SPECK

Aquaculture technologies and solutions

Aquaculture

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SPECK Pumpen

Innovative technology since 1909

Pumps often run behind the scenes – but they always have to do one thing: work.

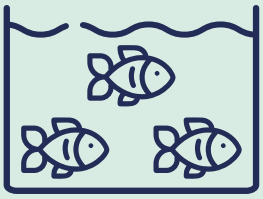
SPECK Pumpen has been working on this since 1909 and has made it its mission to move water and other liquids safely and efficiently. What sounds so simple depends crucially on experience and know-how. With creative development expertise, SPECK offers innovative technologies and solutions that are convincing worldwide: high-performance and smart products for safe and durable use.

An integral part of SPECK's corporate philosophy is to offer customers the highest quality and excellent service at all times. Therefore, every product is subjected to a complete 100 % functional test before being dispatched.

In order to guarantee the high quality standard of the products and services in the long term, continuous investment is made in the training and further education of the already highly qualified employees.

Quality "Made in Germany" is more than just lip service at SPECK.

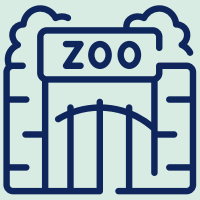
Fields of application



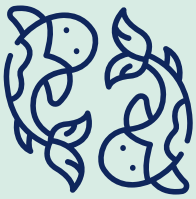
Breeding facilities

Research centres

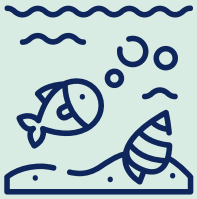
Aquariums



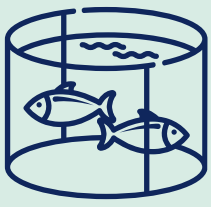
Zoo enclosures



Koi ponds



Aquatic habitats



RAS systems

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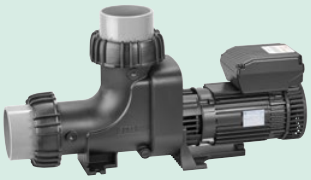
Product overview

BADU Variostar

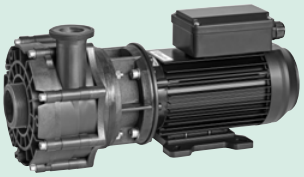


BADU Novastar-S

BADU Powerstar-S

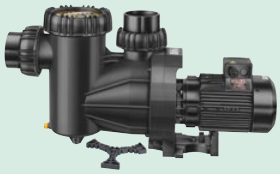
Normblock Multi-S

BADU 42-AK



BADU 21-AK

BADU SuperPro-AK



BADU Resort-AK

IN-VB-S / IN-VC-S

VGX / 2 VGX

MTX

TOP 71 / 72-80 / 90-300

PUMP TECHNOLOGY

BADU® Fact checker

Well informed for the right decision: The aquaculture fact checker. Relevant pump features at a glance and in direct comparison.

Comparison parameters	BADU	Variostar	Novastar-S	Powerstar-S	Normblock Multi-S	42-AK
Flow rate Q max. (m^3/h)		65	100	250	440	16
Power input P_1 (kW)		0.07-1.15	0.09-1.34	4.60	max. 23.60	max. 0.97
Power output P_2 (kW)		0.03-0.85	0.05-1.15	4.00	max. 22.00	max. 0.65
Single phase 1~ 230 V*)		●	●	○	○	●
Three phase 3~ 400/230 V*)		○	○	●	●	●
Design		non-self-priming	non-self-priming	non-self-priming	non-self-priming	non-self-priming
Glue socket d (mm)		90	110	-	-	-
Glue socket materials		ABS	PVC	-	-	-
Connection options		V	V	F 150	F	IG 1 1/2"
Pump casing material		PPE GF 30	PP GF 30	PP GF 30	THP 80/200: PP GF 30	PP GF 30
Pumped fluid		Freshwater saltwater	Freshwater saltwater	Freshwater saltwater	Freshwater saltwater	Freshwater saltwater
Installation type		dry	dry	dry	dry	dry
Integrated speed control		●	●	○	○	○
Catalogue page		8	10	12	14	18

