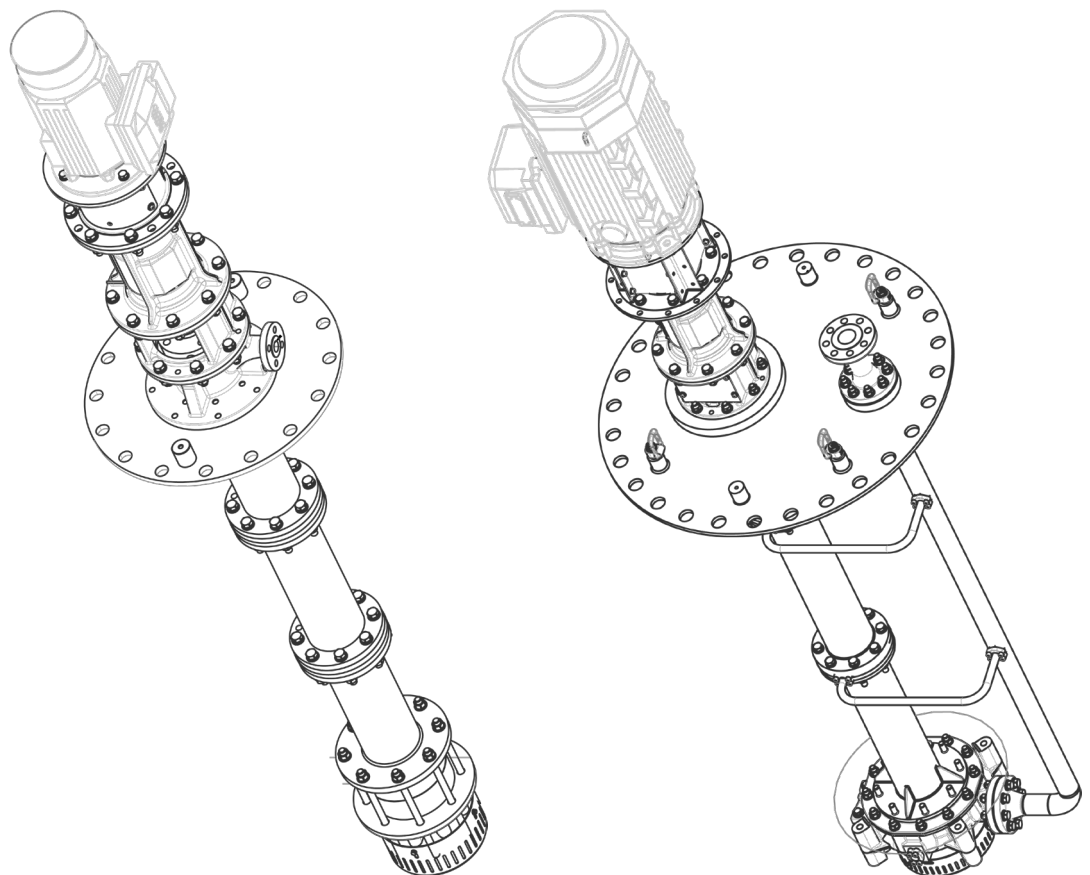


Sump pumps Series ETP

- Overview of products
- Executions
- Materials
- Types of seals
- Dimensional drawings

STROBL



We are your partner in transporting any liquid from one place to another. We offer a wide range of pumps for different applications as well as complete systems, optimized to your needs. With this strategy we are able to deliver pumps, valves and every other needed part to our customers. This strategy helps our customers to realize their projects cost and energy efficient. If we find any potential for optimizing your systems, we will help developing a specialized product fitting your needs.

Since our founding in 2006 we have permanently extended and optimized our production program to be in position to offer to our partners the possibilities to achieve their needs. Despite our short history, we are able to profit from more than 50 years of experience in building pumps and systems. This is possible through our experienced personnel, which takes the main part in our philosophy. Only with our motivated personnel we are able to take care of new developments and help our customers realizing their projects.

To meet our own and the quality requirements of our customers, we have implemented documentation standards for all production and development steps at a very early stage. This culminated in the fact that we have been certified since 2012 according to ISO 9001:2008 and since 2016 according to ISO 9001:2015. Therefore our customers can rely on a consistent quality.



Our pumps are manufactured exclusively at our headquarters in Hilpoltstein. Hilpoltstein is located approximately 35 km south of Nuremberg. Our high speed of developing of our product series led to a higher demand for production capacity. We have therefore moved into our new building in 2010, which has been extended by a new fabrication hall in 2016. This now provides the opportunity to test all pumps on a modern test bed and to carry out witnessed tests together with our customers. Due to our constant and strong growth, we reached the edges of our office capacities this year. Therefore we started building up new office space in autumn 2018.



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Pump ETP 50-125-15-4 with
integrated discharge pipe (VS1)

General description

Sump pumps of series ETP are single or multistage, normal priming, centrifugal pumps for vertical installation. These pumps are available according to API 610 - VS1, VS4 or VS6 as well. For systems with longer mounting depth, we can equip the VS1 pumps with a submersible motor.

Fields of application

Main field of application for these sump pumps is conveying clean liquids from pits and tanks. The double casing pumps, version VS6, are available for systems with low NPSH.

