



# Vertical Multistage Pumps

Model **EVMS**

Japanese Technology since 1912

Product brochure

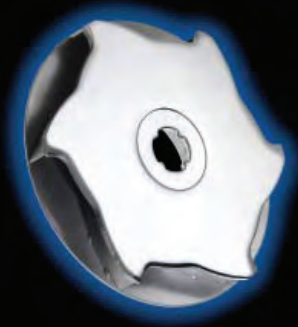


# Built like a Katana

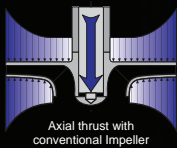
A Katana is a traditional Japanese product manufactured with care and precision. Only years of experience can give the necessary capacity to build a masterpiece.

This is what we do with our pumps. The result of over 100 years of Japanese experience in pump manufacturing are pumps with high quality performance, reliability, and cutting-edge technology.

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



Unique impeller design greatly reduces thrust



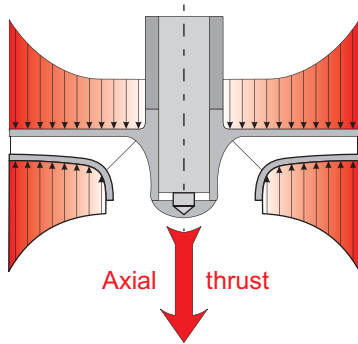
Japanese technology

Made in Italy



## Another unique cutting edge solution from Ebara

The imbalance of forces acting on the front and rear shrouds of a conventional impeller results in axial thrust. This thrust load is compounding in multistage pumps, and has to be allowed for in the pump



For pumps with conventional impellers, the existing solutions include having a thrust bearing built in the pump, or to use a special motor fitted with a larger thrust bearing. Both are costly and can be complicated. Another solution has been to simply have a smaller diameter back shroud to reduce the thrust.

Ebara has rethought the hydraulic design used in multistage pumps. Utilising the latest in computational fluid dynamics and design, followed by rigorous testing, Ebara has developed a unique impeller design that offer solutions and value to the customer.



The optimised shape of the Shurrricane maintains high efficiencies and very significantly reduces the axial thrust - meaning that any standard IEC motor can be used and bearing life is improved.

## Any motor - Anywhere



- **Pump type**  
Vertical multistage in-line pumps
- **Model range**  
1, 3, 5, 10, 15 & 20 m<sup>3</sup>/h flow sizes
- **Maximum operating range**  
16 or 25 bar / -30 to + 140 °C
- **Material versions (bottom casing)**  
AISI 304 (EVMS), AISI 316 (EVMSL) Cast Iron (EVMSG)
- **Pipe connections**  
Round flange, Loose flange, Oval flange, Victaulic®, Clamp
- **Motors**  
IEC standard motors; B14 (up to 4 kW) or B5 (5.5 kW & above)

# Main product features

1



## Innovative hydraulic solutions

### Any motor ■ Anywhere

- **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**

2



## Energy saving

- High pump efficiency with MEI (minimum efficiency index) > 0.7
- E2 motors fitted as standard with E3 available as an option
- Suitable for use with Variable Frequency Drives for further energy savings

3

## 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 (incl. ANSI depending on models)	Loose Flange DIN (incl. ANSI depending on models)	Oval Flange	Plug-In connection (Victaulic®, Clamp)
AISI304/ AISI316				
Cast Iron				

4



## 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.**

- Conforming to EN12756 (ex DIN 24960)

