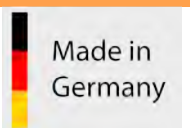




WINTER.pumpen



TYPE SERIES WVSP



SEWAGE / WASTE WATER PUMPS



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WINTER.group

From the initial idea to the finished product: Through internal manufacturing in our facilities, we have full control over the entire production process. From material selection, to final assembly machining and the ultimate measurement on our test bench. This enables us to be flexible in addressing individual customer requirements and providing customized solutions.

DEVELOPMENT, DESIGN, AND PATTERN MAKING

Our team has extensive experience in designing components and assemblies for various applications. In our model-making department, models are manufactured for the foundry.

HOUSING PARTS FROM OUR FOUNDRY

At **Eisengießerei Kronach Thomas Winter GmbH**, housing parts are cast and mechanically processed. For consistently high quality, state-of-the-art equipment and our experienced staff are essential.

STATE-OF-THE-ART SHEET METAL AND STEEL WORK

At our metalworking facility, **Krauss Lüftungsbau GmbH** in Langenzenn, various frames and sheet metal parts are manufactured using state-of-the-art welding robots, laser cutting, and bending machines.

MACHINING AND MANUFACTURING

Our turning shop and milling shop at the plant in Hilpoltstein enable the machining of all cutting components and manufacturing processes, ensuring consistent high precision and control.

CONTROL CABINET CONSTRUCTION

We also design and manufacture control cabinets for complex pump systems such as sprinkler units or vacuum systems. These control cabinets are essential for the control and monitoring of the systems and are manufactured according to strict technical standards.

ASSEMBLY AND MEASUREMENTS

Our assembly department is responsible for the careful and precise assembly of all components. Finally, the performance of our pumps is verified through our in-house test bench to ensure consistently outstanding quality for our customers.

TYPE SERIES WVSP



The Winter vacuum sewage water pump (WVSP) is designed for the conveyance of sewage water, including grey and black water. The integrated cutting mechanism effortlessly shreds solid components such as wet wipes, baby wipes, and fecal matter. Due to its construction, the liquid ring vacuum pump is particularly robust and easy to maintain, ensuring reliable and safe operation at all times. Typical applications include toilet and sanitation systems on ships and in buildings.

FIELDS OF APPLICATION

- ▶ Marine
- ▶ Building technology
- ▶ Mobile sanitary trailer and sanitary container
- ▶ Municipal sewage treatment

BENEFITS

- ▶ Highly efficient vacuum generation for sanitary facilities
- ▶ Simple and reliable liquid ring vacuum pump with cutting device on the same shaft
- ▶ Easy interface to sewage water treatment plant or sewage network
- ▶ No storage tanks required for vacuum generation
- ▶ Maximum operational safety with minimal maintenance
- ▶ Consistent flushing and discharge time for toilets

INSTALLATION

The sewage pumps are installed horizontally.

CONVEYING MEDIUM

For the conveyance of sewage water and air in sanitary vacuum toilet systems. The composition of air, blackwater, and greywater is variable. Suitable for liquids free from hard, abrasive solids such as sand, stones, or metals. Dry and moist gases that are non-flammable, non-aggressive, or non-toxic (slightly acidic / slightly alkaline / slightly foaming). The use of chlorine-containing, corrosive, acidic, or abrasive cleaning agents should be minimized. Other conveying media available upon request.

DIRECTION OF ROTATION

Viewed from the fan cover, clockwise (clockwise rotation).

MOUNTING

The WVSP is typically mounted at the base.

MATERIALS

Standard material pairings are shown below.

Casing	Rotor casing	Screw rotor	Cutting system	Motorshaft	Note
Bronze	Stainless steel	PA	Stainless steel	Stainless steel	
Bronze	Stainless steel	Brass	Stainless steel	Stainless steel	
Bronze	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Wear-free manufacture

TECHNICAL DATA

Environmental temperature	ϑ_u min. ϑ_u max.	5°C 45°C
Relative humidity	long-term short-term	≤ 85 [%] ≤ 100 [%]
Installation altitude above sea level	≤ 1000 [m]	
Power connection (suction and discharge nozzle)	► Hose ► Flange	
Speed	50 Hz 60 Hz	2900 1/min 3500 1/min
Distance fan cover to wall	≥ 40 mm	
Starts per hour (environmental temperature ≤45°C)	BG 100 BG 132	45/ h 22/ h
Viscosity conveying medium	v min. v max.	1 mm²/s 4 mm²/s
Temperature conveying medium / operating liquid	ϑ_u min. ϑ_u max.	5°C 40°C
Density conveying medium	ρ max. ρ_s min.	1200 kg/m³ 200 mbar (abs.)
Permissible pressure difference (suction / discharge side vacuum)	ρ_{dif} .	1,1 bar
Compression pressure (vacuum)	ρ_d max.	≤ 0,3 bar
Operating pressure (water)	ρ_d max.	2 bar

PUMP TYPES

Type	Weight [kg]	Dimensions [mm]
WVSP 05/15	49	586 x 212 x 326
WVSP 11/25	59	691 x 200 x 381
WVSP 17/70	113	849 x 265 x 445

ACCESSORIES

Each delivery includes a key and a suction lifter for the sight glass.

PUMP DATA

Air suction capacity	50 Hz/ 2920 1/min.	16 Nm ³ /h [standard cubic metres]
	60 HZ/ 3510 1/min.	17 Nm ³ /h [standard cubic metres]
Flush capacity	50 Hz/ 2920 1/min.	120 flushes/h
	60 HZ/ 3510 1/min.	150 flushes/h
Permitted delivery head/feed pressure (vacuum operation)	≤ 3 m	≤ 0,3 bar
Starts per hour	40 - environmental temperature ≤ 45°C	