*) Special voltages on request.
V - Union
IG - Inner thread
AG - Outer thread
F - Flange
● - Yes
○ - No







21-AK	SuperPro-AK	Resort-AK	IN-VB-S / IN-VC-S	VGX / 2 VGX	MTX	TOP 71 / 72-80 / 90-300
90	90	110	160	15	27	11
max. 4.55	max. 2.92	max. 6.20	max. 47.80	max. 4.52	max. 4.52	max. 2.40
max. 4.00	max. 2.20	max. 5.50	max. 45.00	max. 3.70	max. 4.00	max. 2.20
●	●	○	●	●	●	●
●	●	●	●	●	●	●
non-self-priming	self-priming	self-priming	non-self-priming	non-self-priming	non-self-priming	non-self-priming
only 21-41-AK: 63 and 21-81-AK: 90	63	75-110	-	-	-	-
- only 21-41-AK and 21-81-AK: ABS	PVC-U	ABS	-	-	-	-
V	V	V	F	IG	IG	IG
21-40-AK, 21-41-AK: PP TV 40 21-50-AK, 21-60-AK: PP GF 30 21-80-AK, 21-81-AK PPE GF 30	PP GF 30	PP GF 30	Stainless steel AISI 316	Stainless steel AISI 304	Stainless steel AISI 304	Stainless steel AISI 304
Freshwater saltwater	Freshwater saltwater	Freshwater saltwater	Freshwater saltwater	Freshwater	Freshwater	Freshwater
dry	dry	dry	dry	dry	dry	wet
○	○	○	○	○	○	○
20	28	30	32	44	48	54

BADU® Variostar

Field of application

> Freshwater
> Saltwater

Design

Non-self-priming monoblock-type pump with bellow-type mechanical seal mounted on a plastic shaft protector sleeve.
Motor/pump shaft has no contact with the pool water providing complete electrical separation.

Motor

Directly mounted, low-noise operation, surface-cooled electric motor with permanently lubricated, sealed ball bearings.
Variable speed motor controllable externally via digital and analogue inputs.

Suitable for standard voltage according to DIN IEC 60038 and DIN EN 60034 (Euro voltage).

Materials used

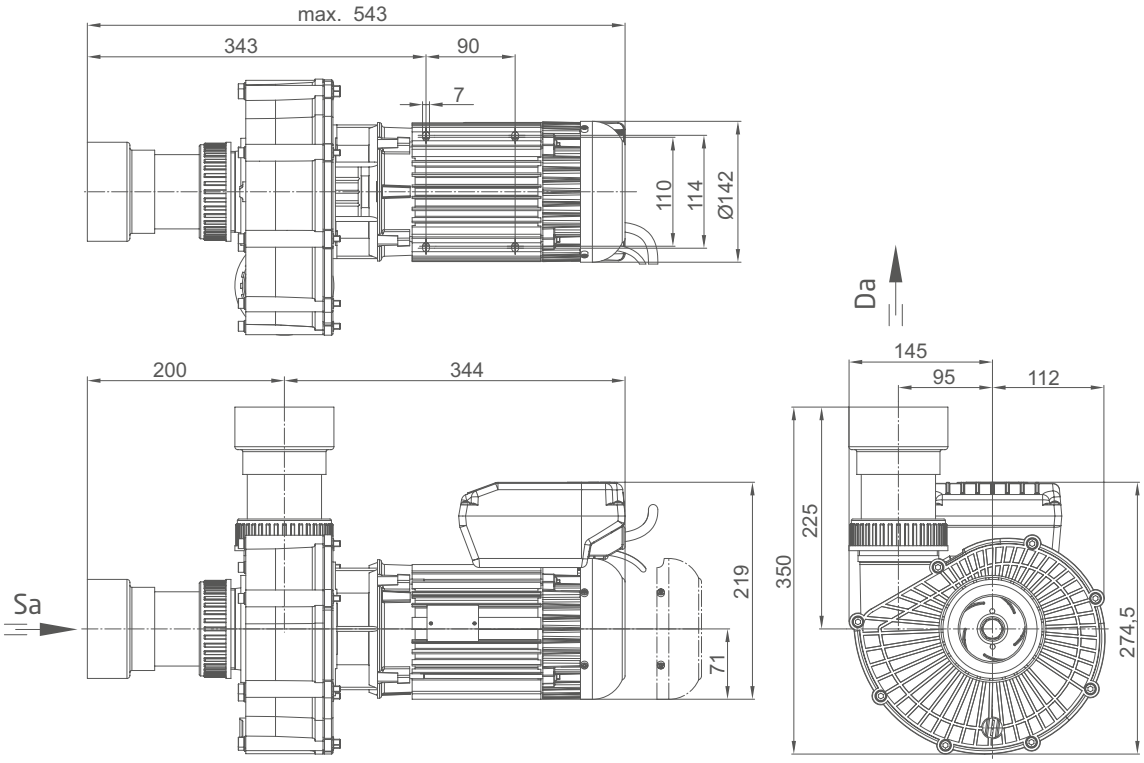
Pump casing ..... PPE GF 30
Wear ring ..... stainless steel
Housing cover ..... PPE GF 30
Lantern ..... PPE GF 30
Impeller ..... PP GF 30
Unions with glue socket ..... ABS
Impeller nut ..... PP GF 30
Mechanical seal ..... SiC/SiC/viton
Motor shaft ..... stainless steel
Screws ..... stainless steel
Elastomers ..... viton

