EVMSU Series - Vertical Multistage Pumps

Product Brochure

Built like a Kata刀a

A Katana is a traditional Japanese sword made with distinctive, longstanding expertise started in 300 A.D. Katana are manufactured with care and precise attention to detail. Only years of experience can provide the ability necessary to build a masterpiece.

This is what we do with our pumps. Our 110 years of Japanese expertise in our pump design and manufacturing is the basis for developing pumps with high quality and reliability as well as cutting edge components and performance.

We look forward, not forgetting the past.

EBARA new vertical multistage pumps – model EVMSU – are manufactured with the highest standards of quality to achieve reliable operating performance through strict technical evaluation criteria and control programs that involve the whole manufacturing process.

We listened to the market. Our design is unique. The EVMSU offers exceptional value through cutting-edge solutions to suit your application needs.

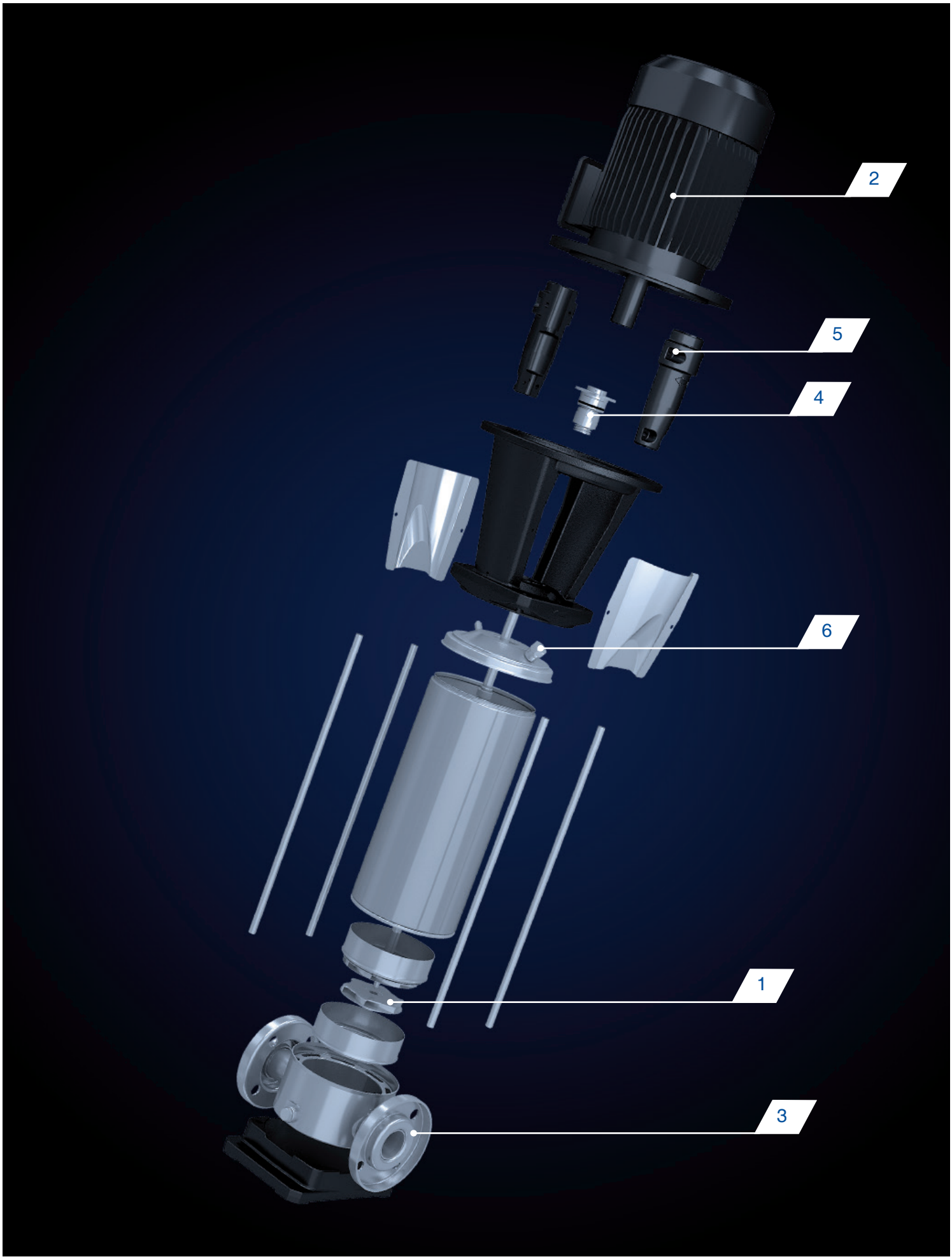
Precision, Quality, Cutting-Edge

FEATURES

- Standard NEMA motor sizes
- Optionally available Low NPSH 1st stage impeller significantly reduces NPSH requirements.
- Low axial thrust impeller enables long motor bearing life
- Air vent in casing cover allows proper venting preventing air entrapment and dry run
- Fill port in casing cover allows for water fill, as well as installation of sensors, gauges, and other measuring devices
- Liner ring is a self-aligning,floating design constructed to prevent swelling at high temperatures
- Tungsten carbide lower pump bearings and sleeves are standard construction for all services, providing maximum operating life
- Direct drive pump and motor shafts are keyed for positive, reliable power transmission with no adjustments necessary
- “Flexible” floating outer casing allows for thermal expansion in hot water applications, preventing deformation due to pressure fluctuations
- Square-edge four spline shaft provides positive location and drive of impellers, eliminating wear
- Dimensions & flanges – installation is to market accepted dimensions for easy upgrade of existing installations
- Piping connection options include Fixed ANSI compatible flange, Oval flange, Loose ANSI compatible flange, victaulic, and clamp connections
