



**HABERMANN AURUM
PUMPEN**

DREDGERS ADST SERIES

**SUCTION DREDGERS
SUBMERSIBLE SLURRY
PUMPS**

www.habermann-aurum-pumpen.de



INNOVATIVE
TECHNOLOGY

HYDRAULIC
SYSTEM

MODULAR
CONSTRUCTION

ELECTRIC
DRIVE

DIESEL
DRIVEN

Contents.

Company

01	Habermann Aurum Pumpen	4
----	--	---

Dredgers

02	General description	6
03	ADST 100E	8
04	ADST 200M/300M	10
05	ADST 400E/400M	12
06	ADST 600M	14
07	Booster Station	16

Pumps

08.	Submersible pumps for dredgers	19
	Challenger®	20
	Heracles®	24



HABERMANN AURUM
PUMPEN



**We pump quality
into your project.**

DA

Habermann Aurum Pumpen.



Head office in Bochum

Since 1927

Habermann Aurum Pumpen is one of the leading manufacturers of centrifugal pumps, ideal for processing slurries. With almost 100 years of experience and more than 30,000 pumps installed worldwide, serving various applications, we have built a strong market position across the globe.

Our fundamental goal is to create the most durable and sustainable industrial pumps by combining our multi-decade experience with the state-of-the-art technologies. Our pumps are integrated into a wide variety of industries, such as:

mining and mineral processing, energy industry, metallurgy, chemical and pigment industries, tunnelling and special civil engineering.

We are continuously improving our pumping systems to ensure their exceptional quality and optimal performance capabilities. Based on the technical skills of our workforce, we customize and manufacture pumps you can rely on, most of which have been in trouble-free operation for more than 60 years, which speaks for their longevity, safety and efficiency. We always ensure your industrial

needs are covered with our proven operational designs combined with the most reliable and robust materials to make a functional unit.

Our broad product line of pumps, valves and fittings complies with the most diverse and challenging pumping requirements. Thanks to our in-house engineering we can find solutions to any system demand, regardless of technical complexity or application conditions. We have built an excellent quality profile, which allowed us

to establish Habermann Aurum as a high-valued and reliable partner for industrial pumping systems. We proudly design, produce

and install our pumps all over the world. Through our network of partners and branch offices, our market presence extends across continents from Europe to America, Asia and Africa.

We are well prepared to meet current and future market demands and to support our customers in the best possible way.

**Tradition
meets modern
technologies.**

02

General Description.

Dredgers of ADST series

Description

We specialize in advanced dredgers and pumping equipment. Our universal modular suction dredgers, hydraulic washout system and submersible slurry pumps incorporate innovative technologies for efficient and reliable operations. With our comprehensive approach and state-of-the-art methods, we ensure increased uptime and minimal downtime for optimal performance.

Construction

Our dredgers are distinguished by their universal modular construction and utilization of water-jet system. The dredger is comprised of multiple transportable assemblies, including a central pontoon, two side pontoons, a diesel-generating set mounted on a shared frame with the dredger master's cabin (in the case of the M design), and a gantry for dredge pump movement.

Equipment arrangement

The dredge pump (Challenger® or Heracles®) in the non-operating position is installed on an easily demountable platform between the two side pontoons, then by means of an electric winch and a modular system, after the platform demounting, it is submersed in the area of pulp intake. The dredge master's cabin with control panel is located on the common frame with the diesel-generating set (for M design) and located on the central pontoon. All the other equipment is also installed aboard. With the aim of monitoring the dredge pump operation, the remote-control panel is equipped with a current consumption control device and a pressure gauge.

The dredgers of the ADST series can be manufactured in two versions:

Autonomous M (mobile) with electric power supply from diesel-electric set installed aboard;

Dependent E (electric) with electric power supplied from the shore.

Equipment set

The dredger is completed with:

- rubberized fabric hose of the water jet ring or
- rubberized fabric hose of the dredge pump. On the client's request the dredger can be completed with a floating pipeline.

The dredgers of the ADST series are based on the concept of dredging with a submersible pump Challenger® or Heracles® that is specifically designed for high viscosity mixtures and high solids content mixtures. There is no need to equip the dredger of the ADST series with a ladder. In this design an electric submersible pump with an embedded electromotor and agitator for soil swelling are used. The pump is equipped with a jet ring with nozzles which ensure hydraulic ripping of the soil. Dredger can handle the solids content up to 30%. The horizontal pulp transportation is 500 m. The dredging depth is limited to 30 m. The pumps of special design can dredge the soil up to 50 m of depth.



Example of the dredger ADST serie



The ADST serie has proven to be highly effective in the excavation of sand

D3

ADST 100E.

Small-sized dredger

Description

The ADST 100E dredger, equipped with a submersible slurry pump Challenger® or Heracles® and water jet system, is a small-sized, non self-propelled electric dredger designed for efficient performance. With its compact size and electric-powered operation, it offers versatility and maneuverability in various dredging applications. The ADST 100E series is specifically designed to excel in smaller-scale projects.

Construction

The dredger is designed with two pontoons connected by the catamaran type. The dredger design allows it to be transported in an assembled state. The following dredger mechanisms are installed on the hull: the boom of dredging pump hoisting-sinking, gantry and electric devices for boom operation and dredger maneuvering. The water jet pump and control panel for operation of dredger mechanisms are installed on the hull. The control platform and panel are protected from atmosphere precipitation by means of a shed. The operation of the dredging pump is controlled by the current recording device, which indicates the current consumption of the motor. The dredger mounting is carried out directly on water within one day.

Application

It is perfect for excavating soils of categories 1 to 3, cleaning water basins from silt, sand and other non-metallic materials, and performing dredging operations in small channels and lakes. With its hydraulic ground ripping capability, achieved through a high-pressure pump and water jet system, it efficiently loosens and removes sediment. The dredger's submersible dredging pump enables seamless pulp intake from underwater locations.