Due to the different materials available, conveying of various aggressive liquids in the chemical industry and oil and gas applications are possible. For application with media polluted by particles, we can equip our VS 4 pumps with impellers from our sewage water series (channel type or vortex impellers).

Our customers use the sump pumps currently for following applications:

- Drainage of tanks and reservoirs
- Conveying of liquids in industrial plants
- Water treatment
- Offshore systems and refinery

Operating data

Flow: Q up to 360 m³/h (higher flow rates on request)

Total head: H up to 320 m (higher total head on request)

Motor power: P from 1,5 kW to 110 kW

Degree of protection: IP 55 (IP68)

Connections

Discharge connection is equipped with flanges according to DIN or ANSI. The suction connection is equipped with a strainer for most versions. The VS6 execution has a suction flange according to DIN or ANSI.

Motors

As drive induction motors in construction form IMV1 are used. Motors are in efficiency class IE3 as standard.

Voltage: up to 2,2kW 230/400V, 50Hz from 3kW 400/690V, 50Hz
up to 2,6kW 265/460V, 60Hz from 3,6kW 460V, 60Hz

other voltages / frequencies, explosion proof versions as well as DC or hydraulic motors are available on request.

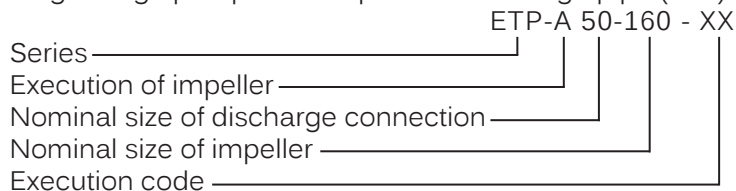
Degree of protection: IP 55

Direction of rotation: Clock-wise viewed onto fan cover

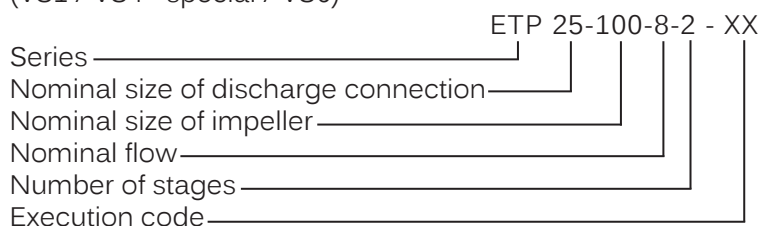
For our submersible version ETPT a motor in class of protection IP 68 will be used. Depending on application, the motor casing is available in cast iron, bronze or stainless steel, different materials on request. The submersible motor has a tandem seal with oil chamber at drive shaft. Motor versions with Ex approval are available on demand.

Type code

Single stage pumps with separated discharge pipe (VS4)



Single or multistage pumps with integrated or separated discharge pipe
(VS1 / VS4 - special / VS6)



Series:

- ETP - Standard version with oil or grease lubricated bearing
- ETPT - Submersible version, including immersible motor

Execution of impeller:

- A,B, ... - Standard version (closed multi-blade impeller)
- F, FB - Impeller with special geometry (VS4 versions)
- K2, K2B - Vortex impeller
- K3 - 2-blade channel type impeller
- O. - 3-blade channel type impeller
- O. - Semi open impeller

Nominal size of discharge connection in mm:

See dimensional drawing, characteristic curve, resp.

Nominal size of impeller:

Nominal size of impeller in millimetres

Nominal flow (VS1 / VS4 - special / VS6):

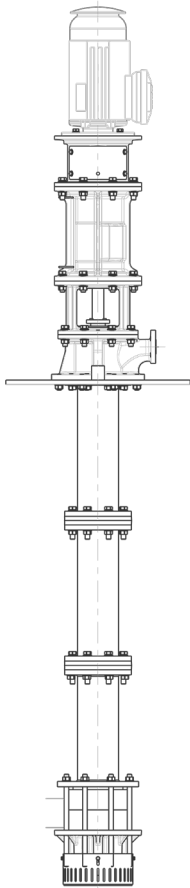
See characteristic curve

Number of stages (VS1 / VS4 - special / VS6):

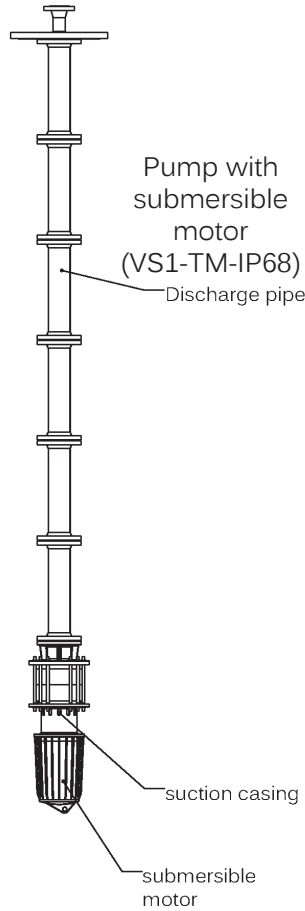
See dimensional drawing, characteristic curve, resp.