5



## 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 5.5 kW & above.

6

## Smart plug solutions



Air ventilation plug



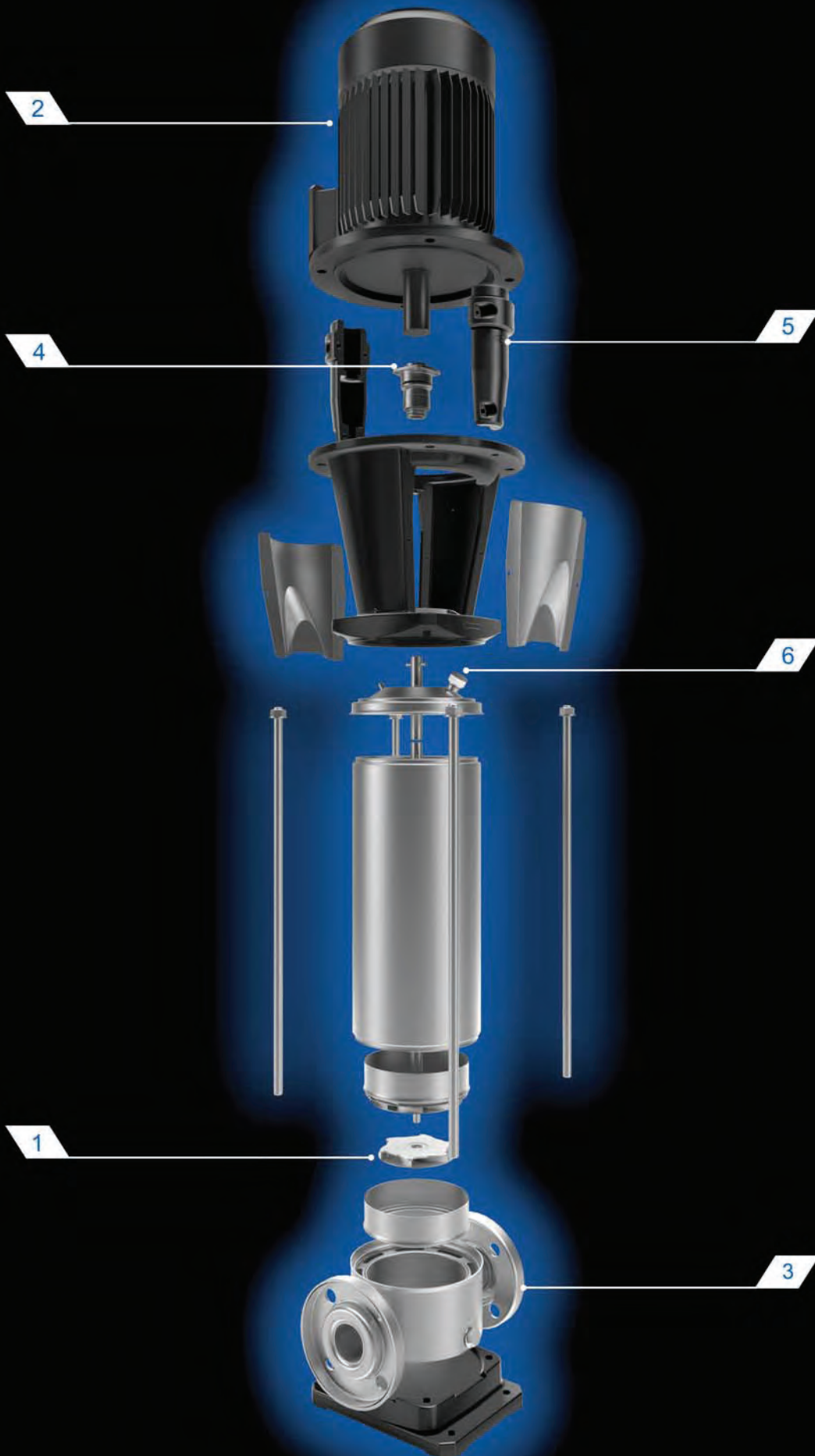
Water filling & sensor plug



Commercial sensor fitting