Example of ADST 100E dredger with electric drive

Main technical characteristics

Technical details	ADST 100E	
Capacity by pulp [m³/h]	90	60
Maximum dredging depth [m]	5	5
Minimum dredging depth [m]	1	1
Dredging pump [type]	submersible	submersible
Pump head	15 -20	12 - 15
Drive power of the dredging pump [kW]	11 - 15	5,5 - 7,5
Horizontal pulp discharge distance [m]	up to 300	up to 200
Average capacity by solid materials [m³/h]	25	15
Ground ripping	hydraulic (waterjet)	hydraulic (waterjet)
Waterjet ripper pump [type]	monoblock	monoblock

Hydraulic ripper pump characteristics	ADST 100E	
Capacity [m³/h]	30	16
Head [m.w.c]	60	56
Drive power [kW]	9,2	7,5
Dredger working travel	anchor-rope	anchor-rope

Dredging pump boom hoisting-sinking mechanism	ADST 100E	
Hoisting capacity [ton-force]	1,5	1,0
Installed dredger power [kW]	30	23
Mains voltage [V]	380	380
Nominal diameter of the floating slurry pipeline [mm]	100	80

Overall dimensions of the dredger	ADST 100E	
Maximum length [m]	4,8	3,75
Width [m]	2,4	2,4
Height [m]	3,5	3,5
Mean draught [m]	0,4	0,4
Water displacement [t]	4,0	4,0
Draft [m]	0,7	0,7

D4

ADST 200M
ADST 300M.

Diesel driven
dredger

Description

ADST 200M and 300M autonomous dredgers, equipped with the submersible slurry pump, offer powerful performance and autonomy. The dredgers have autonomous assemblies that can be transported by truck, including a central pontoon, two side pontoons, a skid-mounted diesel-generator unit and a dredger master's cabin. Pulp intake is accomplished using a submersible dredging pump. This allows for easy removal and transport of materials from underwater locations.

Application

Ground ripping operations are hydraulic, utilizing a waterjet system with a jet ring and a pump for technical water supply. This method efficiently loosens and removes sediment for effective dredging. 200M and 300M are applied for excavation of soils of the 1-3 category at a depth of up to 30 meters, excavation of sand and other ore and non-metallic materials; dikes, roads, building sites aggradation and bottom dredging operations.



Example of autonomous diesel driven dredger ADST 200M

Main technical characteristics

Technical details	ADST 200M/ADST 300M
The hull length on the construction waterline [m]	8,7
The maximum hull width [m]	4,4
The overall width [m]	5,1
Midship depth [m]	1
Draught at full load [m]	0,5
Water displacement [t]	15
Maintenance crew, person(s) per one shift	2
Pump for excavation works	submersible, Challenger® or Heracles®
Capacity by pulp (mixture) [m³/h]	up to 360
Capacity by soil [m³/h]	up to 120 (depends on the soil characteristics)
Minimum dredging depth [m]	1,5
Maximum dredging depth [m]	30
Horizontal discharge distance (without booster set) [m]	up to 500
Discharge pipe diameter [mm]	150
Pump electric power [kW]	37 – 55
Dry pump weight [kg]	950
Soil grains maximum diameter [mm]	60
Ground ripping	hydraulic
Hydraulic ripper pump [type]	cantilever, monoblock
Power supply source	from the shore, diesel generating set
Power of diesel-generator [kW]	up to 160
Guaranty period of the dredger [months]	12



ADST 200M/300M autonomous diesel driven dredgers, featuring the submersible slurry pumps Challenger® or Heracles®, offer exceptional performance and convenience. With self-contained mounting assemblies, hydraulic ground ripping capabilities and efficient pulp intake, these dredgers are ideal for a wide range of dredging applications.



ADST 400E ADST 400M.

with dredger pump

Description

The ADST 400E and 400M, equipped with the submersible dredge pump Challenger® or Heracles®, are available in two variations: electric with shore power supply and autonomous with a diesel-electric station on the dredger deck. The jet system operates with a minimum pressure of 8 bar, effectively breaking down sediments, minerals, sand and gravel from the seabed, enabling the continuous conveyance of a water-sand mixture with a density of up to 1.4 kg/m³ and a solids content of up to 30%.



Submersible slurry pump Heracles® installed on ADST 400E

Application

The non-self-propelled dredgers ADST 400E and 400M, featuring a medium capacity, are used for dredging soils, water cleaning and extracting non-metallic materials from water bottoms, as well as for beach nourishment. These dredgers operate with a hydraulic soil ripping system using a water jet system with a nozzle ring and submersible pump, which enables efficient extraction of sand, ores and other non-metallic materials.



ADST 400E dredgers, electric motor system

Main technical characteristics

Technical details	ADST 400E	ADST 400M
Power supply source	Shore power source 380 V	Diesel generator aboard
Capacity by pulp [m³/h]	400	
Capacity by soil [m³/h]	up to 130	
Maximum dredging depth [m]	30	
Minimum dredging depth [m]	2	
Dredging pump [type]	submersible, Challenger® or Heracles®	
Drive power of the dredging pump [kW]	37	
Dredger manometric head [m]	30	
Horizontal pulp discharge distance [m]	up to 500	
Average capacity by solid material [m³/h]	110	
Ground ripping	hydraulic (waterjet)	
Hydraulic ripper pump	cantilever centrifugal	

Hydraulic ripper pump characteristics	ADST 400E	ADST 400M
capacity [m³/h]	100	
head [m.w.c]	80	
drive power [kW]	37	
Dredger working travel	anchor-rope	

Dredging pump boom hoisting-sinking mechanism	ADST 400E	ADST 400M
Hoisting capacity [ton-force]	5	
Installed dredger power [kW]	140	
Mains voltage [V]	380	400
Rope capacity [m]	50	
Nominal diameter of the floating slurry pipeline [mm]	200	

Overall dimensions of the dredger	ADST 400E	ADST 400M
Maximum length [m]	12,5	
Width [m]	5,6	
Height [m]	4,8	
Mean draught [m]	0,5	
Water displacement [t]	18	

06

ADST 600E. with electric drive

Description

The ADST 600E high performance dredger with electric drive is a non self-propelled dredger specifically designed for a range of applications. This series of dredgers is capable of transporting sand-gravel mixtures over distances of up to 350m. The submersible pump Heracles® is specially engineered for heavy-duty applications with high solids content of up to 40%. The diving depth of the pump reaches up to 30m. Jet system equipped with a jet pump, generating a minimum pressure of 8 bar, is installed to loosen the conveyance medium.

Construction

The construction of the dredger consists of a hull with two central pontoons and two side pontoons. The submersible pump is located on the suspension in the front part of the pontoons. The dredger does not have its own ship propulsion and is moved over the water surface in the extraction area with winches attached to the shore. It is user-friendly and allows for easy replacement of spare parts directly on the dredger without removing the pump. For this purpose, the dredger is equipped with a special assembly platform and operated by a team of two personnel.