Execution code:

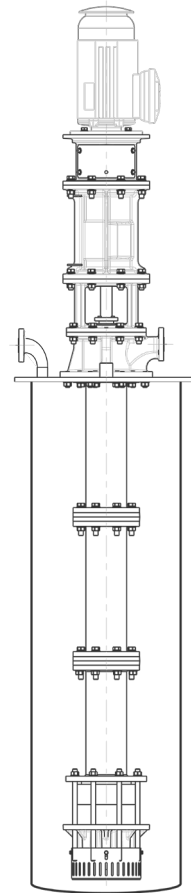
- XX - Standard version
- XX - Special versions (e.g. special connections, execution according to project specification, etc.)



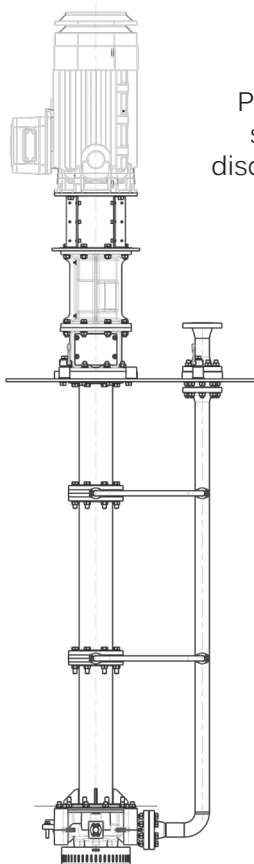
Pump with
integrated
discharge pipe
(VS1)



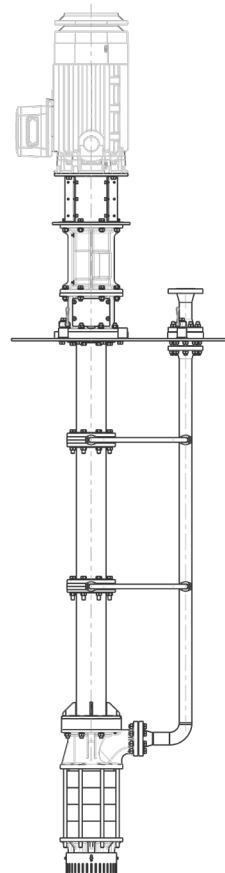
Pump with
submersible
motor
(VS1-TM-IP68)



Pump with
double casing and
integrated discharge
pipe (VS6)



Pump with
separate
discharge pipe
(VS4)



Multistage
pump with
separate
discharge pipe
(VS4-special)

Materials

Part	Material code								
	Standard - Y101	Y301	Y302	Y403	Y404	Y501	Y601	Y602	Y505
Casing	Cast iron - GG 25	Bronze	Aluminium bronze	Carbon steel	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Stage casing	Cast iron - GG 25	Bronze	Aluminium bronze	Carbon steel	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Diffuser	Cast iron - GG 20	Bronze	Aluminium bronze	Cast iron - GG 20	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Impeller	Cast iron - GG 20	Bronze	Aluminium bronze	Cast iron - GG 20	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Casing wear rings	Cast iron	Duplex	Duplex	Cast iron	Chromium steel	Duplex		Super duplex	High alloy SS
Shaft	Chromium steel	Duplex		Chromium steel		Duplex		Super duplex	High alloy SS
Column pipe	Carbon steel	Stainless steel - 316	Duplex	Carbon steel	Stainless steel - 316		Duplex	Super duplex	High alloy SS
Discharge pipe	Carbon steel	Stainless steel - 316	Duplex	Carbon steel	Stainless steel - 316		Duplex	Super duplex	High alloy SS
Bearing housing	Carbon steel	Stainless steel		Carbon steel	Stainless steel				
Sole plate	Carbon steel	Stainless steel - 316	Duplex	Carbon steel	Stainless steel - 316		Duplex	Super duplex	High alloy SS
Sliding bearing	Silicon carbide / Silicon carbide								
Suction strainer	Carbon steel	Stainless steel - 316	Duplex	Carbon steel	Stainless steel - 316		Duplex	Super duplex	High alloy SS
Material code acc. to API 610	I-1			S-1	C-6	A-8	D-1	D-2	

Base execution	Impeller / Diffuser options							
	Bronze	Aluminium bronze	Carbon steel	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Y101	X	X	X	X	X	X	X	X
Y301		X			X	X	X	X
Y302					X	X	X	X
Y403	X	X	X	X	X	X	X	X
Y404	X	X			X	X	X	X
Y501						X	X	X
Y601							X	X
Y602								X

