EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	Liner ring	EN 1.4301 (AISI 304) + PPS								EN 1.4404 (AISI 316L) + PPS				
	Bottom casing	Cast Iron EN GJL-250 EN 1561 (for EVMSG32 and EVMSG45-90 up to 16 bar) Cast Iron EN GJS 400-15 EN 1563 (for EVMSG45-90 above 25 bar)				EN 1.4308 (ASTM CF8)				EN 1.4408 (ASTM CF8M)				
	Casing cover	EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	Shaft	EN 1.4301 (AISI 304)	EVMSG / EVMS 32-45-64-90 (depend on models)											
		EN 1.4404 (AISI 316L)	EVMSL 32-45-64 (depend on models)											
		EN 1.4462 (AISI 329A)	EVMSL 45-64-90 (depend on models)											
	Shaft sleeve bearing	Tungsten carbide												
	Shaft Seal	See the shaft seal options												
	O-ring	EPDM	●	●	●	●	●	●	●	●	●	●	●	●
		FPM	●	●	●	●	●	●	●	●	●	●	●	●
	Outer casing	EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	Motor Bracket	Cast Iron EN GJS 400-15 EN 1563												
	Tie rod	EN 1.4057 (AISI 431)												
	Coupling	up to 4.0 kW	Die cast Aluminium EN AB-AISI11 Cu2 (Fe)											
from 5.5 kW to 30 kW		Cast Iron EN GJL250 EN 1561												
above 37 kW		Carbon Steel												
Base	Cast Iron EN GJL200 EN 1561													
Pipe connection	Round flange (DIN)	●	●	●	●									
	Louse round flange (DIN)					●	●	●	●	●	●	●	●	

● Available

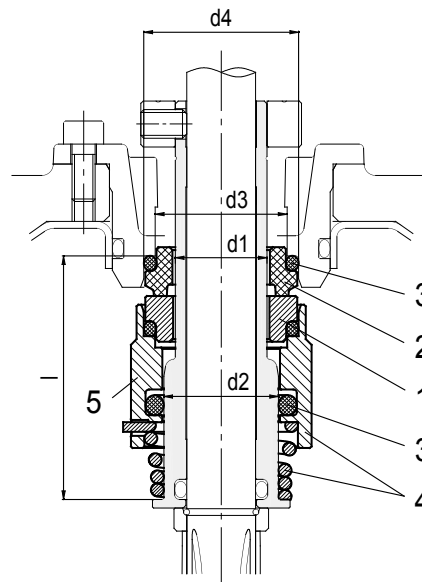
MOTOR		
Power Source	Frequency	50 Hz
	Phase	Three Phase
	Power rating	1.5 ÷ 45 kW 2.0 ÷ 60 HP
	Voltage	230/400 ± 10% V (up to 4.0 kW) 400/690 ± 10% V (above 5.5 kW)
Type	Type	IC411 - TEFC
	Efficiency Level	IE3
	No° of poles	2
	Protection degree	IP55 : up to 11 kW IP56 : above 15 kW
	Insulation Class	F (temperature rise class B)
Others	Thermal Protection	PTC
	Casing Material	Aluminium : up to 30 KW Cast Iron : above 37 KW
	Flange mount (IEC motor)	IM B14 : up to 4.0 kW IM B5 : above 5.5 kW
	Terminal Box fixing	Unlosable screw and sealing from 1.5 kW to 45 kW

SHAFT SEAL
EVMS(.)1-3-5-10-15-20

1. Shaft Seal



up to 16 bar
Cartridge Unbalanced type



up to 25 bar
Cartridge Balanced type

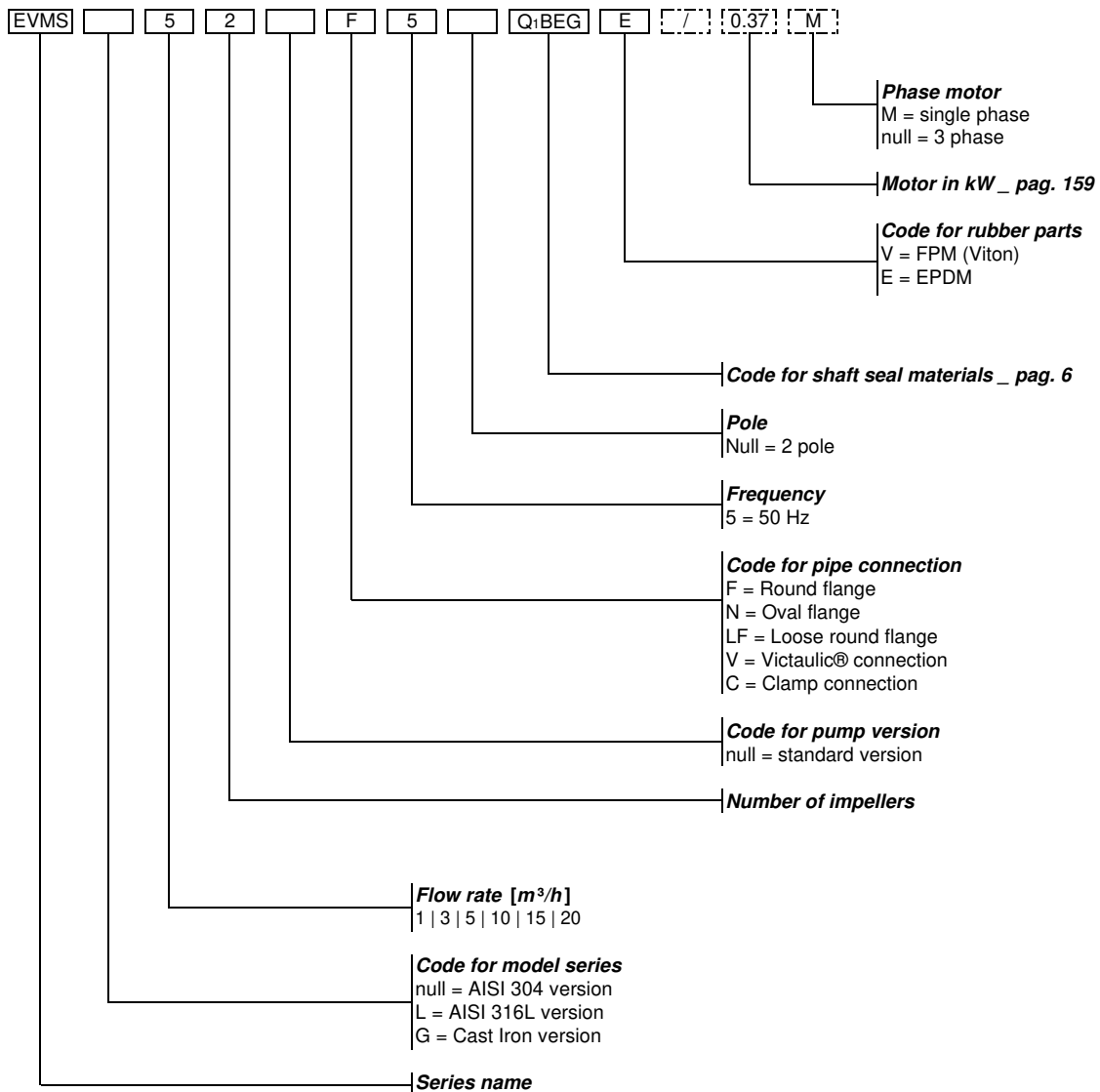
2. Type of Shaft Seal and Dimensions [mm]

Type key	Availability	Max operating pressure	Max operating temperature	Shaft seal type		Shaft seal material								
				Cartridge		1		2		3		4		5
				Type	Code	Rotating part	Code	Stationary part	Code	Elastomers	Code	Compression spring	Collar	Code
Q1BEG	●	16 bar	- 30°C to + 120°C	Unbalanced	(-)	SiC	(Q1)	Carbon	(B)	EPDM	(E)	AISI 316		(G)
BQ1VG	●	16 bar	- 30°C to + 80°C	Unbalanced	(-)	Carbon	(B)	SiC	(Q1)	FPM	(V)	AISI 316		(G)
HQ1BEG	●	25 bar	- 30°C to + 140°C	Balanced	(H)	SiC	(Q1)	Carbon	(B)	EPDM	(E)	AISI 316		(G)
HQ1BVG	●	25 bar	- 30°C to + 80°C	Balanced	(H)	SiC	(Q1)	Carbon	(B)	FPM	(V)	AISI 316		(G)
HQgQ1EG	●	25 bar	- 30°C to + 140°C	Balanced	(H)	SiC with graphite	(Qg)	SiC	(Q1)	EPDM	(E)	AISI 316		(G)
HQgQ1VG	●	25 bar	- 30°C to + 80°C	Balanced	(H)	SiC with graphite	(Qg)	SiC	(Q1)	FPM	(V)	AISI 316		(G)

● Available

Pump model	Shaft seal type		Max operating pressure	d1 [mm]	d2 [mm]	d3 [mm]	d4 [mm]	l [mm]
EVMS 1/3/5	Cartridge	Unbalanced	16 bar	16	-	23	27	35
		Balanced	25 bar		20			42.5
EVMS 10/15/20	Cartridge	Unbalanced	16 bar	20	-	29	35	37.5
		Balanced	25 bar		24			45



TYPE KEY
EVMS(.)1-3-5-10-15-20



Example for **pump without motor**:
EVMS5 2F5Q1BEG E

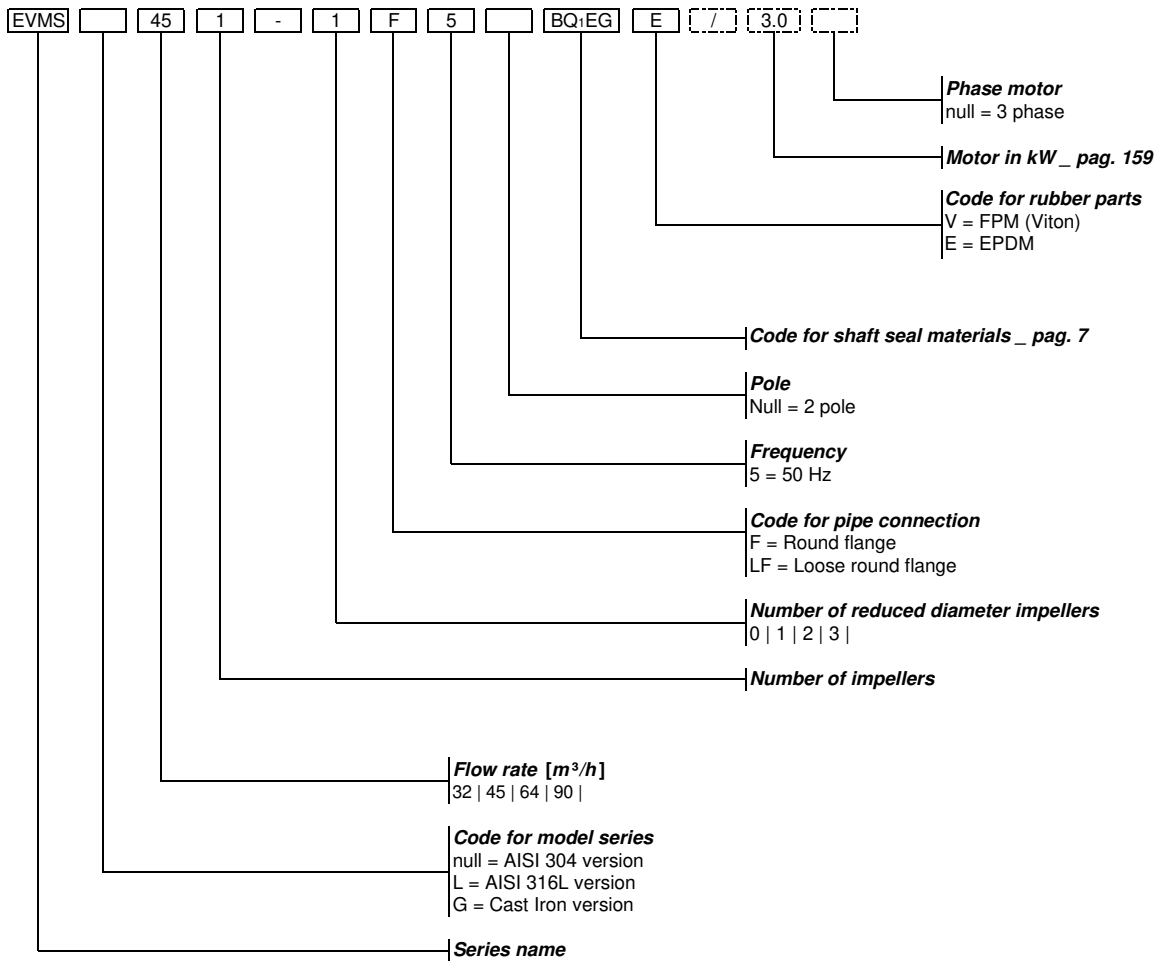
Example for **pump with motor**:
EVMS5 2F5Q1BEG E/0.37M