ADST 600E high performance dredger

Main technical characteristics

Technical details	ADST 600E
Capacity by pulp [m³/h]	up to 720
Capacity by soil [m³/h]	up to 220
Maximum dredging depth [m]	30
Minimum dredging depth [m]	2,5
Dredging pump [type]	submersible, Challenger® or Heracles®
Drive power of the dredging pump [kW]	110
Manometric head [m.w.c]	up to 40
Horizontal pulp discharge distance [m]	up to 500 (depends on the technical characteristics)
Average capacity by solid materials [m³/h]	up to 200 (depends on the soil characteristics)
Ground ripping	hydraulic (waterjet)
Hydraulic ripper pump	monoblock

Hydraulic ripper pump characteristics	ADST 600E
capacity [m³/h]	180
head [m.w.c]	80
drive power [kW]	55
Dredger working travel	anchor-rope

Dredging pump boom hoisting-sinking mechanism	ADST 600E
Hoisting capacity [ton-force]	6
Installed dredger power [kW]	195
Mains voltage [V]	380
Rope capacity [m]	50
Nominal diameter of the floating slurry pipeline [mm]	250



Non self-propelled dredger is applied for bottom dredging operations, waters cleaning, excavation of non-metallic materials from waters bottom, beach nourishment and sand excavation.

D7

Booster Station.

Hydraulic and mechanical complex

Description

The booster station comprises the ADST electric dredge, featuring a submersible dredge pump, and a pumping station with a cantilever dredge. This fully automated complex, controlled from a single workstation, is capable of pumping sand-gravel slurry up to one kilometer without compromising the flow rate. The hydraulic and mechanical system includes booster pumps for hydraulic ripping at the soil intake area during dredging operations.

Equipped with frequency control, the dredge allows for precise control of pumping parameters based on the slurry consistency and other hydraulic system variables. The hydraulic and mechanical complex can be operated with either the pumping station or directly by the dredger, with a range of up to 500m. Additionally, we have successfully tested and implemented our own design and manufactured floating plastic discharge pipeline and power cable system, supported by steel floats.



Booster station



**Made in Germany.
Made for the World.**



Submersible slurry pumps.

special designed for
ADST dredgers

08

Description

Our submersible motor pumps, specially designed for ADST dredgers, offer outstanding performance in a wide range of dredging applications. The Challenger® and Heracles® series are known for their flexibility and durability, making them ideal for heavy-duty tasks. Featuring a direct flanged connection to the submersible motor, these pumps are designed for reliable and efficient wet installations. Moreover, their hydraulic motor-driven design provides the dry usage as well. With their robust construction and specialized design, our submersible motor pumps are the perfect choice for ADST dredgers, providing reliable performance and exceptional functionality in demanding dredging projects.

Key Advantages

Innovative technology: The pumps are designed and manufactured using the latest technologies.

High wear-resistance: The most robust and long-proven designs of HPK, NPW and KB series are used for the construction of these pumps.

High efficiency: New technologies in pump production enable better geometry of the slurry flow path, which significantly improves unit's efficiency and extends wear life of all wet parts compared to other pump manufacturers. The three main differences between Heracles® and

Challenger® are the drive method, the ball passage dimension and the shaft seal type. These pumps can be adapted to the properties of the process media, which makes them suitable for use with neutral, alkaline and lightly acidic media.

	Challenger®	Heracles®
Capacity		
Max. Flow rate [m³/h]	950	1000
Max. Head [m.l.c.]	56	52
Pump speed [min⁻¹]	1470	1475
Discharge nozzle diameter [DN]	65 – 250	100 – 250
Max. Immersion depth [m] without compensating pipe	30	30
Temperature [°C]	12 – 40	12 – 40
Standard cable length [m]	8	8
Corrosion resistant at pH	5 - 9	5 - 9

Challenger®

Submersible pump for medium to heavy wear applications

To ensure flawless operations of the ADST dredgers in medium to heavy wear applications, it is recommended to use the Challenger® submersible pump with a metal liner (CRM). The Challenger® pump offers various drive options and hydraulic sizes, allowing for optimal pump configuration to meet specific application requirements. It is easily transportable, user-friendly and available with or without an actuator. The metal liner design ensures efficient pumping performance in a wide range of harsh conditions.