- Mechanical seal – Silicon Carbide/Carbon/Viton mechanical shaft seal. Cartridge mechanical seal design enables plug in replacement without disassembling the motor bracket

NSF Certified to NSF/ANSI/CAN 61 & 372

***Note:** *Model EVMSU with seal code “S” is Certified*
Low NPSH models and models with optional seal types are not certified.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5
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Main product features

1

Innovative hydraulic solutions

Any motor, anywhere.

- **The Shurricane impeller reduces axial thrust load**
- **Long life of standard motor bearing**

Patent application pending

2

Motor flexibility

- Standard NEMA motor sizes can be fitted with no modifications thanks to low axial thrust load.
- Allows a wider range of motors to be used.

3

Piping connection options

- Optional pipe connections are available depending on the application requirements
- Dimensions & flanges - installation is to market accepted dimensions for easy upgrade in existing installations

Material	Round flange ANSI Compatible	Loose Flange ANSI Compatible	Oval Flange	Plug-In connection (victaulic)
AISI304/ AISI316				

*EVMSUN Low NPSH only available with Round Flange as standard

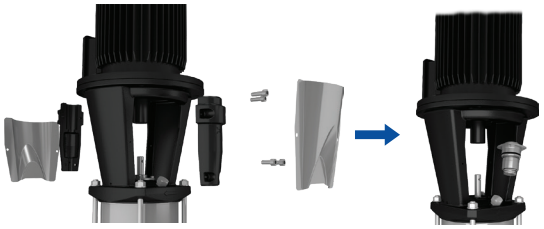
4

Shaft seal solutions

- **Shaft seal material:**
  B: Resin impregnated carbon graphite
  Q: Sintered silicon carbide
  Q_g: Silicon carbide with carbon graphite

  Carbon or graphite inclusions with silicon carbide can be used as **reduce friction.**
- Conforms to EN12756 (ex DIN 24960)

5



Easy maintenance

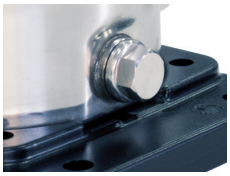
- **The spacer coupling** allows easy maintenance without having to remove heavy motors over 5 HP.
- **The cartridge shaft** seal enables **replacement** of the shaft seal without disassembling the motor bracket

6

Smart plug solutions


Air ventilation plug


Water filling & sensor plug


Drain plug


CARRELLO TES
CARRELLO PORTA STRUMENTI

Reliability is made by numbers

1 Million

Cycles of the endurance test*

2 Times

Higher test criteria than nominal operating conditions*

3 Times

Lower thrust load than common pumps

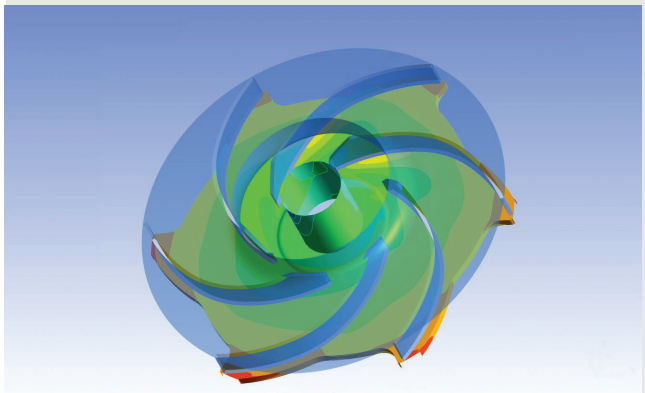
* for main components

Solve axial thrust load

Axial thrust load in a pump is caused by unequal distribution of pressure between the front and back shrouds of an impeller. Axial thrust loading often leads to reduced life of the the motor bearings.

