

# SUBMERSIBLE MOTOR

## AGITATORS

AGITATORS – FLOW GENERATORS – RECIRCULATION PUMPS

HRS, CHR, HRZ series



**HOMA**  
PUMP TECHNOLOGY





## WE GET THINGS MOVING

### A BROAD SPECTRUM

Submersible motor agitators from HOMA are used for a variety of purposes, including homogenisation, suspension, generation of horizontal flows or flushing deposits out of fluids. Areas of application include public and industrial waste water treatment and disposal, industrial process engineering and agriculture, to name but a few.

The robust construction of HOMA submersible motor agitators ensures flawless operation, even under the most difficult conditions. The flow and agitation properties of the propeller and drive have been optimised to ensure the best thrust performance with high efficiency and excellent mixing.

Sturdy, flexible and easy to handle installation devices allow straightforward fitting and removal, as well as optimum, individual positioning of the units to suit the relevant application.

### AGITATORS

Stringy solids in the medium represent a particular challenge, as they can become entwined in the area of the propeller, which can severely impair the performance of the agitator. A new propeller design for the HRS/CHRS series was therefore produced at the HOMA development centre: the efficiency optimised propeller shape minimises weak flow zones at the propeller blades to reliably prevent clogging.

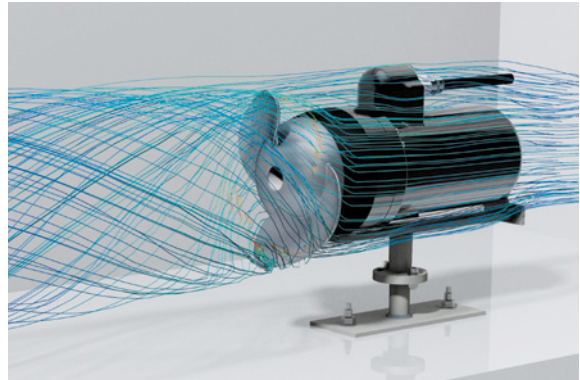
#### Possible application areas:

- Sludge homogenisation
- Storm water holding tanks
- Dissolving sedimentation or floating layers, including in pump sumps
- Mixing of chemicals
- Fish farming
- Cooling basins
- Ice removal





Reliable HOMA submersible motor agitators have been developed for a wide range of applications in sewage treatment plants.



All propellers were developed and optimised with the aid of CFD simulations.