CONNECTIONS

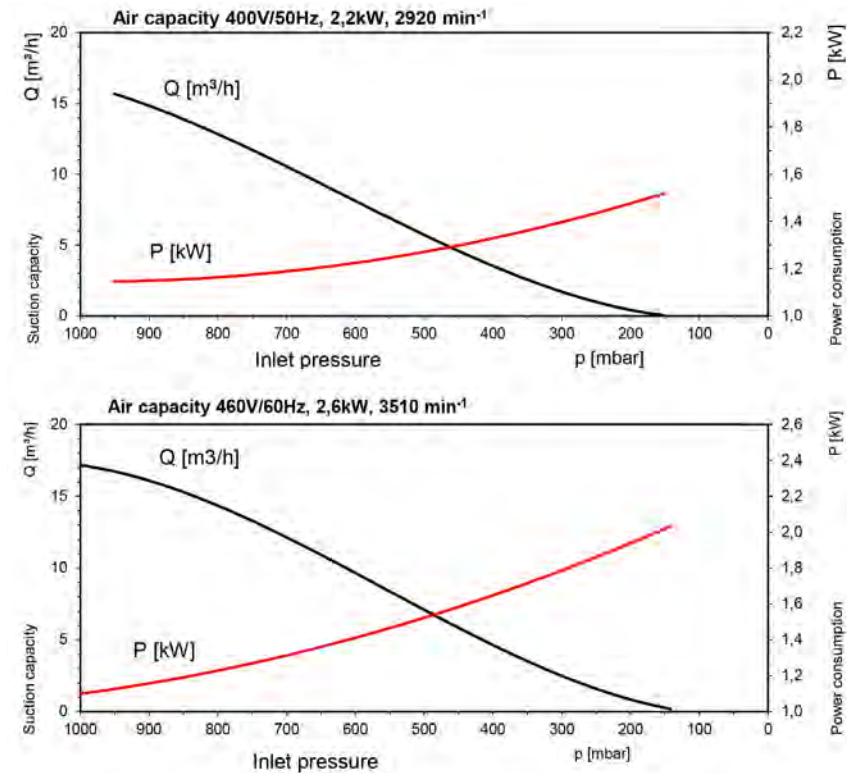
Suction nozzle	Ø 50 mm, hose
Discharge nozzle	Ø 50 mm, hose
Operating liquid, external	G ¼", screwed plug
Drainage	G ¼", screwed plug
Temperature sensor for operating liquid	M10x1, screwed plug

DRIVE

Three-phase motor type	3 ~ Motor	
Motor size	BG 100L	
Motor data	Δ/Y 230/400 V/ 50 Hz/ 2,2 kW/ 7,6/4,4 A/ 2920 min ⁻¹	
	Δ/Y 265/460 V/ 60 Hz/ 2,6 kW/ 7,6/4,4 A/ 3510 min ⁻¹	
Power factor cos φ	0,85/ 0,86	
Efficiency class / Efficiency η	IE3-85,9% / IE3-86,5%	
Protective winding contact	3xPTC/ 155°C	
Noise level EN ISO 3746 (surface noise pressure level/ vacuum 500 mbar _{abs.} / 1 m distance / K _{pA} (3))	50 Hz	60 Hz
	L _{pAd} = 71 dB(A)	L _{pAd} = 74 dB(A)

CHARACTERISTIC CURVES

Vacuum

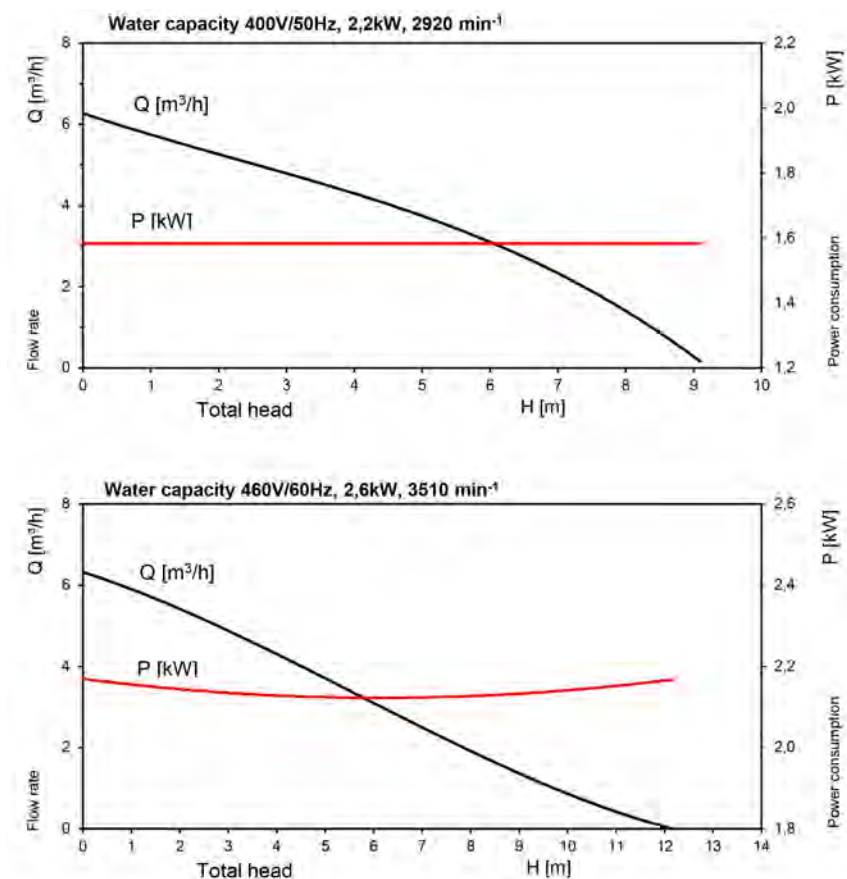


Suction capacity and power requirement depending on suction pressure

The characteristics apply to the compression of dry air at 20°C from the suction pressure to atmospheric pressure (1013 mbar) at rated speed and drive with three-phase motors. The operating fluid is water at 15°C. The tolerance of the suction capacity is -10% and the power requirement tolerance is +10%.