General methods to absorb the axial thrust load include:

- Increasing the motor bearing size or using enhanced motor bearings.
- Mounting additional ball bearings on the pump bracket.



EBARA's newly designed "Shurricane" impeller reduces the axial thrust load with higher pump efficiency created by the innovative hydraulic design of the impeller shrouds.

The EVMSU can accept commercial motors without any modifications and improve the maintenance cycles of motor bearings.

Any motor, anywhere.

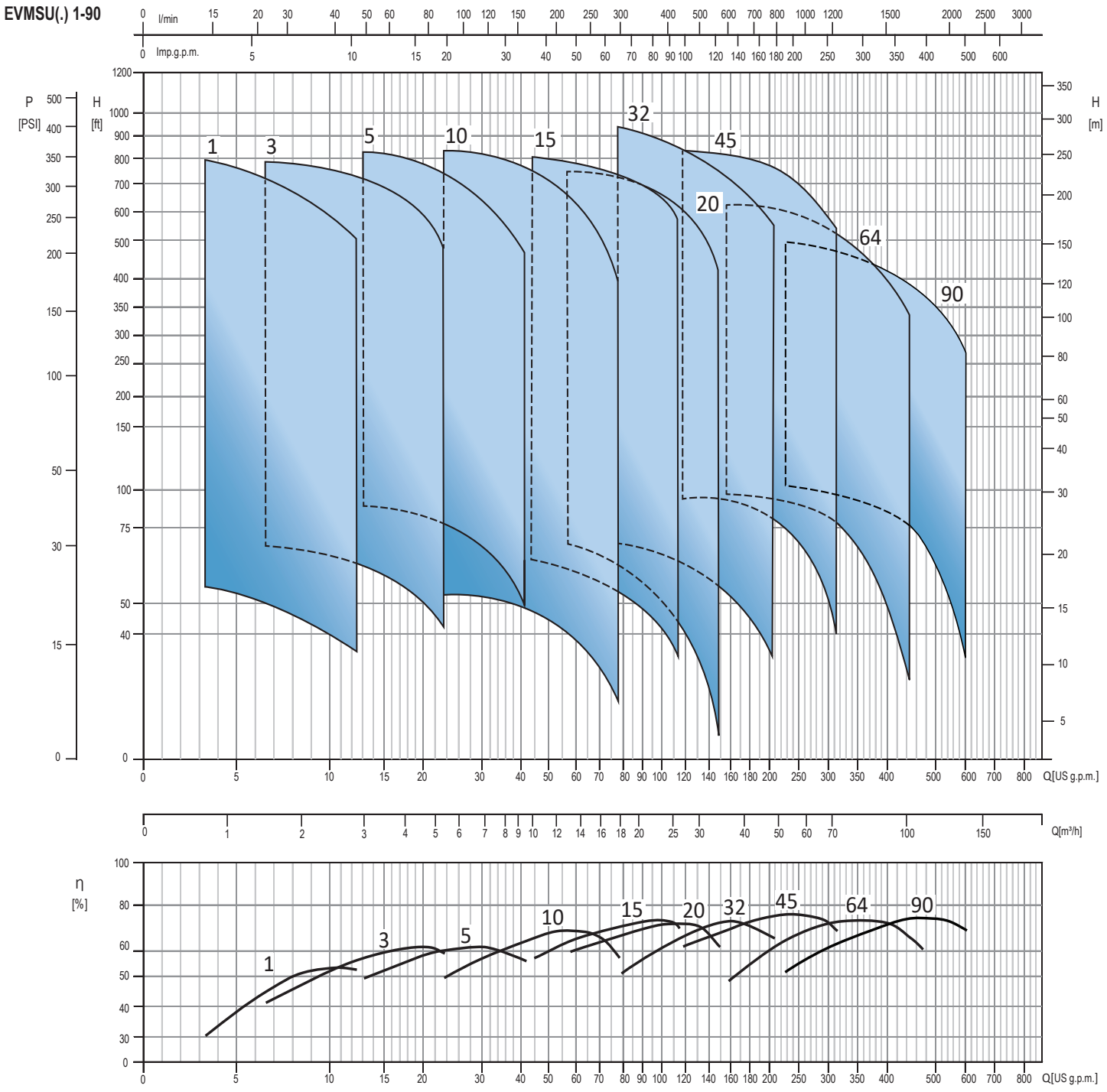
Typical Application

INDUSTRY	BUILDING SERVICE	WATER SUPPLY
		
• **Water treatment** reverse osmosis ultra-filtration water purification micro-filtration softening, ionizing and demineralising systems swimming pools separators • **Boiler feed** 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 tool** cooling lubricant supply for machine tools • **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	• **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 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