Material	Cast material	German description	German material code number	EU description	EU material code number	ASTM - UNS - description
Cast iron	X	GG 20	0.6020	EN-GJL-200	JL 1030	A48 - Grade 30
	X	GG 25	0.6025	EN-GJL-250	JL 1040	A48 - Grade 35
Bronze	X	G-CuSn10	2.1050.01	CuSn10-C	CC480K-GS	B505 - C90700
Aluminium bronze	X	G-CuAl10Ni	2.0975.01	CuAl10 Fe5Ni5-C	CC333G-GS	B505 - C95500
Carbon steel		St 37	1.0037	S235JR	1.0037	A29 - 1013
		C 22	1.0402	C22	1.0402	A29 - 1020
	X	GS-C25	1.0619	GP240GH	1.0619	A216 - WCB - J03002
Chromium steel	X	G-X4 CrNi 13-4	1.4317	GX4CrNi 13-4	1.4317	A487 - CA6NM - J91540
		X20 Cr13	1.4021	X20Cr13	1.4021	A276 - S42000
Stainless steel	X	G-X5 CrNiMo 19-11-2	1.4408	GX5CrNiMo 19-11-2	1.4408	A351 - CF8M - J92900
		X5 CrNiMo 17-12-2	1.4401	X5CrNiMo 17-12-2	1.4401	A276 - S31600
		X6 CrNiMoTi 17-12-2	1.4571	X6CrNiMoTi 17-12-2	1.4571	A276 - S31635
Duplex	X	G-X2 CrNi MoN 22-5-3	1.4470	GX2CrNiMoN 22-5-3	1.4470	A995-4A - J92905
	X	G-X2 CrNiMo CuN 25-6-3-3	1.4517	Gx2CrNiMo CuN 25-6-3-3	1.4517	A995-4A - J93372
		X2 CrNiMoN 22-5-3	1.4462	X2CrNiMoN 22-5-3	1.4462	A276 - S31803
Super duplex	X	G-X2 CrNi MoN 26-7-4	1.4469	GX2CrNiMoN 26-7-4	1.4469	A995-5A - J93404
High alloy stainless steel	X	G-X2CrNiMo CuN 20-18-6	1.4557	GX2CrNiMoN 20-18-6	1.4557	A744 - 6MO - J93254
		X1 CrNiMo CuN 20-18-7	1.4547	X1CrNiMoCuN 20-18-7	1.4547	A276 - 6MO - S31254

In many cases materials can be delivered according to special standards (NORSOK, etc.). Other materials are available on request.

Types of seals

Pumps with separated discharge pipe (VS4 / VS4-special)					
Part	Seal code				
	Z990	Z980	Z985	Z180	Z380
Rotating ring				Carbon - A	Carbon - A
Stationary seat				SiC - Q	SiC - Q
Elastomer				NBR	FKM - V
Spring				1.4571 - G	1.4571 - G
Metal parts			Bronze		1.4571 - G
Remark	Shaft through sole plate without seal	Non-contacting labyrinth on sole plate as seal	Radial lip seal as shaft seal on the sole plate	Dry running single acting gas seal	Dry running double acting gas seal. Necessary seal system is not included.

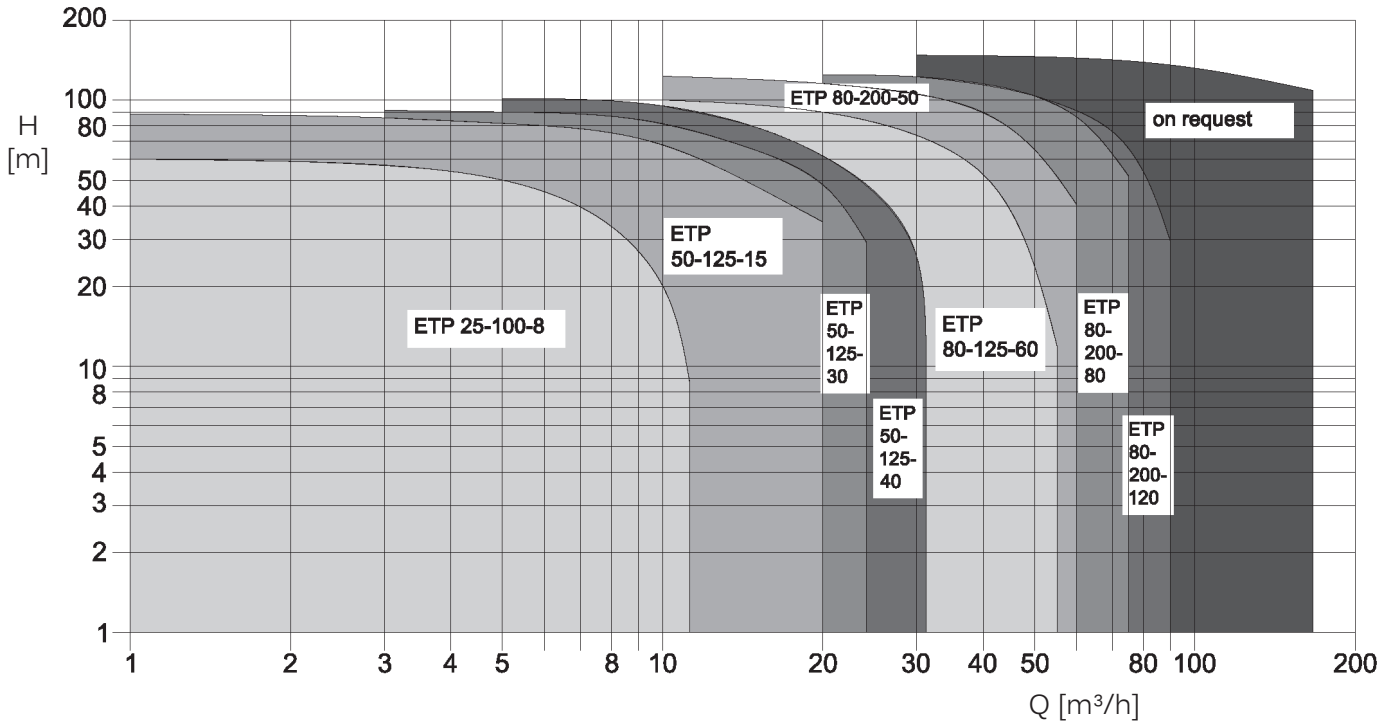
Pumps with integrated discharge pipe (VS1 / VS6)								
Part	Seal code							
	Z102	Z103	Z104	Z105	Z201	Z202	Z203	Z204
Rotating ring	Carbon - A	Carbon - A	SiC - Q	SiC - Q	Carbon - A	Carbon - A	SiC - Q	SiC - Q
Stationary seat	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q
Elastomer	FKM - V	EPDM - E	FKM - V	EPDM - E	FKM - V	EPDM - E	FKM - V	EPDM - E
Spring	1.4571 - G							
Metal parts	1.4571 - G							
Remark	Rubber bellow seal for pressure up to 12 bar.	Rubber bellow seal for pressure up to 12 bar.	Rubber bellow seal for pressure up to 12 bar.	Rubber bellow seal for pressure up to 12 bar.	Balanced mechanical seal for pressure up to 40 bar.	Balanced mechanical seal for pressure up to 40 bar.	Balanced mechanical seal for pressure up to 40 bar.	Balanced mechanical seal for pressure up to 40 bar.