- 20
- 1

 Electric motor (The size depends on pump capacity)
- 2

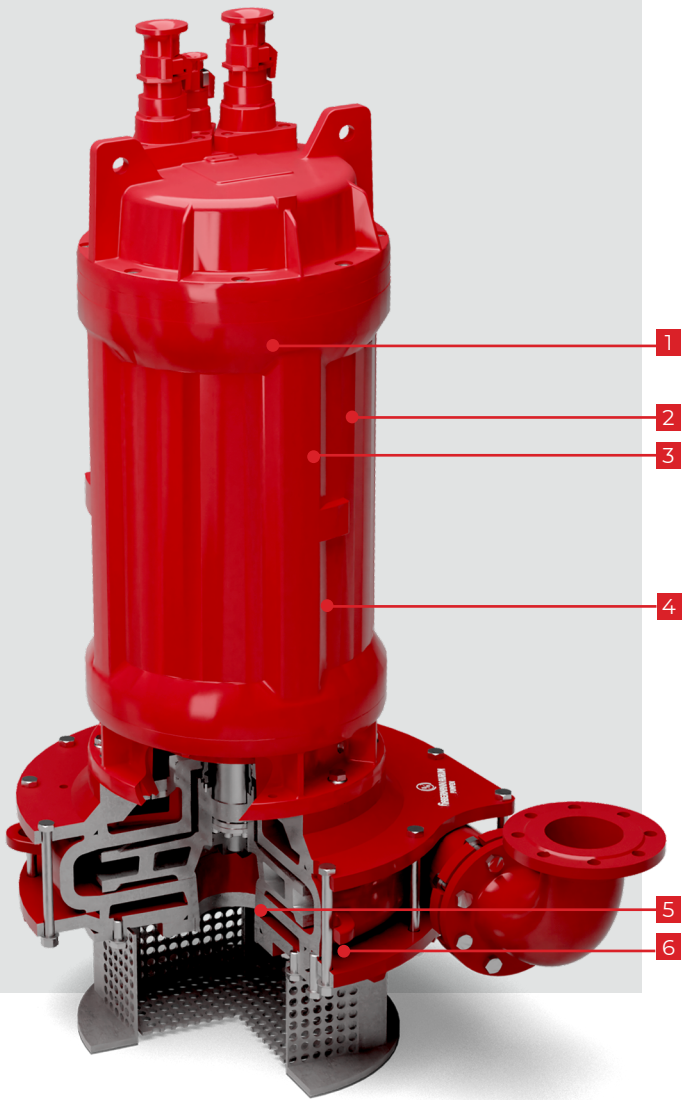
 Barrier oil chamber
- 3

 High-quality mechanical seal
- 4

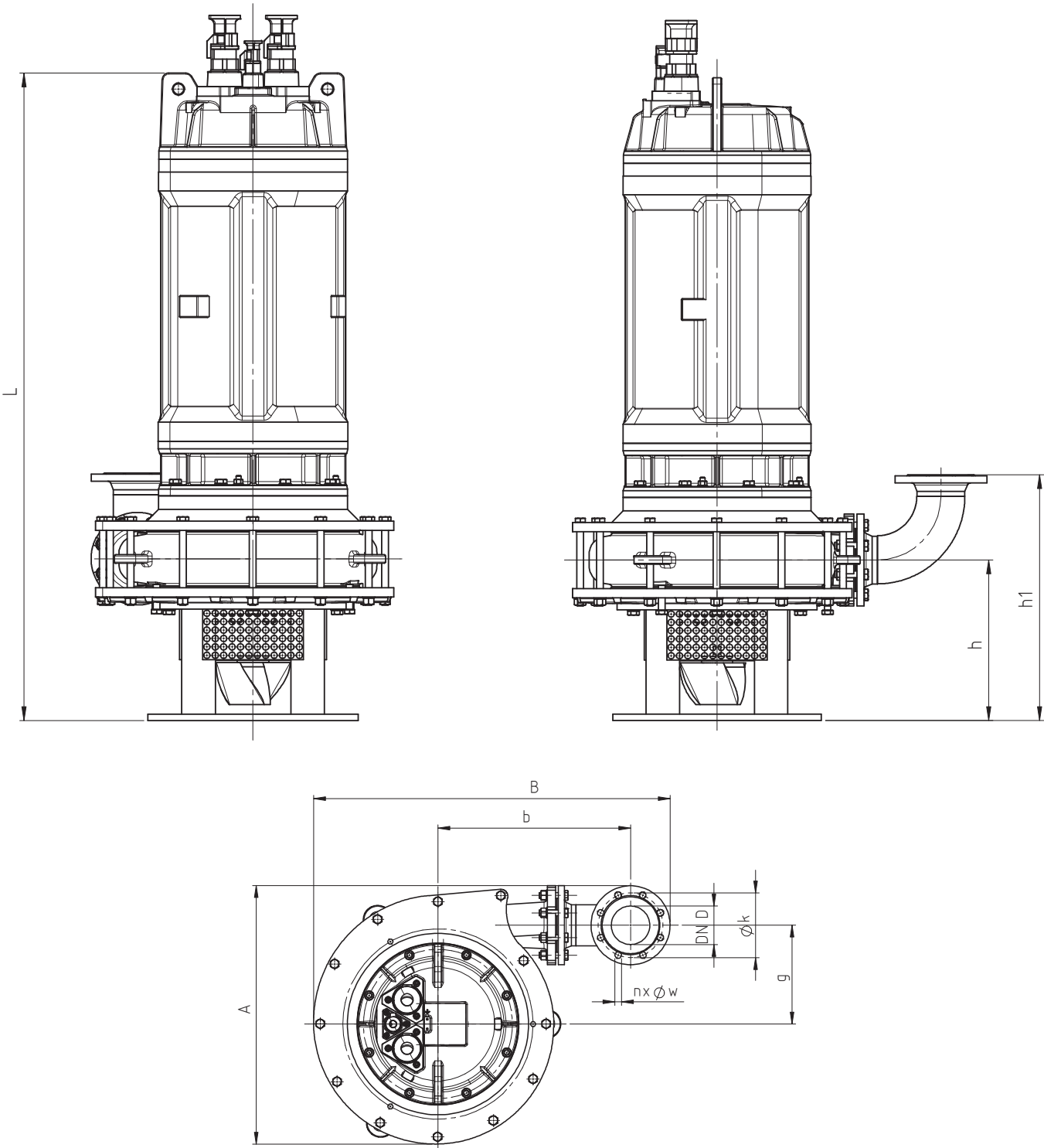
 Shaft sealing ring is integrated into the submersible motor
- 5