60Hz

EVMSU(G)(L) 1-90

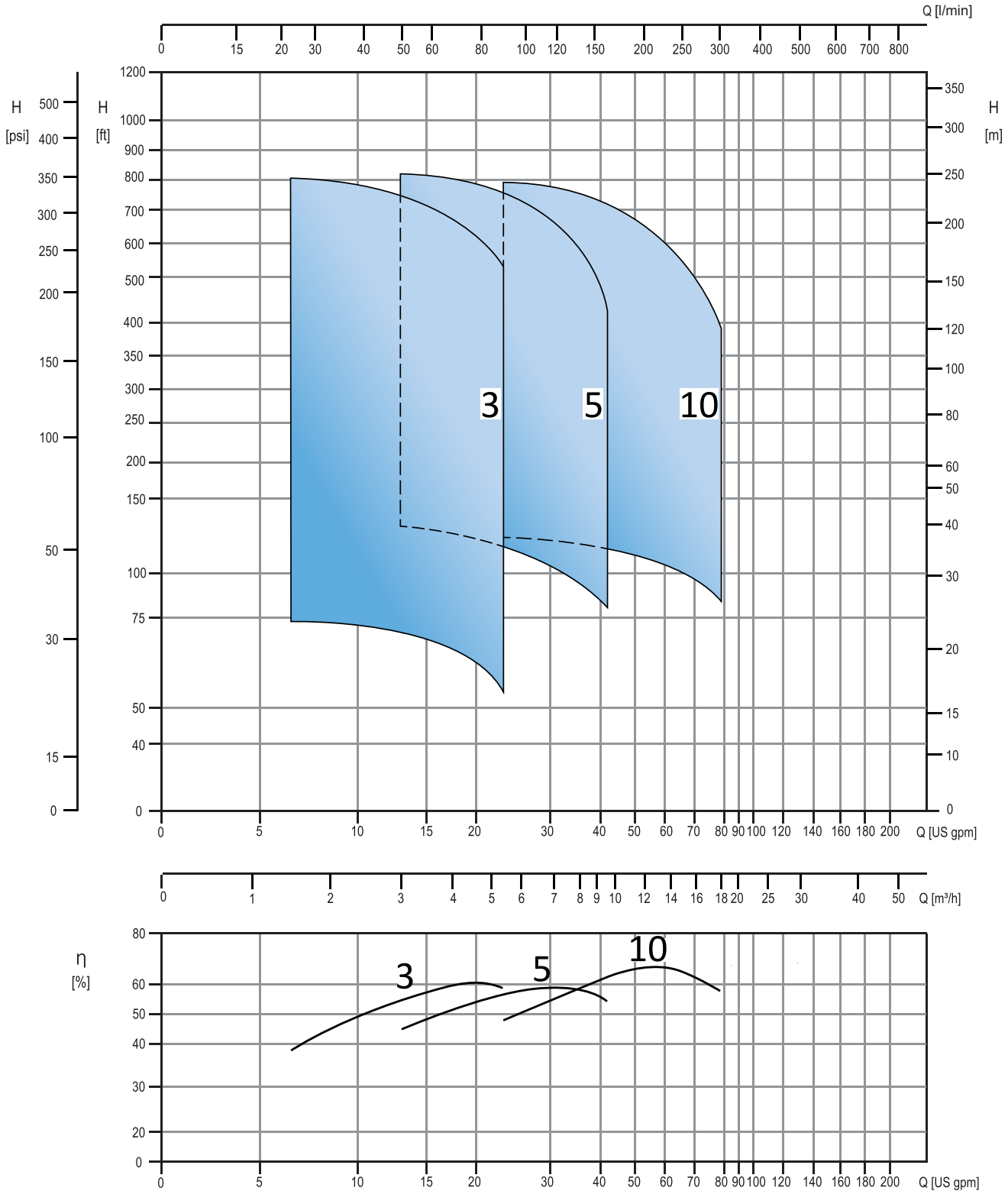


Model EVMSU5	PEI_{CL} 0.89	Imp. Dia. 3.58 (in.)
Model EVMSU10	PEI_{CL} 0.92	Imp. Dia. 3.78 (in.)
Model EVMSU15	PEI_{CL} 0.97	Imp. Dia. 4.21 (in.)
Model EVMSU20	PEI_{CL} 0.99	Imp. Dia. 4.45 (in.)
Model EVMSU32	PEI_{CL} 0.96	Imp. Dia. 4.56 (in.)
Model EVMSU45	PEI_{CL} 0.93	Imp. Dia. 5.52 (in.)
Model EVMSU64	PEI_{CL} 1.00	Imp. Dia. 5.61 (in.)
Model EVMSU90	PEI_{CL} 1.00	Imp. Dia. 5.76 (in.)

