



Japanese Technology since 1912

EVMS - Vertical Multistage Pumps

Product Catalogue



Built like a Katana

A Katana is a Japanese product, it's made with a traditional know-how started in 300 a.C.. Katana is manufactured with care and precision of details. Only years of experience can give the necessary capacity to build a masterpiece.

This is what we do with our pumps. Our 100 years of Japanese experience in pumps manufacturing are the base to project and realize pumps with high quality performance, reliability and cutting-edge mechanical parts.

We look forward not forgetting the past.

EBARA new vertical multistage pumps named "EVMS" are manufactured with the highest standards of quality, to achieve reliable operating performance by means of strict technical evaluation criteria and control programs that involve the whole manufacturing process.

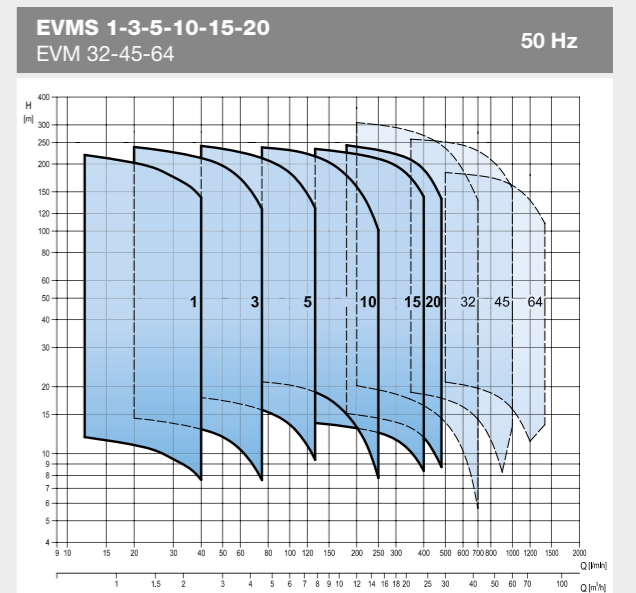
We listen to the market. Our design is unique. EVMS can offer the exceptional values through the cutting-edge solutions that best suits your needs.



Precision, Quality, Cutting-Edge



- **Pump Type**
EBARA vertical multistage in line pumps EVMS
- **Model range**
1, 3, 5, 10, 15, 20 m³/h flow sizes
- **Maximum operating range (Pressure/Liquid temperature)**
16 bar or 25 bar / - 30 to + 140 °C
- **Material version (bottom casing)**
EVMS (AISI 304), EVMSL (AISI 316), EVMSG (Cast iron)
- **Pipe connections**
Round flange / Round loose flange / Oval flange / Victaulic® / Clamp
- **Motor**
High Efficiency motor IE3 over 0.75 kW, 50 Hz / 60Hz,
Single phase / Three phase
PTC as standard for the above 1.5 kW



Main product features



Innovative hydraulic solutions

- **Commercial motors** can be fitted to all of the pump models without any modifications thanks to low pump axial thrust load
- **Long life of the motor bearing**
- **High pump efficiency** classified in MEI > 0.7 as the most efficient models
- **Patent Application n.VI2014A000271**



Energy saving

- High efficiency IE3 motor 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

Piping connection options

- The various pipe connections are available depending on the application requirements
- The external dimensions can be adjusted to the replacement of the existing pump in the wide majority

Material	Round flange DIN/ANSI	Round Loose flange DIN/ANSI	Oval FLange	Plug-In connection (Victaulic®, Clamp)
AISI304/ AISI316				
Cast Iron				



Shaft seal solutions

- **Shaft seal material:**
 - B: Resin impregnated carbon graphite
 - Q: Sintered silicon carbide
 - Qg: Silicon carbide with carbon graphite
- Carbon or graphite inclusions with silicon carbide can be used as **dry lubricant to reduce friction.**
- It's conforming to EN12756 (ex DIN 24960)



Easy maintenance

- The **cartridge shaft 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.