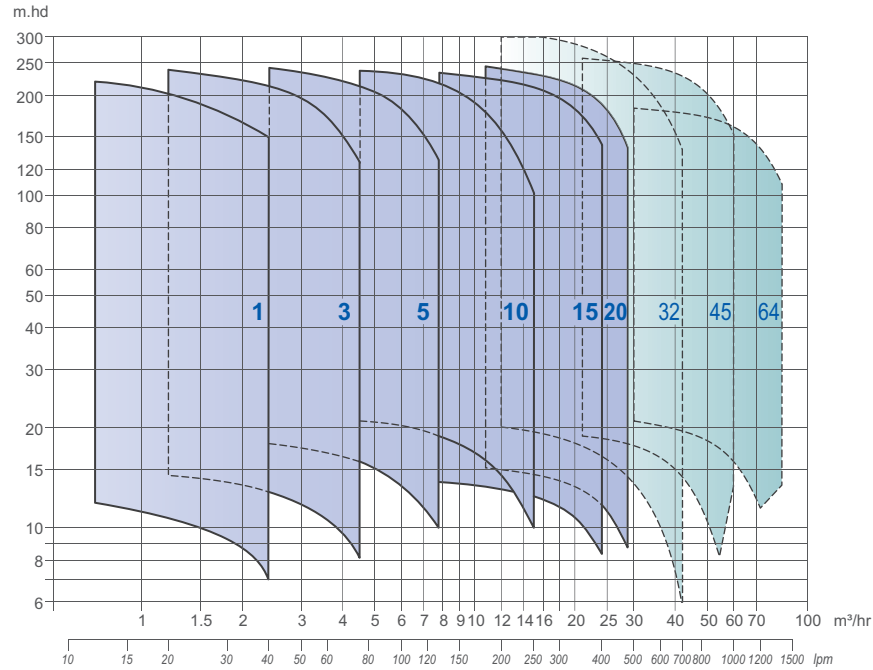


Measurements for suction and discharge pressure / drain



# Performance Range

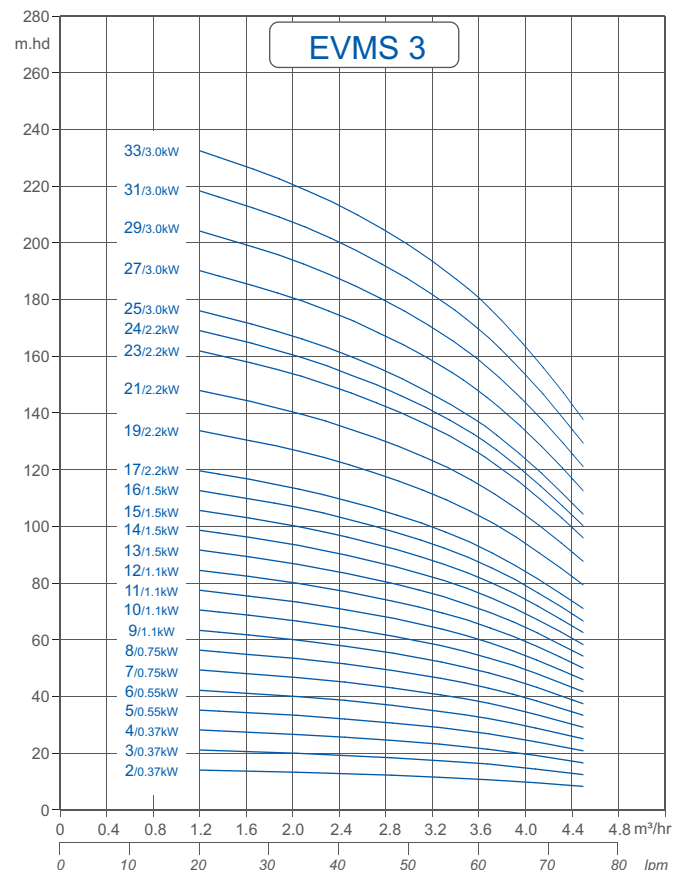
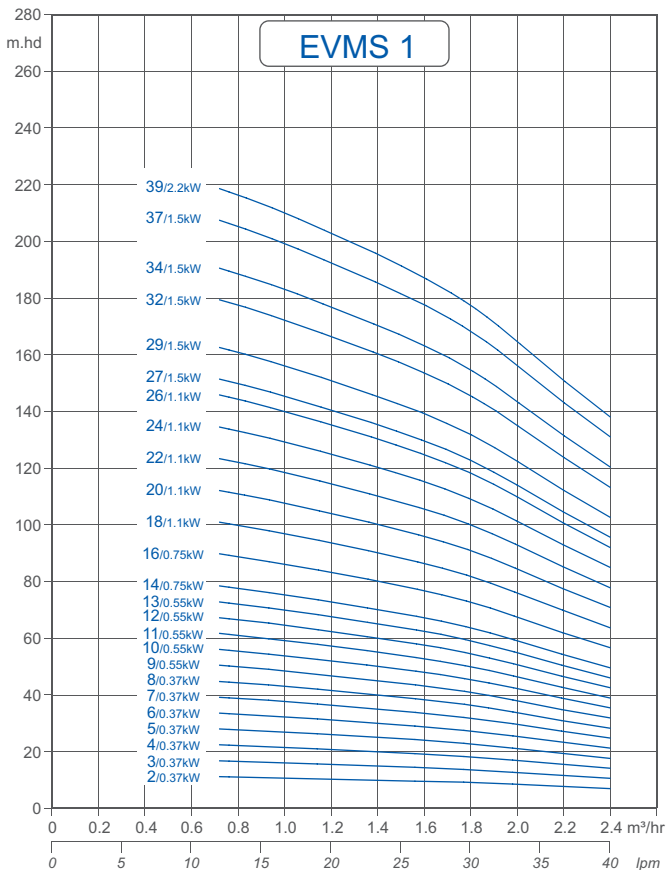
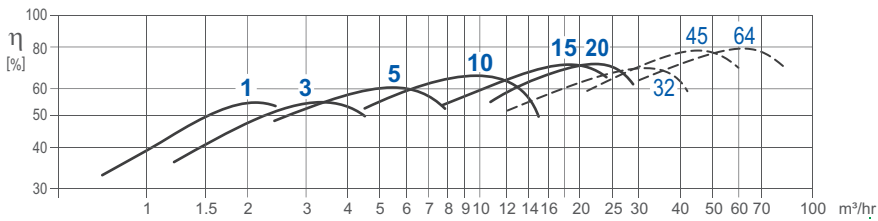
50Hz