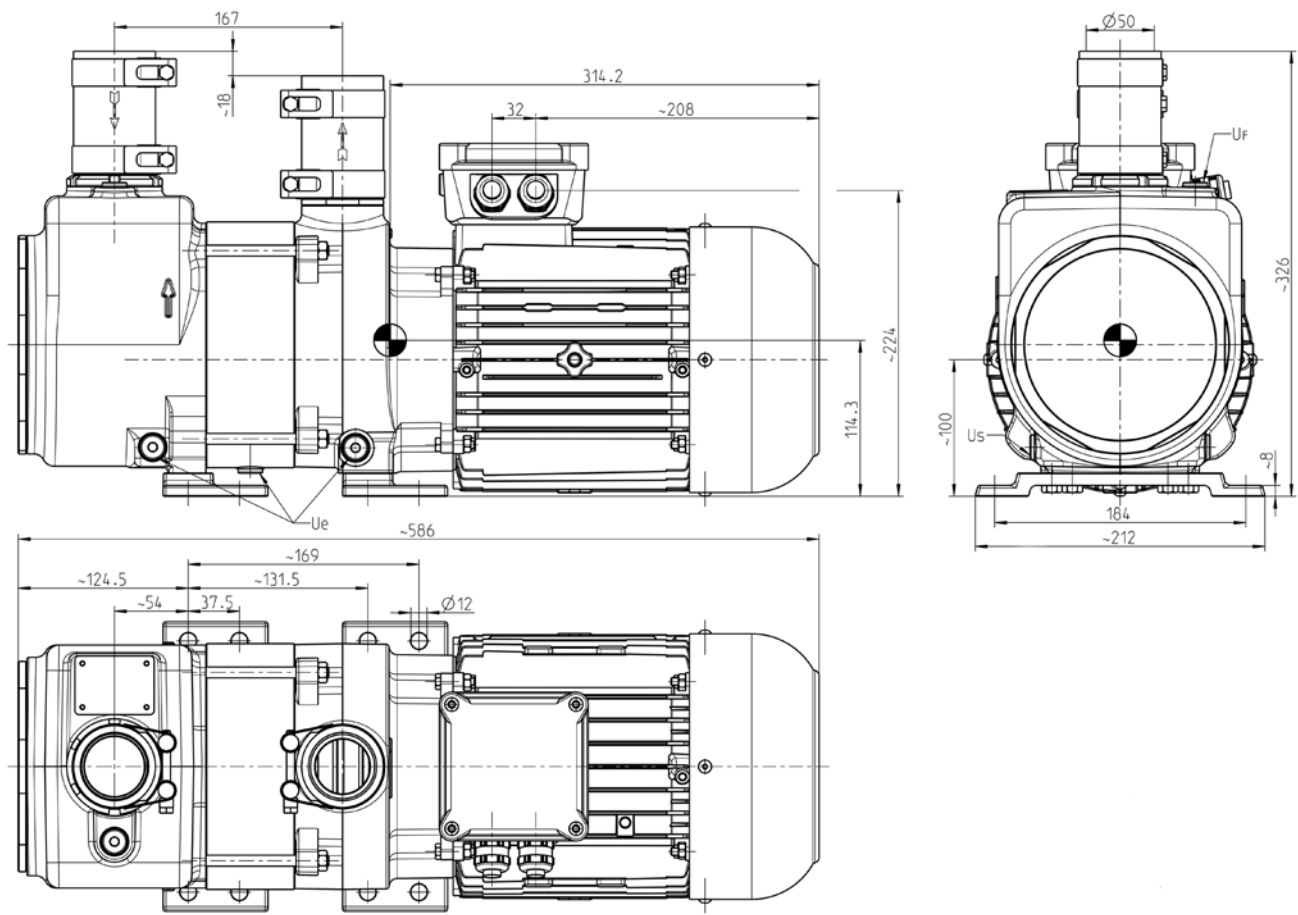
Under different operating conditions (e.g., different data of the gas to be conveyed or the operating fluid, co-conveyance of additional fluid, conveying of gas-vapor mixtures), the characteristics may change.

Water

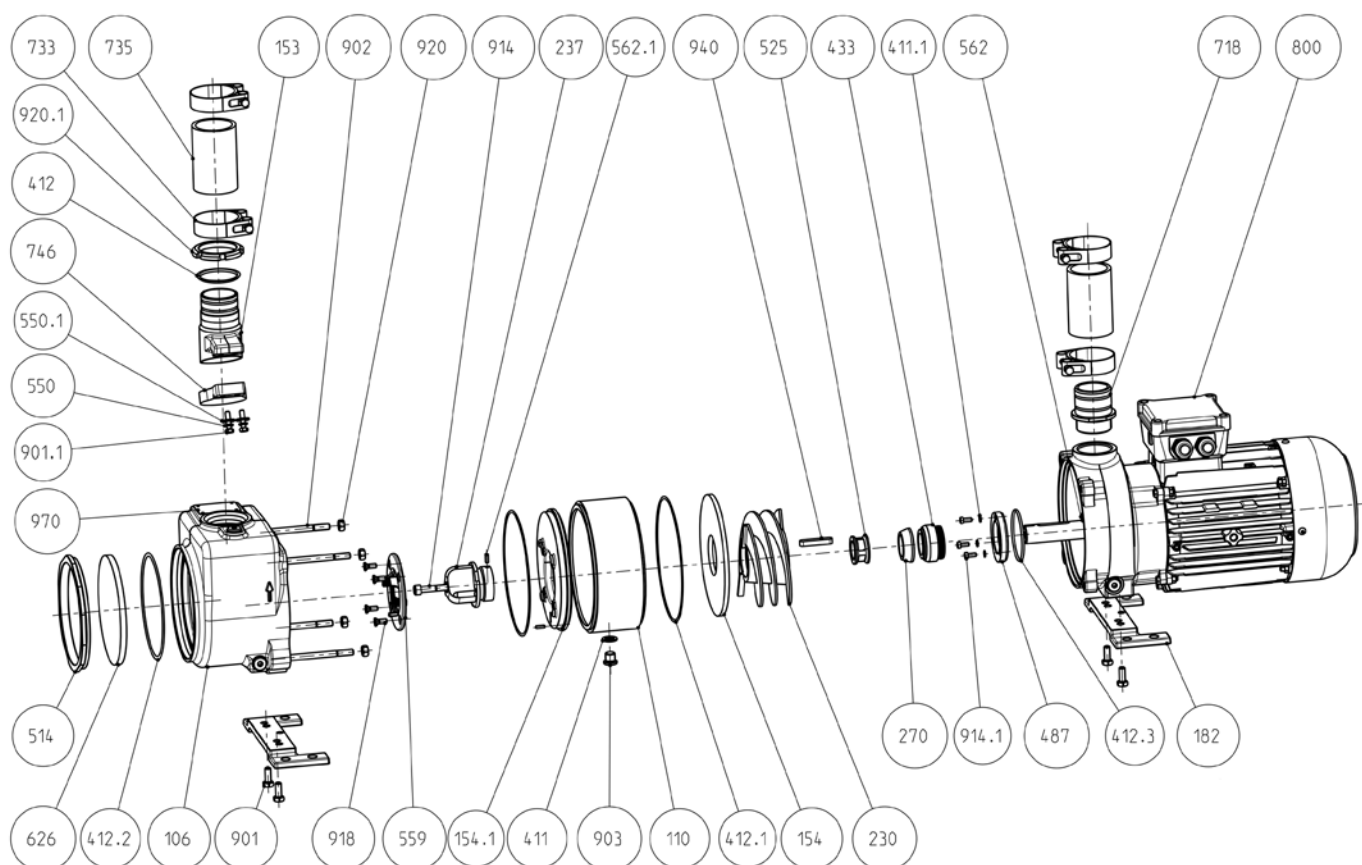


WVSP 05/15

DIMENSION DRAWING



EXPLODED VIEW



Nr.	Description
106	Suction casing with screwd plugs
110	Stage casing
153	Suction nozzle
154	Intermediate plate
154.1	Intermediate plate
182	Foot
230	Helical screw
237	Cutting wheel
270	Keep-off device
411	Joint ring
411.1	Joint ring
412	O-Ring
412.1	O-Ring
412.2	O-Ring
412.3	O-Ring
433	Mechanical seal
487	Seal supporting ring
514	Threaded ring
525	Spacer sleeve
550	Washer
550.1	Washer
559	Cutting plate
562	Grooved taper pin
562.1	Spring dowel pin
626	Inspection glas
718	Screw-in hose nipple
733	Hinge bolt clamp
735	Hose
746	Flap
800	Motor
901	Hexagon head screw
901.1	Hexagon head screw
902	Stud bolt
903	Screwed plug
914	Cylinder screw
914.1	Cylinder screw
918	Countersunk screw
920	Hexagon nut
920.1	Grooved nut
940	Feather key
970	Type plate