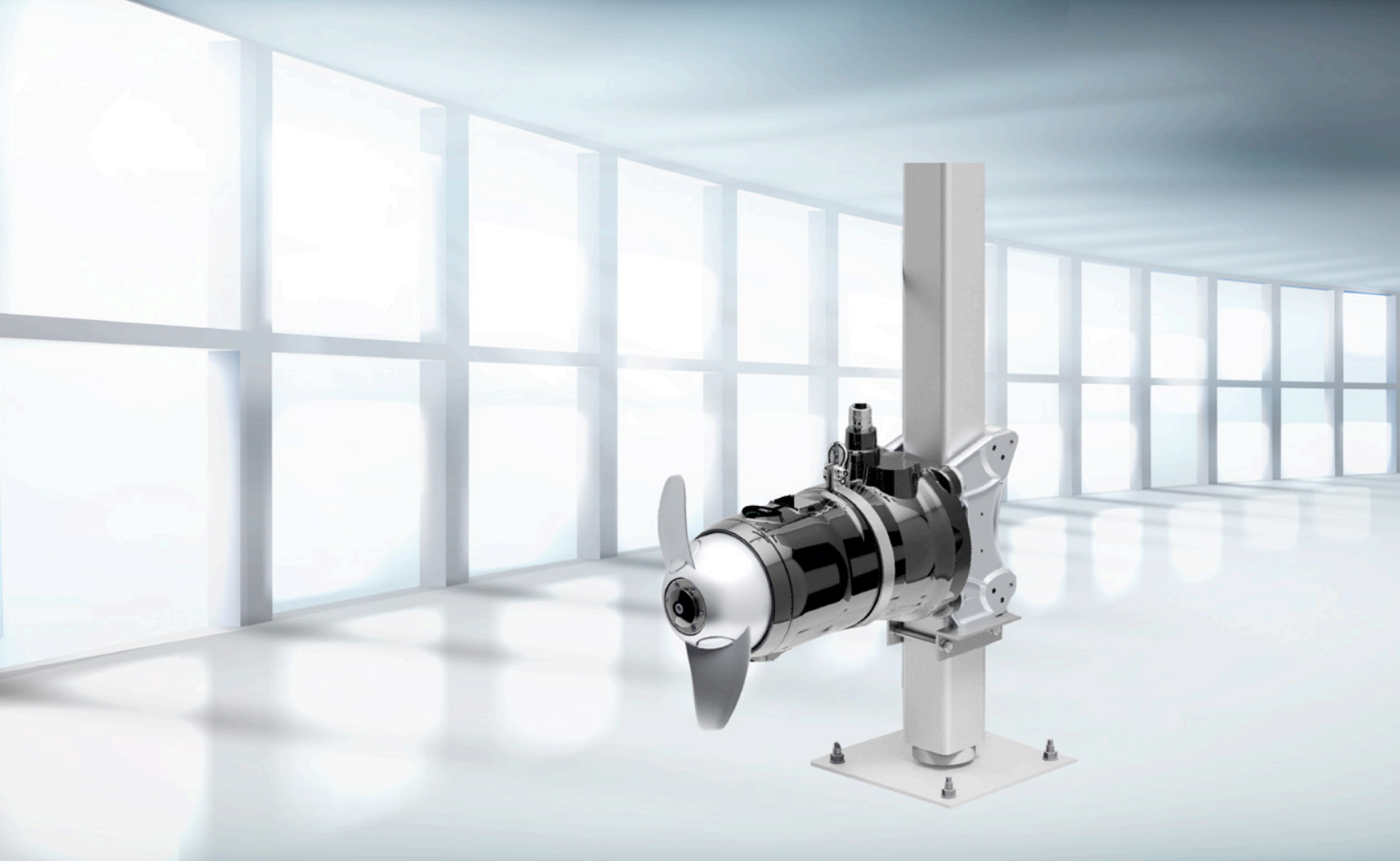
## HIGH EFFICIENCY

### RECIRCULATION PUMPS

Recirculation pumps are used for pumping and recycling activated sludge in sewage treatment plants. All components are therefore made from high grade materials and every part is tested for reliability and durability before assembly. Due to their performance characteristics – high pump rates at low delivery heads – all recirculation pumps are ideally suited to waste water treatment.

#### Possible application areas:

- Pumping activated sludge from nitrification to denitrification
- Fish farming
- Leisure parks (water slides)
- Natural bathing ponds



## (C)HRS AGITATORS WITH DIRECT DRIVE

### COMPACT VERSATILITY

The compact agitators from the HRS and CHRS series have a robust design and are optimised for efficiency to ensure trouble-free operation, even under the most challenging conditions.

#### Universal units – for a broad range of applications

- Flow optimised, compact design
- Self-cleaning propeller with high efficiency
- Suitable for tanks of any shape
- Sturdy, compact and user friendly installation system with drain device

#### Possible application areas:

- Sludge homogenisation
- Storm water holding tanks
- Dissolving sedimentation or floating layers, including in pump sumps
- Mixing of chemicals
- Fish farming
- Flow generation
- Cooling basins
- Ice removal



CHRS: Stainless steel motor housing and elastomers made from Viton make usage possible even in aggressive chemical media.

# KEY TO DESIGNATIONS

Series	Propeller power in freshwater	Motor pole number	Propeller diameter	Number of propeller blades	Model code	Monitoring	Explosion-proof motor	Nominal size of motor mount
<b>(C)HRS</b>	<b>14/</b>	<b>6-</b>	<b>250-</b>	<b>2</b>	<b>03/04</b>	<b>(C)</b>	<b>(Ex)</b>	<b>M60</b>
C = stainless steel version	( kW x 10 )	4-pole 6-pole 8-pole 12-pole	(in mm)			C = oil chamber monitoring probe T = Pt100 temperature sensor M = PTC sensor		M60 M80 M100