 With / without agitator
- 6

 Robust pump feet with strainer



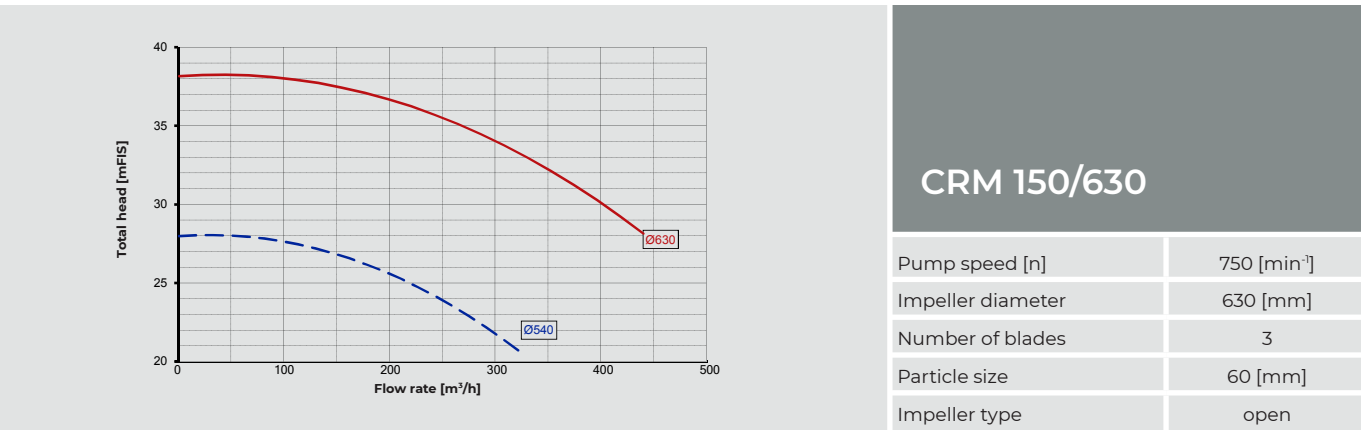
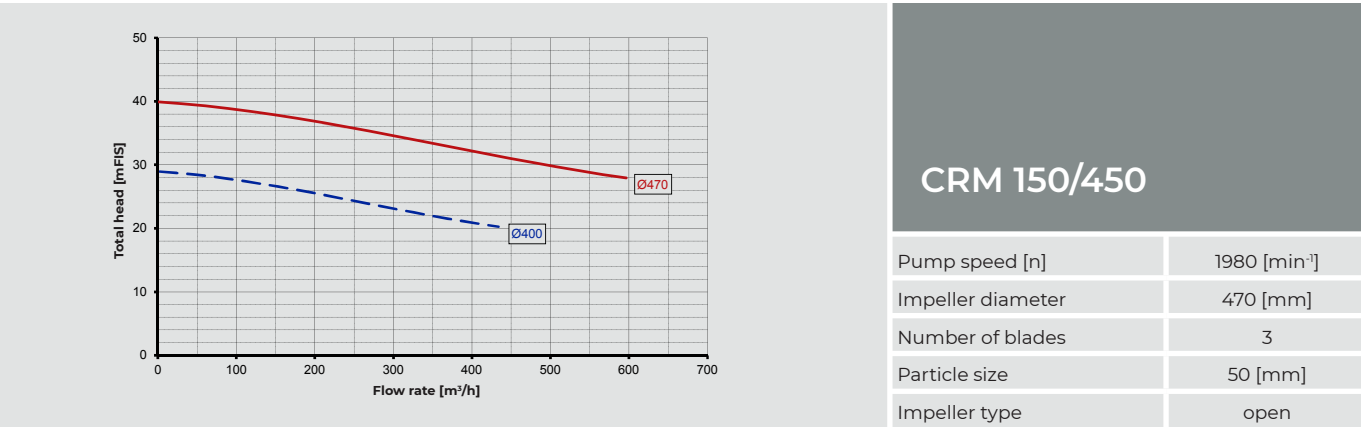
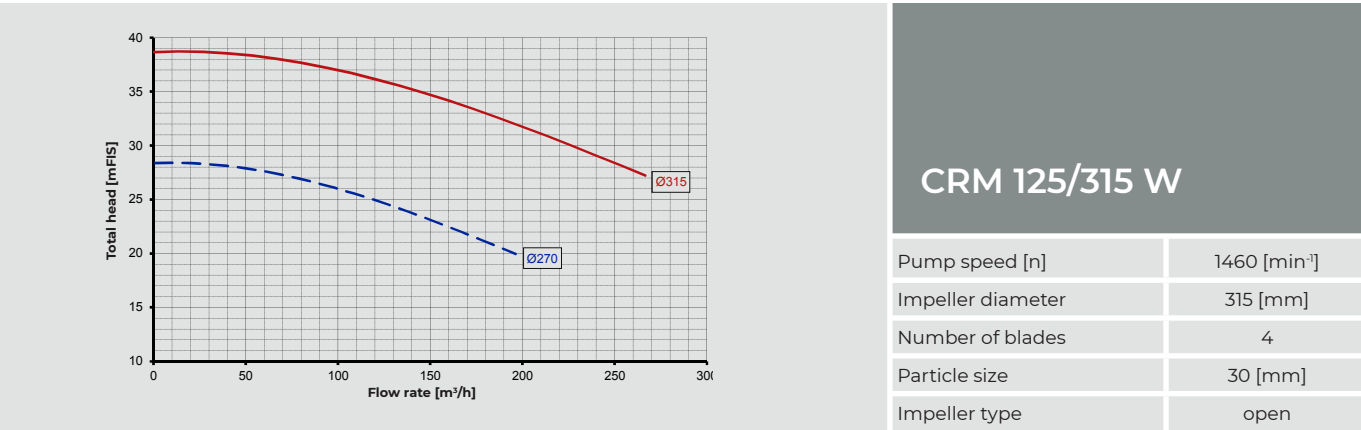
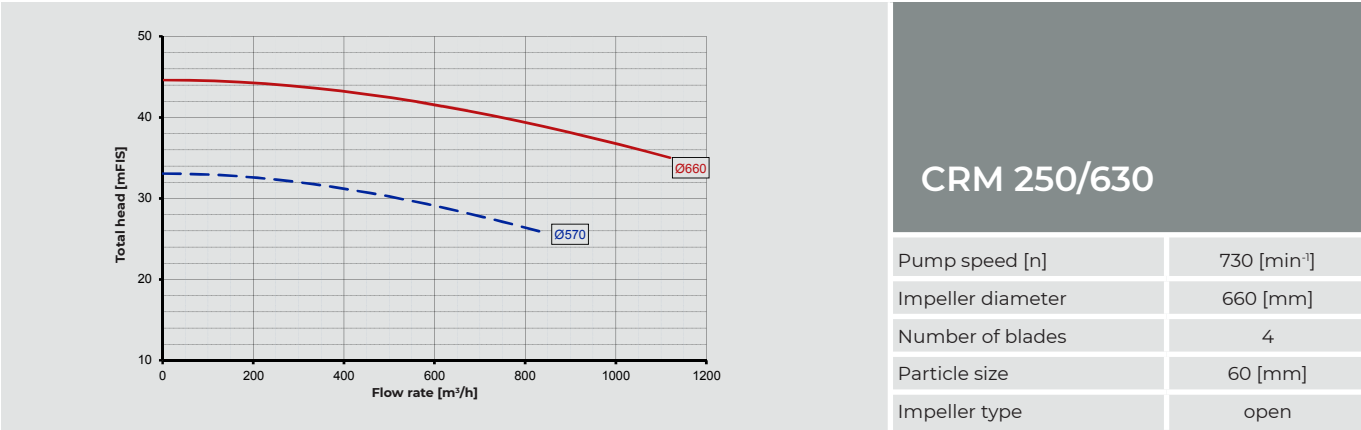
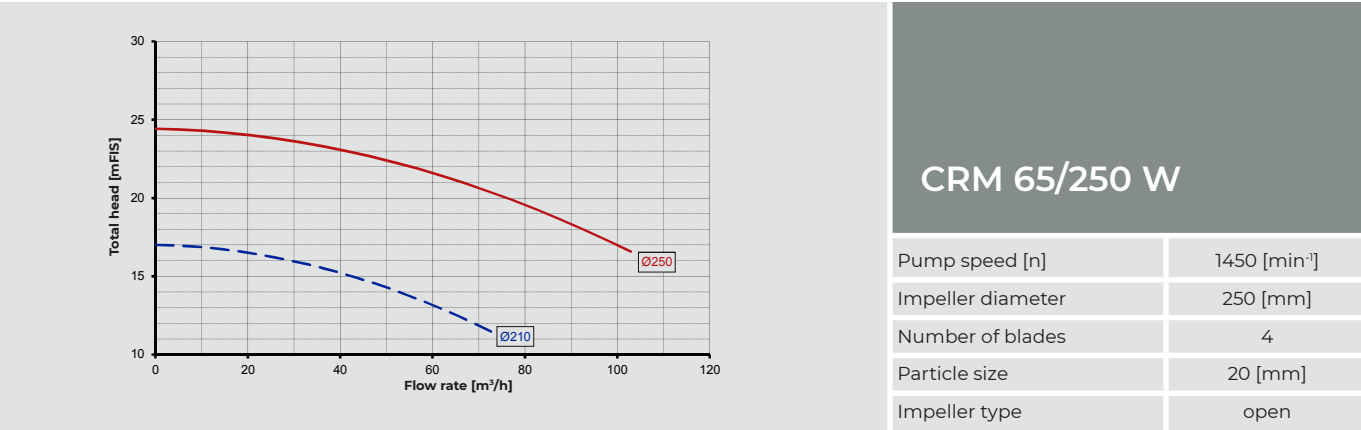
Technical Data	Challenger®
Max. capacity [m³/h]	950
Max. head [m.l.c]	56
Max. speed [min⁻¹]	1470
Cable lenght from [m]	8
Max. immersion depth [m]	30
Temperature range [°C]	+12 to +40
Optional temperature range [°C]	+4 to + 40
Discharge nozzle diameter [DN]	32 – 300