Nr.	Description
559	Cutting plate
562	Grooved taper pin
562.1	Spring dowel pin
626	Inspection glas
718	Screw-in hose nipple
733	Hinge bolt clamp
735	Hose
746	Flap
800	Motor
901	Hexagon head screw
901.1	Hexagon head screw
902	Stud bolt
903	Screwed plug
914	Cylinder screw
914.1	Cylinder screw
918	Countersunk screw
920	Hexagon nut
920.1	Grooved nut
940	Feather key
970	Type plate

PUMP DATA

Air suction capacity	50 Hz/ 2920 1/min.	28 Nm ³ /h [standard cubic metres]
	60 HZ/ 3515 1/min.	32 Nm ³ /h [standard cubic metres]
Flush capacity	50 Hz/ 2920 1/min.	190 flushes/h
	60 HZ/ 3515 1/min.	240 flushes/h
Permitted delivery head/feed pressure (vacuum operation)	≤ 3 m	≤ 0,3 bar
Starts per hour	40 - environmental temperature ≤ 45°C	

CONNECTIONS

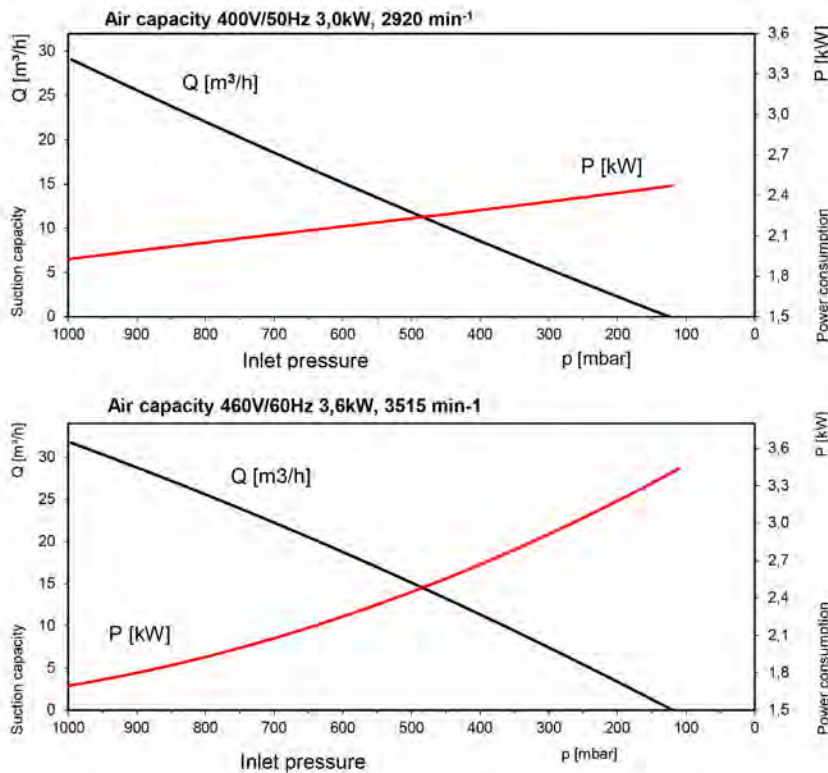
Suction nozzle	Ø 60 mm, hose
Discharge nozzle	Ø 60 mm, hose
Operating liquid, external	G ¼", screwed plug
Drainage	G ¼", screwed plug
Temperature sensor for operating liquid	M10x1, screwed plug

DRIVE

Three-phase motor type	3 ~ Motor	
Motor size	BG 100L	
Motor data	Δ/Y 230/400 V/ 50 Hz/ 3,0 kW/ 10,7/6,2 A/ 2920 min ⁻¹	
	Δ/Y 265/460 V/ 60 Hz/ 3,6 kW/ 10,7/6,2 A/ 3515 min ⁻¹	
Power factor cos φ	0,80/ 0,83	
Efficiency class / Efficiency η	IE3-87,1%/ IE3-88,5%	
Protective winding contact	3xPTC/ 155°C	
Noise level EN ISO 3746 (surface noise pressure level/ vacuum 500 mbar _{abs.} / 1 m distance / K _{pA} (3))	50 Hz	60 Hz
	L _{pAd} = 71 dB(A)	L _{pAd} = 74 dB(A)