Larger capacity pumps available in model EVM

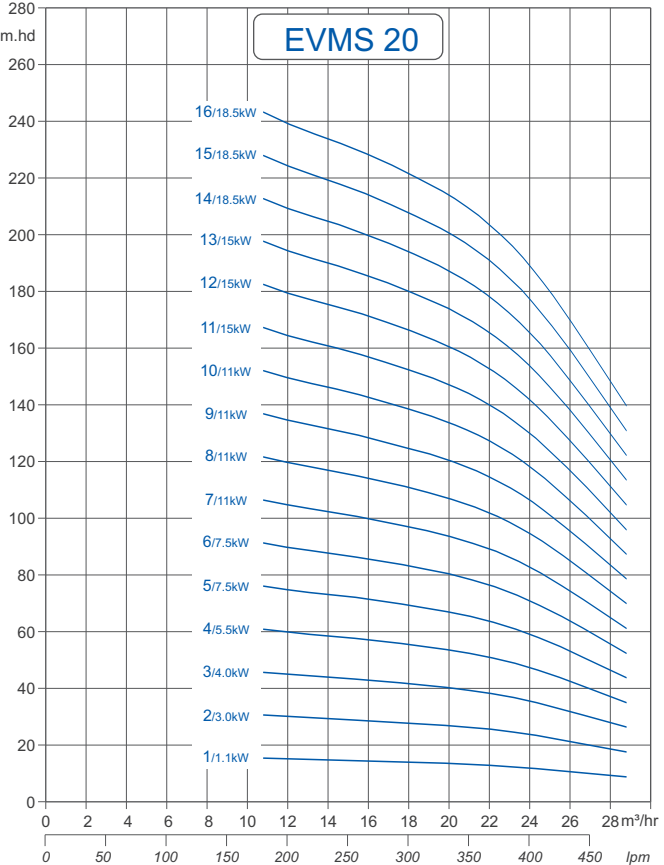
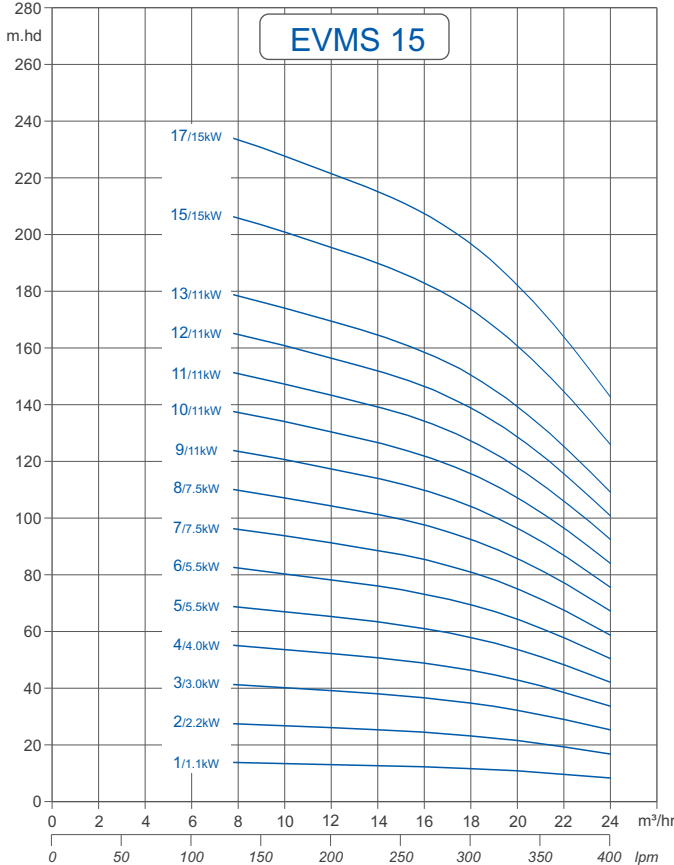
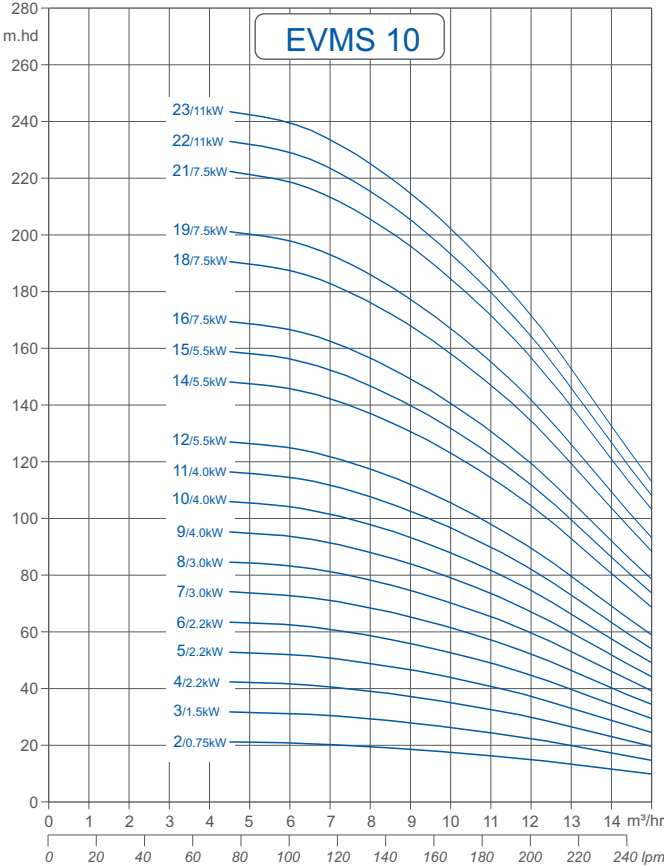
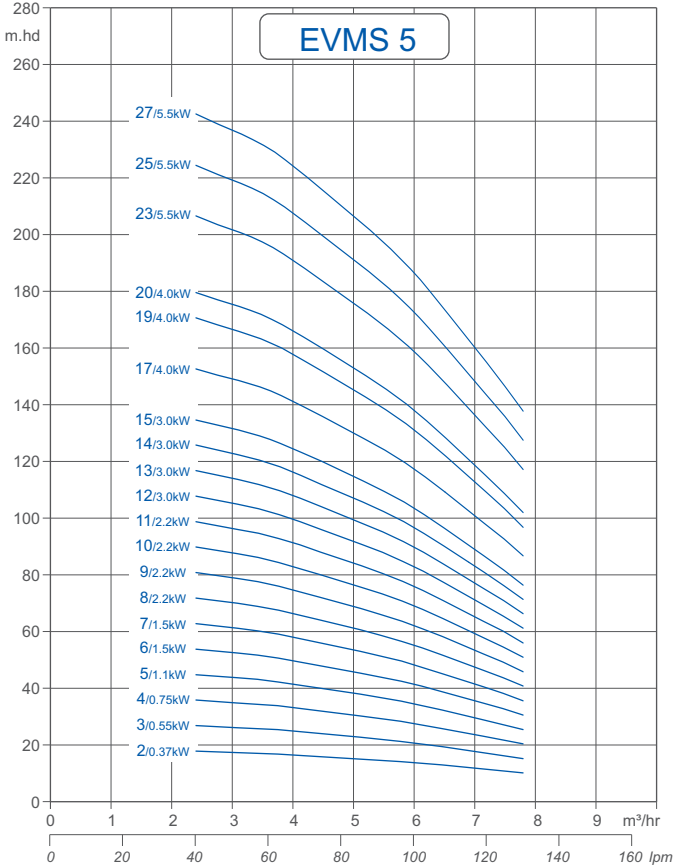
## Minimum efficiency index (MEI)