Pump dimension for Challenger® type

21

Pump Type	Poles Number	Motor power [kW]	A	B	DN D	b	g	Øk	n	Øw	h	h1	L	Weight [kg]
CRM-W 65/250	4	15	479	658	65	362	170	145	4	18	228,5	368,5	988	243
CRM-W 125/315	6	15	646,5	919	125	517,5	235	210	8	18	246,5	492	1023	370
CRM-W 125/315	4	37	646,5	919	125	517,5	235	210	8	18	246,5	492	1341	510
CRM 150/450	6	75	880	1200	150	667,5	320	240	8	22	420	703,5	1750	1550
CRM 150/630	8	75	1030	1377	150	735,5	405	240	8	22	450	733,5	1970	2160
CRM 250/630	8	132	1216	1772,5	250	984	450	350	12	22	on request			3280



Challenger® in application by ADST dredger

Pump Type	Poles Number	n [min ⁻¹]	DN D [mm]	Q [m³/h]	H [m.l.c.]	Particle size [Ø mm]	Motor [kW]	Current [400 V A]	Weight [kg]
CRM-W 65/250	4	1460	65	80	19	20	15	33,5	243
CRM-W 125/315	6	1460	125	250	28	30	37	69	510
CRM-W 125/315	4	955	125	150	13	30	15	30	370
CRM 150/450	6	980	150	500	30	50	75	137	1550
CRM 150/630	8	740	150	370	33	60	75	143	2160
CRM 250/630	8	730	250	600	42	60	132	250	3280

Heracles®

Submersible pump for heavy-duty applications

The Heracles® pumps are specially developed for installation in ADST dredgers. Constructed with highly wear and corrosion-resistant materials, these pumps, equipped with a gland packing seal, are ideal for efficiently handling slurries containing coarse particles. They offer outstanding reliability and reduced sensitivity to cavitation. Heracles® pumps can be optionally coupled with either an electric or hydraulic motor, providing flexibility to meet specific power requirements.