NAMEPLATE

 EBARA Pompe Europe S.p.A. Via Campo Sportivo, 30 36020 Cles (TN) Italy Phone +39 0444 708111 V.A.T. 01258680201		 MADE IN ITALY	
TYPE			
⊕ P/N		⊕	
Hmax	m	Hmin	m
Q	l/min	H	m
P2	kW	HP	
Hz		min ⁻¹	
MEI >		Hyd. eff.	%

- "TYPE" Pump model
- "P/N" Pump item number
- "Hmax" Maximum head
- "Hmin" Minimum head
- "Q" Indicates upper and lower flow rate limits
- "H" Indicates head limits corresponding to minimum and maximum flow rate
- "P2" Rated power of the motor (output at shaft)
- "HP" Rated power of the motor expressed in HP (Horse Power)
- "Hz" Frequency
- "min-1" Speed of rotation
- "MEI" Index of the pump's quality in relation to its efficiency
- "Hyd. Eff." Hydraulic efficiency of the pump

TYPE KEY EVMS(.).32-45-64-90



Example for pump without motor:
EVMS45 1-1F5BQ1EG E

Example for pump with motor:
EVMS45 1-1F5BQ1EG E/3.0

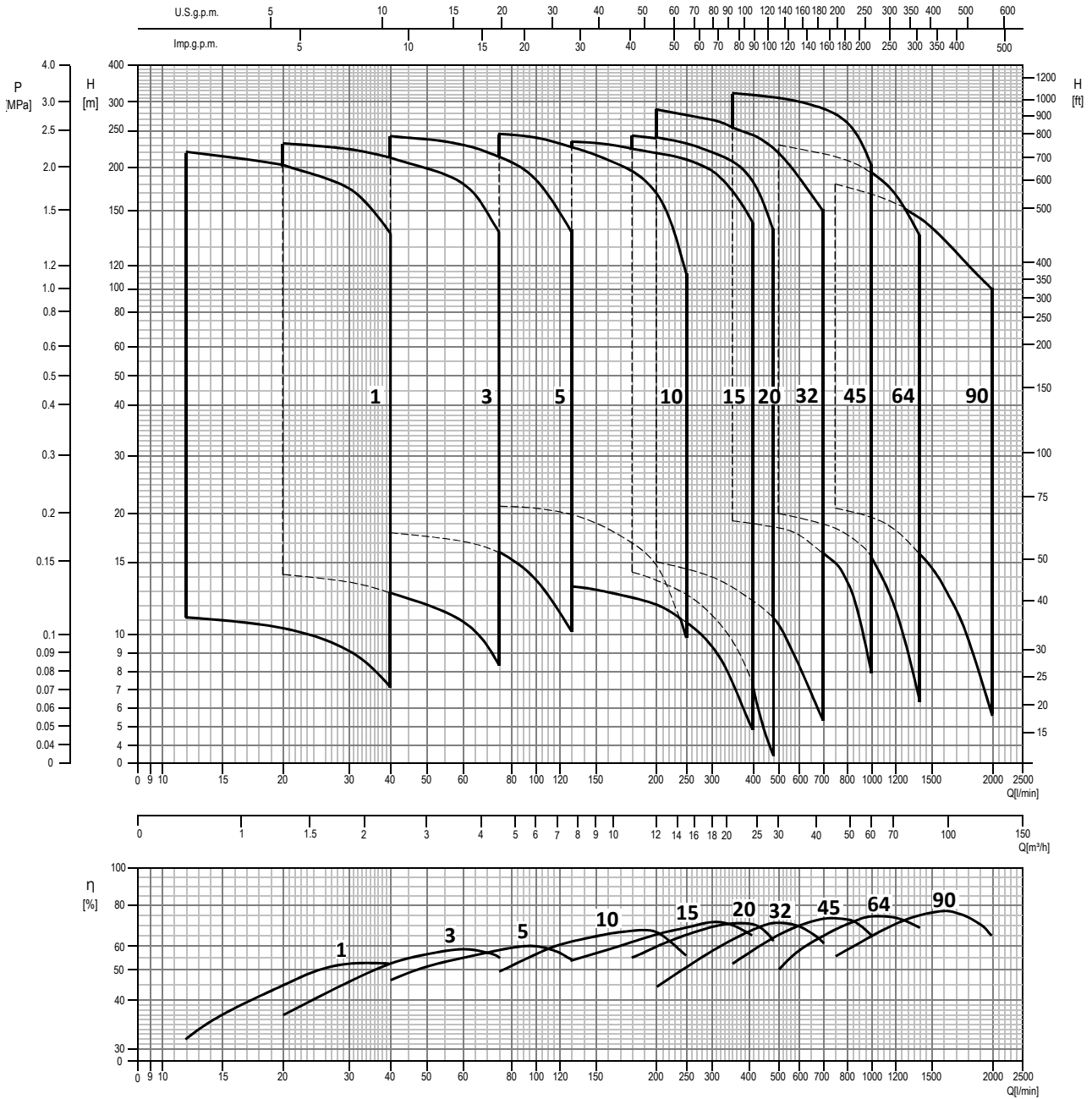
NAMEPLATE

EBARA Pompe Europe S.p.A. Via Campo Sportivo, 30 38020 Cles (TN) ITALY Phone +39-0444 700811 V.A.T.: 0258602011				 MADE IN ITALY	
TYPE					
⊕ P/N ⊕					
Hmax	m	Hmin	m		
Q	l/min	H	m		
P2	kW		HP		
Hz	min ⁻¹				
MEI >	Hyd. eff.		%		

- "TYPE" Pump model
- "P/N" Pump item number
- "Hmax" Maximum head
- "Hmin" Minimum head
- "Q" Indicates upper and lower flow rate limits
- "H" Indicates head limits corresponding to minimum and maximum flow rate
- "P2" Rated power of the motor (output at shaft)
- "HP" Rated power of the motor expressed in HP (Horse Power)
- "Hz" Frequency
- "min⁻¹" Speed of rotation
- "MEI" Index of the pump's quality in relation to its efficiency
- "Hyd. Eff." Hydraulic efficiency of the pump

PERFORMANCE RANGE
EVMS(.)1-3-5-10-15-20-32-45-64-90

PERFORMANCE RANGE



CURVE SPECIFICATIONS

The specifications below qualify the curves shown on the following pages.

Tolerances according to ISO 9906:2012 - Grade 3B.

Performance curves are defined with the following rotation speed (nominal rotation speed of the motor):

- up to 15 kW: 2900 rpm
- from 18.5 kW up to 30 kW: 2950 rpm
- 37 kW and 45 kW: 2975 rpm

Measurements were carried out with clean water at 20°C of temperature and with a kinematic viscosity of $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).

The NPSH curve is an average curve obtained in the same conditions of performance curves.

During the pump selection, consider to get a safety margin of at least 0.5 m.

The continuous curves indicate the recommended working range. The dotted curve is only a guide.

In order to avoid the risk of over-heating, the pumps should not be used at a flow rate below 10% of best efficiency point.

Symbols explanation:

- Q - volume flow rate
- H - total head
- P_2 - pump power input (shaft power)
- η - pump efficiency
- NPSH - net positive suction head required by the pump
- MEI - minimum efficiency index
- $\varnothing D_2$ - P_2 with full diameter
- $\varnothing D_2^*$ - P_2 with reduced diameter

The minimum efficiency index (MEI) is a measure of the quality of a pump size in respect to its mean efficiency. The minimum efficiency index is based on the hydraulic efficiency and on the head at the best efficiency point.

The efficiency of a pump with trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to a reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.

The operation of these water pumps with variable duty points may be more efficient and economical when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.

Information on benchmark efficiency is available at: www.europump.org (Ecodesign section)

Information on benchmark efficiency graph for MEI = 0.7 for the pump are available at: www.europump.org/efficiencycharts (refer to "Multistage Vertical 2900 rpm")

Minimum efficiency index (MEI)

Pump type	MEI
EVMS(.)1	> 0.70
EVMS(.)3	> 0.70
EVMS(.)5	> 0.70
EVMS(.)10	> 0.70
EVMS(.)15	> 0.70
EVMS(.)20	> 0.70
EVMS(.)32	> 0.60
EVMS(.)45	> 0.70
EVMS(.)64	> 0.40
EVMS(.)90	> 0.50

