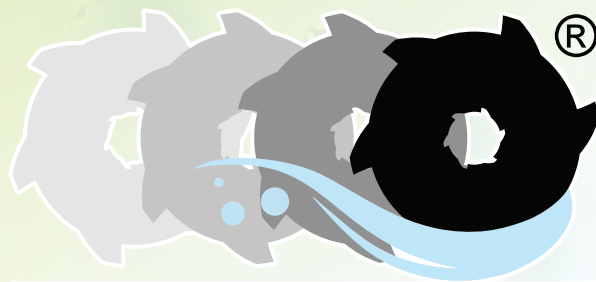




**EBARA PUMP**

*Quality since 1912*

**Vertical Multi-stage Stainless Steel Pump**  
Type EVMS



***Shurricane***

***“Any motor, Anywhere”***



*Quality • Value • Performance*

## APPLICATIONS



### INDUSTRY

- **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



### BUILDING SERVICE

- **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**

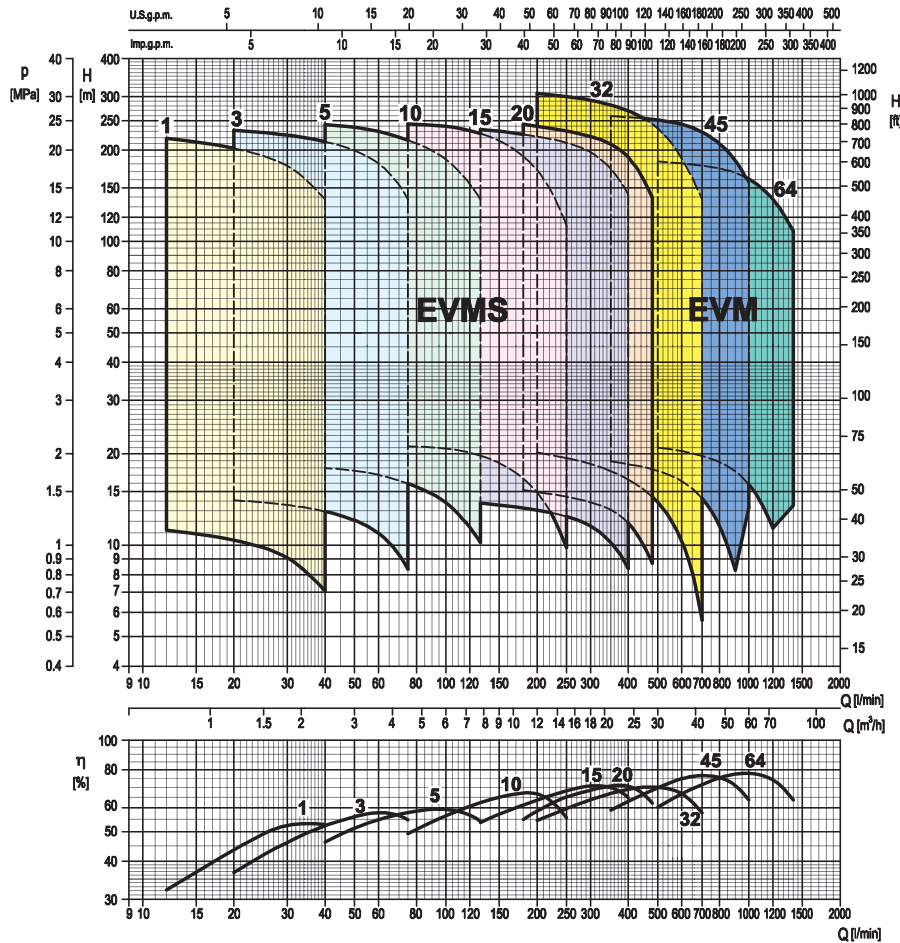


### WATER SUPPLY

- **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 CHART

**EVMS 1-3-5-10-15-20**  
**EVM 32-45-64**



Model Series	EVMS	( )	5	8	N	5	1.5	(E)
(G): Cast iron Bottom Casing								
(L): 316 SS								
( ) : 304 SS (option)								
Nominal Capacity (m³/hr)								
No. of Impeller								
								E: for inverted drive only M: for Single Phase only
								Power output in kW
								50Hz
								N: Oval Flanges F: Round Flanges

## FEATURES



### 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 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

### 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 <small>(incl. ANSI depending on models)</small>	Loose Flange DIN <small>(incl. ANSI depending on models)</small>	Oval Flange	Plug-In connection <small>(Victaulic®, Clamp)</small>
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.