CHARACTERISTIC CURVES

Vacuum

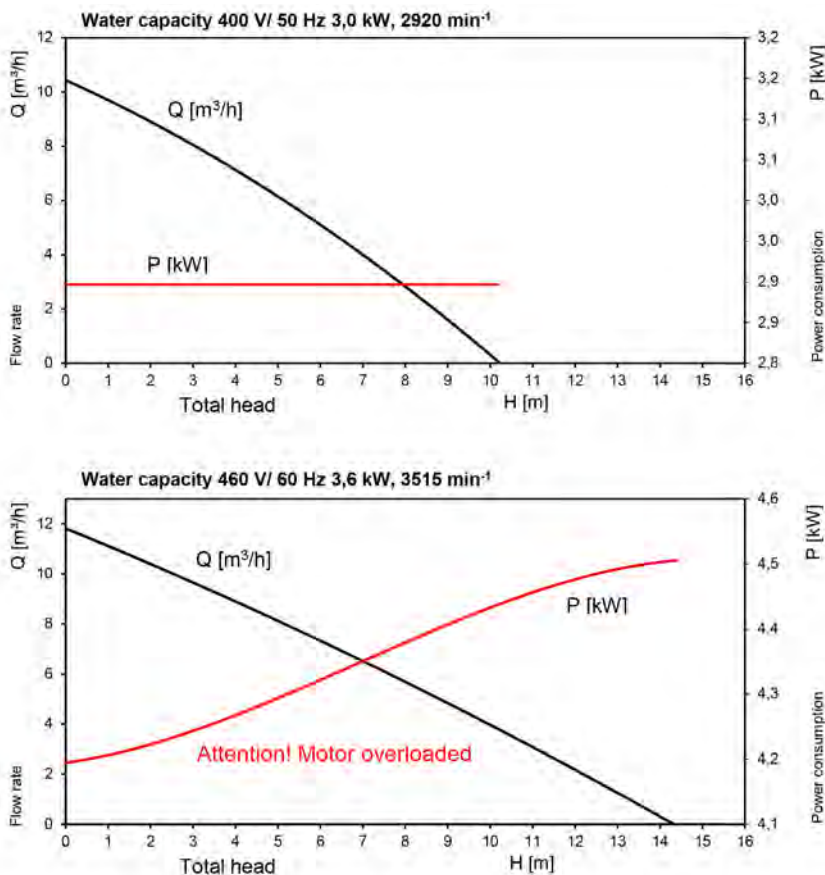


Suction capacity and power requirement depending on suction pressure

The characteristics apply to the compression of dry air at 20°C from the suction pressure to atmospheric pressure (1013 mbar) at rated speed and drive with three-phase motors. The operating fluid is water at 15°C. The tolerance of the suction capacity is -10% and the power requirement tolerance is +10%.

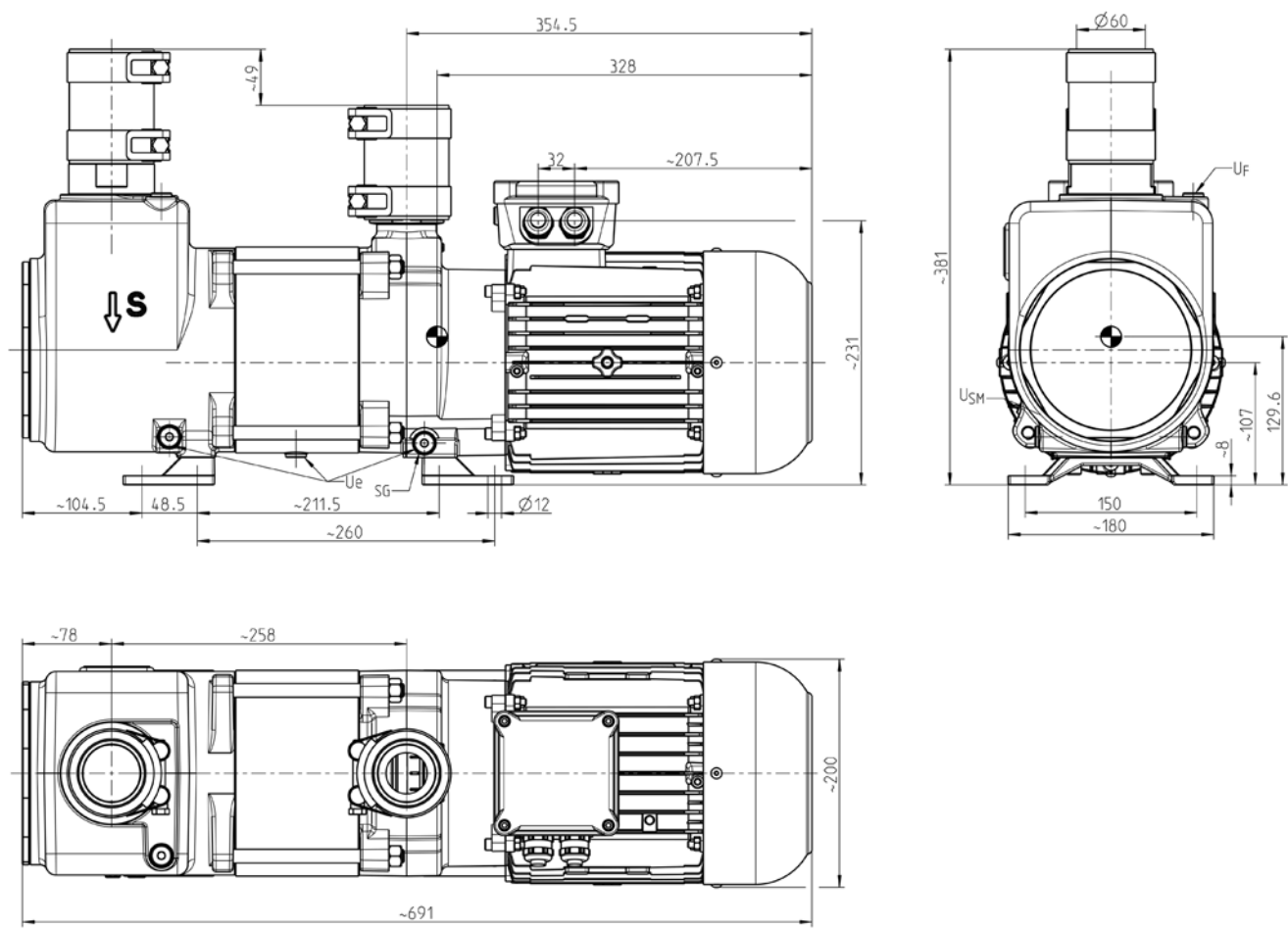
Under different operating conditions (e.g., different data of the gas to be conveyed or the operating fluid, co-conveyance of additional fluid, conveying of gas-vapor mixtures), the characteristics may change.