Pumps with integrated discharge pipe (VS1 / VS6)							
Part	Seal code						
	Z302	Z303	Z ..	Magnetic drive	Z801	Z802	Z804
Rotating ring	Carbon - A	Carbon - A	Seal in special execution with quench or tandem arrangement or cartridge versions according to customer specification. As far as necessary we can offer the required seal fluid supply systems.	Magnet	NdFeB	SmCo	SmCo
Stationary seat	SiC - Q	SiC - Q		Sliding bearing	SiC / SiC		
Elastomer	EPDM - E	FKM - V		Inner metal parts	1.4462 - G1		
Spring	1.4571 - G	1.4571 - G		Can	1.4571 - G		Titan - T
Metal parts	1.4571 - G	1.4571 - G					
Remark	Double acting mechanical seal for pressure up to 40 bar. Without necessary seal fluid supply system	Double acting mechanical seal for pressure up to 40 bar. Without necessary seal fluid supply system		Remark	Coupling for pressure up to 16 bar and temperatures up to 120°C	Coupling for pressure up to 16 bar and temperatures up to 250°C	Coupling for pressure up to 100 bar and temperatures up to 250°C

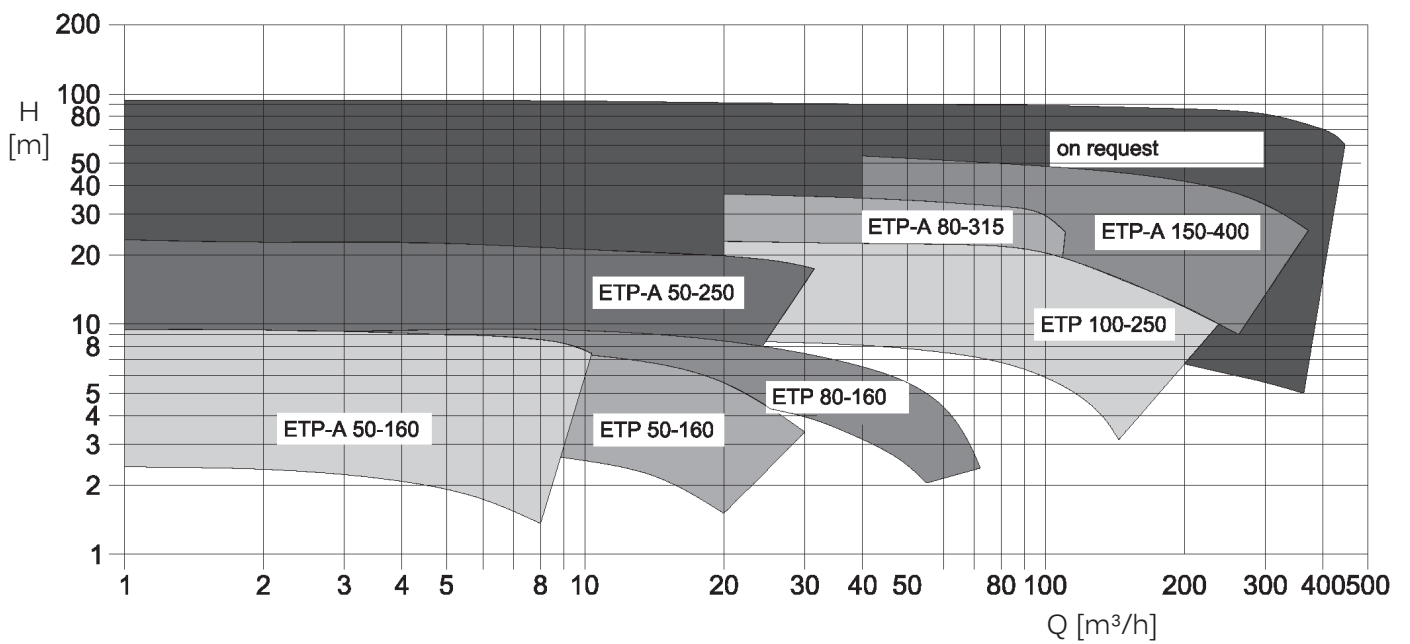
Other seal versions on request.