### 6 Smart plug solutions



Air ventilation plug



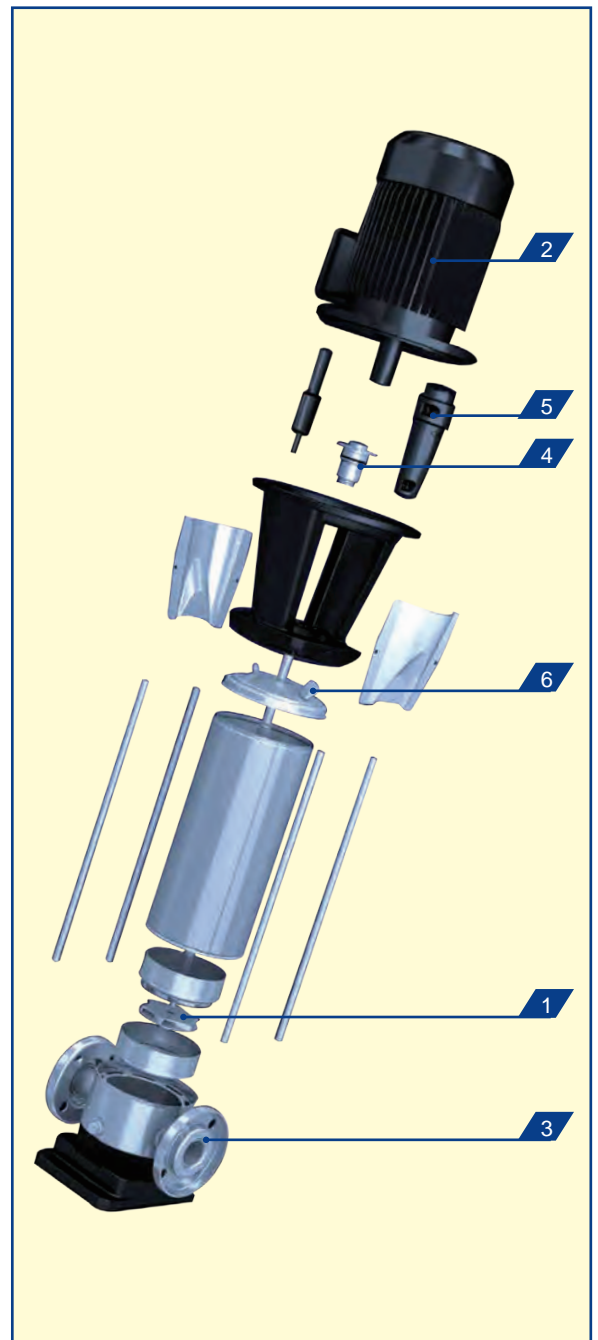
Water filling & sensor plug



Commercial sensor fitting

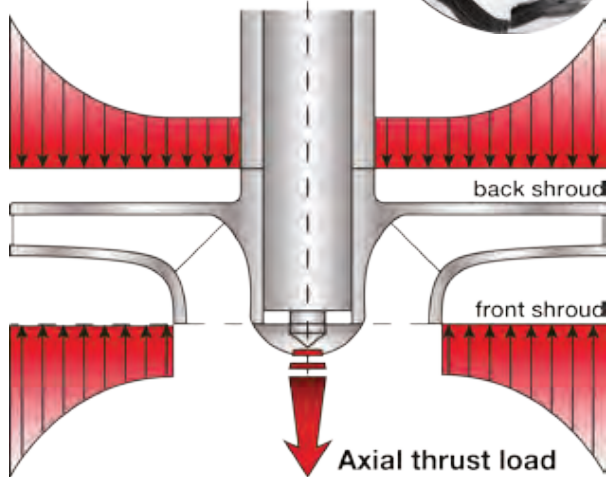


Measurements for suction and discharge pressure / drain



## Shurrricane IMPELLER

**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.

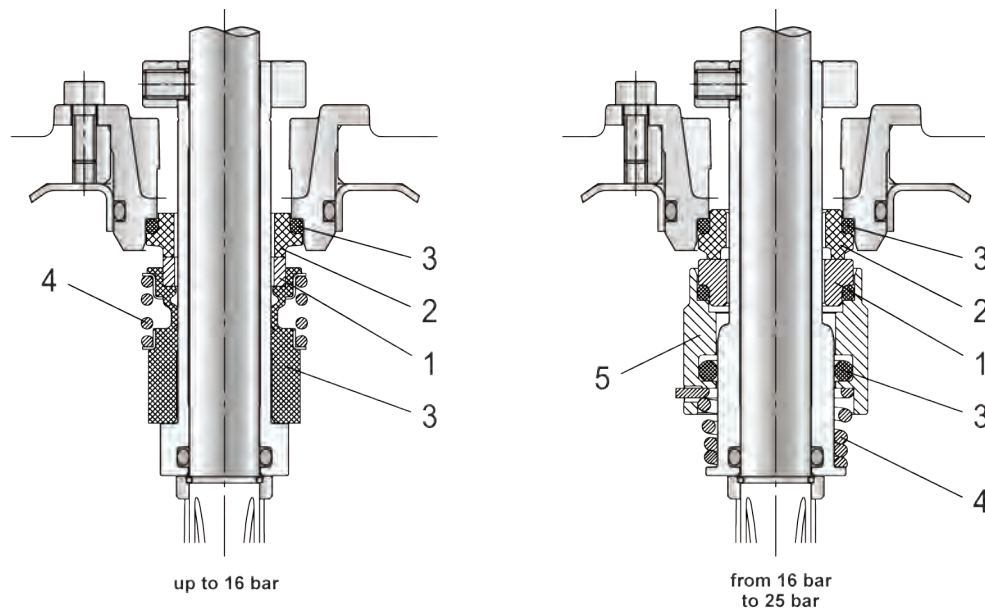
**EBARA new designed impeller "Shurrricane"** can reduce the pump axial thrust load with high pump efficiency by means of the innovative hydraulic design method.

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

In short, EVMS pump can use **"Any motor, Anywhere."**

## SHAFT SEAL DATA

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



Legend: ● Standard ○ Options ( ) Type key

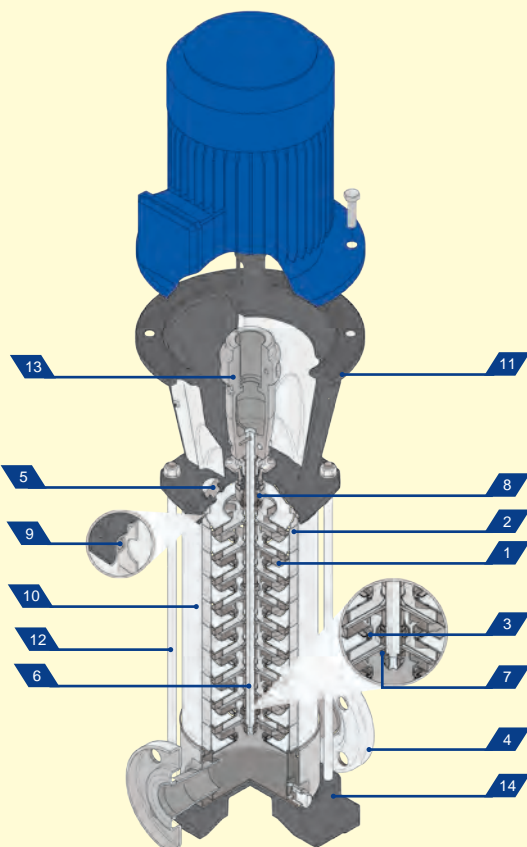