Water

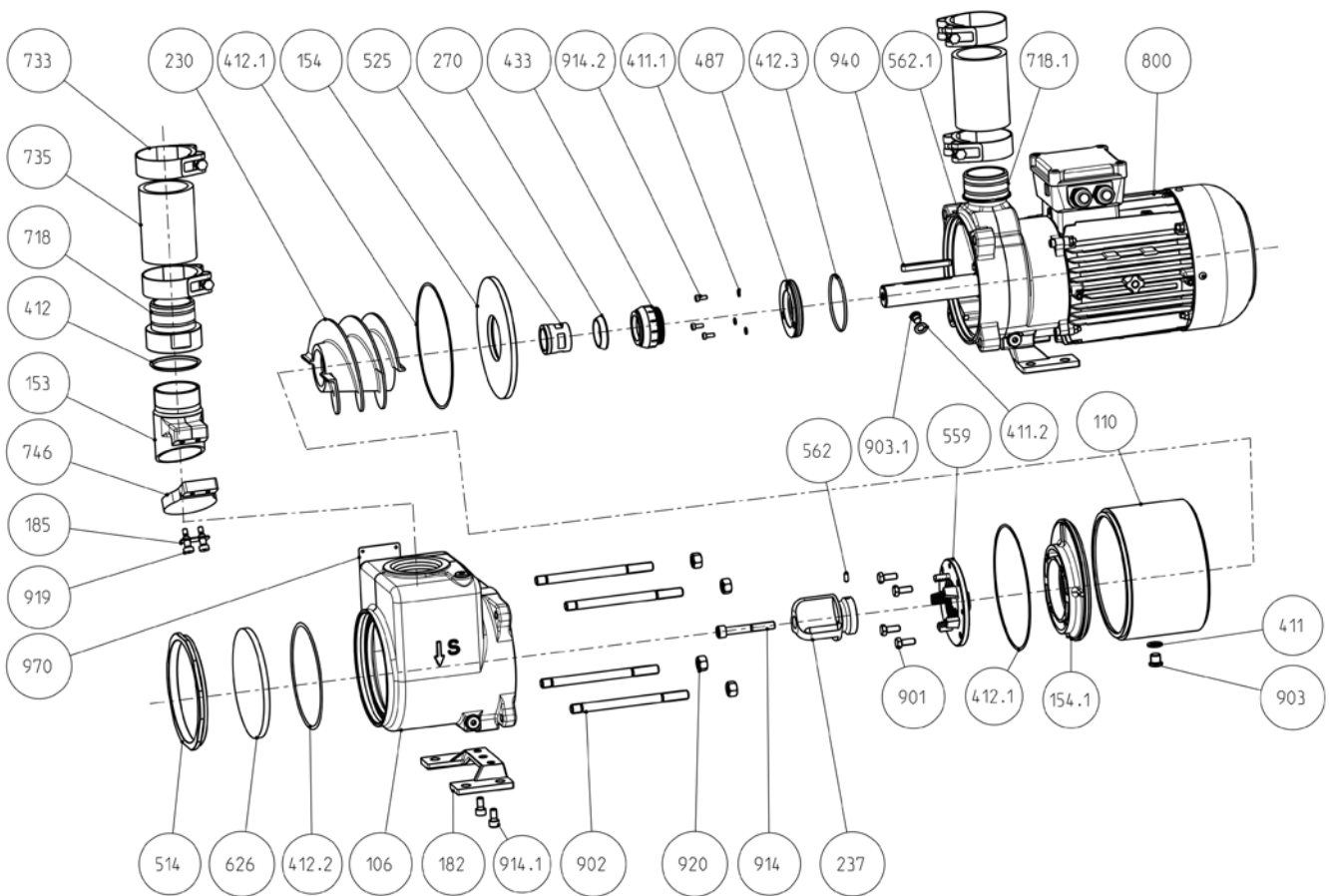


WVSP 11/25

DIMENSION DRAWING



EXPLODED VIEW



Nr.	Description
106	Suction casing with screwed plugs
110	Stage casing
153	Suction nozzle
154	Intermediate plate
154.1	Intermediate plate
182	Foot
185	Plate
230	Helical screw
237	Cutting wheel
270	Keep-off device
411	Joint ring
411.1	Joint ring
412	O-Ring
412.1	O-Ring
412.2	O-Ring
412.3	O-Ring
433	Mechanical seal
487	Seal supporting ring
514	Threaded ring
525	Spacer sleeve

Nr.	Description
559	Cutting plate
562	Close tolerance grooved pin
562.1	Grooved taper pin
626	Inspection glass
718	Screw-on hose nipple
718.1	Screw-in hose nipple
733	Hinge bolt clamp
735	Hose
746	Flap
800	Motor
901	Hexagon head screw
902	Stud bolt
903	Screwed plug
914	Cylinder screw
914.1	Cylinder screw
914.2	Cylinder screw
919	Fitted screw with collar
920	Hexagon nut
940	Feather key
970	Type plate

PUMP DATA

Air suction capacity	50 Hz/ 2945 1/min.	70 Nm ³ /h [standard cubic metres]
	60 HZ/ 3540 1/min.	92 Nm ³ /h [standard cubic metres]
Flush capacity	50 Hz/ 2945 1/min.	730 flushes/h
	60 HZ/ 3540 1/min.	800 flushes/h
Permitted delivery head/feed pressure (vacuum operation)	≤ 3 m	≤ 0,3 bar
Starts per hour	22 - environmental temperature t = ≤ 45°C	

CONNECTIONS

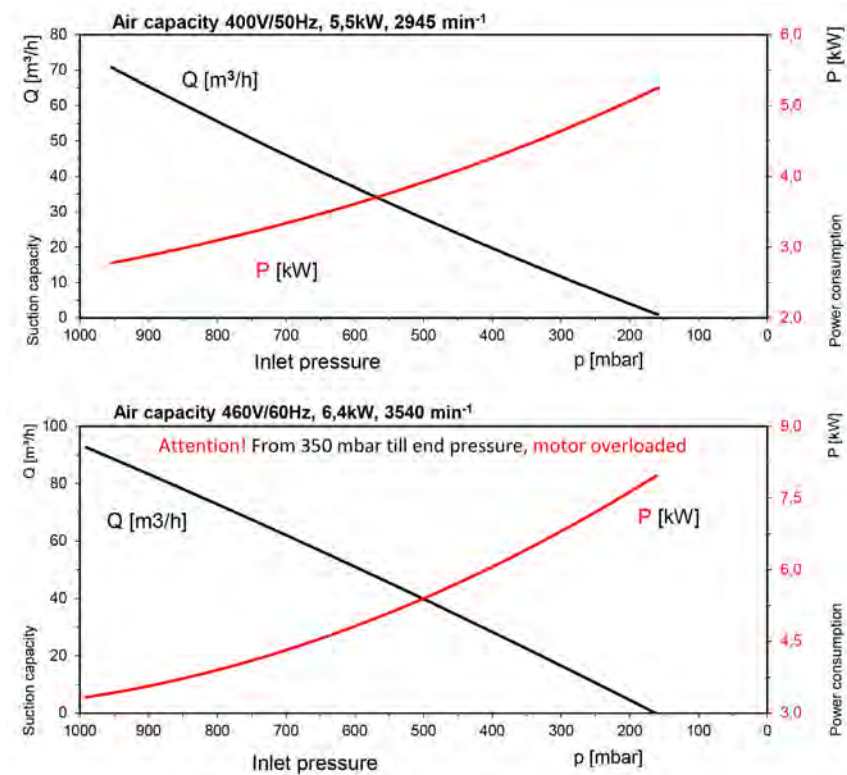
Suction nozzle	Flange DN 65, PN10
Discharge nozzle	Flange DN 50, PN10
Operating liquid, external	G 3/8", screwed plug
Drainage	G 3/8", screwed plug
Temperature sensor for operating liquid	M10x1, screwed plug