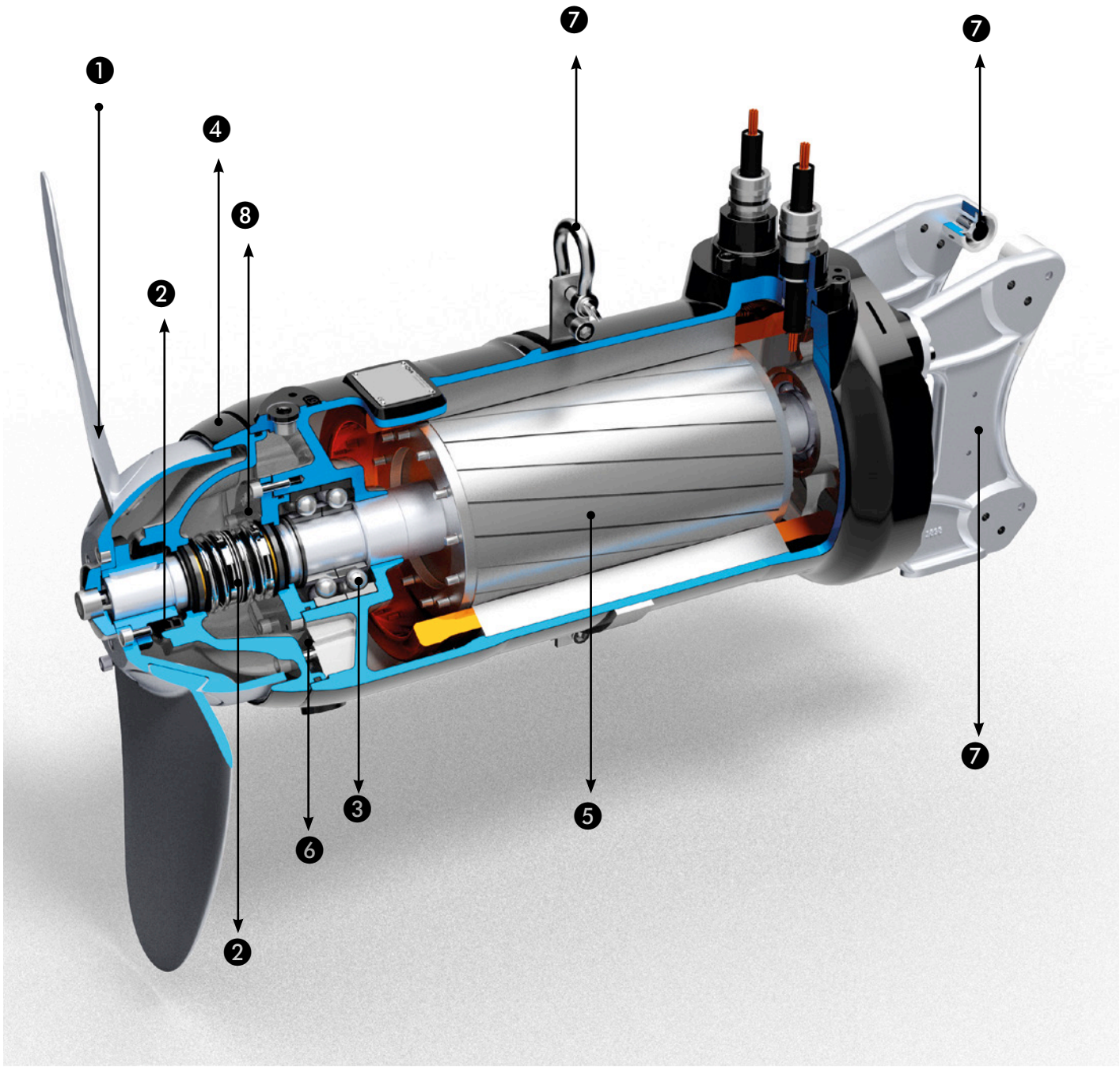
## TECHNICAL DATA

Model	Voltage (50 Hz)	Motor input P <sub>1</sub> (kW)	P <sub>2</sub> (kW)	Nominal current (A)	Rotational speed Motor/propeller (rpm)	Thrust (N)	Propeller ø (mm)	Weight (kg)
<b>HRS</b>								
HRS 07/4-230-203 (C) / (Ex)	400 V / 3 Ph	1.7	1.2	3.3	1300 / 1300	125	230	34.4
HRS 11/4-230-203 (C) / (Ex)	400 V / 3 Ph	1.7	1.2	3.3	1300 / 1300	230	231	34.4
HRS 14/6-250-203 (C) / (Ex)	400 V / 3 Ph	3.1	2.1	5.7	900 / 900	320	254	41.5
HRS 16/6-260-203 (C) / (Ex)	400 V / 3 Ph	3.1	2.1	5.7	900 / 900	373	257	41.5
HRS 18/4-230-203 (C) / (Ex)	400 V / 3 Ph	3.4	2.6	6.2	1350 / 1350	384	233	42.0
HRS 25/4-240-203 (C) / (Ex)	400 V / 3 Ph	3.4	2.6	6.2	1350 / 1350	447	243	42.0
HRS 32/4-250-203 (C)	400 V / 3 Ph	4.3	3.4	7.6	1400 / 1400	657	254	46.5
HRS 20/8-400-204/C-M60 (Ex)*	400 V / 3 Ph	3.0	2.4	5.7	700 / 700	625	400	165.0
HRS 20/8-400-204/C-M80 (Ex)*	400 V / 3 Ph	3.0	2.4	5.7	700 / 700	625	400	165.0
HRS 20/8-400-204/C-M100 (Ex)*	400 V / 3 Ph	3.0	2.4	5.7	700 / 700	625	400	165.0
HRS 30/8-400-204/C-M60 (Ex)*	400 V / 3 Ph	5.0	4.1	10.5	700 / 700	875	400	165.0
HRS 30/8-400-204/C-M80 (Ex)*	400 V / 3 Ph	5.0	4.1	10.5	700 / 700	875	400	165.0
HRS 30/8-400-204/C-M100 (Ex)*	400 V / 3 Ph	5.0	4.1	10.5	700 / 700	875	400	165.0
HRS 37/8-500-204/C-M80 (Ex)*	400 V / 3 Ph	6.6	5.3	12.4	700 / 700	1405	500	165.0
HRS 37/8-500-204/C-M100 (Ex)*	400 V / 3 Ph	6.6	5.3	12.4	700 / 700	1405	500	165.0
HRS 43/8-500-204/C-M80 (Ex)*	400 V / 3 Ph	6.6	5.3	12.4	700 / 700	1650	500	165.0
HRS 43/8-500-204/C-M100 (Ex)*	400 V / 3 Ph	6.6	5.3	12.4	700 / 700	1650	500	165.0
HRS 53/12-700-204/C-M80 (Ex)*	400 V / 3 Ph	7.5	6.0	16.0	470 / 470	2375	700	197.5
HRS 53/12-700-204/C-M100 (Ex)*	400 V / 3 Ph	7.5	6.0	16.0	470 / 470	2375	700	197.5
HRS 68/12-700-204/C-M80 (Ex)*	400 V / 3 Ph	11.0	8.8	23.1	470 / 470	2760	700	197.5
HRS 68/12-700-204/C-M100 (Ex)*	400 V / 3 Ph	11.0	8.8	23.1	470 / 470	2760	700	197.5
HRS 78/12-700-204/C-M80 (Ex)*	400 V / 3 Ph	11.0	8.8	23.1	470 / 470	3000	700	197.5
HRS 78/12-700-204/C-M100 (Ex)*	400 V / 3 Ph	11.0	8.8	23.1	470 / 470	3000	700	197.5
<b>CHRS</b>								
CHRS 07/4-230-203 (C) / (Ex)	400 V / 3 Ph	1.7	1.2	3.3	1300 / 1300	125	230	36.1
CHRS 11/4-230-203 (C) / (Ex)	400 V / 3 Ph	1.7	1.2	3.3	1300 / 1300	230	231	36.1
CHRS 14/6-250-203 (C) / (Ex)	400 V / 3 Ph	3.1	2.1	5.7	900 / 900	320	254	43.5
CHRS 16/6-260-203 (C) / (Ex)	400 V / 3 Ph	3.1	2.1	5.7	900 / 900	373	257	43.5
CHRS 18/4-230-203 (C) / (Ex)	400 V / 3 Ph	3.4	2.6	6.2	1350 / 1350	384	233	44.1
CHRS 25/4-240-203 (C) / (Ex)	400 V / 3 Ph	3.4	2.6	6.2	1350 / 1350	447	243	44.1
CHRS 32/4-250-203 (C)	400 V / 3 Ph	4.3	3.4	7.6	1400 / 1400	657	254	49.0
<b>HRG</b> (agitators with gearbox – more information on request)								
HRG 150/4-204 (C) / (Ex)	400 V / 3 Ph	16.7	15.0	30.6	1450 / 351	2859	720	221
HRG 185/4-204 (C) / (Ex)	400 V / 3 Ph	21.0	18.5	38.6	1450 / 354	3725	780	228