Pump model	Max liquid temperature range	Shaft seal type Cartridge		Shaft seal material					Type key
		Unbalanced	Balanced	1 Rotating Part	2 Stationary Part	3 Elastomers	4 Spring	5 Collar	
up to 16 bar	- 30°C to + 120°C	●		SiC (Q <sub>1</sub> )	Carbon (B)	EPDM (E)	AISI316 (G)		Q <sub>1</sub> BEG
	- 30°C to + 80°C	○		SiC (Q <sub>1</sub> )	Carbon (B)	FPM (V)	AISI316 (G)		Q <sub>1</sub> BVG
	- 30°C to + 140°C		○	SiC with graphite (Q <sub>9</sub> )	SiC (Q <sub>1</sub> )	EPDM (E)	AISI316 (G)		HQ <sub>9</sub> Q <sub>1</sub> EG
	- 30°C to + 80°C		○	SiC with graphite (Q <sub>9</sub> )	SiC (Q <sub>1</sub> )	FPM (V)	AISI316 (G)		HQ <sub>9</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>9</sub> )	SiC (Q <sub>1</sub> )	EPDM (E)	AISI316 (G)		HQ <sub>9</sub> Q <sub>1</sub> EG
	- 30°C to + 80°C		○	SiC with graphite (Q <sub>9</sub> )	SiC (Q <sub>1</sub> )	FPM (V)	AISI316 (G)		HQ <sub>9</sub> Q <sub>1</sub> VG