Technical data at 50 Hz		BADU Variostar
Inlet Sa/outlet connection Da		90/90
Rec. inlet/outlet pipe, PVC pipe		110/110
Power input P_1 (kW)	1~ 230 V	0.07-1.15
Power output P_2 [1] (kW)	1~ 230 V	0.03-0.85
Idle speed (rpm)		600-1800
Frequency (Hz)		50/60
Rated current (A)	1~ 230 V	0.60-4.95
Max. operating pressure (bar)		2.5

For detailed technical data regarding motors/devices please see page 66.

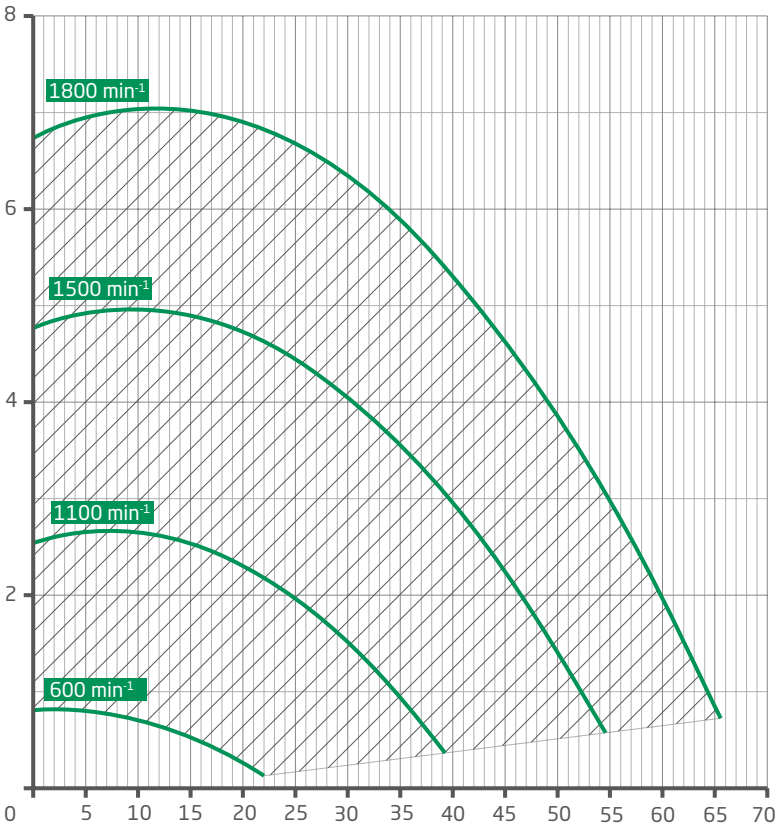
Technical data may vary.

Dimensions BADU Variostar



Detailed dimensions available on request.