Characteristic curves

Multistage pumps (VS1 / VS1-TM-IP68 / VS4-special / VS6) - 50 Hz - 1500 rpm

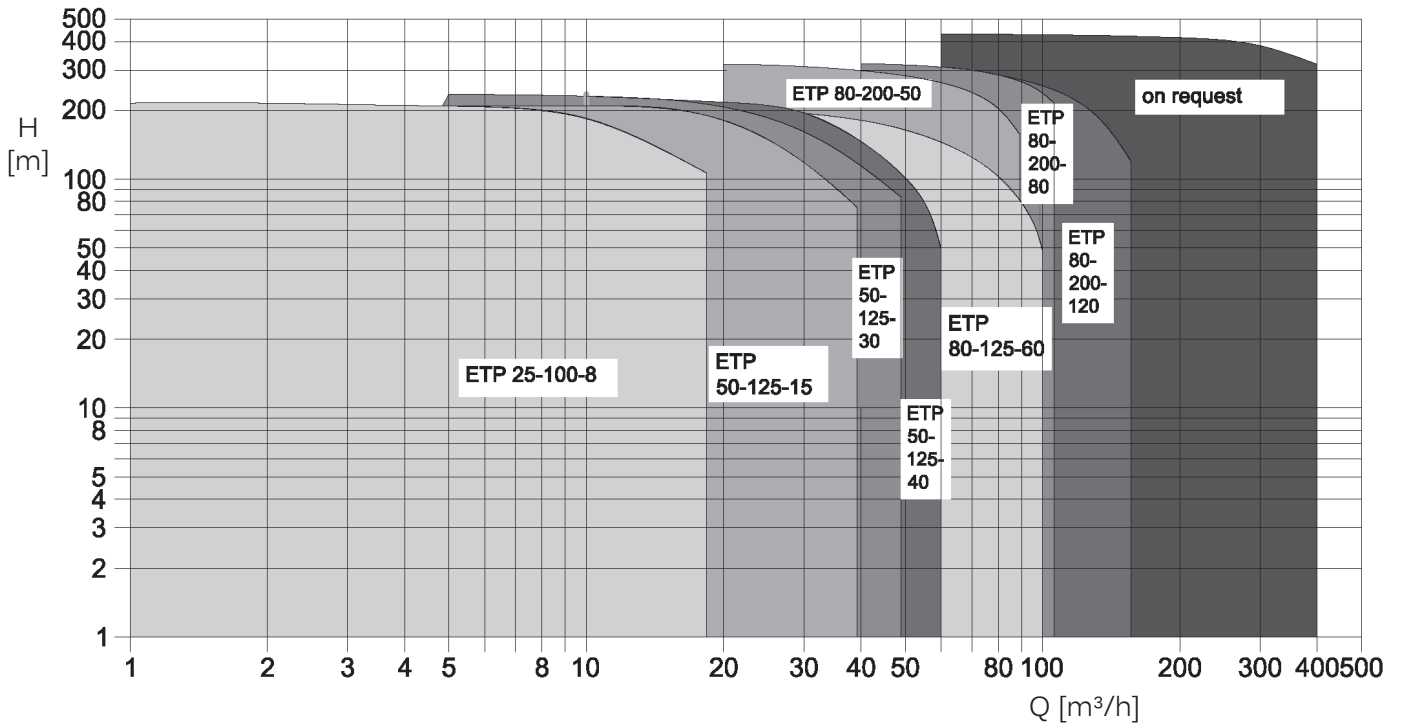


Single stage pumps (VS4) - 50 Hz - 1500 rpm

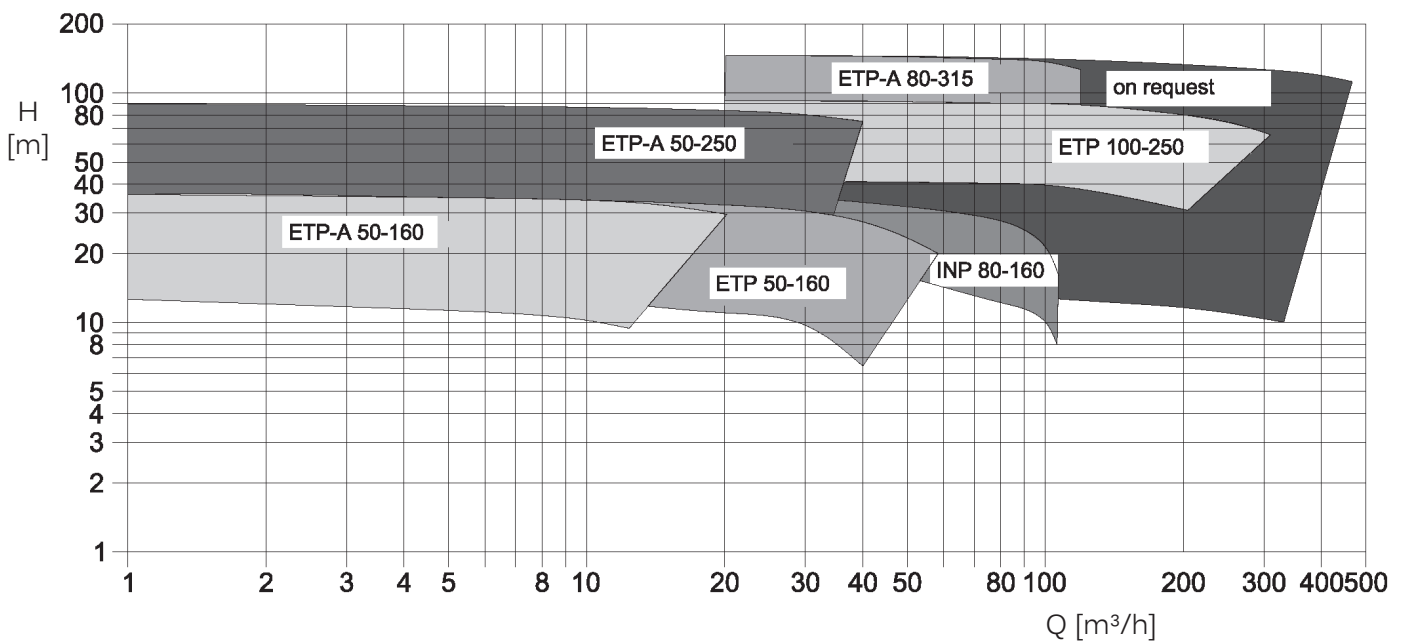