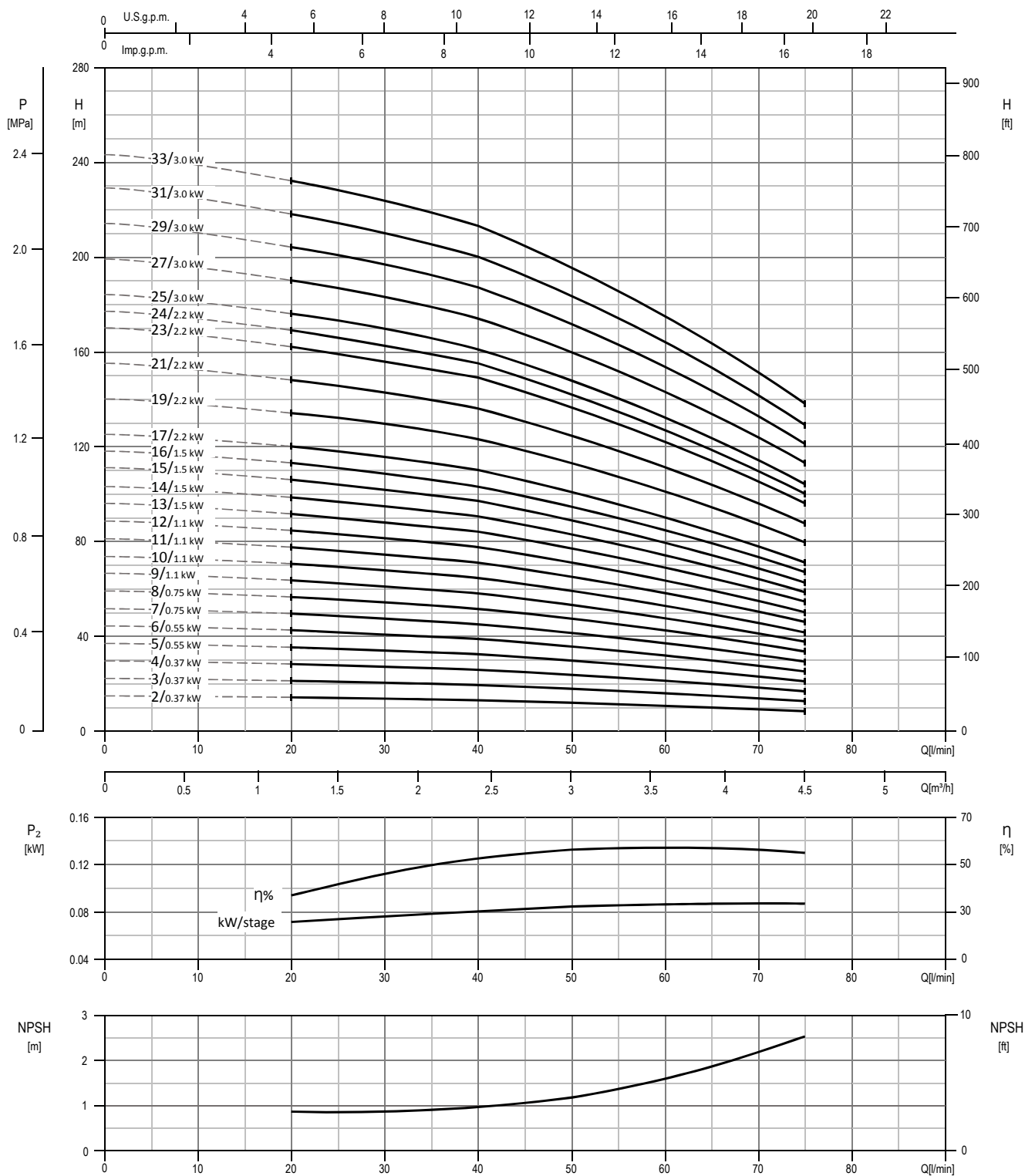
SELECTION CHART
EVMS(.)1-3-5

	Pump Type		Motor			Maximum working pressure [MPa]	Q=Capacity										
	Single phase	Three phase	kW	HP	Size		H=Total manometric head in metres										
							l/min	0	12	20	30	40	60	75	100	130	
						m ³ /h	0	0.72	1.2	1.8	2.4	3.6	4.5	6	7.8		
1	EVMS(.)1 2/0.37M	EVMS(.)1 2/0.37	0.37	0.5	71	1.6	11.9	11.2	10.4	9.1	7.1	-	-	-	-	-	
	EVMS(.)1 3/0.37M	EVMS(.)1 3/0.37	0.37	0.5	71	1.6	17.9	16.8	15.6	13.6	10.6	-	-	-	-	-	
	EVMS(.)1 4/0.37M	EVMS(.)1 4/0.37	0.37	0.5	71	1.6	23.8	22.4	20.8	18.2	14.2	-	-	-	-	-	
	EVMS(.)1 5/0.37M	EVMS(.)1 5/0.37	0.37	0.5	71	1.6	30	28	26	22.7	17.7	-	-	-	-	-	
	EVMS(.)1 6/0.37M	EVMS(.)1 6/0.37	0.37	0.5	71	1.6	35.8	33.6	31.2	27.3	21.2	-	-	-	-	-	
	EVMS(.)1 7/0.37M	EVMS(.)1 7/0.37	0.37	0.5	71	1.6	41.5	39.2	36.4	31.8	24.8	-	-	-	-	-	
	EVMS(.)1 8/0.37M	EVMS(.)1 8/0.37	0.37	0.5	71	1.6	47.5	44.5	41.5	36.4	28.3	-	-	-	-	-	
	EVMS(.)1 9/0.55M	EVMS(.)1 9/0.55	0.55	0.75	71	1.6	53.5	50.5	47	41	31.8	-	-	-	-	-	
	EVMS(.)1 10/0.55M	EVMS(.)1 10/0.55	0.55	0.75	71	1.6	59.6	56	52	45.5	35.4	-	-	-	-	-	
	EVMS(.)1 11/0.55M	EVMS(.)1 11/0.55	0.55	0.75	71	1.6	65.5	61.5	57	50	38.9	-	-	-	-	-	
	EVMS(.)1 12/0.55M	EVMS(.)1 12/0.55	0.55	0.75	71	1.6	71.5	67	62.5	54.5	42.5	-	-	-	-	-	
	EVMS(.)1 13/0.55M	EVMS(.)1 13/0.55	0.55	0.75	71	1.6	77.5	73	67.5	59	46	-	-	-	-	-	
	EVMS(.)1 14/0.75M	EVMS(.)1 14/0.75	0.75	1	80	1.6	83.5	78.5	73	63.5	49.5	-	-	-	-	-	
	EVMS(.)1 16/0.75M	EVMS(.)1 16/0.75	0.75	1	80	1.6	95.5	89.5	83	72.5	56.5	-	-	-	-	-	
	EVMS(.)1 18/1.1M	EVMS(.)1 18/1.1	1.1	1.5	80	1.6	107	101	93.5	82	63.5	-	-	-	-	-	
	EVMS(.)1 20/1.1M	EVMS(.)1 20/1.1	1.1	1.5	80	1.6	119	112	104	91	71	-	-	-	-	-	
	EVMS(.)1 22/1.1M	EVMS(.)1 22/1.1	1.1	1.5	80	1.6	131	123	114	100	78	-	-	-	-	-	
	EVMS(.)1 24/1.1M	EVMS(.)1 24/1.1	1.1	1.5	80	1.6	143	135	125	109	85	-	-	-	-	-	
	EVMS(.)1 26/1.1M	EVMS(.)1 26/1.1	1.1	1.5	80	1.6	155	146	135	118	92	-	-	-	-	-	
	EVMS(.)1 27/1.5M	EVMS(.)1 27/1.5	1.5	2	90	2.5	161	151	140	123	95.5	-	-	-	-	-	
EVMS(.)1 29/1.5M	EVMS(.)1 29/1.5	1.5	2	90	2.5	173	163	151	132	103	-	-	-	-	-		
EVMS(.)1 32/1.5M	EVMS(.)1 32/1.5	1.5	2	90	2.5	191	179	166	145	113	-	-	-	-	-		
EVMS(.)1 34/1.5M	EVMS(.)1 34/1.5	1.5	2	90	2.5	203	191	177	155	120	-	-	-	-	-		
EVMS(.)1 37/2.2M	EVMS(.)1 37/2.2	2.2	3	90	2.5	221	207	192	168	131	-	-	-	-	-		
EVMS(.)1 39/2.2M	EVMS(.)1 39/2.2	2.2	3	90	2.5	232	219	203	177	138	-	-	-	-	-		
3	EVMS(.)3 2/0.37M	EVMS(.)3 2/0.37	0.37	0.5	71	1.6	14.7	-	14.1	13.6	12.9	10.9	8.3	-	-		
	EVMS(.)3 3/0.37M	EVMS(.)3 3/0.37	0.37	0.5	71	1.6	22.1	-	21.1	20.4	19.4	16.4	12.5	-	-		
	EVMS(.)3 4/0.37M	EVMS(.)3 4/0.37	0.37	0.5	71	1.6	29.5	-	28.2	27.1	25.8	21.9	16.7	-	-		
	EVMS(.)3 5/0.55M	EVMS(.)3 5/0.55	0.55	0.75	71	1.6	36.9	-	35.2	33.9	32.3	27.4	20.9	-	-		
	EVMS(.)3 6/0.55M	EVMS(.)3 6/0.55	0.55	0.75	71	1.6	44.2	-	42.5	40.5	38.8	32.8	25	-	-		
	EVMS(.)3 7/0.75M	EVMS(.)3 7/0.75	0.75	1	80	1.6	51.5	-	49.5	47.5	45	38.3	29.2	-	-		
	EVMS(.)3 8/0.75M	EVMS(.)3 8/0.75	0.75	1	80	1.6	59	-	56.5	54.5	51.5	44	33.4	-	-		
	EVMS(.)3 9/1.1M	EVMS(.)3 9/1.1	1.1	1.5	80	1.6	66.5	-	63.5	61	58	49	37.6	-	-		
	EVMS(.)3 10/1.1M	EVMS(.)3 10/1.1	1.1	1.5	80	1.6	73.5	-	70.5	68	64.5	54.5	41.5	-	-		
	EVMS(.)3 11/1.1M	EVMS(.)3 11/1.1	1.1	1.5	80	1.6	81	-	77.5	74.5	71	60	46	-	-		
	EVMS(.)3 12/1.1M	EVMS(.)3 12/1.1	1.1	1.5	80	1.6	88.5	-	84.5	81.5	77.5	65.5	50	-	-		
	EVMS(.)3 13/1.5M	EVMS(.)3 13/1.5	1.5	2	90	1.6	96	-	91.5	88	84	71	54.5	-	-		
	EVMS(.)3 14/1.5M	EVMS(.)3 14/1.5	1.5	2	90	1.6	103	-	98.5	95	90.5	76.5	58.5	-	-		
	EVMS(.)3 15/1.5M	EVMS(.)3 15/1.5	1.5	2	90	1.6	111	-	106	102	97	82	62.5	-	-		
	EVMS(.)3 16/1.5M	EVMS(.)3 16/1.5	1.5	2	90	1.6	118	-	113	109	103	87.5	67	-	-		
	EVMS(.)3 17/2.2M	EVMS(.)3 17/2.2	2.2	3	90	1.6	125	-	120	115	110	93	71	-	-		
	EVMS(.)3 19/2.2M	EVMS(.)3 19/2.2	2.2	3	90	1.6	140	-	134	129	123	104	79.5	-	-		
	EVMS(.)3 21/2.2M	EVMS(.)3 21/2.2	2.2	3	90	1.6	155	-	148	142	136	115	87.5	-	-		
	EVMS(.)3 23/2.2M	EVMS(.)3 23/2.2	2.2	3	90	2.5	170	-	162	156	149	126	96	-	-		
	EVMS(.)3 24/2.2M	EVMS(.)3 24/2.2	2.2	3	90	2.5	177	-	169	163	155	131	100	-	-		
-	EVMS(.)3 25/3.0	3.0	4	100	2.5	184	-	176	170	161	137	104	-	-			
-	EVMS(.)3 27/3.0	3.0	4	100	2.5	199	-	190	183	174	148	113	-	-			
-	EVMS(.)3 29/3.0	3.0	4	100	2.5	214	-	204	197	187	159	121	-	-			
-	EVMS(.)3 31/3.0	3.0	4	100	2.5	229	-	218	210	200	170	129	-	-			
-	EVMS(.)3 33/3.0	3.0	4	100	2.5	243	-	232	224	213	181	138	-	-			
5	EVMS(.)5 2/0.37M	EVMS(.)5 2/0.37	0.37	0.5	71	1.6	19	-	-	-	18	17.1	16	13.8	10.2		
	EVMS(.)5 3/0.55M	EVMS(.)5 3/0.55	0.55	0.75	71	1.6	28.4	-	-	-	26.9	25.6	23.9	20.7	15.3		
	EVMS(.)5 4/0.75M	EVMS(.)5 4/0.75	0.75	1	80	1.6	37.9	-	-	-	35.9	34.1	31.9	27.6	20.4		
	EVMS(.)5 5/1.1M	EVMS(.)5 5/1.1	1.1	1.5	80	1.6	47.5	-	-	-	45	42.5	39.9	34.5	25.5		
	EVMS(.)5 6/1.5M	EVMS(.)5 6/1.5	1.5	2	90	1.6	57	-	-	-	54	51	48	41.5	30.6		
	EVMS(.)5 7/1.5M	EVMS(.)5 7/1.5	1.5	2	90	1.6	66.5	-	-	-	63	59.5	56	48.5	35.7		
	EVMS(.)5 8/2.2M	EVMS(.)5 8/2.2	2.2	3	90	1.6	76	-	-	-	72	68	64	55	41		
	EVMS(.)5 9/2.2M	EVMS(.)5 9/2.2	2.2	3	90	1.6	85.5	-	-	-	81	77	72	62	46		
	EVMS(.)5 10/2.2M	EVMS(.)5 10/2.2	2.2	3	90	1.6	95	-	-	-	90	85.5	80	69	51		
	EVMS(.)5 11/2.2M	EVMS(.)5 11/2.2	2.2	3	90	1.6	104	-	-	-	98.5	94	87.5	76	56		
	-	EVMS(.)5 12/3.0	3.0	4	100	1.6	114	-	-	-	108	102	95.5	83	61		
	-	EVMS(.)5 13/3.0	3.0	4	100	1.6	123	-	-	-	117	111	104	89.5	66.5		
	-	EVMS(.)5 14/3.0	3.0	4	100	1.6	133	-	-	-	126	119	112	96.5	71.5		
	-	EVMS(.)5 15/3.0	3.0	4	100	1.6	142	-	-	-	135	128	120	104	76.5		
	-	EVMS(.)5 17/4.0	4.0	5.5	112	1.6	161	-	-	-	153	145	136	117	86.5		
	-	EVMS(.)5 19/4.0	4.0	5.5	112	2.5	180	-	-	-	171	162	152	131	97		
	-	EVMS(.)5 20/4.0	4.0	5.5	112	2.5	190	-	-	-	179	171	160	138	102		
-	EVMS(.)5 23/5.5	5.5	7.5	132	2.5	218	-	-	-	206	196	183	159	117			
-	EVMS(.)5 25/5.5	5.5	7.5	132	2.5	237	-	-	-	224	213	199	173	127			
-	EVMS(.)5 27/5.5	5.5	7.5	132	2.5	256	-	-	-	242	230	215	186	138			