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



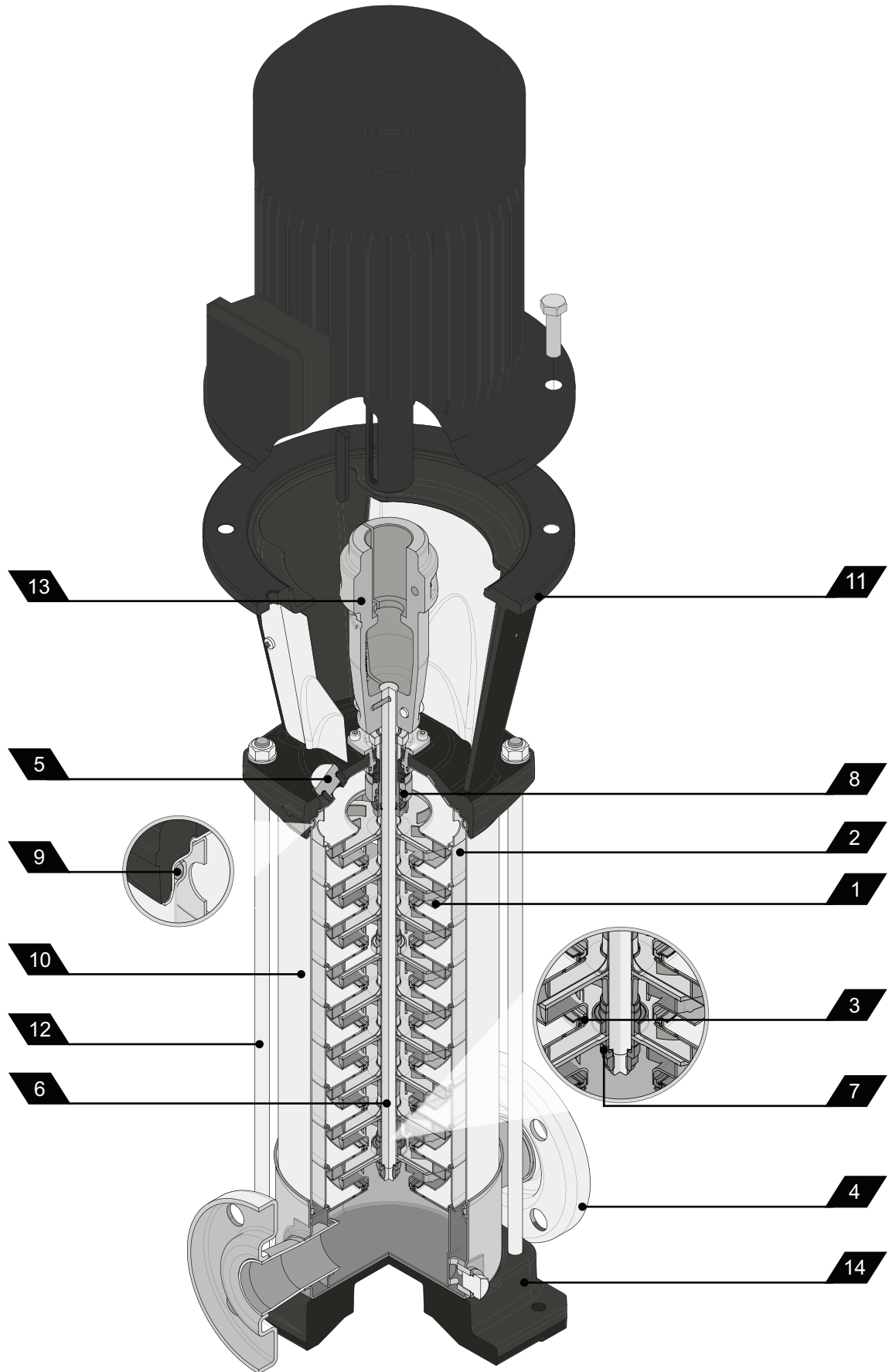
# Performance

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



# Sectional Drawing

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





# Product Specification

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

## Pump

Version		EVMSG						EVMS						EVMSL						
Operating range	Nominal flow rate (m <sup>3</sup> /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 bar/25 bar)																		
	Maximum liquid temperature range	-30° to 140°C																		
Key Components Materials	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)	EVMS(G) 1-3-10 EVMSG 5-15-20 (depend on models)																	
		EN 1.4404 (AISI 316L)	EVMSL 1-3-10 EVMSL5-15-20 (depend on models)																	
		EN 1.4460 (AISI 329A)	EVMS(G)(L) 5-15-20 (depend on models)																	
	7. Shaft sleeve bearing	Tungsten carbide																		
	8. Shaft seal	Please see the shaft seal options on page 9.																		
	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 DIN (EVMS(L)1-3-5 DIN/ANSI)	up to 16 bar	○	○	○	○	●	●	●	●	●	●	●	●	●	●	●	●	●	
		from 16 bar to 25 bar	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	Loose Flange DIN (EVMS(L)1-3-5 DIN/ANSI)	up to 16 bar							○	○	○	○	○	○	○	○	○	○	○	
		from 16 bar to 25 bar							○	○	○	○	○	○	○	○	○	○	○	
Victaulic®	up to 25 bar							○	○	○	○	○	○	○	○	○	○	○		
Clamp	up to 25 bar							○	○	○	○	○	○	○	○	○	○	○		