\*Explosion-proof version available from Q2/2018



DESIGN – WELL THOUGHT OUT AT EVERY STAGE



# SUPERIOR MATERIAL QUALITY – LOWER SUSCEPTIBILITY TO FAILURE

Quality is a measurable value – fully floodable pump blocks from HOMA impress through their generous sizing of all important components, with outstanding material quality and solid mechanical workmanship.

## ❶ PROPELLER

Flow optimised propeller made from investment cast stainless steel; welded.

## ❷ SHAFT SEAL

The shaft seal with two mechanical seals (back to back) made from corrosion-resistant SiC/SiC, combined with two additional radial shaft sealing rings, which run on the carbon coated propeller hub, guarantee optimum protection against the ingress of media and solids.

## ❸ MOTOR SHAFT BEARINGS

Robust, maintenance-free, permanently lubricated deep groove ball bearings/double row angular contact ball bearings.

## ❹ DEFLECTOR RING (CAST ON)

The deflector ring reliably prevents solids from settling. The 8- and 12-pole agitators come as standard with a deflector ring (metallic) cast onto the oil barrier chamber housing. The 4- and 6-pole agitators have a plastic deflector ring between the propeller and motor housing.

## ❺ MOTOR

Encapsulated submersible motor, sealed against pressurised water, with 4-, 6-, 8- or 12-pole winding. Winding in insulation class "H" and protection rating IP 68. Cable inlet sealed against pressurised water. Thermal sensor in the winding for temperature monitoring. Motor with surface cooling in immersion operation.

## EXPLOSION PROTECTION

All motors are also available as explosion-proof versions in accordance with Directive 2014/34/EU for equipment group II, category 2G, gas group IIB and temperature class T4(T3).

## ❻ SEAL MONITORING

8- and 12-pole agitators come with seal monitoring in the oil barrier chamber as standard. This is possible for the 4- and 6-pole agitators on request.

## ❼ INSTALLATION

Installation system with drain device for individual positioning of the unit. The motor mounts for the 8- and 12-pole agitators are manufactured using the stainless steel investment casting process. The plastic guide rolls have solid metal cores.

## ❽ OIL CHAMBER

The upstream oil barrier chamber acts as a moisture barrier on the medium side.