1.6 MPa=16 bar; 2.5 MPa=25 bar

PERFORMANCE CURVE
EVMS(L)3

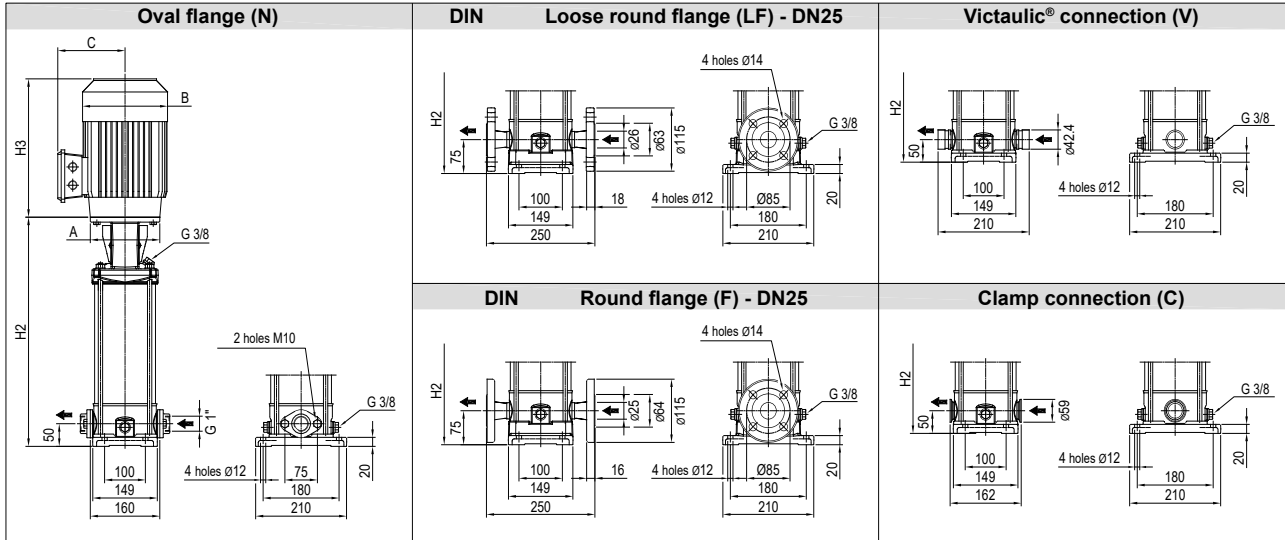
EVMS(L)3



Test standard: ISO 9906:2012 - Grade 3B

TECHNICAL DATA EVMS(L)3

Dimensional sketch



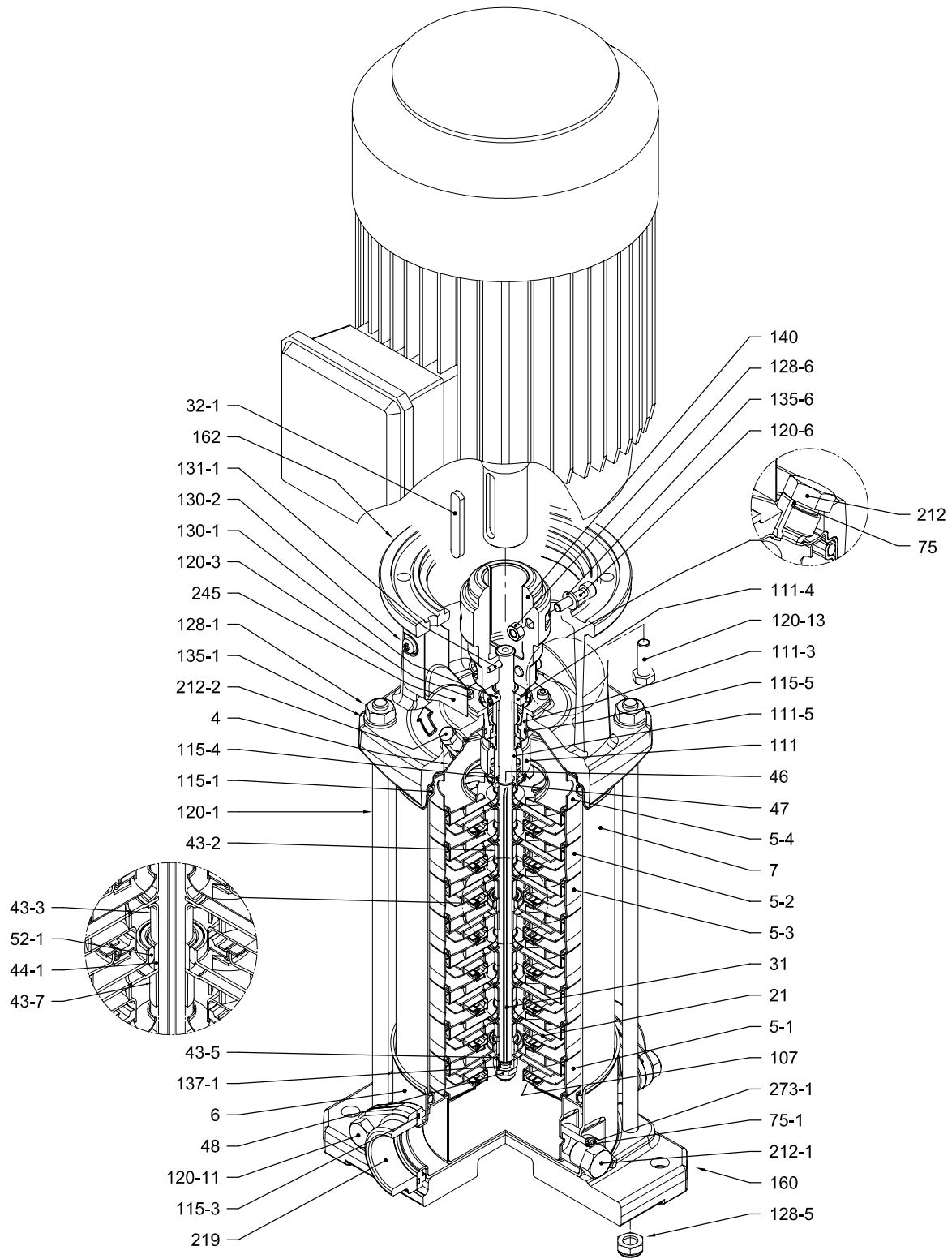
Dimensions [mm] and Weights [Kg]

Pump Type	P _{max} [MPa]	Motor								Oval flange (N)				Loose round flange (LF) Round flange (F)				Victaulic® connection (V) Clamp connection (C)								
		kW	Size	1~			3~		H2	H2+H3	Weight Pump	Weight Pump + Motor		H2	H2+H3	Weight Pump	Weight Pump + Motor		H2	H2+H3	Weight Pump	Weight Pump + Motor				
				A	B	C	B	C				1~	3~				1~	3~				1~	3~	1~	3~	
EVMS(L)3 2/0.37	1.6	0.37	71	105	141	119	141	119	250	452	452	9.7	16.2	16.2	275	477	477	10.5	17.0	17.0	250	452	452	9.7	16.2	16.2
EVMS(L)3 3/0.37	1.6	0.37	71	105	141	119	141	119	271	473	473	10.1	16.6	16.6	296	498	498	10.9	17.4	17.4	271	473	473	10.2	16.7	16.7
EVMS(L)3 4/0.37	1.6	0.37	71	105	141	119	141	119	292	494	494	10.6	17.1	17.1	317	519	519	11.3	17.8	17.8	292	494	494	10.6	17.1	17.1
EVMS(L)3 5/0.55	1.6	0.55	71	105	141	119	141	119	313	515	515	11	18.0	18.0	338	540	540	11.8	18.8	18.8	313	515	515	11.1	18.1	18.1
EVMS(L)3 6/0.55	1.6	0.55	71	105	141	119	141	119	334	536	536	11.4	18.4	18.4	359	561	561	12.2	19.2	19.2	334	536	536	11.5	18.5	18.5
EVMS(L)3 7/0.75	1.6	0.75	80	120	160	142	141	102	365	594	598	12.4	22.4	20.9	390	619	623	13.1	23.1	21.6	365	594	598	12.4	22.4	20.9
EVMS(L)3 8/0.75	1.6	0.75	80	120	160	142	141	102	386	615	619	12.8	22.8	21.3	411	640	644	13.6	23.6	22.1	386	615	619	12.9	22.9	21.4
EVMS(L)3 9/1.1	1.6	1.1	80	120	160	142	141	102	407	636	651	13.2	24.2	23.2	432	661	676	14	25.0	24.0	407	636	651	13.3	24.3	23.3
EVMS(L)3 10/1.1	1.6	1.1	80	120	160	142	141	102	428	657	672	13.7	24.7	23.7	453	682	697	14.5	25.5	24.5	428	657	672	13.7	24.7	23.7
EVMS(L)3 11/1.1	1.6	1.1	80	120	160	142	141	102	449	678	693	14.1	25.1	24.1	474	703	718	14.9	25.9	24.9	449	678	693	14.2	25.2	24.2
EVMS(L)3 12/1.1	1.6	1.1	80	120	160	142	141	102	470	699	714	14.6	25.6	24.6	495	724	739	15.4	26.4	25.4	470	699	714	14.6	25.6	24.6
EVMS(L)3 13/1.5	1.6	1.5	90	140	172	140	160	119	501	779	792	15.3	33.1	28.8	526	804	817	16.1	33.9	29.6	501	779	792	15.3	33.1	28.8
EVMS(L)3 14/1.5	1.6	1.5	90	140	172	140	160	119	522	800	813	15.7	33.5	29.2	547	825	838	16.5	34.3	30.0	522	800	813	15.8	33.6	29.3
EVMS(L)3 15/1.5	1.6	1.5	90	140	172	140	160	119	543	821	834	16.2	34.0	29.7	568	846	859	17	34.8	30.5	543	821	834	16.3	34.1	29.8
EVMS(L)3 16/1.5	1.6	1.5	90	140	172	140	160	119	564	842	855	17.3	35.1	30.8	589	867	880	18	35.8	31.5	564	842	855	17.3	35.1	30.8
EVMS(L)3 17/2.2	1.6	2.2	90	140	172	140	160	119	585	863	876	17.7	37.2	32.7	610	888	901	18.5	38.0	33.5	585	863	876	17.7	37.2	32.7
EVMS(L)3 19/2.2	1.6	2.2	90	140	172	140	160	119	627	905	918	18.7	38.2	33.7	652	930	943	19.5	39.0	34.5	627	905	918	18.7	38.2	33.7
EVMS(L)3 21/2.2	1.6	2.2	90	140	172	140	160	119	669	947	960	19.6	39.1	34.6	694	972	985	20.4	39.9	35.4	669	947	960	19.6	39.1	34.6
EVMS(L)3 23/2.2	2.5	2.2	90	140	172	140	160	119	-	-	-	-	736	1014	1027	21.4	40.9	36.4	711	989	1002	20.6	40.1	35.6		
EVMS(L)3 24/2.2	2.5	2.2	90	140	172	140	160	119	-	-	-	-	757	1035	1048	21.8	41.3	36.8	732	1010	1023	21.1	40.6	36.1		
EVMS(L)3 25/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	788	-	1130	22.4	-	44.4	763	-	1105	21.7	-	43.7		
EVMS(L)3 27/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	830	-	1172	23.4	-	45.4	805	-	1147	22.6	-	44.6		
EVMS(L)3 29/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	872	-	1214	24.3	-	46.3	847	-	1189	23.6	-	45.6		
EVMS(L)3 31/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	914	-	1256	25.3	-	47.3	889	-	1231	24.6	-	46.6		
EVMS(L)3 33/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	956	-	1298	26.1	-	48.1	931	-	1273	25.4	-	47.4		