Characteristics BADU Variostar



Total dynamic head H (m) / Flow rate Q (m³/h) >

BADU® Novastar-S

Field of application

> Freshwater
> Saltwater

Design

The BADU Novastar propeller pump is a single stage, non-self-priming elbow pump with an axial impeller. The pump can be installed vertically and horizontally. The bellow-type mechanical seal is mounted on a plastic shaft protector sleeve. Motor/pump shaft has no contact with the water in the circuit, providing complete electrical separation.

Motor

Directly mounted, low-noise operation, surface-cooled electric motor with permanently lubricated, sealed ball bearings.
Variable speed motor controllable externally via digital and analogue inputs.

Suitable for standard voltage according to DIN IEC 60038 and DIN EN 60034 (Euro voltage).

Materials used

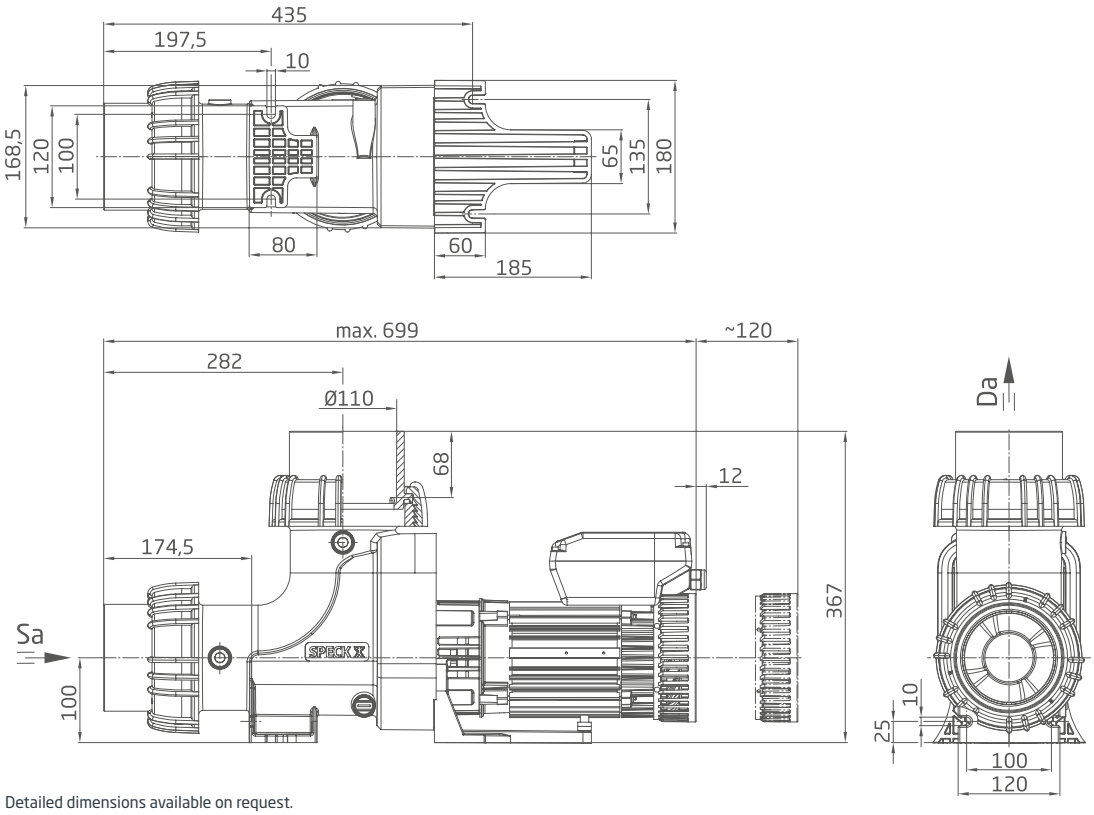
Pump casing ..... PP GF 30
Gland housing ..... PP GF 30
Flange with integrated latern ..... PP GF 30
Impeller ..... PP GF 30
Mechanical seal ..... SiC/SiC/viton
Pump shaft ..... stainless steel
Flange sleeve ..... PVC
Elastomers ..... NBR

Technical data at 50 Hz		BADU Novastar-S
Inlet Sa/outlet connection Da		110/110
Rec. inlet/outlet pipe, PVC pipe		140/140
Power input P_1 (kW)	1~ 230 V	0.09-1.34
Power output P_2 [1] (kW)	1~ 230 V	0.05-1.15
Idle speed (rpm)		600-2600
Frequency (Hz)		50/60
Rated current (A)	1~ 230 V	0.65-6.00
Max. operating pressure (bar)		2.5

For detailed technical data regarding motors/devices please see page 66.