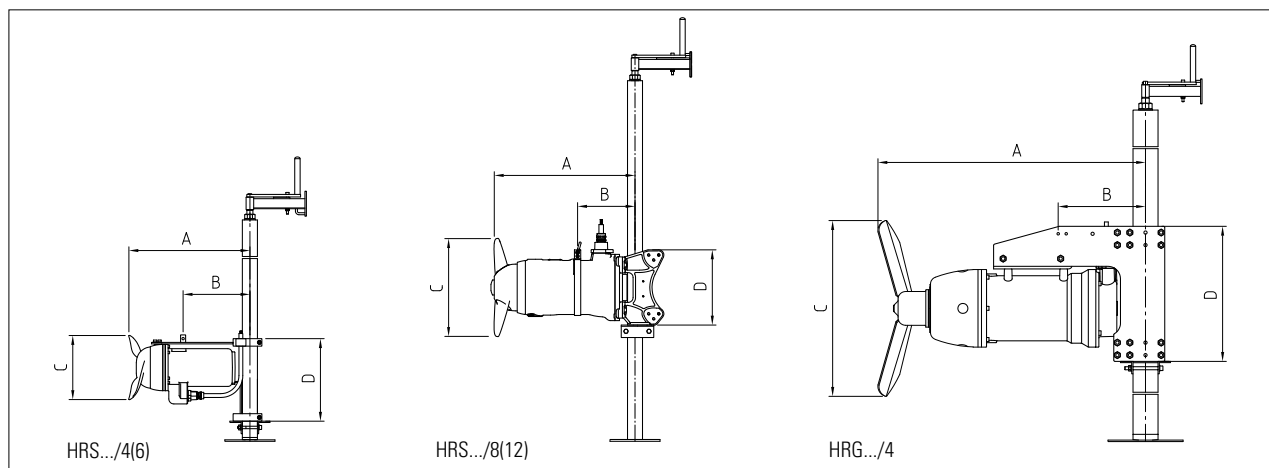
## ❾ OTHER SEALS

Flange connections with O-rings.

## MATERIALS

	HRS	CHRS
Propeller	Stainless steel 1.4436	Stainless steel 1.4436
Mechanical seal	SiC / SiC	SiC / SiC
Motor/propeller shaft	Stainless steel 1.4104	Stainless steel 1.4462
Motor housing	Grey cast iron EN-GJL-250	Stainless steel 1.4436
Mechanical connecting parts	Stainless steel	Stainless steel
Other seals	NBR	Viton
Motor mount	Stainless steel 1.4436	Stainless steel 1.4571