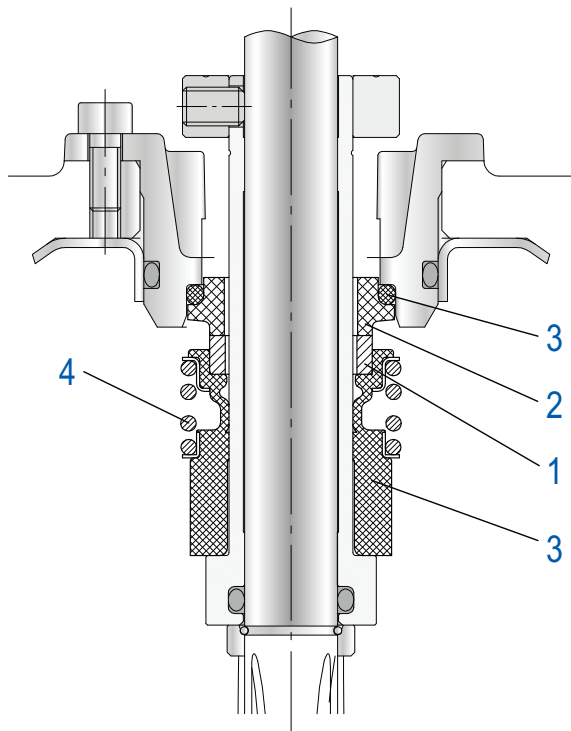
Legend: ● Standard (for EPA) ○ Options

## Motor

		Standard (WEG W21 E2 motors)	Options available on request
Power Source	Frequency	50 Hz	
	Phase	Three Phase	Single Phase (up to 3 kW)
	Rotation Speed	~ 2900 min	
	Power Rating	0.37 ÷ 18.5 kW	
		0.5 ÷ 25 HP	
Voltage	230/400 ± 10% (up to 3 kW) 400/690 ± 10% (4.0 kW & above)		
Type	Type	Electric - TEFC	other enclosures on request
	Efficiency	E2	E3 from 0.75 to 18.5 kW (3ph)
	No. of poles	2	
	Protection Degree	IP 55	IP 56, IP 66
	Insulation Class	F (temperature rise class B)	H (temperature rise class B)
Others	Casing Material	Aluminium (up to 7.5 kW) / Cast Iron (11 kW & above)	Cast iron
	Flange Mount (IEC motor)	IM B14 (up to 4 kW) IM B5 (5.5 kW & above)	

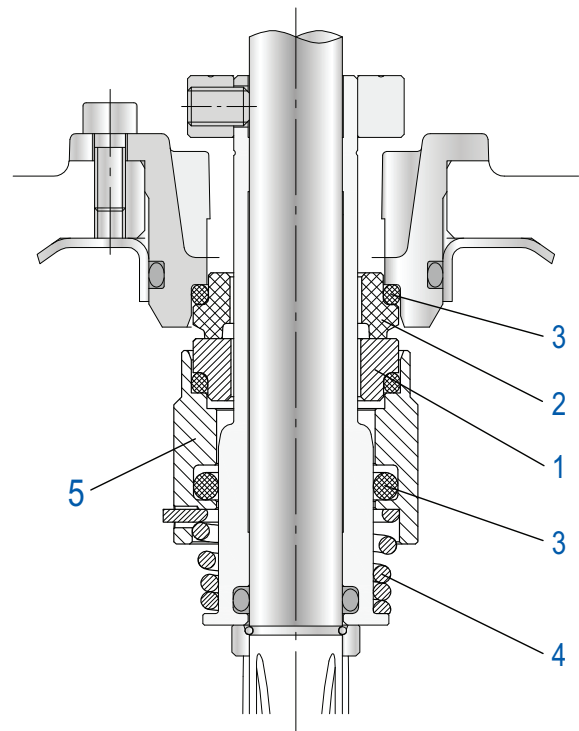
# Shaft seal data

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



up to 16 bar

**Unbalanced type**



from 16 bar  
to 25 bar

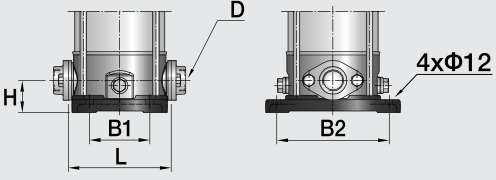
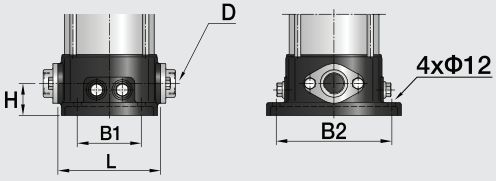
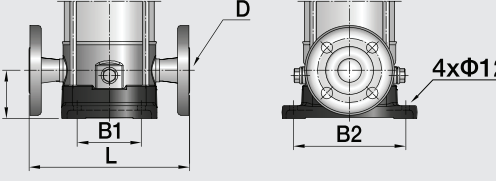
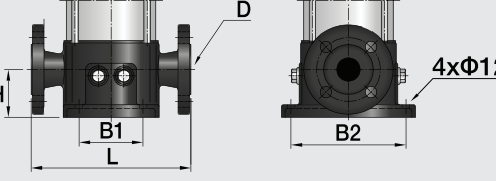
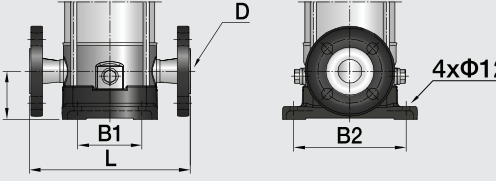
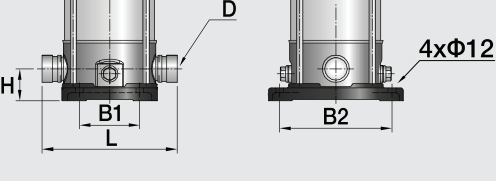
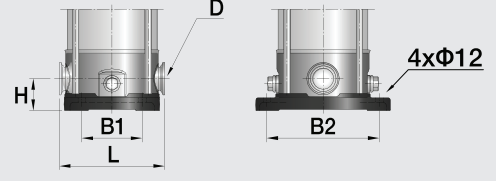
**Balanced type**