Smart plug solutions



Air ventilation plug



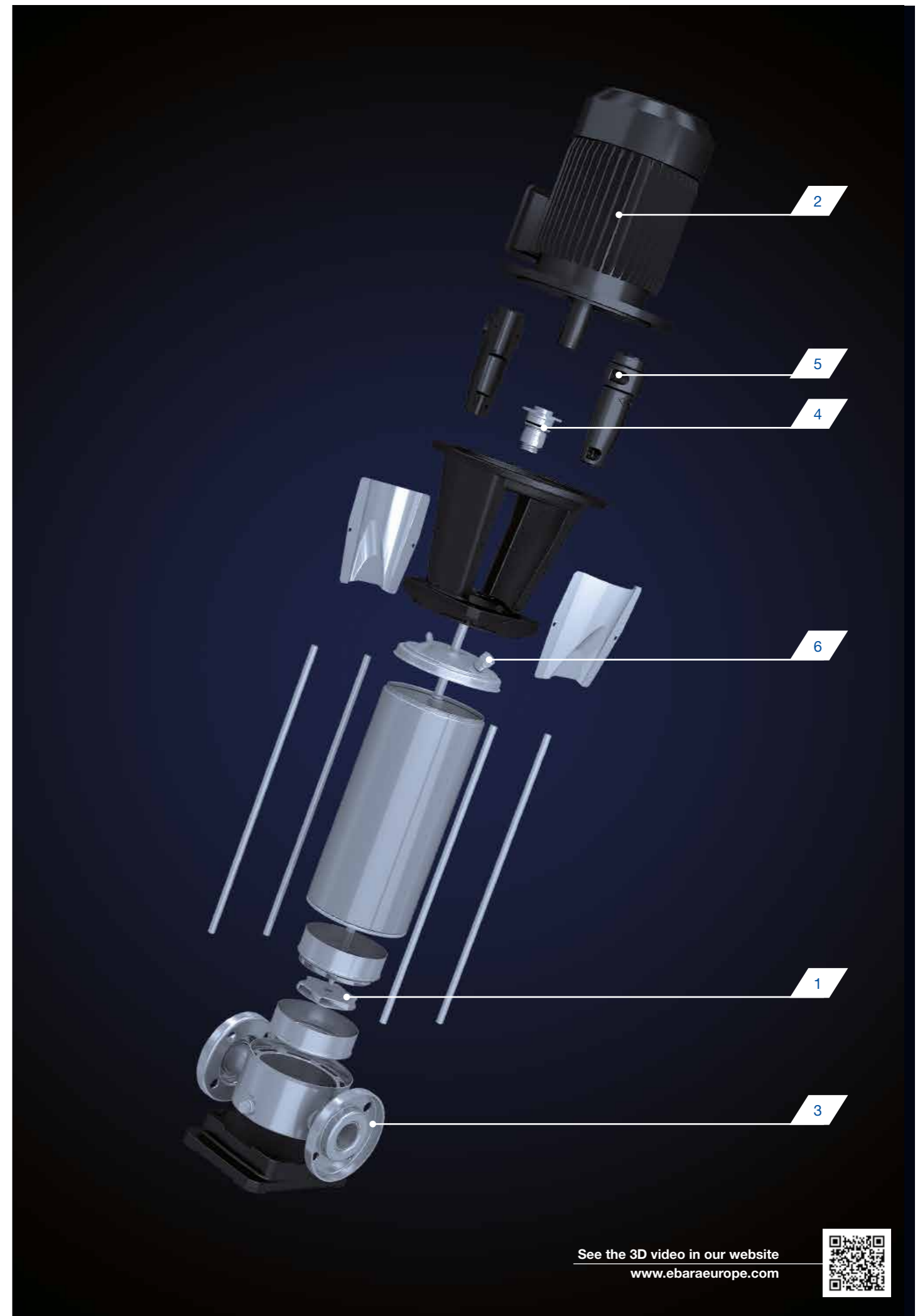
Water filling & sensor plug



Commercial sensor fitting



Measurements for suction and discharge pressure / drain



See the 3D video in our website
www.ebaraurope.com





Reliability is made by numbers

1
Million

Cycles of the endurance test*

2
Times

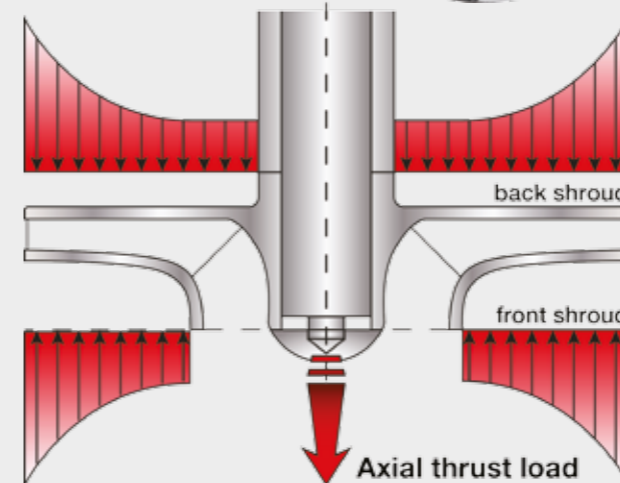
Higher test criteria than nominal operating conditions*

3
Times

Much less axial thrust load than common pumps

* for main components

Solve axial thrust load



The pump axial thrust load is caused by the unbalance of the static pressure between a front shroud and a back shroud of an impeller. That always causes **the reduction of the bearing life of the motor.**