- 24
- 1

2

3

4

5

6

7

8
- 1

2

3

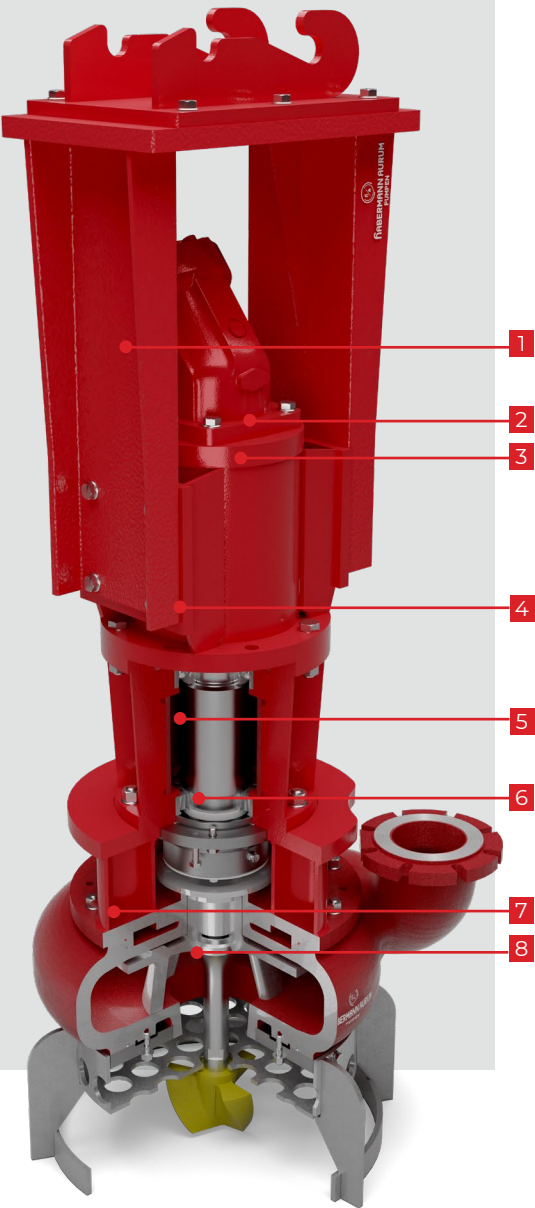
4

5

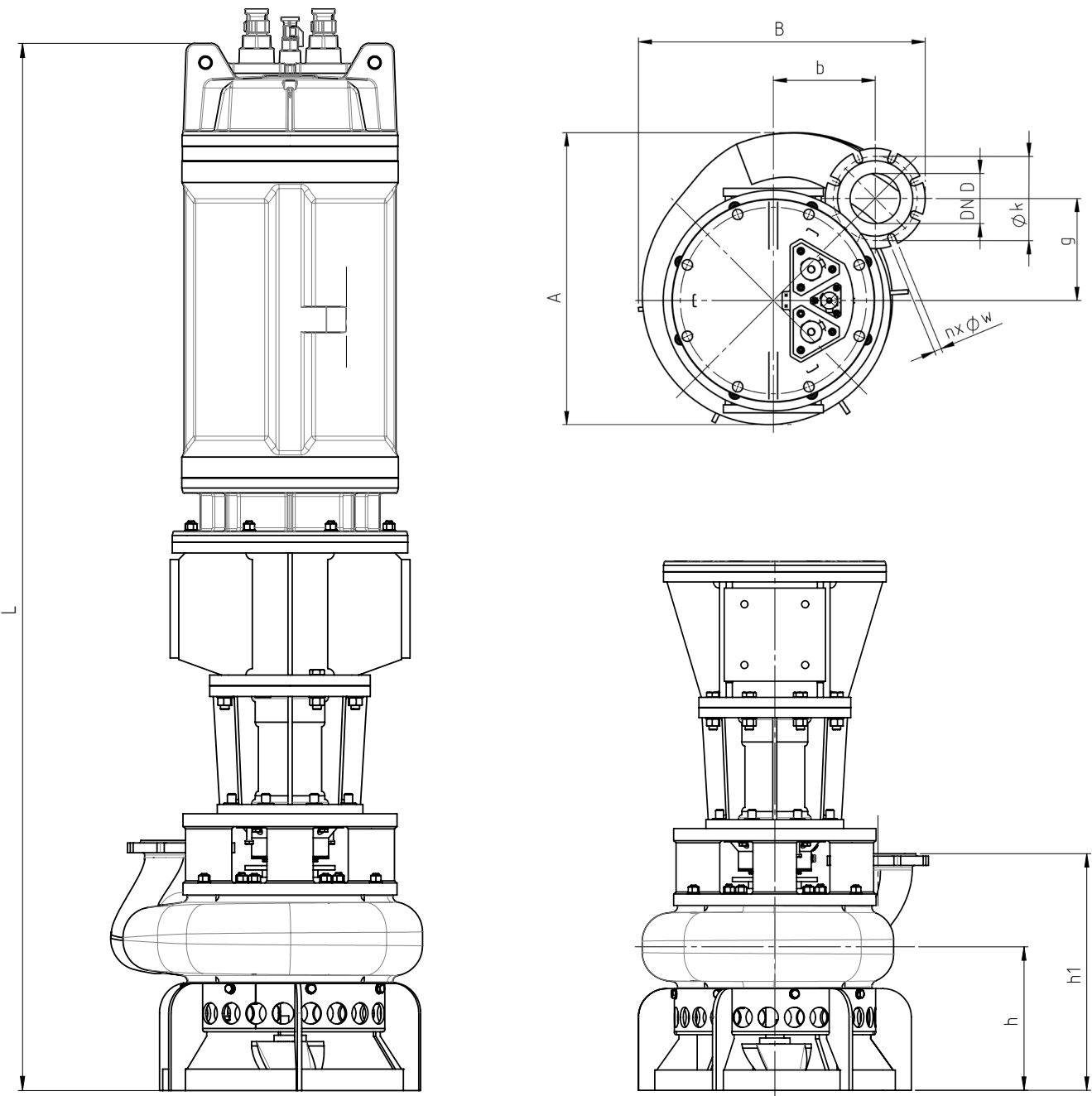
6

7

8
- 1 Drive system: optionally with electric or hydraulic motor
 - 2 Easy drive disassembly by using simple coupling system
 - 3 Mounting arrangement according to customer requirements
 - 4 Robust bearings guarantee smooth running under high load applications
 - 5 Optimum system reliability supported by special radial shaft seal
 - 6 Space-saving configuration by positioning compact pressure nozzle along the pump shaft axis
 - 7 Pump casing made of highly wear-resistant tempered cast steel
 - 8 Standard built-in agitator



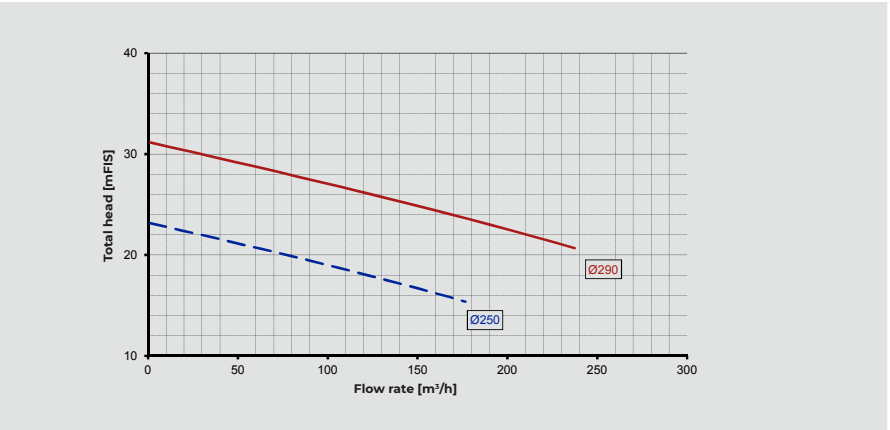
Technical Data	Heracles®
Max. capacity [m³/h]	1000
Max. head [m.l.c]	52
Max. speed [min⁻¹]	1470
Cable lenght from [m]	8
Max. immersion depth [m]	30
Temperature range [°C]	+12 to +40
Optional temperature range [°C]	+4 to +40
Discharge nozzle diameter [DN]	100 – 250