DRIVE

Three-phase motor type	3 ~ Motor	
Motor size	BG 132S	
Motor data	Δ/Y 230/400 V/ 50 Hz/ 5,5 kW/ 16,6/9,6 A/ 2945 min ⁻¹	
	Δ/Y 265/460 V/ 60 Hz/ 6,4 kW/ 16,6/9,6 A/ 3540 min ⁻¹	
Power factor cos φ	0,91/ 0,92	
Efficiency class / Efficiency η	IE3-89,2%/ IE3-89,5%	
Protective winding contact	3xPTC/ 155°C	
Noise level EN ISO 3746 (surface noise pressure level/ vacuum 500 mbar _{abs.} / 1 m distance / K _{pA} (3))	50 Hz	60 Hz
	L _{pAd} = 75 dB(A)	L _{pAd} = 79 dB(A)

CHARACTERISTIC CURVES

Vacuum

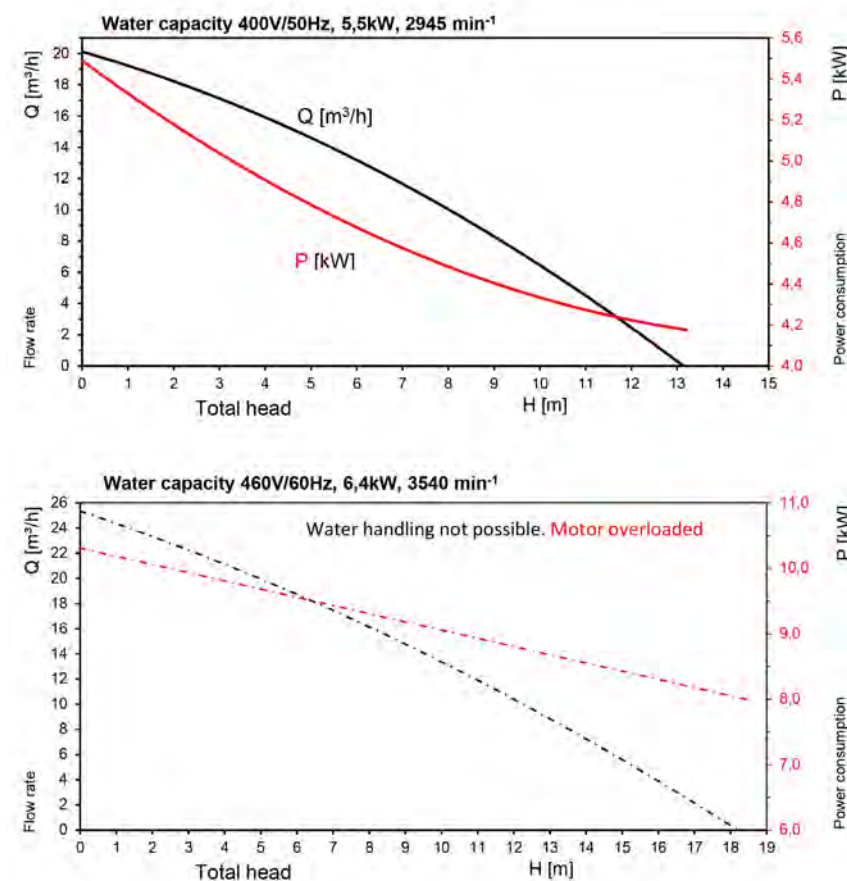


Suction capacity and power requirement depending on suction pressure

The characteristics apply to the compression of dry air at 20°C from the suction pressure to atmospheric pressure (1013 mbar) at rated speed and drive with three-phase motors. The operating fluid is water at 15°C. The tolerance of the suction capacity is -10% and the power requirement tolerance is +10%.

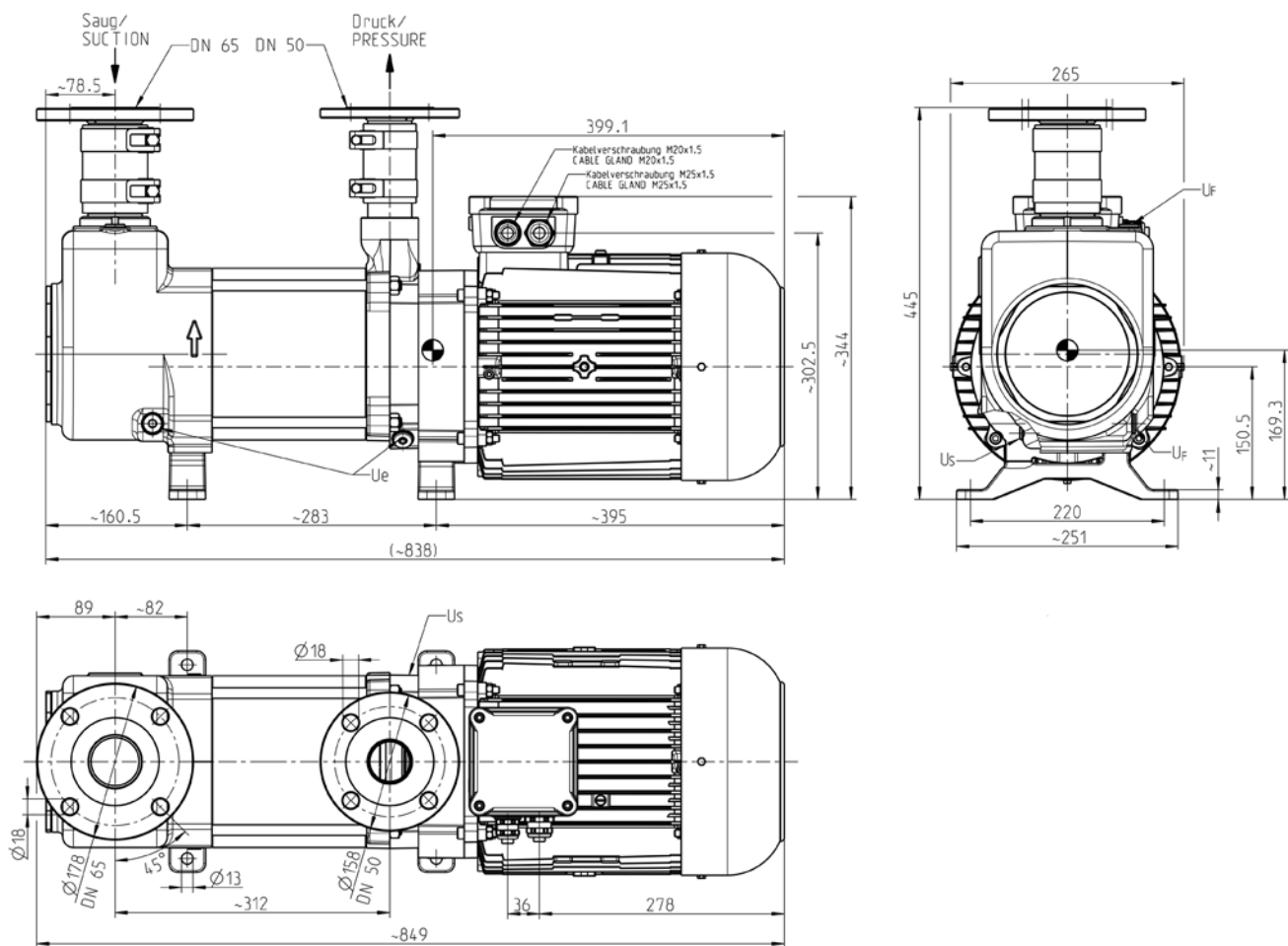
Under different operating conditions (e.g., different data of the gas to be conveyed or the operating fluid, co-conveyance of additional fluid, conveying of gas-vapor mixtures), the characteristics may change.