General methods to work with the axial thrust load are as below.

- Increasing the size of motor bearing or using enhanced motor bearings.
- Mounting additional ball bearings on the pump bracket. These measurements are historically known to cause complicated mechanical structures.

EBARA new designed impeller "Shurricane" can reduce the pump axial thrust load with high pump efficiency by means of the innovative hydraulic design method.

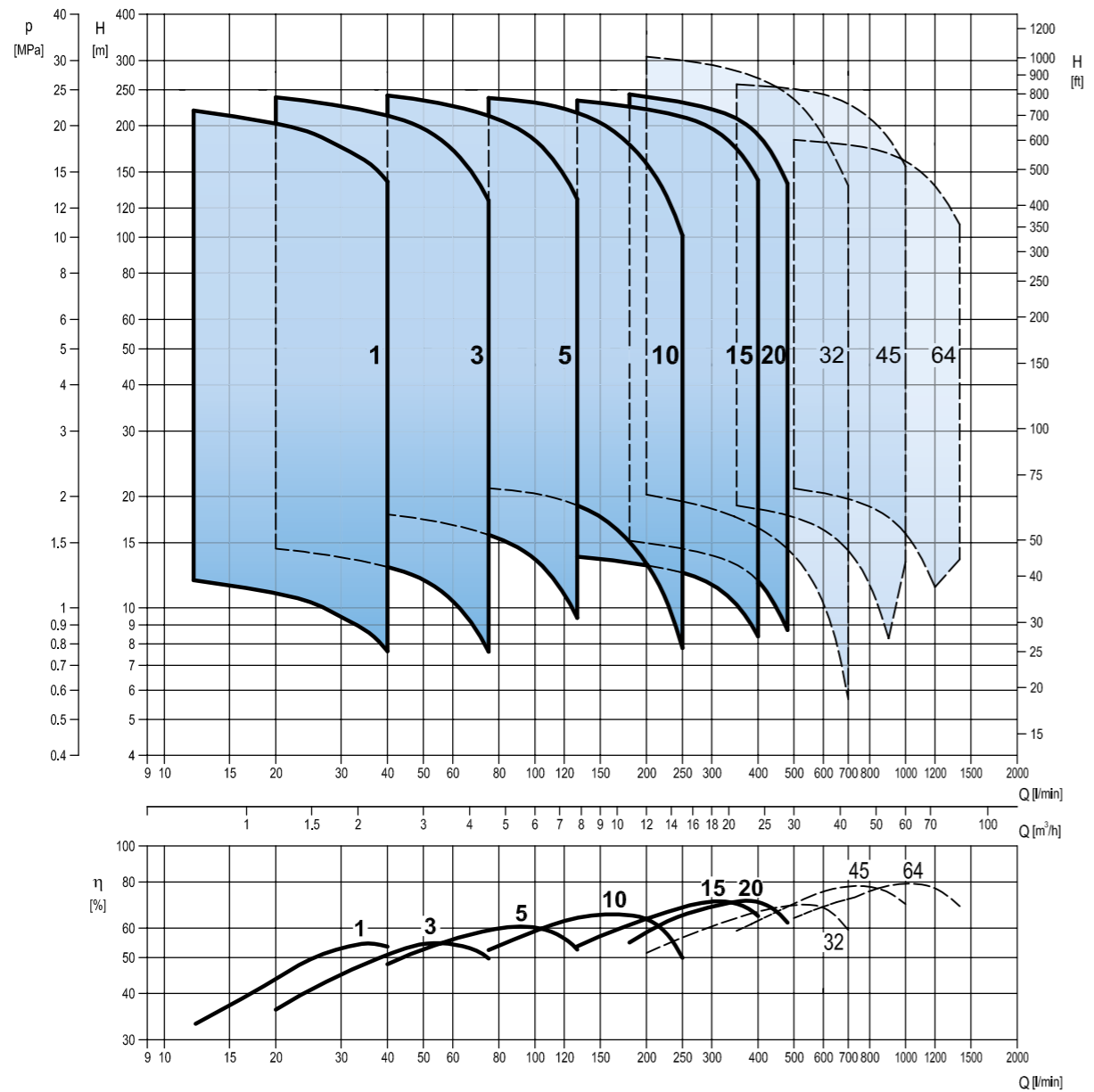
EVMS can accept the commercial motors without any modifications and improve the maintenance cycles of motor bearing.