Performance Range

60Hz

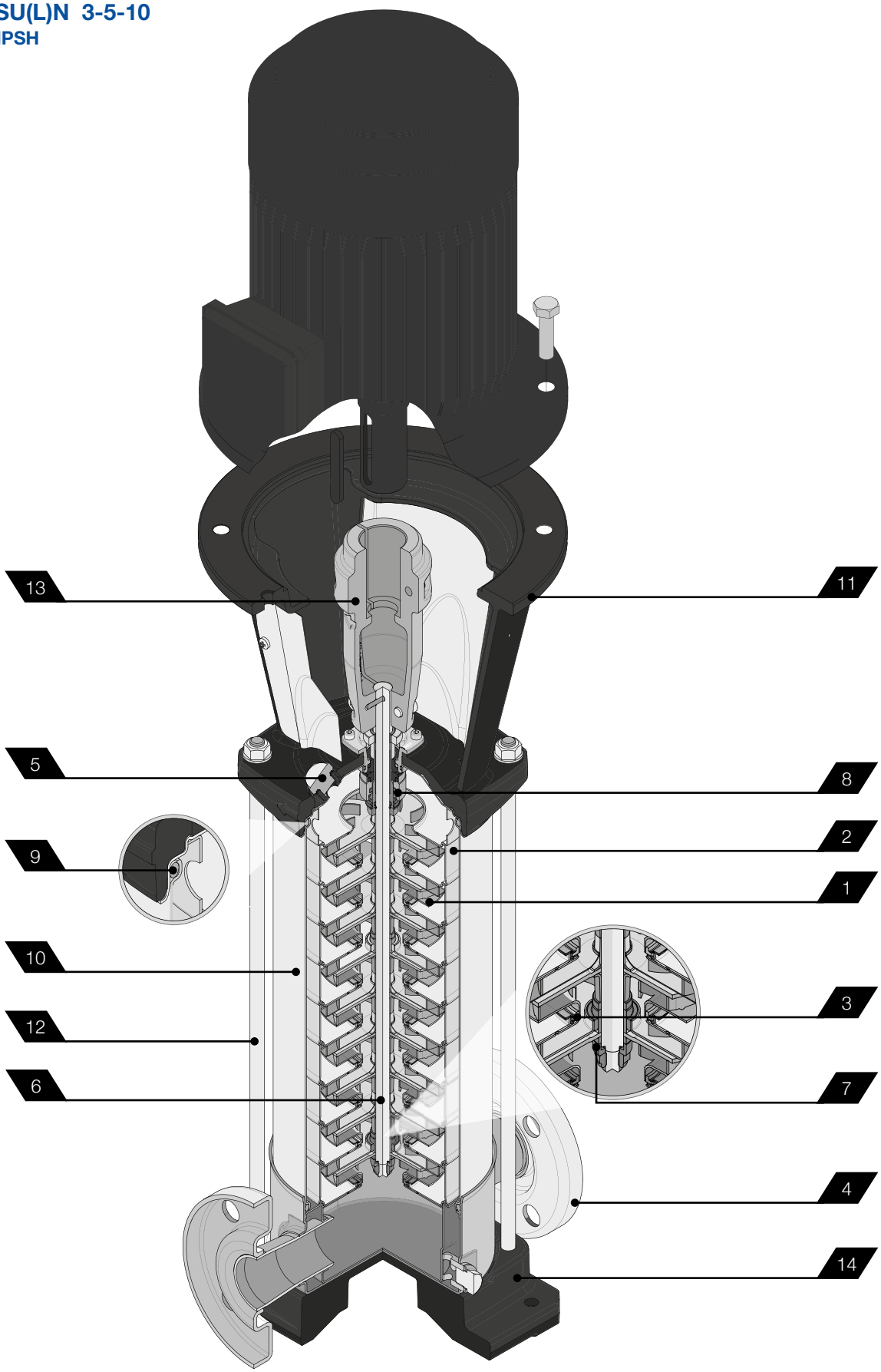
EVMSU(L)N 3-5-10
Low NPSH



Model EVMSUN5	PEI_{CL} 0.97	Imp. Dia. 3.58 (in.)
Model EVMSUN10	PEI_{CL} 0.98	Imp. Dia. 3.78 (in.)