1.6 MPa=16 bar; 2.5 MPa=25 bar
- not available model

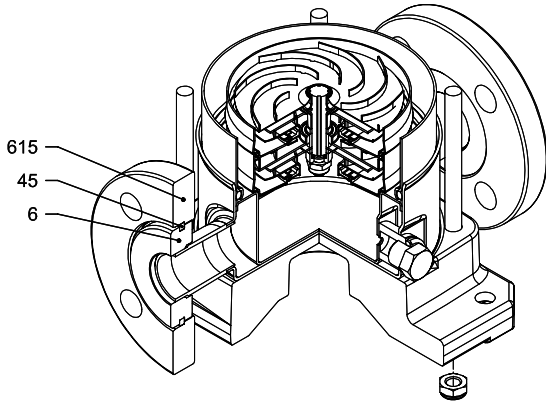
SECTIONAL VIEW
EVMS(L)3

EVMS(L)3

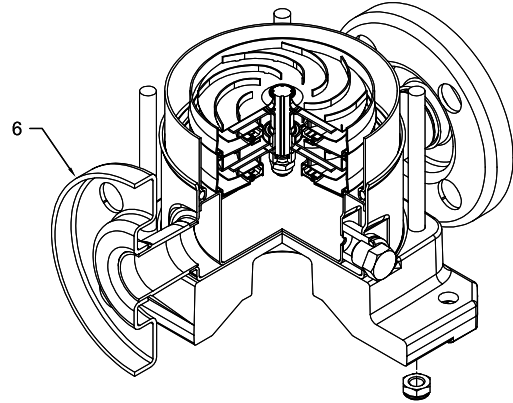


with Oval flange (N)

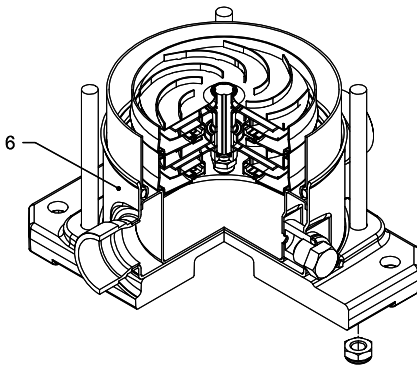
PIPE CONNECTION EVMS(L)3



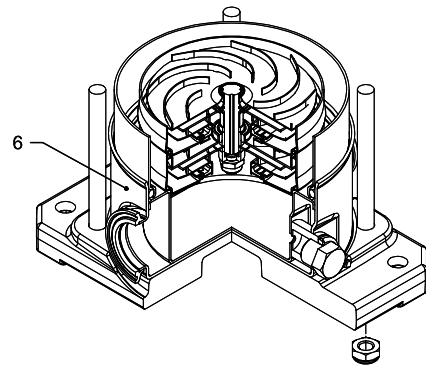
with Loose round flange (LF)



with Round flange (F)



with Victaulic® connection (V)



with Clamp connection (C)

SECTIONAL TABLE
EVMS(L)3

N°	PART NAME	MATERIAL		DIMENSIONS	STANDARD
		EVMS	EVMSL		
4	Casing cover	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
5-1	Suction casing	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
5-2	Intermediate casing	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
5-3	Intermediate casing with bearing	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
5-4	Discharge casing	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
6	Bottom casing	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
7	Outer casing	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
21	Impeller	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
31	Shaft	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
32-1	Adjuster key	EN 1.4301 (AISI 304)			
43-2	Shaft sleeve (intermediate)	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
43-3	Shaft sleeve (bearing)	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
43-5	Shaft sleeve (last stage)	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
43-7	Spacer	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
44-1	Shaft sleeve bearing	Tungsten carbide			
45	Flange holder	EN 1.4301 (AISI 304)			
46	Ring (mechanical seal)	EN 1.4404 (AISI 316L)			
47	Ring holder	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
48	Impeller nut	EN 1.4301 (AISI 304) with inox insert	EN 1.4401 (AISI 316) with inox insert	M8	
52-1	Sleeve bearing	Tungsten carbide			
75	O-Ring (priming plug)	EPDM / FPM		Ø12.37x2.62	OR 3050
75-1	O-Ring (drainage plug)	EPDM / FPM			
107	Liner ring	EN 1.4301 (AISI 304) + PPS	EN 1.4404 (AISI 316L) + PPS		
111	Mechanical seal	see pages 6-7			
111-3	Mechanical seal seat	EN 1.4308 (ASTM CF8)	EN 1.4408 (ASTM CF8M)		
111-4	Seal holder	EN 1.4301 (AISI 304)			
111-5	Mechanical seal cartridge sleeve	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
115-1	O-Ring (outer casing)	EPDM / FPM		Ø129.54x5.34	OR 6945
115-3	O-Ring	EPDM / FPM			
115-4	O-Ring (cartridge sleeve)	EPDM / FPM		Ø11.91x2.62	OR 4093
115-5	O-Ring (seal flange)	EPDM / FPM		Ø32.99x2.62	OR 4175
120-1	Tie-rod	EN 1.4057 (AISI 431)		M10	
120-3	Screw (seal flange)	A2-70		M4x10	ISO 4762
120-6	Screw (pump coupling)	Galvanized steel		M6x25	ISO 4762
120-11	Screw (counterflange)	A2-70			
120-13	Screw for motor	MEC 71-80 MEC 90-100	Galvanized steel 8.8 strength class ISO 898/1	M6x20 M8x20	ISO 4017 ISO 4017
128-1	Nut (tie rod)	A2-70		M10	ISO 4032
128-5	Nut (tie rod)	A2-70		M10	UNI 7474
128-6	Nut (aluminium coupling)	MEC 71-80-90-100-112	Galvanized steel	M6	ISO 4032
130-1	Set screw	EN 1.4301 (AISI 304)		M5x8	ISO 4026
130-2	Screw for coupling guard	A2-70		M5x6	UNI 7687
131-1	Pin for shaft	Carbon Steel		Ø4x32	ISO 2338
135-1	Washer (tie rod)	EN 1.4301 (AISI 304)		Ø10.5x21x2	ISO 7089
135-6	Washer (aluminium coupling)	up to 4.0 kW	Carbon Steel	Ø6	
137-1	Impeller spacer	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
140	Coupling	up to 4.0 kW	Die cast Aluminium EN AB-AISI11Cu2 (Fe)		
160	Base		Die cast Aluminium EN AB-AISI11Cu2 (Fe)		
162	Motor bracket		Cast iron EN-GJL-250		
212	Priming plug	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)	G 3/8	
212-1	Drainage plug	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)	G 3/8	
212-2	Venting plug	EN 1.4404 (AISI 316L)			
219	Counter flange	flange type: N flange type: LF-F-V-C	EN 1.4308 (ASTM CF8) EN 1.4301 (AISI 304)	EN 1.4408 (ASTM CF8M) EN 1.4404 (AISI 316L)	
245	Coupling guard	EN 1.4301 (AISI 304)			
273-1	Washer (drainage plug)	EN 1.4301 (AISI 304)	EN 1.4404 (AISI 316L)		
615	Flange	Nodular Cast Iron			

QUANTITY FOR MODEL EVMS(L)3

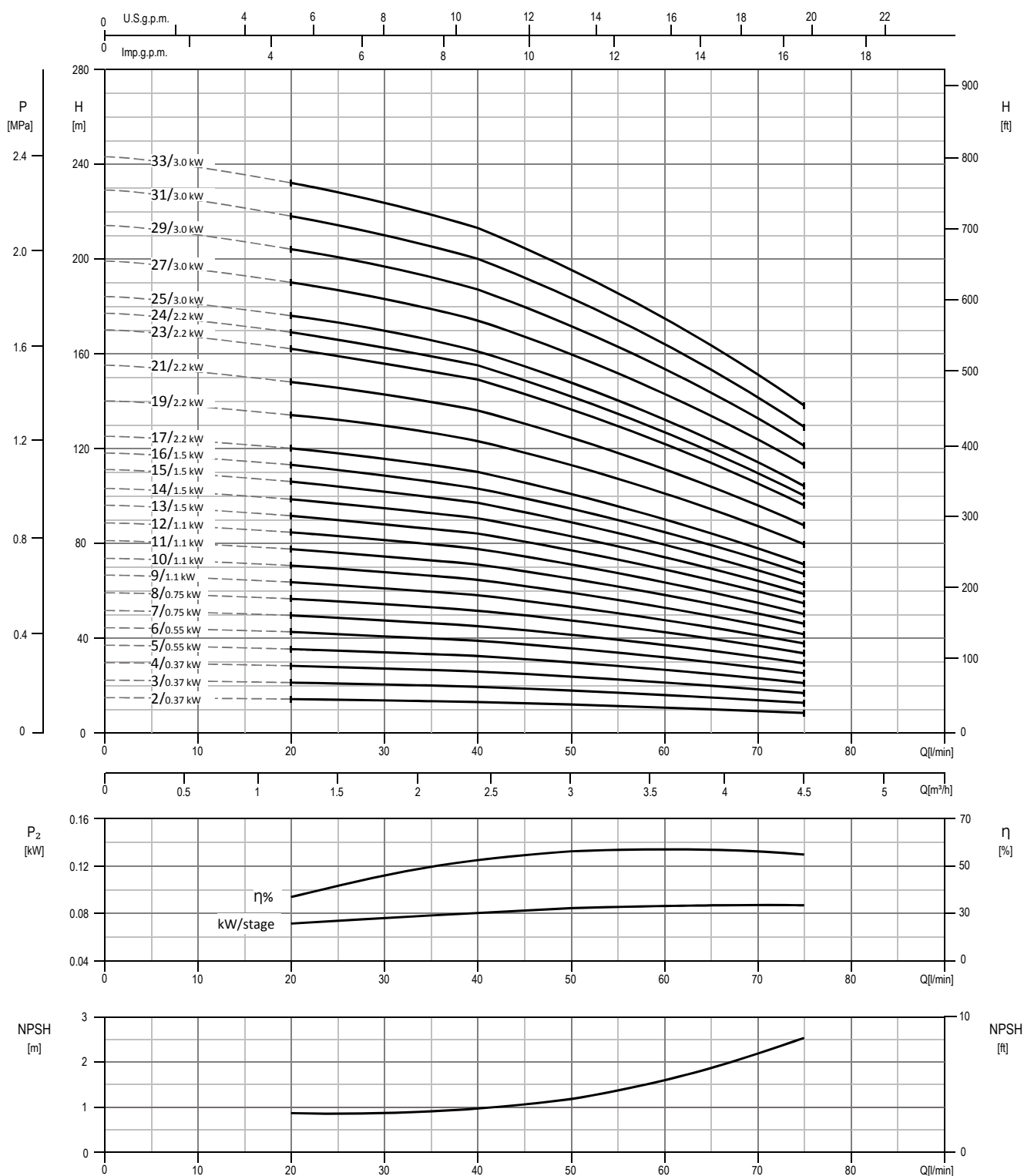
Pump Type	N°																																
	4	5-1	52	53	54	6	7	21	31	32-1	43-2	43-3	43-5	43-7	44-1	45*	46	47	48	52-1	75	75-1	107	111	111-3	111-4	111-5	115-1	115-3*	115-4	115-5		
EVMS(L)3 2/0.37	1	1	/	1	1	1	1	2	1	1	1	1	/	/	1	4	2	1	1	1	1	2	2	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 3/0.37	1	1	1	1	1	1	1	3	1	1	3	1	/	/	1	4	2	1	1	1	1	2	3	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 4/0.37	1	1	2	1	1	1	1	4	1	1	5	1	/	/	1	4	2	1	1	1	1	2	4	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 5/0.55	1	1	3	1	1	1	1	5	1	1	7	1	1	/	1	4	2	1	1	1	1	2	5	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 6/0.55	1	1	4	1	1	1	1	6	1	1	9	1	/	/	1	4	2	1	1	1	1	2	6	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 7/0.75	1	1	5	1	1	1	1	7	1	1	11	1	/	/	1	4	2	1	1	1	1	2	7	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 8/0.75	1	1	6	1	1	1	1	8	1	1	13	1	/	/	1	4	2	1	1	1	1	2	8	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 9/1.1	1	1	7	1	1	1	1	9	1	1	15	1	1	/	1	4	2	1	1	1	1	2	9	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 10/1.1	1	1	8	1	1	1	1	10	1	1	17	1	/	/	1	4	2	1	1	1	1	2	10	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 11/1.1	1	1	9	1	1	1	1	11	1	1	19	1	/	/	1	4	2	1	1	1	1	2	11	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 12/1.1	1	1	10	1	1	1	1	12	1	1	21	1	/	/	1	4	2	1	1	1	1	2	12	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 13/1.5	1	1	10	2	1	1	1	13	1	1	20	2	1	1	2	4	2	1	1	2	1	2	13	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 14/1.5	1	1	11	2	1	1	1	14	1	1	22	2	/	1	2	4	2	1	1	2	1	2	14	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 15/1.5	1	1	12	2	1	1	1	15	1	1	24	2	/	1	2	4	2	1	1	2	1	2	15	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 16/1.5	1	1	13	2	1	1	1	16	1	1	26	2	/	1	2	4	2	1	1	2	1	2	16	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 17/2.2	1	1	14	2	1	1	1	17	1	1	28	2	1	1	2	4	2	1	1	2	1	2	17	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 19/2.2	1	1	16	2	1	1	1	19	1	1	32	2	/	1	2	4	2	1	1	2	1	2	19	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 21/2.2	1	1	18	2	1	1	1	21	1	1	36	2	1	1	2	4	2	1	1	2	1	2	21	1	1	1	1	2	2	1	1	1	1
EVMS(L)3 23/2.2	1	1	20	2	1	1	1	23	1	1	40	2	/	1	2	4	2	1	1	2	1	2	23	1	1	1	1	2	/	1	1	1	1
EVMS(L)3 24/2.2	1	1	21	2	1	1	1	24	1	1	42	2	/	1	2	4	2	1	1	2	1	2	24	1	1	1	1	2	/	1	1	1	1
EVMS(L)3 25/3.0	1	1	22	2	1	1	1	25	1	1	44	2	/	1	2	4	2	1	1	2	1	2	25	1	1	1	1	2	/	1	1	1	1
EVMS(L)3 27/3.0	1	1	24	2	1	1	1	27	1	1	48	2	/	1	2	4	2	1	1	2	1	2	27	1	1	1	1	2	/	1	1	1	1
EVMS(L)3 29/3.0	1	1	26	2	1	1	1	29	1	1	52	2	/	1	2	4	2	1	1	2	1	2	29	1	1	1	1	2	/	1	1	1	1
EVMS(L)3 31/3.0	1	1	28	2	1	1	1	31	1	1	56	2	/	1	2	4	2	1	1	2	1	2	31	1	1	1	1	2	/	1	1	1	1
EVMS(L)3 33/3.0	1	1	30	2	1	1	1	33	1	1	60	2	/	1	2	4	2	1	1	2	1	2	33	1	1	1	1	2	/	1	1	1	1