Performance Range

50Hz

EVMS 1-3-5-10-15-20

EVM 32-45-64



Minimum efficiency index (MEI)

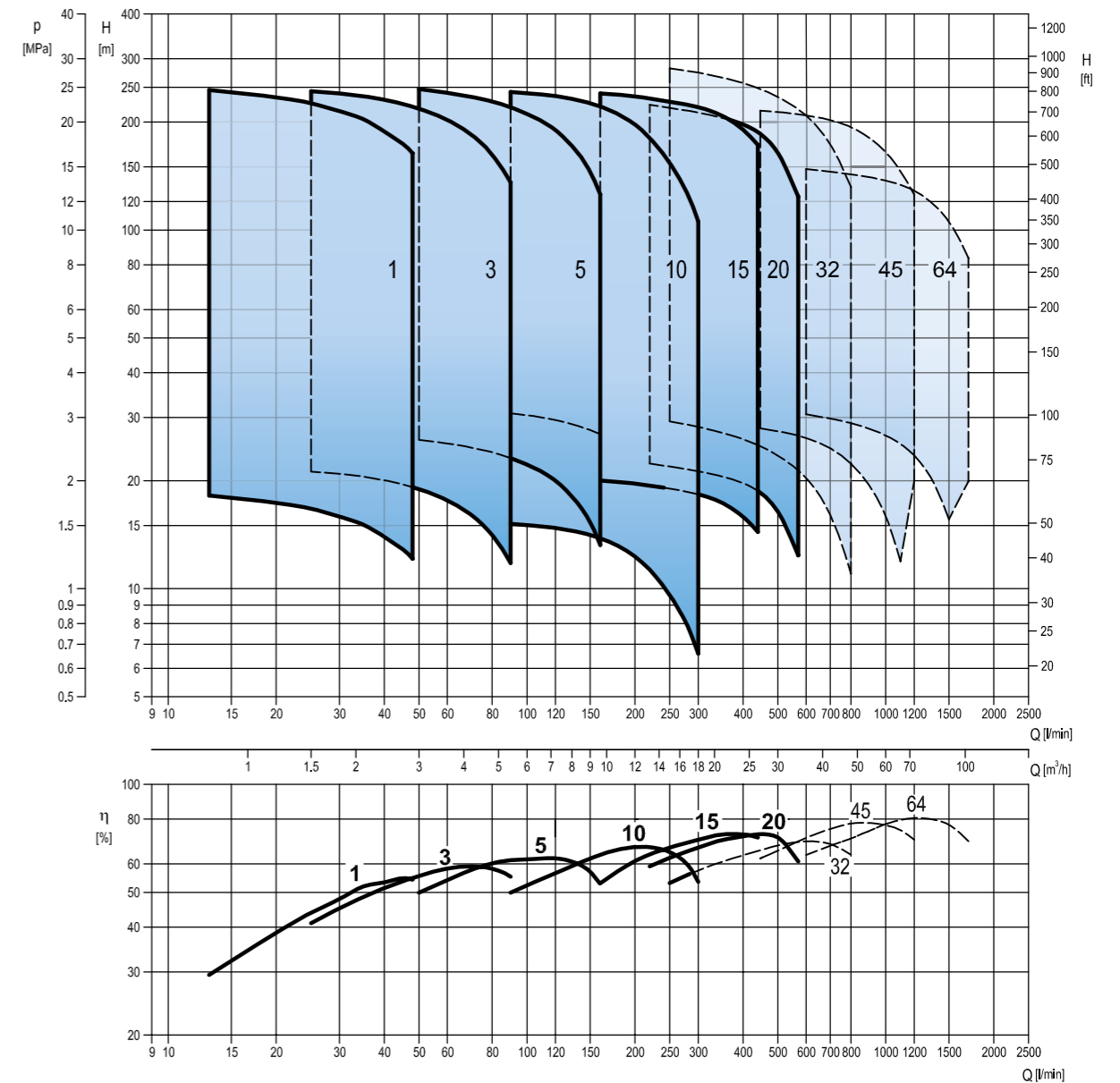
Pump type	MEI
EVMS(.)1	> 0.70
EVMS(.)3	> 0.70
EVMS(.)5	> 0.70
EVMS(.)10	> 0.70
EVMS(.)15	> 0.70
EVMS(.)20	> 0.60