## SPECIFICATIONS

Legend: ● Standard ○ Options

		Pump																		
Version		EVMSG						EVMS						EVMSL						
		1	3	5	10	15	20	1	3	5	10	15	20	1	3	5	10	15	20	
Operating range	Nominal flow rate (m³/h)																			
	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 refer to the shaft seal data table																		
	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)	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																			

### SECTIONAL VIEW



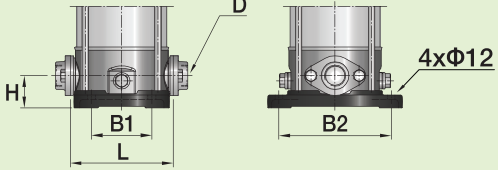
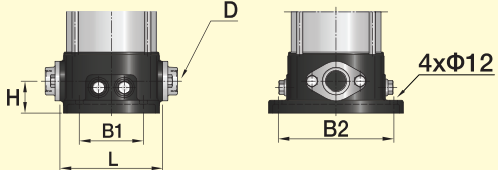
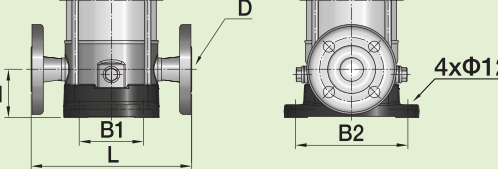
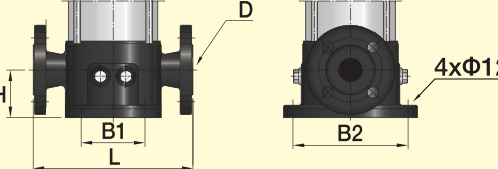
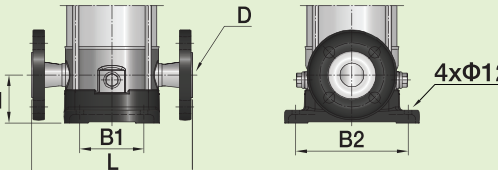
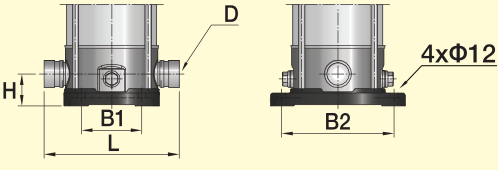
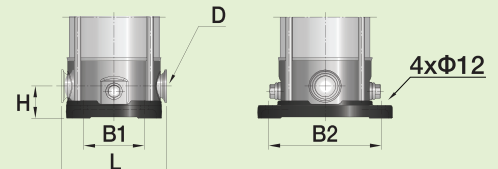
### Motor

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



## PIPE CONNECTION DATA

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

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