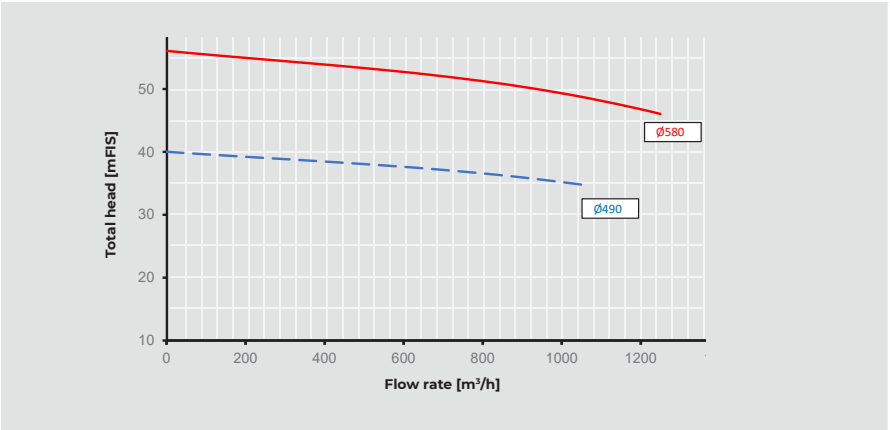
Pump dimension for Heracles® type

25

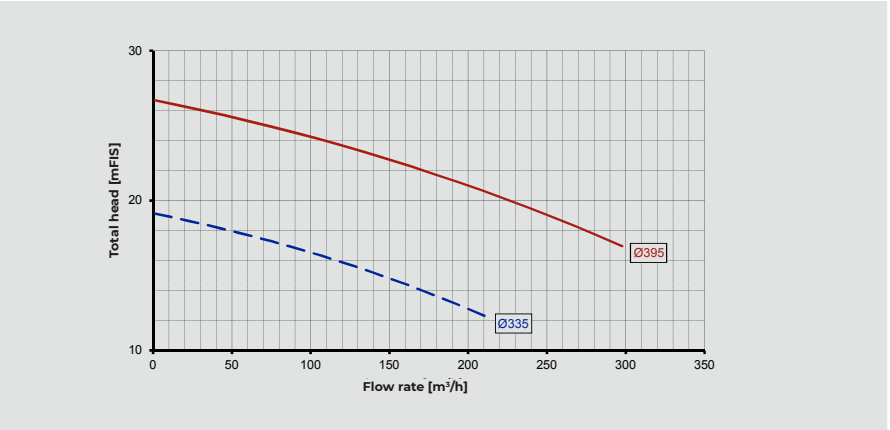
Pump Type	Poles Number	Motor power [kW]	A [cm]	B [cm]	DN D [cm]	b [cm]	g [cm]	Øk [cm]	n [cm]	Øw [cm]	h [cm]	h1 [cm]	L [cm]	Weight [kg]
HS 100/290	4	30	523	524	100	191	191	180	8	18	327,5	557,5	2100	705
HS 125/400	6	30	736.5	707	125	254,5	254,5	210	8	18	354	584	2250	970
HS 125/400	4	90	736.5	707	125	254,5	254,5	210	8	18	354	584	2450	1600
HS 150/400	6	37	735.5	741	150	268,5	268,5	240	8	22	371,5	721,5	2270	1080
HS 150/400	4	90	735.5	741	150	268,5	268,5	240	8	22	371,5	721,5	2480	1670
HS 200/525	8	75	1060	1465	200	790	400	295	8	22	445	812	2845	2860
HS 200/525	6	160	1060	1465	200	790	400	295	8	22	445	812	3075	3450
HS 250/580	8	132	1710	1220	250	956	-	355	12	26	520	970	3155	3450
HS 250/580	6	250	1710	1220	250	956	-	355	12	26	520	970	3375	3900



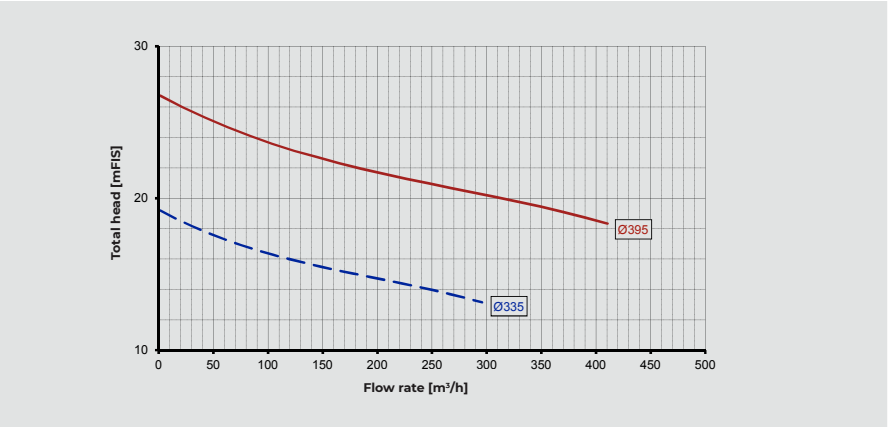
HS 100/290	
Pump speed [n]	1460 [min ⁻¹]
Impeller diameter	290 [mm]
Number of blades	2
Particle size	50 [mm]
Impeller type	open



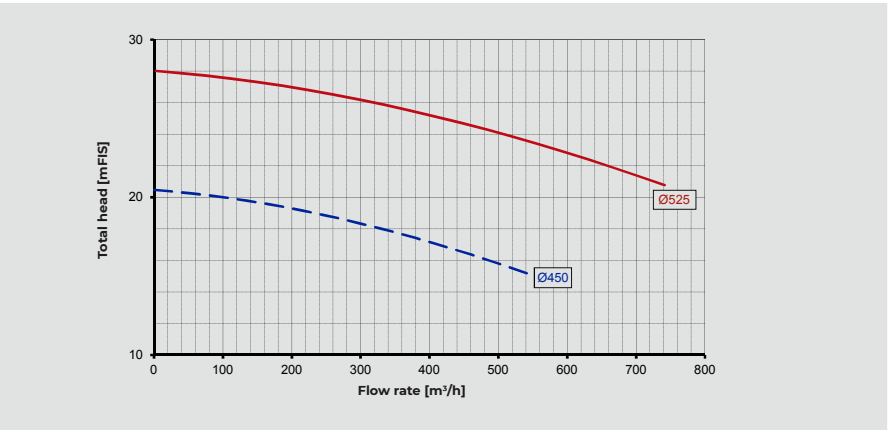
HS 250/580	
Pump speed [n]	980 [min ⁻¹]
Impeller diameter	580 [mm]
Number of blades	3
Particle size	150 [mm]
Impeller type	open



HS 125/400	
Pump speed [n]	970 [min ⁻¹]
Impeller diameter	395 [mm]
Number of blades	2
Particle size	60 [mm]
Impeller type	open



HS 150/400	
Pump speed [n]	970 [min ⁻¹]
Impeller diameter	395 [mm]
Number of blades	2
Particle size	90 [mm]
Impeller type	open



HS 200/525	
Pump speed [n]	725 [min ⁻¹]
Impeller diameter	525 [mm]
Number of blades	3
Particle size	90 [mm]
Impeller type	open



The dredger is equipped with the Heracles® pump.

Pump Type	Poles Number	n [min ⁻¹]	DN [mm]	Q [m³/h]	H [m.l.c.]	Particle size Ø [mm]	Motor [kW]	Current [400 V A]	Weight [kg]
HS 100/290	4	1460	100	100	27	35	30	58	705
HS 125/400	6	970	125	160	23	50	30	59	970
HS 125/400	4	1460	125	220	52	50	90	165	1600
HS 150/400	6	970	150	300	20	50	37	72	1080
HS 150/400	4	1475	150	300	49	50	90	165	1670
HS 200/525	8	725	200	550	23	60	75	143	2860
HS 200/525	6	980	200	600	46	60	160	280	3450
HS 250/580	8	730	250	750	27	150	132	250	3450
HS 250/580	6	980	250	1000	49	150	250	465	3900



**HABERMANN AURUM
PUMPEN**

PUMPS | VALVES | DREDGERS | ENGINEERING

**We look forward
to working with you!**

Habermann Aurum Pumpen GmbH
Harpener Heide 14
44805 Bochum | GERMANY
info@aurumpumpen.de
www.habermann-aurum-pumpen.de
V. 08.2023