Performance Range

60Hz

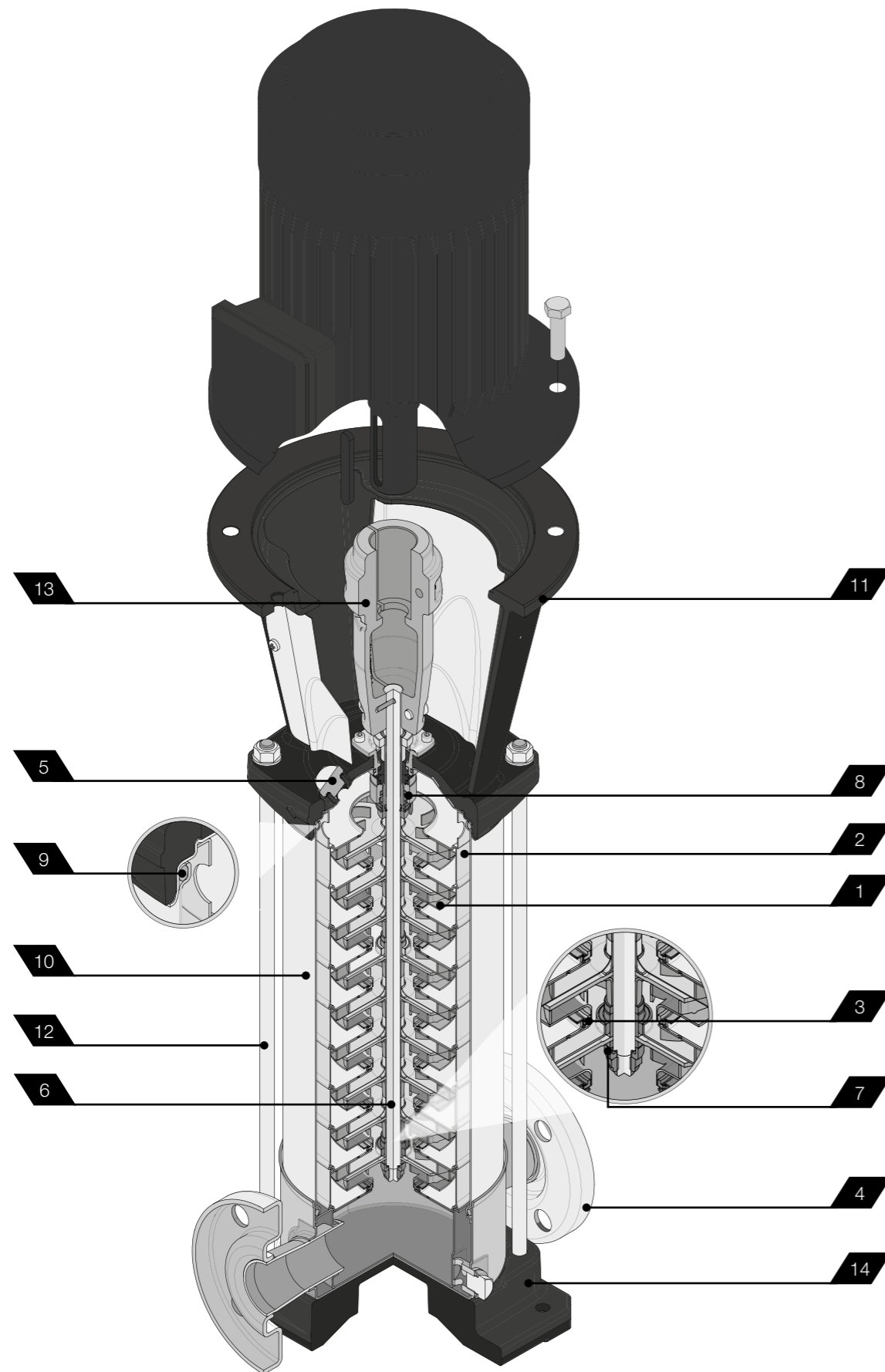
EVMS 1-3-5-10-15-20

EVM 32-45-64



Sectional Drawing

EVMS 1-3-5-10-15-20



Product Specifications

EVMS 1-3-5-10-15-20

Pump

Version		EVMSG					EVMS					EVMSL							
Nominal flow rate (m³/h)		1	3	5	10	15	20	1	3	5	10	15	20	1	3	5	10	15	20
Operating range	Maximum working pressure	1.6/2.5 MPa (16 bar/25 bar)																	
	Maximum liquid temperature range	-30° to 140°C																	
	1. Impeller	EN 1.4301 (AISI 304)										EN 1.4401 (AISI 316)							
2. Intermediate casing	EN 1.4301 (AISI 304)										EN 1.4401 (AISI 316)								
3. Liner ring	EN 1.4301 (AISI 304) + PPS										EN 1.4401 (AISI 316) + PPS								
4. Bottom casing	Cast Iron					EN 1.4301 (AISI 304)					EN 1.4401 (AISI 316)								
5. Casing cover	EN 1.4301 (AISI 304)										EN 1.4401 (AISI 316)								
6. Shaft	EN 1.4301 (AISI 304)	EVMSG / EVMS 1-3-10, EVMSG 5-15-20 (depend on models)																	
	EN 1.4404 (AISI 316L)	EVMSL 1-3-10, EVMSL 5-15-20 (depend on models)																	
	EN 1.4460 (AISI 329A)	EVMSG / EVMS / EVMSL 5-15-20 (depend on models)																	
7. Shaft sleeve bearing	Tungsten carbide																		
8. Shaft seal	Please see the shaft seal options on page 18.																		
9. O ring	EPDM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	FPM	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
10. Outer casing	EN 1.4301 (AISI 304)										EN 1.4404 (AISI 316L)								
11. Motor bracket	Cast Iron																		
12. Tie rod	Galvanized steel 6.8 strength class ISO 898/1																		
13. Coupling	Die cast aluminium (up to 4 kW), Cast iron (from 5.5 kW)																		
14. Base	Cast iron					Die cast aluminium													
Pipe Connection	Oval flange up to 16 bar	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Round flange up to 16 bar	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	DIN/ANSI from 16 bar to 25 bar	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Round loose flange up to 16 bar																		
	DIN from 16 bar to 25 bar																		
	Victaulic® up to 25 bar																		
Clamp up to 25 bar																			