Sectional Drawing

EVMSU(L) 1-3-5-10-15-20
EVMSU(L)N 3-5-10
Low NPSH



Product Specifications

EVMSU(L) 1-3-5-10-15-20

PUMP														
Version				**EVMSU**						**EVMSUL**					
Performance range		Nominal size		1	3	5	10	15	20	1	3	5	10	15	20
		Motor Power		1/2 to 25 HP											
		Capacity		2.9 to 132.1 US gpm											
		Total Head		24.3 to 860 ft											
Liquid Handling		Type of liquid		Clean water *(for other clean liquids, consult factory)*											
		Maximum working pressure		230 / 375 psi (depending on model)											
		Liquid temperature range		-22°F to 248°F (-30°C to 120°C)											
Size		Suction		1 1/4"			2"			1 1/4"			2"		
		Discharge		1 1/4"			2"			1 1/4"			2"		
Key Component Materials	**1**	Impeller		AISI 304 (EN 1.4301)						AISI 316 (EN 1.4401)					
	2	Intermediate casing		AISI 304 (EN 1.4301)						AISI 316 (EN 1.4401)					
	3	Liner ring		AISI 304 (EN 1.4301) + PPS						AISI 316 (EN 1.4401) + PPS					
	4	Bottom casing		AISI 304 (EN 1.4301)						AISI 316 (EN 1.4401)					
	5	Casing cover		AISI 304 (EN 1.4301)						AISI 316 (EN 1.4401)					
	6	Shaft	AISI 304 (EN 1.4301)	EVMSU 1-3-5, EVMSU 10-15-20 (depending on model)											
			AISI 316L (EN 1.4404)	EVMSUL 1-3-5, EVMSUL 10-15-20 (depending on model)											
			AISI 329A (EN 1.4462)	EVMSU / EVMSUL 5-15-20 (depending on model)											
	7	Shaft sleeve bearing		Tungsten carbide											
	8	Shaft Seal	SiC/Carbon/FPM	●	●	●	●	●	●	●	●	●	●	●	●
			SiC+Graphite/SiC/FPM	○	○	○	○	○	○	○	○	○	○	○	○
			SiC/Carbon/EPDM	○	○	○	○	○	○	○	○	○	○	○	○
			SiC+Graphite/SiC/EPDM	○	○	○	○	○	○	○	○	○	○	○	○
	9	O-ring	FPM	●	●	●	●	●	●	●	●	●	●	●	●
			EPDM	○	○	○	○	○	○	○	○	○	○	○	○
	10	Outer casing		AISI 304 (EN 1.4301)						AISI 316L (EN 1.4404)					
	11	Motor bracket		Cast Iron											
	12	Tie rod		AISI 431 (EN 1.4057)											
	13	Coupling	up to 5 HP	Die cast aluminium											
			from 7 1/2 HP	Cast Iron											
	14	Base		Die cast aluminium											
Pipe connection		Oval flange	230 psi	○	○	○	○	○	○	○	○	○	○	○	○
		Round flange (ANSI compatible raised face)	230 psi	●	●	●	●	●	●	●	●	●	●	●	●
			375 psi	●	●	●	●	●	●	●	●	●	●	●	●
		Loose round flange (ANSI compatible raised face)	230 psi	○	○	○	○	○	○	○	○	○	○	○	○
			375 psi	○	○	○	○	○	○	○	○	○	○	○	○
		victaulic	230 & 375 psi	○	○	○	○	○	○	○	○	○	○	○	○
		Clamp	230 & 375 psi	○	○	○	○	○	○	○	○	○	○	○	○
Motor		Type		NEMA C/TC/TSC frame, TEFC or ODP enclosure											
		Speed		2- or 4- pole, 60 Hz, 3500 or 1750 rpm nominal speed											
		Power Requirements		3 Phase, 230/460V or 208-230/460V - Single Phase, 115/230V											
		Direction of Rotation		Clockwise when viewed from motor end											
		Motor Options		*Consult factory for optional motor types*											