Pump Type	N°																							
	120-1	120-3	120-6	120-11*	120-13	128-1	128-5	128-6	130-1	130-2	131-1	135-1	135-6	137-1	140	160	162	212	212-1	212-2	219*	245	273-1	615**
EVMS(L)3 2/0.37	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 3/0.37	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 4/0.37	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 5/0.55	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 6/0.55	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 7/0.75	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 8/0.75	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 9/1.1	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 10/1.1	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 11/1.1	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 12/1.1	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 13/1.5	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 14/1.5	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 15/1.5	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 16/1.5	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 17/2.2	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 19/2.2	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 21/2.2	4	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	2	2	2	2
EVMS(L)3 23/2.2	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2
EVMS(L)3 24/2.2	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2
EVMS(L)3 25/3.0	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2
EVMS(L)3 27/3.0	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2
EVMS(L)3 29/3.0	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2
EVMS(L)3 31/3.0	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2
EVMS(L)3 33/3.0	4	4	4	/	4	4	4	4	3	4	1	4	4	1	2	1	1	1	2	1	/	2	2	2

* only for Oval flange (N)
** only for Loose round flange (LF)

PERFORMANCE CURVE
EVMSG3

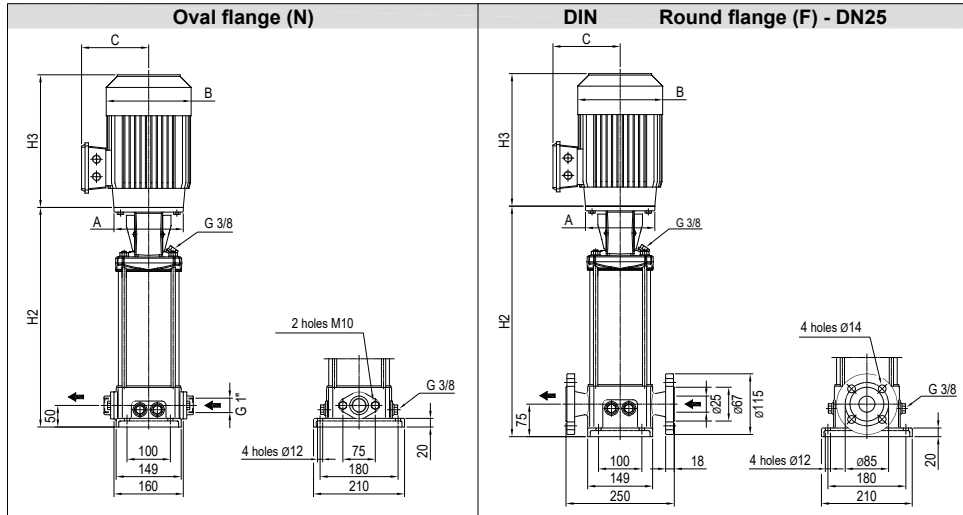
EVMSG3



Test standard: ISO 9906:2012 - Grade 3B

TECHNICAL DATA EVMSG3

Dimensional sketch

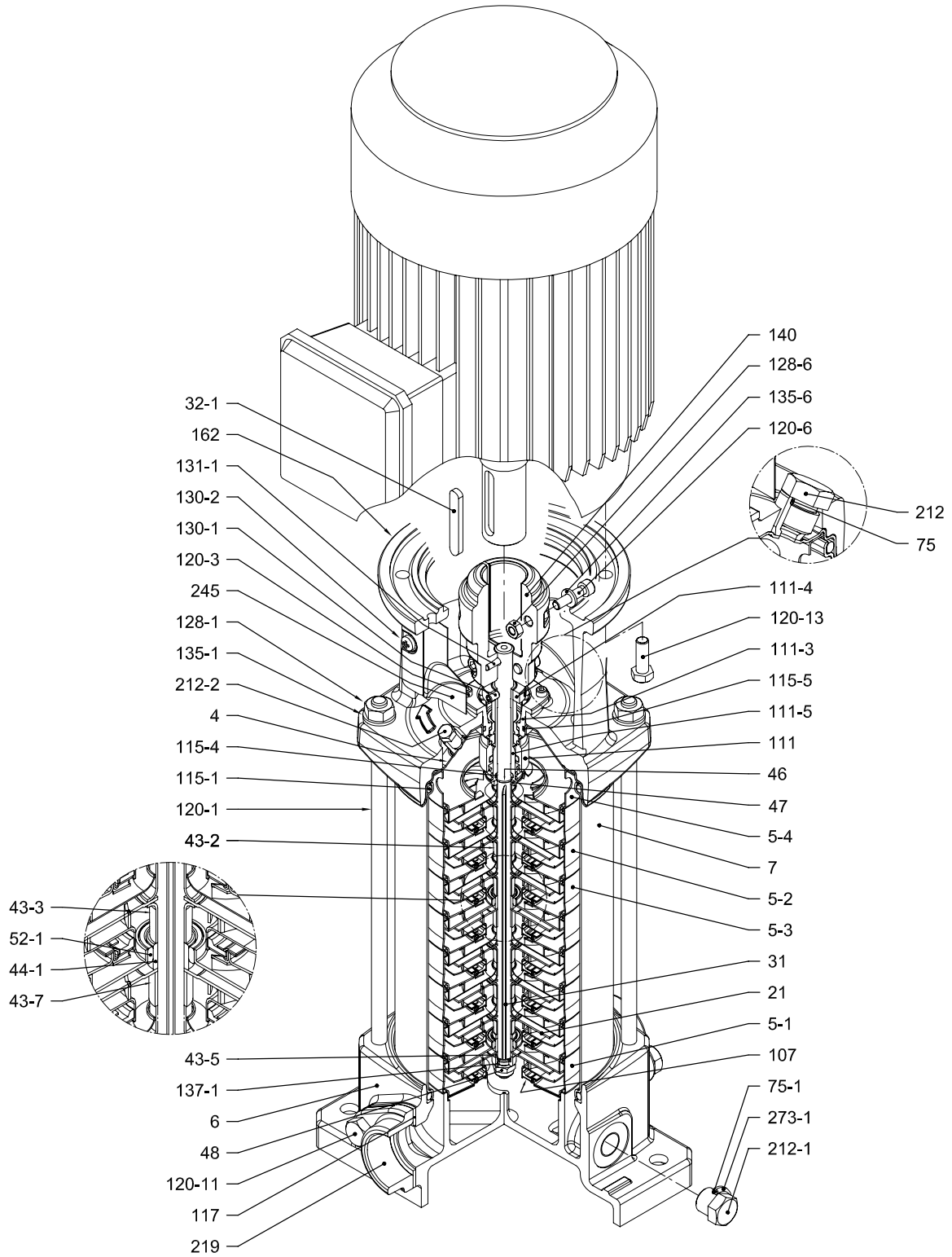


Dimensions [mm] and Weights [Kg]