# CONSTRUCTION DIMENSIONS



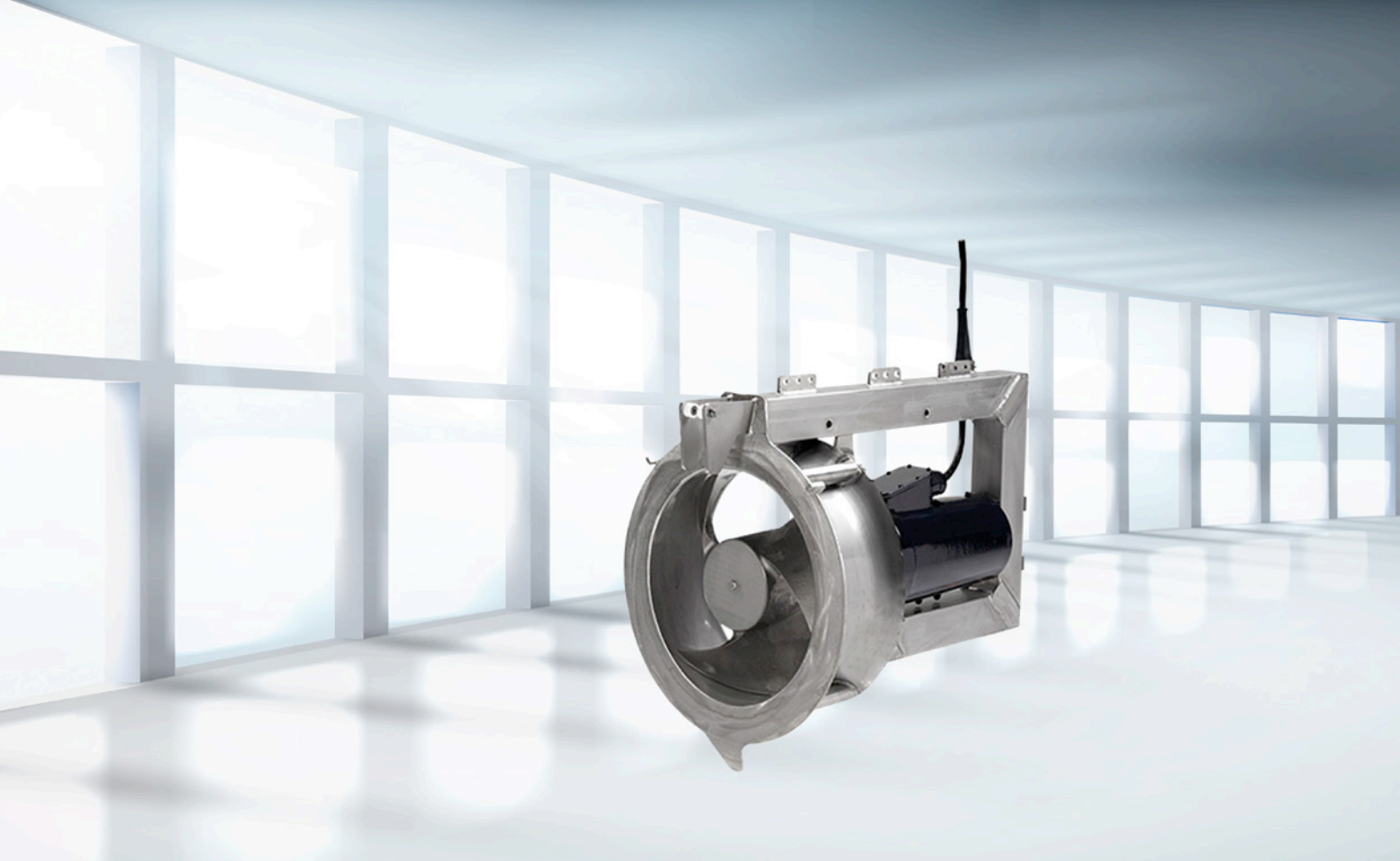
## DIMENSIONS IN MM

Model	A	B	C	D
<b>HRS</b>				
HRS07/4-203 (C) / (Ex)	451	232	230	330
HRS11/4-203 (C) / (Ex)	451	232	231	330
HRS14/6-203 (C) / (Ex)	521	267	254	330
HRS16/6-203 (C) / (Ex)	521	267	257	330
HRS18/4-203 (C) / (Ex)	521	267	233	330
HRS25/4-203 (C) / (Ex)	521	267	243	330
HRS32/4-203 (C)	548	235	254	360
HRS20/8-400-204/C-M60	575	230	400	300
HRS20/8-400-204/C-M80	585	240	400	300
HRS20/8-400-204/C-M100	595	250	400	300
HRS30/8-400-204/C-M60	575	230	400	300
HRS30/8-400-204/C-M80	585	240	400	300
HRS30/8-400-204/C-M100	595	250	400	300
HRS37/8-500-204/C-M80	585	240	500	300
HRS37/8-500-204/C-M100	595	250	500	300
HRS43/8-500-204/C-M80	585	240	500	300
HRS43/8-500-204/C-M100	595	250	500	300
HRS53/12-700-204/C-M80	785	355	700	300
HRS53/12-700-204/C-M100	795	355	700	300
HRS68/12-700-204/C-M80	785	355	700	300
HRS68/12-700-204/C-M100	795	355	700	300
HRS78/12-700-204/C-M80	785	355	700	300
HRS78/12-700-204/C-M100	795	355	700	300

Model	A	B	C	D
<b>CHRS</b>				
CHRS07/4-203 (C) / (Ex)	478	237	230	330
CHRS11/4-203 (C) / (Ex)	478	237	231	330
CHRS14/6-203 (C) / (Ex)	540	268	254	330
CHRS16/6-203 (C) / (Ex)	540	268	257	330
CHRS18/4-203 (C) / (Ex)	540	268	233	330
CHRS25/4-203 (C) / (Ex)	540	268	243	330
CHRS32/4-203 (C)	569	355	254	360
<b>HRG</b>				
HRG150/4-204	1070	530	720	540
HRG185/4-204	1070	530	780	540







## HRZ RECIRCULATION PUMPS

### Reliable recirculation

With their high level of reliability and enormous performance capacity, HRZ recirculation pumps will always keep your systems in motion.

### The ideal solution for waste water treatment and flooding protection

- For pump applications with a high flow rate and low delivery head, up to a maximum dry matter content of 1.5 %
- Flow optimised propeller blade design

### Possible application areas:

- Pumping activated sludge from nitrification to denitrification
- Fish farming
- Leisure parks (water slides)
- Natural bathing ponds



Example of a pump installation. Recirculation pumps are usually equipped with a hydraulic inlet part, which is mounted to the connecting flange.

## KEY TO DESIGNATIONS

Series	Diameter (mm)	Motor input	Motor pole number	Propeller rotational speed
<b>HRZ</b>	<b>300</b>	<b>08</b>	<b>/2</b>	<b>526</b>
	300 mm 500 mm 800 mm	( kW x 10 )	2 = 2-pole 4 = 4-pole	(rpm)