Legend: ● Standard ○ Options

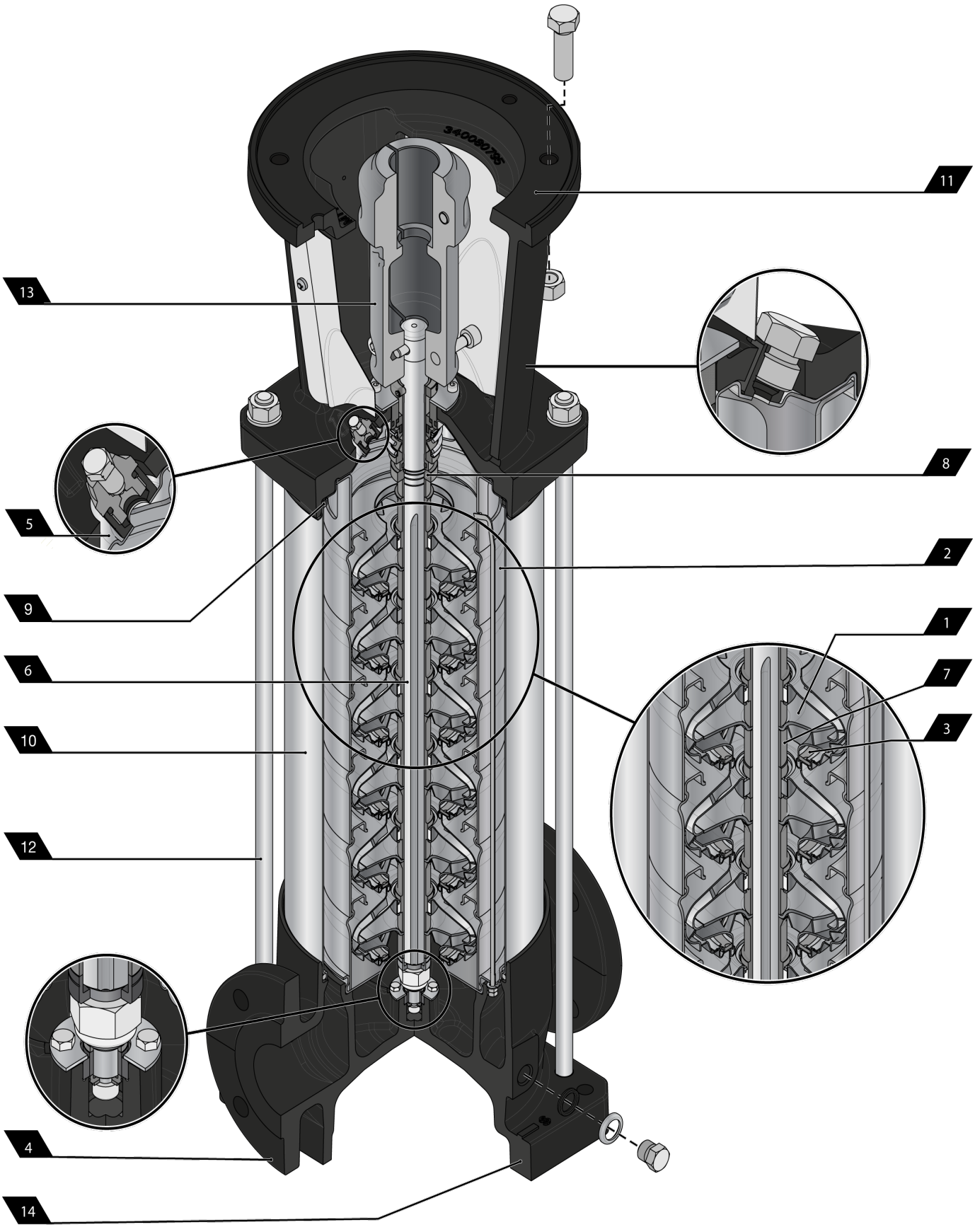
Product Specifications

EVMSU(L)N 3-5-10
Low NPSH

PUMP									
Version				**EVMSUN**			**EVMSULN**		
Performance range		Nominal size		3	5	10	3	5	10
		Motor Power		3/4 to 15 HP					
		Capacity		6.6 to 79.26 US gpm					
		Total Head		54 to 815 ft					
Liquid Handling		Type of liquid		Clean water *(for other clean liquids, consult factory)*					
		Maximum working pressure		360 psi					
		Liquid temperature range		-22°F to 284°F (-30°C to 140°C)					
Pipe Connection		Suction size		1 1/4"		2"	1 1/4"		2"
		Discharge size		1 1/4"		2"	1 1/4"		2"
		Flange type		Round flange (ANSI compatible raised face)					
Key Component Materials	**1**	Impeller		AISI 304 (EN 1.4301)			AISI 316 (EN 1.4401)		
	2	Intermediate casing		AISI 304 (EN 1.4301)			AISI 316 (EN 1.4401)		
	3	Liner ring		AISI 304 (EN 1.4301) + PPS			AISI 316 (EN 1.4401) + PPS		
	4	Bottom casing		AISI 304 (EN 1.4301)			AISI 316 (EN 1.4401)		
	5	Casing cover		AISI 304 (EN 1.4301)			AISI 316 (EN 1.4401)		
	6	Shaft	AISI 304 (EN 1.4301)	EVMSUN 3-5-10 (depending on model)					
			AISI 316L (EN 1.4404)	EVMSULN 3-5-10 (depending on model)					
			AISI 329A (EN 1.4462)	EVMSUN / EVMSULN 5 (depending on model)					
	7	Shaft sleeve bearing		Tungsten carbide					
	8	Shaft Seal		SiC+Graphite/SiC/EPDM					
	9	O-ring		EPDM					
	10	Outer casing		AISI 304 (EN 1.4301)			AISI 316L (EN 1.4404)		
	11	Motor bracket		Cast Iron					
	12	Tie rod		AISI 431 (EN 1.4057)					
	13	Coupling	up to 3 HP	Die cast aluminium					
			from 5 HP	Cast Iron					
	14	Base		Die cast aluminium					
Motor		Type		NEMA C/TC/TSC frame, TEFC or ODP enclosure					
		Speed		2-pole, 60 Hz, 3500 rpm nominal speed					
		Power Requirements		3 Phase, 230/460V or 208-230/460V - Single Phase, 115/230V					
		Direction of Rotation		Clockwise when viewed from motor end					
		Motor Options		*Consult factory for optional motor types*					