Characteristic curves

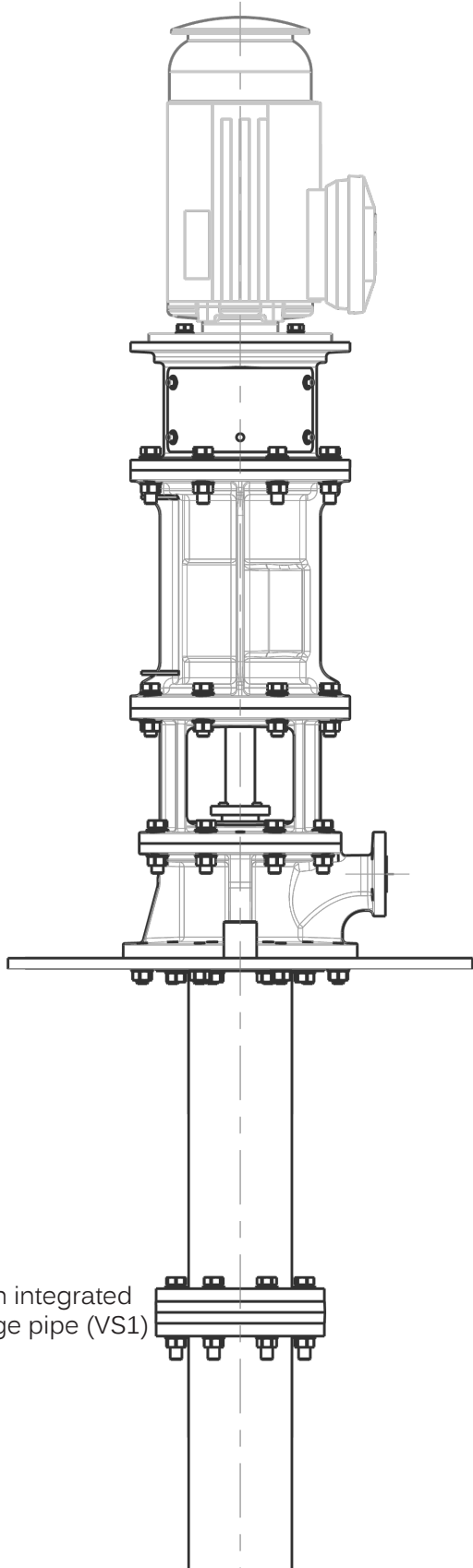
Multistage pumps (VS1 / VS1-TM-IP68 / VS4-special / VS6) - 50 Hz - 3000 rpm



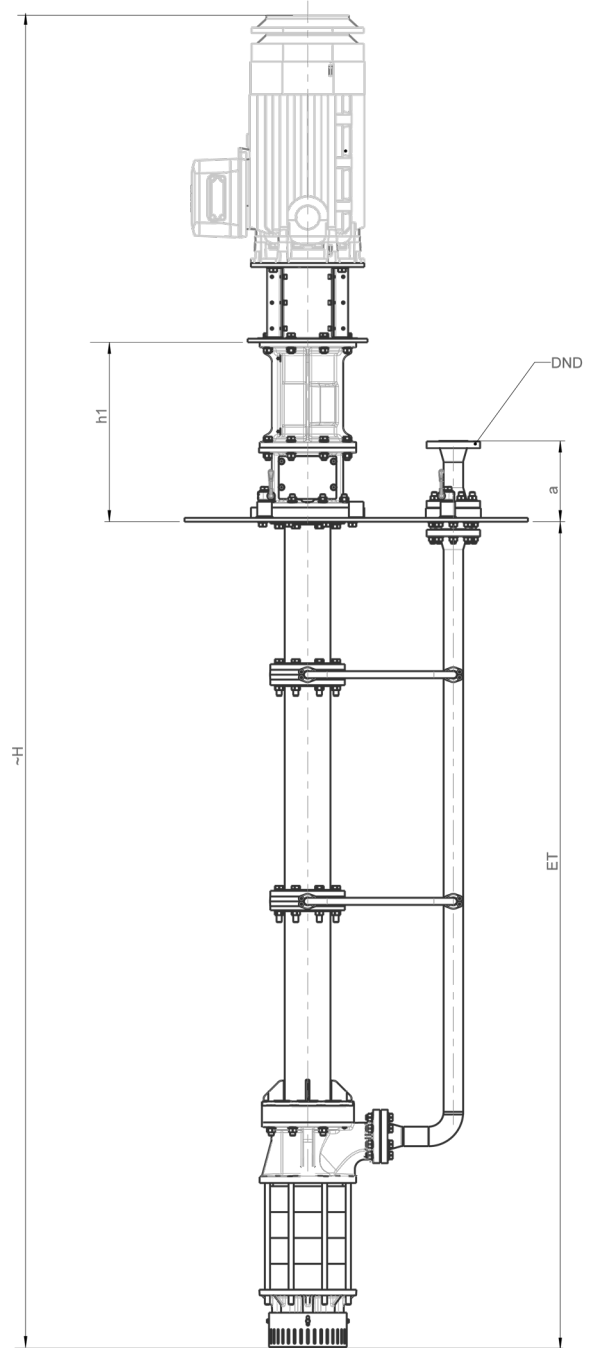
Single stage pumps (VS4) - 50 Hz - 3000 rpm