Water

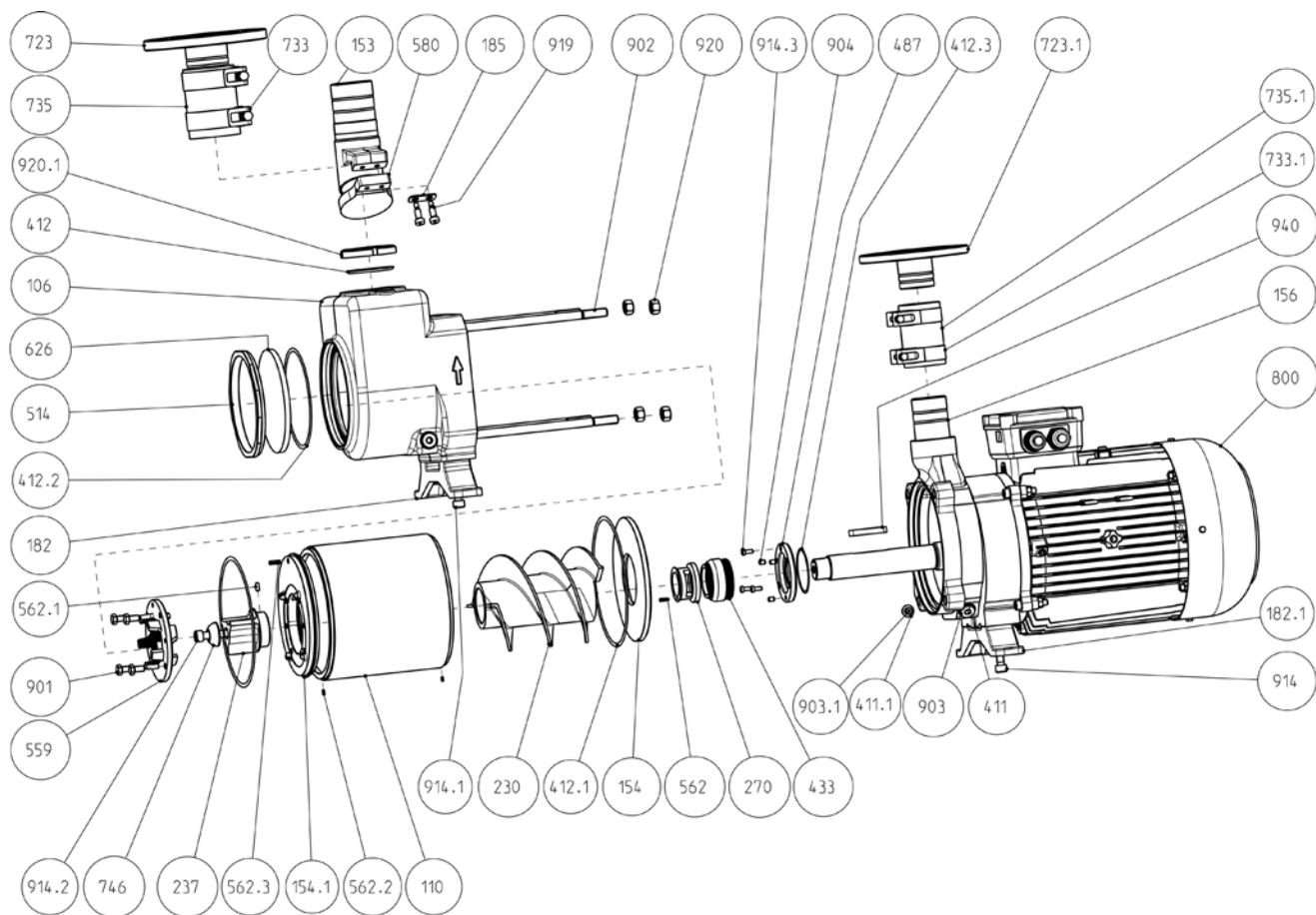


WVSP 17/70

DIMENSION DRAWING



EXPLODED VIEW



Nr.	Description
106	Suction casing with screwd plugs
110	Stage casing
153	Suction nozzle
154	Intermediate plate
154.1	Intermediate plate
182	Foot
182.1	Foot
185	Plate
230	Helical screw
237	Cutting wheel
270	Keep-off device
411	Joint ring
411.1	Joint ring
412	O-Ring
412.1	O-Ring
412.2	O-Ring
412.3	O-Ring
433	Mechanical seal
487	Seal ring holder
514	Threaded ring
559	Cutting plate
562	Spring dowel pin
562.1	Close tolerance grooved pin
562.2	Spring dowel pin

Nr.	Description
562.3	Spring dowel pin
580	Flap
626	Inspection glas
723	Flange
723.1	Flange
733	Hinge bolt clamp
733.1	Hinge bolt clamp
735	Hose
735.1	Hose
746	Cap
800	Motor
901	Hexagon head screw
902	Stud bolt
903	Screwed plug
904	Grub screw
914	Cylinder screw
914.1	Cylinder screw
914.2	Cylinder screw
914.3	Cylinder screw
919	Hexagon fitting bolt
920	Hexagon nut
940	Feather key
970	Type plate

NOTES

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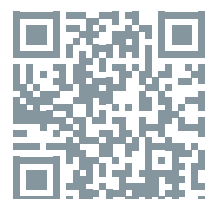


Handwriting practice lines consisting of 20 horizontal lines. Each line is preceded by a small orange square marker.



Winter.pumpen GmbH
An der Autobahn L2
91161 Hilpoltstein
Germany

Tel. +49 9174 972-0
info@winter-pumpen.de
www.winter-pumpen.de



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