Sectional Drawing

EVMSU(G)(L) 32-90



Product Specifications

EVMSU(G)(L) 32-90

PUMP																
				EVMSUG				EVMSU				EVMSUL				
Performance Range		Nominal size		32	45	64	90	32	45	64	90	32	45	64	90	
		Motor Power		5 to 60 HP												
		Capacity		79.3 to 607 US gpm												
		Total Head		20.7 to 918.7 ft												
Liquid Handling		Type of liquid		Clean water (for other clean liquids, consult factory)												
		Maximum working pressure		230 / 360 / 435 psi (depending on model)												
		Liquid temperature range		-22ºF to 248ºF (-30ºC to 120ºC)												
Size		Suction		2 1/2"	3"	4"	4"	2 1/2"	3"	4"	4"	2 1/2"	3"	4"	4"	
		Discharge		2 1/2"	3"	4"	4"	2 1/2"	3"	4"	4"	2 1/2"	3"	4"	4"	
Key Component Materials	1	Impeller		EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	2	Intermediate casing		EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	3	Liner ring		EN 1.4301 (AISI 304) + PPS								EN 1.4404 (AISI 316L) + PPS				
	4	Bottom casing	EVMSU(G)32	Cast Iron EN GJL-250 EN 1561				EN 1.4308 (ASTM CF8)				EN 1.4408 (ASTM CF8M)				
			EVMSU(G)45-64-90 230 psi													
			EVMSU(G)45-64-90 230+ psi	Cast Iron EN GJS 400-15 EN 1563												
	5	Casing cover		EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	6	Shaft		AISI 304 (EN 1.4301)								AISI 316L (EN 1.4404) (Depending on model)				
												AISI 329A (EN 1.4462) (Depending on model)				
	7	Shaft sleeve bearing		Tungsten carbide												
	8	Shaft Seal	SiC/Carbon/FPM	●	●	●	●	●	●	●	●	●	●	●	●	
			SiC+Graphite/SiC/FPM	O	O	O	O	O	O	O	O	O	O	O	O	
			SiC+Graphite/SiC/EPDM	O	O	O	O	O	O	O	O	O	O	O	O	
	9	O-ring	FPM	●	●	●	●	●	●	●	●	●	●	●	●	
			EPDM	O	O	O	O	O	O	O	O	O	O	O	O	
	10	Outer casing		EN 1.4301 (AISI 304)								EN 1.4404 (AISI 316L)				
	11	Motor Bracket		Cast Iron EN GJS 400-15 EN 1563												
	12	Tie rod		EN 1.4057 (AISI 431)												
	13	Coupling	up to 5 HP	Die cast Aluminium EN AB-AISI11 Cu2 (Fe)												
			from 7 1/2 to 40 HP	Cast Iron EN GJL250 EN 1561												
			50 HP and larger	Carbon Steel												
	14	Base						Cast Iron EN GJL200 EN 1561								
Pipe connection		Round flange (ANSI compatible raised face)		●	●	●	●									
		Loose round flange (ANSI compatible raised face)						●	●	●	●	●	●	●	●	
Motor		Type		NEMA C/TC/TSC frame, TEFC or ODP enclosure												
		Speed		2-pole, 60 Hz, 3500/3550 rpm nominal speed												
		Power Requirements		3 Phase, 230/460V or 208-230/460V - Single Phase, 115/230V												
		Direction of Rotation		Clockwise when viewed from motor end												
		Motor Options		*Consult factory for optional motor types*												

● Standard O Optional

Your Local EBARA representative:

ENGINEEREDfor**PERFORMANCE**

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