Pump Type	Pmax [MPa]	Motor						Oval flange (N)						Round flange (F)							
		kW	Size	1~			3~			H2	H2+H3		Weight Pump		H2	H2+H3		Weight Pump		Weight Pump + Motor	
				A	B	C	B	C	1~		3~	1~	3~	1~		3~	1~	3~			
EVMSG3 2/0.37	1.6	0.37	71	105	141	119	141	119	250	452	452	12.9	19.4	19.4	275	477	477	15.7	22.2	22.2	
EVMSG3 3/0.37	1.6	0.37	71	105	141	119	141	119	271	473	473	13.3	19.8	19.8	296	498	498	16.1	22.6	22.6	
EVMSG3 4/0.37	1.6	0.37	71	105	141	119	141	119	292	494	494	13.8	20.3	20.3	317	519	519	16.6	23.1	23.1	
EVMSG3 5/0.55	1.6	0.55	71	105	141	119	141	119	313	515	515	14.2	21.2	21.2	338	540	540	17	24.0	24.0	
EVMSG3 6/0.55	1.6	0.55	71	105	141	119	141	119	334	536	536	14.7	21.7	21.7	359	561	561	17.4	24.4	24.4	
EVMSG3 7/0.75	1.6	0.75	80	120	160	142	141	102	365	594	598	15.6	25.6	24.1	390	619	623	18.3	28.3	26.8	
EVMSG3 8/0.75	1.6	0.75	80	120	160	142	141	102	386	615	619	16	26.0	24.5	411	640	644	18.8	28.8	27.3	
EVMSG3 9/1.1	1.6	1.1	80	120	160	142	141	102	407	636	651	16.4	27.4	26.4	432	661	676	19.2	30.2	29.2	
EVMSG3 10/1.1	1.6	1.1	80	120	160	142	141	102	428	657	672	16.9	27.9	26.9	453	682	697	19.7	30.7	29.7	
EVMSG3 11/1.1	1.6	1.1	80	120	160	142	141	102	449	678	693	17.3	28.3	27.3	474	703	718	20.1	31.1	30.1	
EVMSG3 12/1.1	1.6	1.1	80	120	160	142	141	102	470	699	714	17.8	28.8	27.8	495	724	739	20.6	31.6	30.6	
EVMSG3 13/1.5	1.6	1.5	90	140	172	140	160	119	501	779	792	18.5	36.3	32.0	526	804	817	21.3	39.1	34.8	
EVMSG3 14/1.5	1.6	1.5	90	140	172	140	160	119	522	800	813	19	36.8	32.5	547	825	838	21.7	39.5	35.2	
EVMSG3 15/1.5	1.6	1.5	90	140	172	140	160	119	543	821	834	19.4	37.2	32.9	568	846	859	22.2	40.0	35.7	
EVMSG3 16/1.5	1.6	1.5	90	140	172	140	160	119	564	842	855	20.5	38.3	34.0	589	867	880	23.2	41.0	36.7	
EVMSG3 17/2.2	1.6	2.2	90	140	172	140	160	119	585	863	876	20.9	40.4	35.9	610	888	901	23.7	43.2	38.7	
EVMSG3 19/2.2	1.6	2.2	90	140	172	140	160	119	627	905	918	21.9	41.4	36.9	652	930	943	24.7	44.2	39.7	
EVMSG3 21/2.2	1.6	2.2	90	140	172	140	160	119	669	947	960	22.8	42.3	37.8	694	972	985	25.6	45.1	40.6	
EVMSG3 23/2.2	2.5	2.2	90	140	172	140	160	119	-	-	-	-	-	-	736	1014	1027	26.6	46.1	41.6	
EVMSG3 24/2.2	2.5	2.2	90	140	172	140	160	119	-	-	-	-	-	-	757	1035	1048	27	46.5	42.0	
EVMSG3 25/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	-	-	788	-	1130	27.6	-	49.6	
EVMSG3 27/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	-	-	830	-	1172	28.6	-	50.6	
EVMSG3 29/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	-	-	872	-	1214	29.6	-	51.6	
EVMSG3 31/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	-	-	914	-	1256	30.5	-	52.5	
EVMSG3 33/3.0	2.5	3.0	100	160	-	-	176	123	-	-	-	-	-	-	956	-	1298	31.3	-	53.3	

1.6 MPa=16 bar; 2.5 MPa=25 bar
- not available model

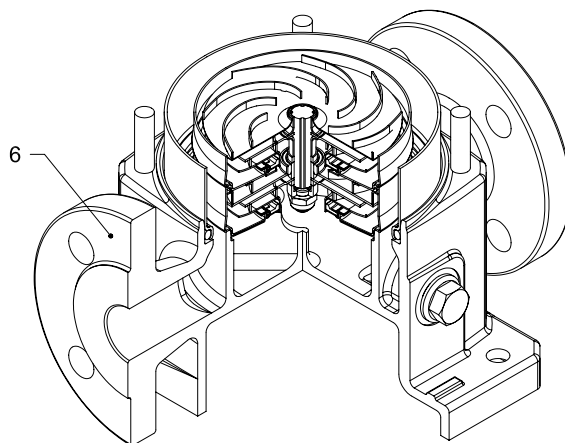
SECTIONAL VIEW
EVMSG3



with Oval flange (N)

PIPE CONNECTION EVMSG3

2.9



with Round flange (F)

EVMSG3

SECTIONAL TABLE
EVMSG3

N°	PART NAME	MATERIAL EVMSG	DIMENSIONS	STANDARD
4	Casing cover	EN 1.4301 (AISI 304)		
5-1	Suction casing	EN 1.4301 (AISI 304)		
5-2	Intermediate casing	EN 1.4301 (AISI 304)		
5-3	Intermediate casing with bearing	EN 1.4301 (AISI 304)		
5-4	Discharge casing	EN 1.4301 (AISI 304)		
6	Bottom casing	Cast Iron EN-GJL-250		
7	Outer casing	EN 1.4301 (AISI 304)		
21	Impeller	EN 1.4301 (AISI 304)		
31	Shaft	EN 1.4301 (AISI 304)		
32-1	Adjuster key	EN 1.4301 (AISI 304)		
43-2	Shaft sleeve (intermediate)	EN 1.4301 (AISI 304)		
43-3	Shaft sleeve (bearing)	EN 1.4301 (AISI 304)		
43-5	Shaft sleeve (last stage)	EN 1.4301 (AISI 304)		
43-7	Spacer	EN 1.4301 (AISI 304)		
44-1	Shaft sleeve bearing	Tungsten carbide		
46	Ring (mechanical seal)	EN 1.4404 (AISI 316L)		
47	Ring holder	EN 1.4404 (AISI 316L)		
48	Impeller nut	EN 1.4301 (AISI 304) with inox insert	M8	
52-1	Sleeve bearing	Tungsten carbide		
75	O-Ring (priming plug)	EPDM / FPM	Ø12.37x2.62	OR 3050
75-1	O-Ring (drainage plug)	EPDM / FPM		
107	Liner ring	EN 1.4301 (AISI 304) + PPS		
111	Mechanical seal	see pages 6-7		
111-3	Mechanical seal seat	EN 1.4308 (ASTM CF8)		
111-4	Seal holder	EN 1.4301 (AISI 304)		
111-5	Mechanical seal cartridge sleeve	EN 1.4301 (AISI 304)		
115-1	O-Ring (outer casing)	EPDM / FPM	Ø129.54x5.34	OR 6945
115-4	O-Ring (cartridge sleeve)	EPDM / FPM	Ø11.91x2.62	OR 4093
115-5	O-Ring (seal flange)	EPDM / FPM	Ø32.99x2.62	OR 4175
117	Flange gasket	EPDM / FPM		
120-1	Tie-rod	EN 1.4057 (AISI 431)	M10	
120-3	Screw (seal flange)	A2-70	M4x10	ISO 4762
120-6	Screw (pump coupling)	Galvanized steel	M6x25	ISO 4762
120-11	Screw (counterflange)	A2-70		
120-13	Screw for motor	MEC 71-80 MEC 90-100	Galvanized steel 8.8 strength class ISO 898/1	M6x20 M8x20 ISO 4017 ISO 4017
128-1	Nut (tie rod)	A2-70	M10	ISO 4032
128-6	Nut (aluminium coupling)	MEC 71-80-90-100-112	Galvanized steel	M6 ISO 4032
130-1	Set screw	EN 1.4301 (AISI 304)	M5x8	ISO 4026
130-2	Screw for coupling guard	A2-70	M5x6	UNI 7687
131-1	Pin for shaft	Carbon Steel	Ø4x32	ISO 2338
135-1	Washer (tie rod)	EN 1.4301 (AISI 304)	Ø10.5x21x2	ISO 7089
135-6	Washer (aluminium coupling)	up to 4.0 kW	Carbon Steel	Ø6
137-1	Impeller spacer	EN 1.4301 (AISI 304)		
140	Coupling	up to 4.0 kW	Die cast Aluminium EN AB-AISI11Cu2 (Fe)	
162	Motor bracket	Cast iron EN-GJL-250		
212	Priming plug	EN 1.4301 (AISI 304)	G 3/8	
212-1	Drainage plug	EN 1.4301 (AISI 304)	G 3/8	
212-2	Venting plug	EN 1.4404 (AISI 316L)		
219	Counter flange	flange type: N flange type: F	Galvanized steel Cast Iron EN-GJL-250	
245	Coupling guard	EN 1.4301 (AISI 304)		
273-1	Washer (drainage plug)	EN 1.4301 (AISI 304)		

QUANTITY FOR MODEL EVMSG3

Pump Type	N°																												
	4	5-1	52	53	54	6	7	21	31	32-1	43-2	43-3	43-5	43-7	44-1	46	47	48	52-1	75	75-1	107	111	111-3	111-4	111-5	115-1	115-4	115-5
EVMSG3 2/0.37	1	1	/	1	1	1	1	2	1	1	1	1	/	/	1	2	1	1	1	1	4	2	1	1	1	1	2	1	1
EVMSG3 3/0.37	1	1	1	1	1	1	1	3	1	1	3	1	/	/	1	2	1	1	1	1	4	3	1	1	1	1	2	1	1
EVMSG3 4/0.37	1	1	2	1	1	1	1	4	1	1	5	1	/	/	1	2	1	1	1	1	4	4	1	1	1	1	2	1	1
EVMSG3 5/0.55	1	1	3	1	1	1	1	5	1	1	7	1	1	/	1	2	1	1	1	1	4	5	1	1	1	1	2	1	1
EVMSG3 6/0.55	1	1	4	1	1	1	1	6	1	1	9	1	/	/	1	2	1	1	1	1	4	6	1	1	1	1	2	1	1
EVMSG3 7/0.75	1	1	5	1	1	1	1	7	1	1	11	1	/	/	1	2	1	1	1	1	4	7	1	1	1	1	2	1	1
EVMSG3 8/0.75	1	1	6	1	1	1	1	8	1	1	13	1	/	/	1	2	1	1	1	1	4	8	1	1	1	1	2	1	1
EVMSG3 9/1.1	1	1	7	1	1	1	1	9	1	1	15	1	/	1	2	1	1	1	1	1	4	9	1	1	1	1	2	1	1
EVMSG3 10/1.1	1	1	8	1	1	1	1	10	1	1	17	1	/	1	2	1	1	1	1	1	4	10	1	1	1	1	2	1	1
EVMSG3 11/1.1	1	1	9	1	1	1	1	11	1	1	19	1	/	1	2	1	1	1	1	1	4	11	1	1	1	1	2	1	1
EVMSG3 12/1.1	1	1	10	1	1	1	1	12	1	1	21	1	/	1	2	1	1	1	1	1	4	12	1	1	1	1	2	1	1
EVMSG3 13/1.5	1	1	10	2	1	1	1	13	1	1	20	2	/	1	2	2	1	1	2	1	4	13	1	1	1	1	2	1	1
EVMSG3 14/1.5	1	1	11	2	1	1	1	14	1	1	22	2	/	1	2	2	1	1	2	1	4	14	1	1	1	1	2	1	1
EVMSG3 15/1.5	1	1	12	2	1	1	1	15	1	1	24	2	/	1	2	2	1	1	2	1	4	15	1	1	1	1	2	1	1
EVMSG3 16/1.5	1	1	13	2	1	1	1	16	1	1	26	2	/	1	2	2	1	1	2	1	4	16	1	1	1	1	2	1	1
EVMSG3 17/2.2	1	1	14	2	1	1	1	17	1	1	28	2	/	1	2	2	1	1	2	1	4	17	1	1	1	1	2	1	1
EVMSG3 19/2.2	1	1	16	2	1	1	1	19	1	1	32	2	/	1	2	2	1	1	2	1	4	19	1	1	1	1	2	1	1
EVMSG3 21/2.2	1	1	18	2	1	1	1	21	1	1	36	2	/	1	2	2	1	1	2	1	4	21	1	1	1	1	2	1	1
EVMSG3 23/2.2	1	1	20	2	1	1	1	23	1	1	40	2	/	1	2	2	1	1	2	1	4	23	1	1	1	1	2	1	1
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EVMSG3 27/3.0	1	1	24	2	1	1	1	27	1	1	48	2	/	1	2	2	1	1	2	1	4	27	1	1	1	1	2	1	1
EVMSG3 29/3.0	1	1	26	2	1	1	1	29	1	1	52	2	/	1	2	2	1	1	2	1	4	29	1	1	1	1	2	1	1
EVMSG3 31/3.0	1	1	28	2	1	1	1	31	1	1	56	2	/	1	2	2	1	1	2	1	4	31	1	1	1	1	2	1	1
EVMSG3 33/3.0	1	1	30	2	1	1	1	33	1	1	60	2	/	1	2	2	1	1	2	1	4	33	1	1	1	1	2	1	1