Dimensional drawings



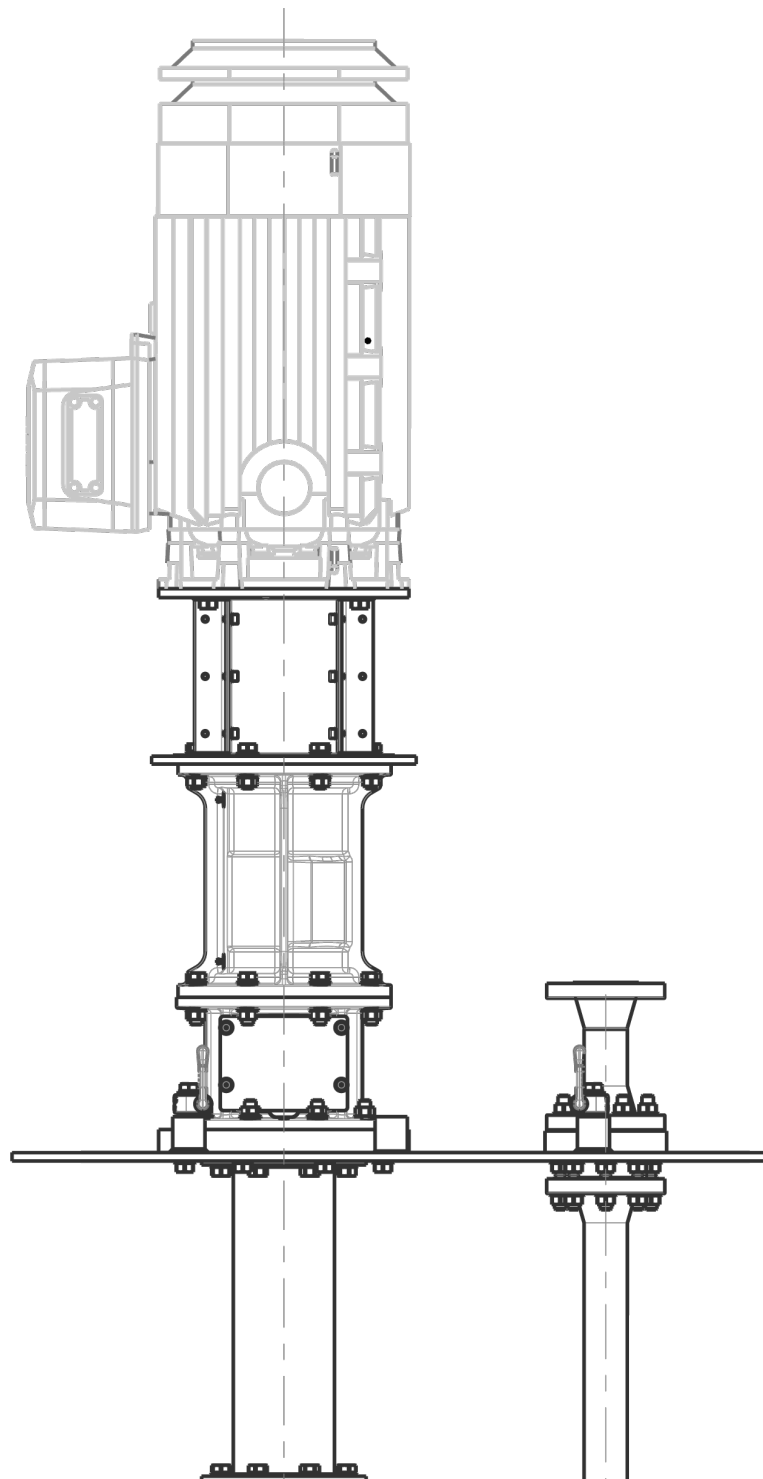
ETP with integrated discharge pipe (VS1)



ETP multi stage with separate discharge pipe (VS4-special)

Dimensions on request - sole plate as well as mounting length acc. to customer specification.

Dimensional drawing



ETP with separated
discharge pipe (VS4)

Dimensions on request - sole plate as well as mounting length acc. to customer specification.

Sump pumps
Series ETP

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