Legend: ● Standard ○ Options ( ) Type key

Pump model	Max liquid temperature range	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)	Carbon (B)	EPDM (E)	AISI316 (G)		Q <sub>1</sub> BEG
	- 30°C to + 80°C	○		SiC (Q)	Carbon (B)	FPM (V)	AISI316 (G)		Q <sub>1</sub> BVG
	- 30°C to + 140°C		○	SiC with graphite (Q <sub>g</sub> )	SiC (Q <sub>1</sub> )	EPDM (E)	AISI316 (G)		HQ <sub>g</sub> Q <sub>1</sub> EG
	- 30°C to + 80°C		○	SiC with graphite (Q <sub>g</sub> )	SiC (Q <sub>1</sub> )	FPM (V)	AISI316 (G)		HQ <sub>g</sub> Q <sub>1</sub> VG
	- 30°C to + 140°C		○	SiC (Q <sub>1</sub> )	Carbon (B)	EPDM (E)	AISI316 (G)		HQ <sub>1</sub> BEG
from 16 bar to 25 bar	- 30°C to + 140°C		●	SiC (Q <sub>1</sub> )	Carbon (B)	EPDM (E)	AISI316 (G)		HQ <sub>1</sub> BEG
	- 30°C to + 80°C		○	SiC (Q <sub>1</sub> )	Carbon (B)	FPM (V)	AISI316 (G)		HQ <sub>1</sub> BVG
	- 30°C to + 140°C		○	SiC with graphite (Q <sub>g</sub> )	SiC (Q <sub>1</sub> )	EPDM (E)	AISI316 (G)		HQ <sub>g</sub> Q <sub>1</sub> EG
	- 30°C to + 80°C		○	SiC with graphite (Q <sub>g</sub> )	SiC (Q <sub>1</sub> )	FPM (V)	AISI316 (G)		HQ <sub>g</sub> Q <sub>1</sub> VG