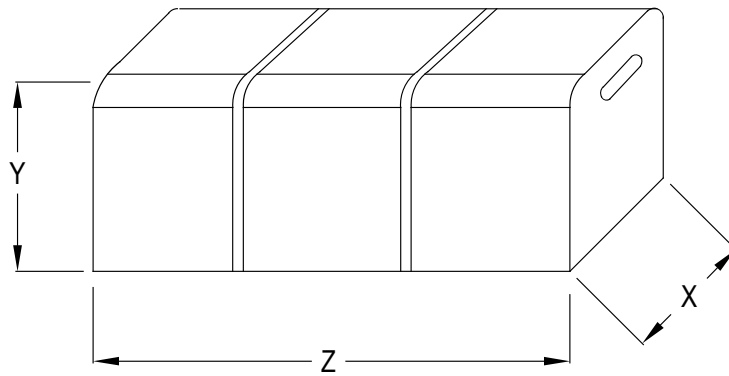
Pump Type	N°																					
	117*	120-1	120-3	120-6	120-11*	120-13	128-1	128-6	130-1	130-2	131-1	135-1	135-6	137-1	140	162	212	212-1	212-2	219*	245	273-1
EVMSG3 2/0.37	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 3/0.37	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 4/0.37	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 5/0.55	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 6/0.55	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 7/0.75	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 8/0.75	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 9/1.1	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 10/1.1	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 11/1.1	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 12/1.1	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 13/1.5	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 14/1.5	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 15/1.5	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 16/1.5	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 17/2.2	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 19/2.2	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 21/2.2	2	4	4	4	4	4	4	4	3	4	1	4	4	1	2	1	1	4	1	2	2	4
EVMSG3 23/2.2	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4
EVMSG3 24/2.2	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4
EVMSG3 25/3.0	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4
EVMSG3 27/3.0	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4
EVMSG3 29/3.0	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4
EVMSG3 31/3.0	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4
EVMSG3 33/3.0	/	4	4	4	/	4	4	4	3	4	1	4	4	1	2	1	1	4	1	/	2	4

* only for Oval flange (N)

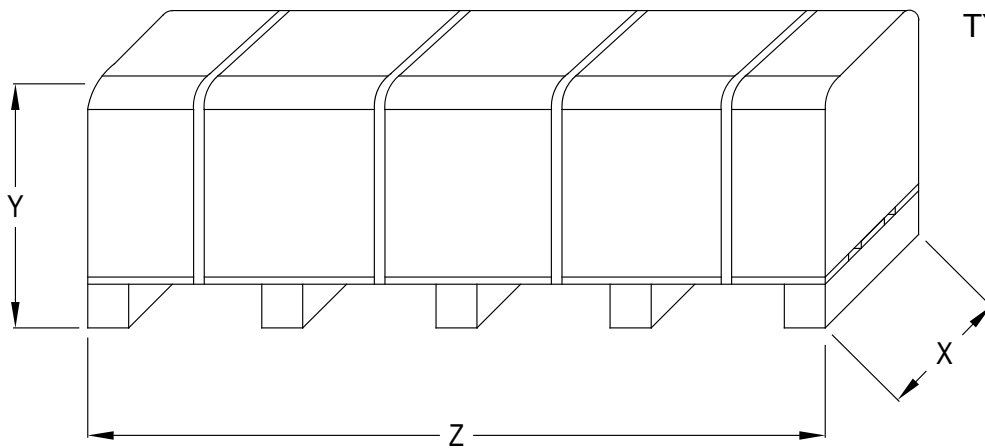
EVMSG3

PACKING DRAWING
EVMS(.)1-3-5-10-15-20-32-45-64-90

PACKING DRAWING

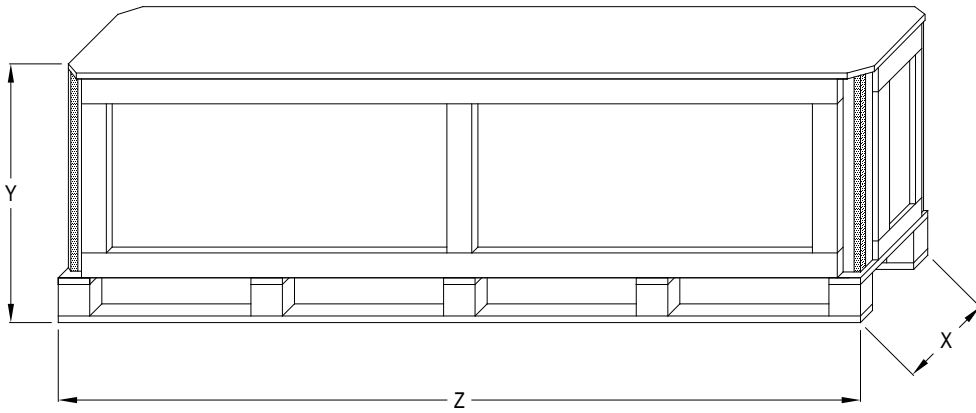
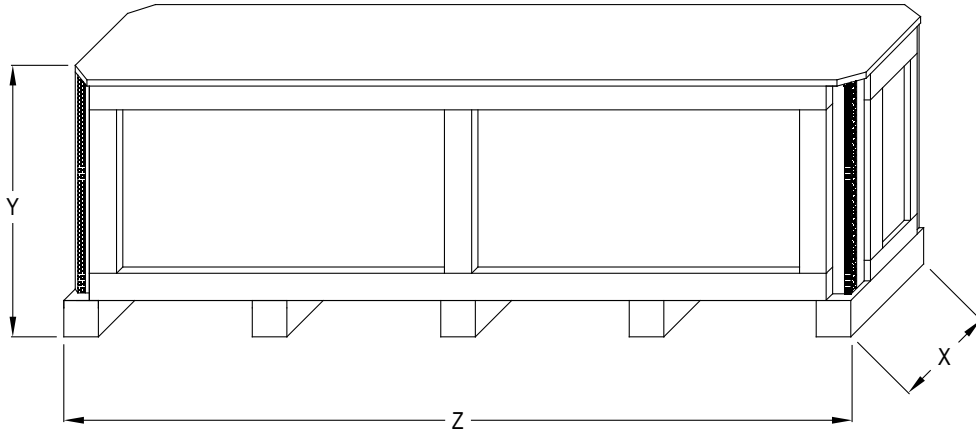


TYPE 1



TYPE 2

PACKING DRAWING EVMS(.)1-3-5-10-15-20-32-45-64-90



GENERAL

Various regulatory authorities in many countries have introduced or are planning legislation to encourage the manufacture and use of higher efficiency motors, as part of a concerted effort worldwide to reduce energy consumption. Indeed, the International Electrotechnical Commission (IEC) has introduced a new standards relating to energy efficient motors. **IEC 60034-30** defines new efficiency classes for motors and harmonizes the currently different requirements for induction motor efficiency levels around the world.

The **Commission Regulation (EC) N. 640/2009** implementing EcoDesign Directive 2009/125/EC states that in the European Community, with the exception of some special applications, motors shall not be less efficient than the IE3 efficiency level as from 1 January 2015.

In detail:

IE3 by January 1, 2015 (for motors from 7.5 kW to 375 kW).

IE3 for all motors by January 1, 2017 (for motors from 0.75 kW to 375 kW).

		MOTOR	
Power Source	Frequency	50 Hz	
	Phase	Single Phase	Three Phase
	Power rating	0.37 ÷ 2.2 kW 0.5 ÷ 3.0 HP	0.37 ÷ 45 kW 0.5 ÷ 60 HP
	Voltage	230 ± 10% V	230/400 ± 10% V (up to 4.0 kW) 400/690 ± 10% V (above 5.5 kW)
Type	Type	IC411 - TEFC	
	Efficiency Level	from 0.37 kW up to 2.2 kW	IE2 : from 0.37 kW up to 0.55 kW IE3 : above 0.75 kW
	No° of poles	2	
	Protection degree	IP55 : up to 11 kW IP56 : above 15 kW	
	Insulation Class	F (temperature rise class B)	
Others	Thermal Protection	-	PTC sensor pre-installed for motors of 1.5 kW and above
	Casing Material	Aluminium	Aluminium : up to 30 kW Cast Iron : above 37 kW
	Flange mount (IEC motor)	IM B14 : up to 4.0 kW IM B5 : above 5.5 kW	
	Terminal Box fixing	-	Unlosable screw and sealing from 0.75 kW to 45 kW

NOISE DATA

Motor Size	Power		Noise LpA - dB(A) *
	[kW]	[HP]	
71	0.37	0.5	52
	0.55	0.75	
80	0.75	1	52
	1.1	1.5	
90	1.5	2	60
	2.2	3	
100	3.0	4	62
112	4.0	5.5	66
132	5.5	7.5	68
	7.5	10	
160	11	15	73
	15	20	72
	18.5	25	70
180	22	30	70
200	30	40	70
	37	50	73
225	45	60	75

* Noise values were measured with a tolerance of ± 2.5 dB (A).

TECHNICAL MOTOR DATA EVMS 1-3-5-10-15-20-32-45-64-90

Single Phase Motor at 50Hz, 2 poles

(only for EVMS(.)1-3-5-10-15-20)

Motor Size	Power		Capacitor		Load efficiency and power-factor		Input [kW]	Full load current [A]		Locked rotor current [A]	
	[kW]	[HP]	[μF]	[V]	η % 100%	cos-φ 100%		230 V	230 V		
71	0.37	0.5	12	400	65.0	0.95	0.57	2.2	7.0		
	0.55	0.75	16	400	68.0	0.95	0.81	4.2	14.7		
80	0.75	1	20	400	67.0	0.94	1.12	5.0	20.0		
	1.1	1.5	30	400	74.8	0.98	1.49	6.8	31.0		
90 S	1.5	2	35	400	79.0	0.97	1.90	8.8	46.0		
90 L	2.2	3	40	400	78.0	0.97	2.82	12.9	61.0		

● Single phase motors manufactured by EBARA

Three Phase Motor at 50Hz, 2 poles

Motor Size	Power		Efficiency	Load efficiency and power-factor (400V)				Input [kW]	Full load current [A]			Locked rotor current [A]		
	[kW]	[HP]		η %		cos-φ			230 V	400V	690V	230 V	400V	690V
	50%	75%		100%	100%	100%	100%							
71	0.37	0.5	IE2	63.0	70.0	74.0	0.8	0.50	1.94	1.12	-	10.7	6.2	-
71	0.55	0.75	IE2	75.7	78.1	77.4	0.8	0.71	2.16	1.25	-	11.9	6.9	-
80	0.75	1	IE3	80.2	82.5	82.1	0.8	0.91	3.0	1.7	-	19.7	11.4	-
	1.1	1.5	IE3	81.3	82.8	82.7	0.8	1.33	4.3	2.5	-	28.8	16.6	-
90	1.5	2	IE3	83.5	84.3	84.6	0.8	1.77	5.8	3.3	-	44.1	25.5	-
	2.2	3	IE3	85.7	86.8	86.0	0.8	2.56	8.2	4.7	-	63.3	36.6	-
100	3.0	4	IE3	85.9	87.5	87.1	0.8	3.44	11.1	6.4	-	89.8	51.8	-
112	4.0	5.5	IE3	86.0	88.3	88.1	0.8	4.54	15.1	8.7	-	131.8	76.1	-
132	5.5	7.5	IE3	88.9	90.3	90.0	0.9	6.11	-	10.4	6.0	-	115.3	66.6
	7.5	10	IE3	89.0	90.7	90.4	0.9	8.30	-	13.6	7.9	-	144	83.1
160	11	15	IE3	90.1	91.4	91.2	0.8	12.06	-	21.3	12.3	-	184	106.2
160	15	20	IE3	91.5	92.0	91.9	0.9	16.32	-	26.2	15.2	-	215	124
160	18.5	25	IE3	90.9	92.4	92.4	0.9	20.02	-	32.8	19.0	-	299	173
180	22	30	IE3	92.5	92.9	92.7	0.9	23.73	-	38.5	22.3	-	347	201
200	30	40	IE3	93.1	93.4	93.3	0.9	32.15	-	51.0	29.6	-	459	266
200	37	50	IE3	92.0	93.4	93.7	0.9	39.49	-	64.0	37.1	-	524	303
225	45	60	IE3	93.8	93.9	94.0	0.9	47.87	-	77.0	44.5	-	601	347

◆ MOTOR DATA ETM