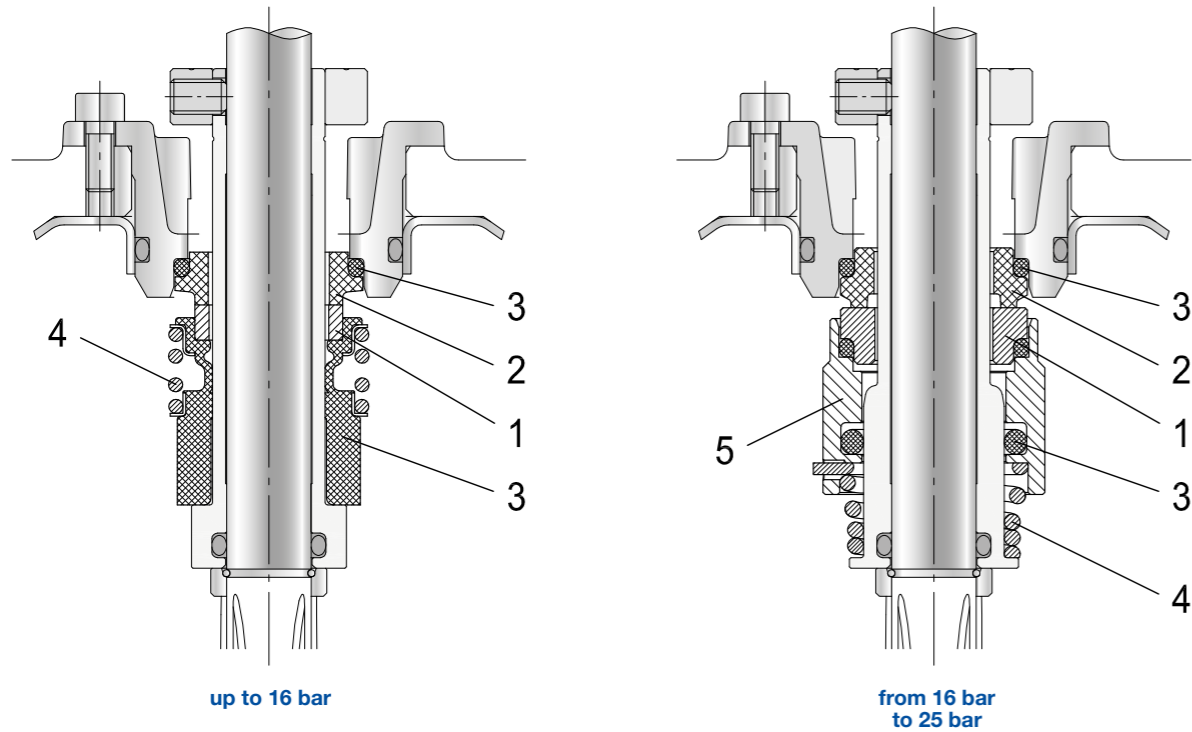
Legend: ● Standard ○ Options

Motor

	Frequency	50 Hz		60 Hz	
		Single Phase	Three Phase	Three Phase	
Power Source	Phase	Single Phase	Three Phase	Three Phase	
	Rotation Speed	~ 2900 min ⁻¹		~ 3500 min ⁻¹	
	Power Rating	0.37 ÷ 2.2 kW	0.37 ÷ 18.5 kW	0.37 ÷ 18.5 kW	
		0.5 ÷ 3.0 HP	0.5 ÷ 25 HP	0.5 ÷ 25 HP	
Voltage	230 ± 10%	230/400 ± 10% (up to 4kW)	220/380 ± 10% V (up to 4kW)	265/460 ± 10% V (up to 4kW)	460 ± 10% V (above 5.5 kW)
		400/690 ± 10% (above 5.5 kW)	380/660 ± 10% V (above 5.5 kW)	460 ± 10% V (above 5.5 kW)	
Type	Type	Electric - TEFC		Electric - TEFC	
	Efficiency	from 0.37 to 2.2 kW	from 0.37 to 0.55 kW IE3 from 0.75 to 18.5 kW	from 0.37 kW to 0.55 kW IE3 from 0.75 to 18.5 kW	
	No° of poles	2		2	
	Protection Degree	IP 55		IP 55	
	Insulation Class	F (temperature rise class B)		F (temperature rise class B)	
Others	Thermal Protection	PTC as standard for the above 1.5 kW		PTC as standard for the above 1.5 kW	
	Casing Material	Aluminium		Aluminium	
	Flange Mount (IEC motor)	IM B14 (up to 4 kW) IM B5 (above 5.5 kW)		IM B14 (up to 4 kW) IM B5 (above 5.5 kW)	