# Pipe Connection data

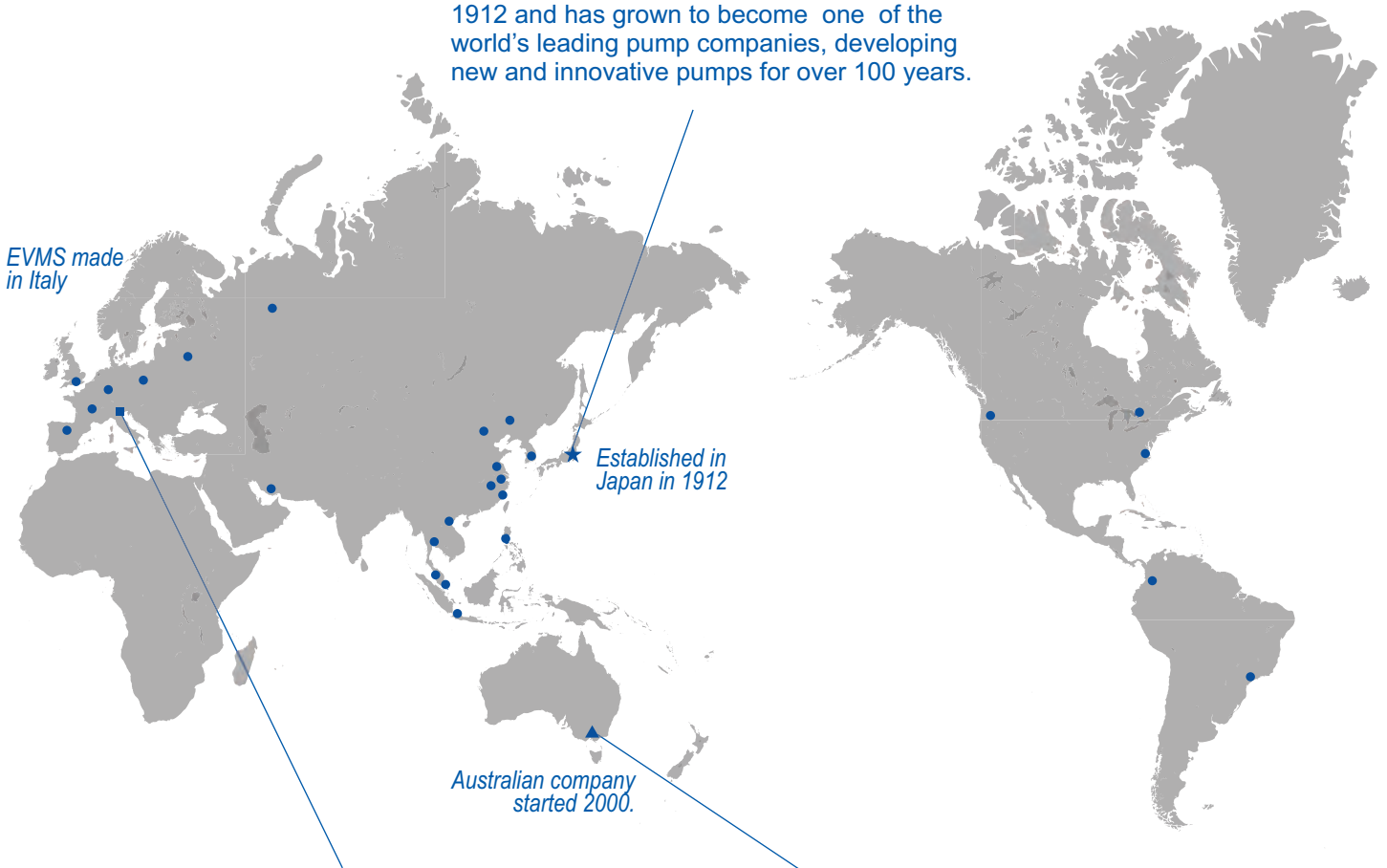
EVMS 1-3-5-10-15-20

<p><b>Oval Flange (N)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMS (AISI 1.4301) EVMSL (AISI 1.4401)</p>				
<p><b>Oval Flange (N)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMSG (Cast Iron)</p>				
<p><b>Round Flange (F)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMS (AISI 1.4301) EVMSL (AISI 1.4401)</p>				
<p><b>Round Flange (F)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMSG (Cast Iron)</p>				
<p><b>Loose Flange (LF)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMS (AISI 1.4301) EVMSL (AISI 1.4401)</p>				
<p><b>Victaulic® (V)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMS (AISI 1.4301) EVMSL (AISI 1.4401)</p>				
<p><b>Clamp (C)</b></p> 	<p>Maximum operating pressure</p>	<p>Dimensions</p>	<p>EVMS (AISI 1.4301) EVMSL (AISI 1.4401)</p>				
	<p>PN16</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>G1 160 100/180 50</p>	<p>G1¼ 160 100/180 50</p>	<p>G1½ 200 130/215 80</p>	<p>G2 200 130/215 90</p>
	<p>PN16</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>G1 160 100/180 50</p>	<p>G1¼ 160 100/180 50</p>	<p>G1½ 200 130/215 80</p>	<p>G2 200 130/215 90</p>
	<p>PN25</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>DN25 250 100/180 75</p>	<p>DN32 250 100/180 75</p>	<p>DN40 280 130/215 80</p>	<p>DN50 300 130/215 90</p>
	<p>PN25</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>DN25 250 100/180 75</p>	<p>DN32 250 100/180 75</p>	<p>DN40 280 130/215 80</p>	<p>DN50 300 130/215 90</p>
	<p>PN25</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>DN25 250 100/180 75</p>	<p>DN32 250 100/180 75</p>	<p>DN40 280 130/215 80</p>	<p>DN50 300 130/215 90</p>
	<p>PN25</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>DN32 210 100/180 50</p>	<p>DN32 210 100/180 50</p>	<p>DN50 261 130/215 80</p>	<p>DN50 261 130/215 90</p>
	<p>PN25</p>	<p>D L B1 / B2 H</p>	<p>1/3 5 10 15/20</p>	<p>Φ59 162 100/180 50</p>	<p>Φ59 162 100/180 50</p>	<p>Φ87 202 130/215 80</p>	<p>Φ87 202 130/215 90</p>

## Your life ■ Our quality ■ Worldwide

Today as a group, Ebara consists of more than 88 companies around the world, with a workforce of more than 15,000 people. The huge scale of production and distribution is matched by a constant commitment to the research, development and design of new products; and the modern technologies for manufacturing them. Ebara products have gained a worldwide reputation for their technology and quality.

Ebara Corporation was founded in Japan in 1912 and has grown to become one of the world's leading pump companies, developing new and innovative pumps for over 100 years.



As well as major manufacturing facilities in Japan, Ebara has production facilities in many other countries. This includes Italy with a most modern facility for the mass production of stamped stainless steel pumps. Utilising the latest manufacturing technologies, including a patented plasma stamping process, results in products of consistent high standards and quality.

For over 30 years Ebara pumps have been sold and used in Australia, satisfying many customers and gaining a reputation for their quality and reliability. Ebara Pumps Australia Pty Ltd was established in 2000 to better service the market with an increasing range of quality products. A strong nationwide network of dealers support the sales and service of our extensive range of products.

[www.ebara.co.jp/en](http://www.ebara.co.jp/en)

Visit Ebara Corporations website for more detail of their operation, product range and global network.

[www.ebara.it](http://www.ebara.it)

Visit the website of Ebara Pumps Europe for more detail on the large range of quality stainless steel pumps they produce.

[www.ebara.com.au](http://www.ebara.com.au)

Visit our website for more details on the range of pumps we stock and support, and our dealer network.

Specifications subject to change without notice

### Dealer



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