## TECHNICAL DATA

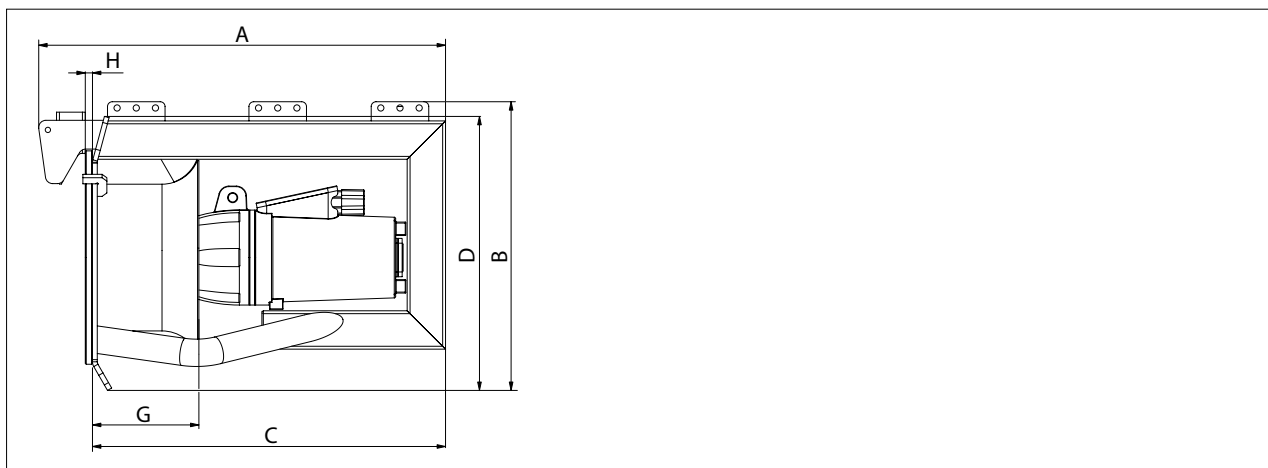
Model	Voltage (50 Hz)	Motor input P <sub>1</sub> (kW)	P <sub>2</sub> (kW)	Nominal current (A)	Rotational speed Propeller (rpm)	Number of propeller blades	Weight (kg)
HRZ 300-08/2-526	400 V / 3 Ph	0.9	0.8	2.0	526	3	109
HRZ 300-10/2-606	400 V / 3 Ph	1.2	1.0	2.3	606	3	109
HRZ 300-13/2-678	400 V / 3 Ph	1.5	1.3	2.7	678	3	109
HRZ 300-16/2-745	400 V / 3 Ph	1.9	1.6	3.2	745	3	109
HRZ 300-18/2-806	400 V / 3 Ph	2.1	1.8	3.6	806	3	109
HRZ 300-30/2-517	400 V / 3 Ph	3.4	3.0	5.8	517	3	112
HRZ 300-40/2-593	400 V / 3 Ph	4.5	4.0	7.5	593	3	112
HRZ 300-50/2-684	400 V / 3 Ph	5.8	5.0	9.5	684	3	112
HRZ 300-60/2-752	400 V / 3 Ph	7.0	6.0	14.0	752	3	120
HRZ 300-70/2-814	400 V / 3 Ph	8.1	7.0	15.4	814	3	120
HRZ 500-35/4-257	400 V / 3 Ph	4.0	3.5	7.0	257	3	150
HRZ 500-50/4-291	400 V / 3 Ph	5.6	5.0	12.5	291	3	240
HRZ 500-65/4-343	400 V / 3 Ph	7.2	6.5	14.0	343	3	240
HRZ 500-80/4-378	400 V / 3 Ph	8.7	8.0	19.5	378	3	256
HRZ 500-100/4-412	400 V / 3 Ph	10.9	10.0	22.0	412	3	256
HRZ 800-70/4-263	400 V / 3 Ph	7.7	7.0	14.2	263	3	334
HRZ 800-100/4-303	400 V / 3 Ph	10.9	10.0	22.0	303	3	350
HRZ 800-120/4-323	400 V / 3 Ph	13.1	12.0	28.0	323	3	430
HRZ 800-130/4-340	400 V / 3 Ph	14.3	13.0	26.0	340	3	350
HRZ 800-130/4-375	400 V / 3 Ph	14.3	16.0	26.0	375	3	350
HRZ 800-160/4-355	400 V / 3 Ph	17.3	13.0	33.0	355	3	430
HRZ 800-200/4-388	400 V / 3 Ph	21.7	20.0	40.0	388	3	430
HRZ 800-240/4-417	400 V / 3 Ph	26.2	24.0	47.0	417	3	430

## MATERIALS

Propeller	Stainless steel
Gearbox housing	Grey cast iron EN-GJL-250
Mechanical seal	Tungsten carbide/SiC-SiC
Motor housing	Grey cast iron EN-GJL-250
Other seals	NBR
Installation system	Stainless steel
Motor bearing housing	Grey cast iron EN-GJL-250