Shaft seal data

EVMS 1-3-5-10-15-20



Legend: ● Standard ○ Options () Type key

Pump model	Max operating pressure	Shaft seal type Cartridge		Shaft seal material					Type key
		Unbalanced	Balanced	1 Rotating Part	2 Stationary Part	3 Elastomers	4 Spring	5 Collar	
up to 16 bar	- 30°C to + 120°C	●		SiC (Q ₁)	Carbon (B)	EPDM (E)	AISI316 (G)		Q ₁ BEG
	- 30°C to + 80°C	○		SiC (Q ₁)	Carbon (B)	FPM (V)	AISI316 (G)		Q ₁ BEG
	- 30°C to + 120°C	○		SiC with graphite (Q _g)	SiC (Q ₁)	EPDM (E)	AISI316 (G)		Q _g Q ₁ EG
	- 30°C to + 80°C	○		SiC with graphite (Q _g)	SiC (Q ₁)	FPM (V)	AISI316 (G)		Q _g Q ₁ VG
	- 30°C to + 140°C		○		SiC (Q ₁)	Carbon (B)	EPDM (E)	AISI316 (G)	HQ ₁ BEG
from 16 bar to 25 bar	- 30°C to + 140°C		●	SiC (Q ₁)	Carbon (B)	EPDM (E)	AISI316 (G)		HQ ₁ BEG
	- 30°C to + 80°C		○	SiC (Q ₁)	Carbon (B)	FPM (V)	AISI316 (G)		HQ ₁ BVG
	- 30°C to + 140°C		○	SiC with graphite (Q _g)	SiC (Q ₁)	EPDM (E)	AISI316 (G)		HQ _g Q ₁ EG
	- 30°C to + 80°C		○	SiC with graphite (Q _g)	SiC (Q ₁)	FPM (V)	AISI316 (G)		HQ _g Q ₁ VG

Pipe Connection data

EVMS 1-3-5-10-15-20

Oval Flange (N)	Maximum operating pressure	Dimensions	EVMS (AISI 304) EVMSL (AISI 316)		
			1/3/5	10	15/20
	PN16	D L B1 / B2 H	G1	G1½	G2
			160	200	200
			100/180	130/215	130/215
			50	80	90
Oval Flange (N)	Maximum operating pressure	Dimensions	EVMSG (Cast Iron)		
			1/3/5	10	15/20
	PN16	D L B1 / B2 H	G1	G1½	G2
			160	200	200
			100/180	130/215	130/215
			50	80	90
Round Flange (F)	Maximum operating pressure	Dimensions	EVMS (AISI 304) EVMSL (AISI 316)		
			1/3/5	10	15/20
	PN25	D L B1 / B2 H	DN25	DN40	DN50
			250	280	300
			100/180	130/215	130/215
			75	80	90
Round Flange (F)	Maximum operating pressure	Dimensions	EVMSG (Cast Iron)		
			1/3/5	10	15/20
	PN25	D L B1 / B2 H	DN25	DN40	DN50
			250	280	300
			100/180	130/215	130/215
			75	80	90
Round Loose Flange (LF)	Maximum operating pressure	Dimensions	EVMS (AISI 304) EVMSL (AISI 316)		
			1/3/5	10	15/20
	PN25	D L B1 / B2 H	DN25	DN40	DN50
			250	280	300
			100/180	130/215	130/215
			75	80	90
Victaulic® (V)	Maximum operating pressure	Dimensions	EVMS (AISI 304) EVMSL (AISI 316)		
			1/3/5	10	15/20
	PN25	D L B1 / B2 H	DN32	DN50	DN50
			210	261	261
			100/180	130/215	130/215
			50	80	90
Clamp (C)	Maximum operating pressure	Dimensions	EVMS (AISI 304) EVMSL (AISI 316)		
			1/3/5	10	15/20
	PN25	D L B1 / B2 H	DN32	DN50	DN50
			162	202	202
			100/180	130/215	130/215
			50	80	90