# CONSTRUCTION DIMENSIONS

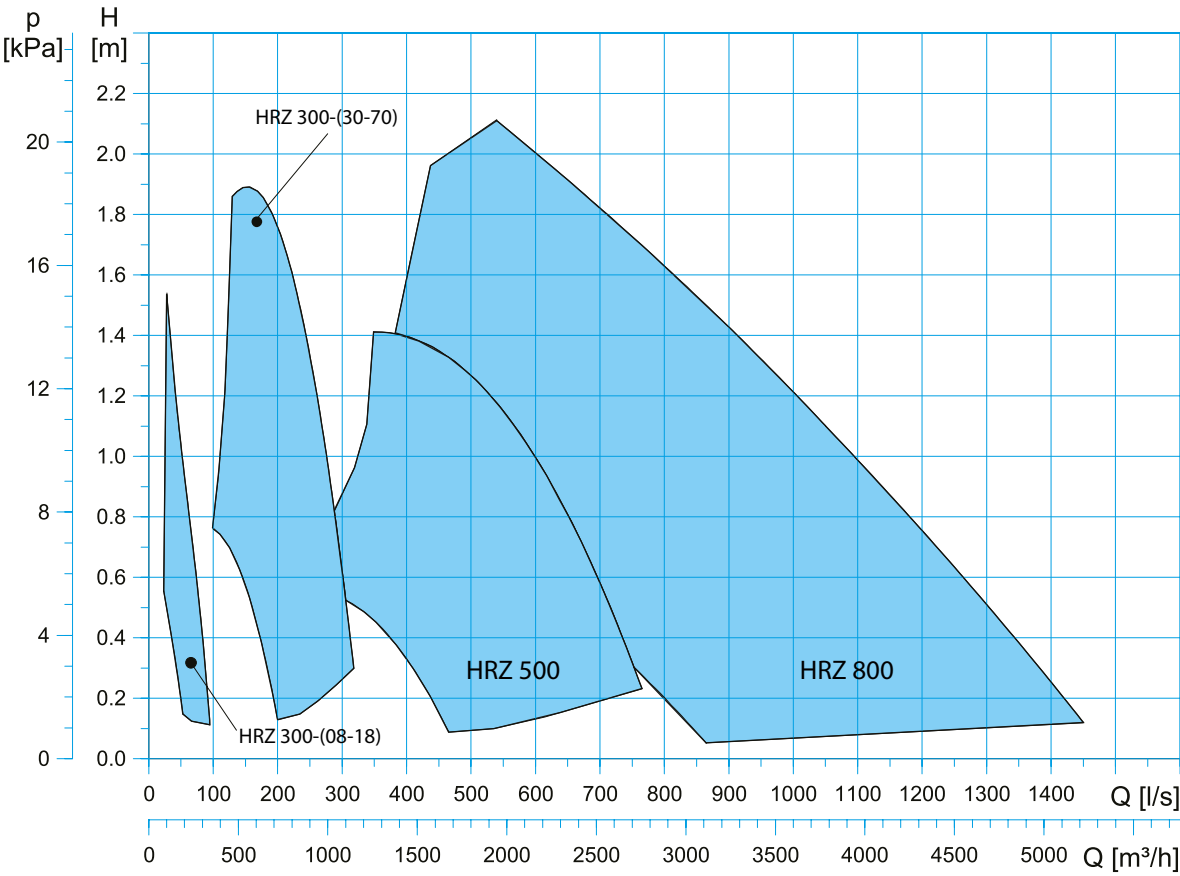


## DIMENSIONS IN MM

Model	A	B	C	D	G	H
HRZ 300-08/2-526	848	602	736	571	220	15
HRZ 300-10/2-606	848	602	736	571	220	15
HRZ 300-13/2-678	848	602	736	571	220	15
HRZ 300-16/2-745	848	602	736	571	220	15
HRZ 300-18/2-806	848	602	736	571	220	15
HRZ 300-30/2-517	848	602	736	571	220	15
HRZ 300-40/2-593	848	602	736	571	220	15
HRZ 300-50/2-684	848	602	736	571	220	15
HRZ 300-60/2-752	848	602	736	571	220	15
HRZ 300-70/2-814	848	602	736	574	220	15
HRZ 500-35/4-257	910	835	757	824	230	25
HRZ 500-50/4-291	1119	855	996	824	230	25
HRZ 500-65/4-343	1119	855	996	824	230	25
HRZ 500-80/4-378	1119	855	996	824	230	25
HRZ 500-100/4-412	1119	855	996	824	230	25

Model	A	B	C	D	G	H
HRZ 800-70/4-263	1129	1237	1006	1225	267	25
HRZ 800-100/4-303	1129	1237	1006	1225	267	25
HRZ 800-120/4-323	1181	1257	1058	1225	267	25
HRZ 800-130/4-340	1129	1237	1006	1225	267	25
HRZ 800-130/4-375	1129	1237	1006	1225	267	25
HRZ 800-160/4-355	1181	1257	1058	1225	267	25
HRZ 800-200/4-388	1181	1257	1058	1225	267	25
HRZ 800-240/4-417	1181	1257	1058	1225	267	25

# PERFORMANCE RANGE



## NOTES

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## The HOMA product range

- Submersible drainage pumps
- Construction pumps
- Submersible fire pumps
- Submersible deep well pumps
- Submersible waste water pumps
- Submersible pumps with cutter systems
- Domestic waste water disposal units
- Waste water disposal units
- Pre-assembled pump stations
- Agitators and flow generators
- Tank cleaning systems
- Garden pumps and automatic domestic water systems
- Propeller pumps
- Pump control and automation systems



## In operation worldwide

HOMA pumps and systems are employed in over 100 countries worldwide – in a myriad of projects, large and small, including the Palm Islands in Dubai. They meet all international safety and production standards and are certified by the relevant state or private bodies for waste water disposal. It is one of our main objectives to maintain and extend this high standard at all times.



## Sales and service network

HOMA stays close to its customers through a comprehensive network of professional sales and service agencies. HOMA also makes selecting and designing pump systems as straightforward as possible through HOP.SEL, its specially developed software, available free of charge online or on CD-ROM.

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