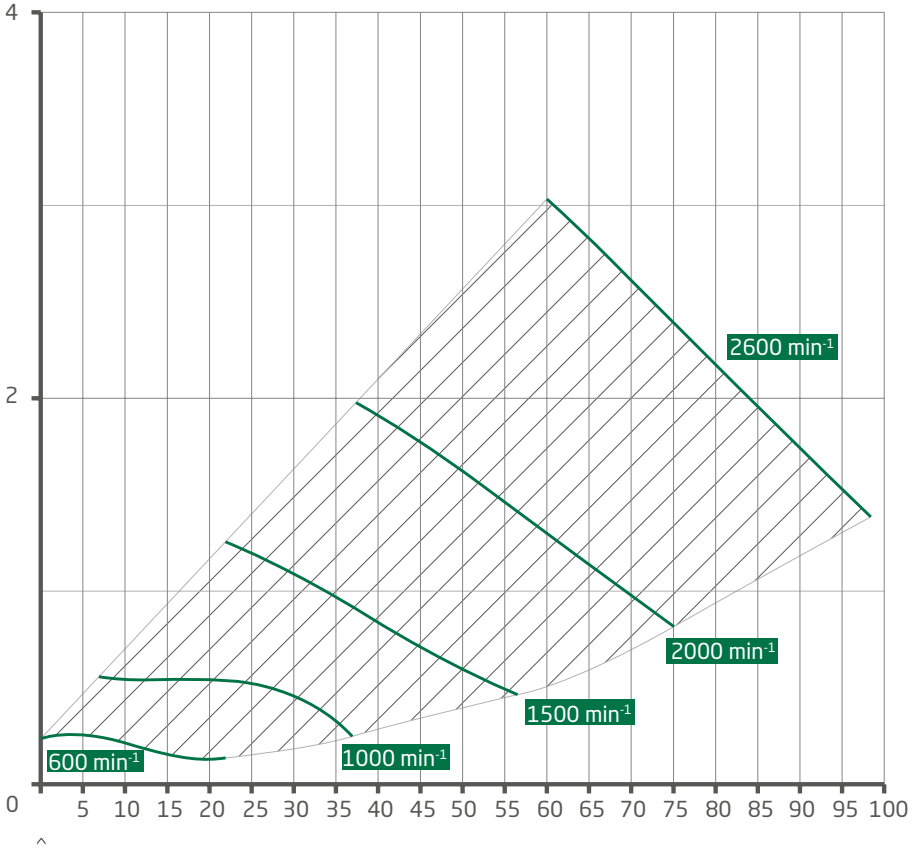
Technical data may vary.

Dimensions BADU Novastar-S



Detailed dimensions available on request.

Characteristics BADU Novastar-S



Total dynamic head H (m) / Flow rate Q (m³/h) >

BADU® Powerstar-S

Field of application

> Freshwater
> Saltwater

Design

The BADU Powerstar propeller pump is a single stage, non-self-priming elbow pump with an axial impeller.
The pump can be installed vertically and horizontally.
The bellow-type mechanical seal is mounted on a plastic shaft protector sleeve.
Motor/pump shaft has no contact with the water in the circuit, providing complete electrical separation.

Construction size

BADU Powerstar-S ..... DND 150/DNS 150

Materials used

Pump casing ..... PP GF 30
Impeller ..... PP GF 30
Mechanical seal ..... SiC/SiC/viton
Pump shaft ..... stainless steel
Drive lantern ..... cast iron EN-JL 1040
Elastomers ..... NBR

Flanges

compatible with EN 1092-2 PN 16 and ASME.

Motor

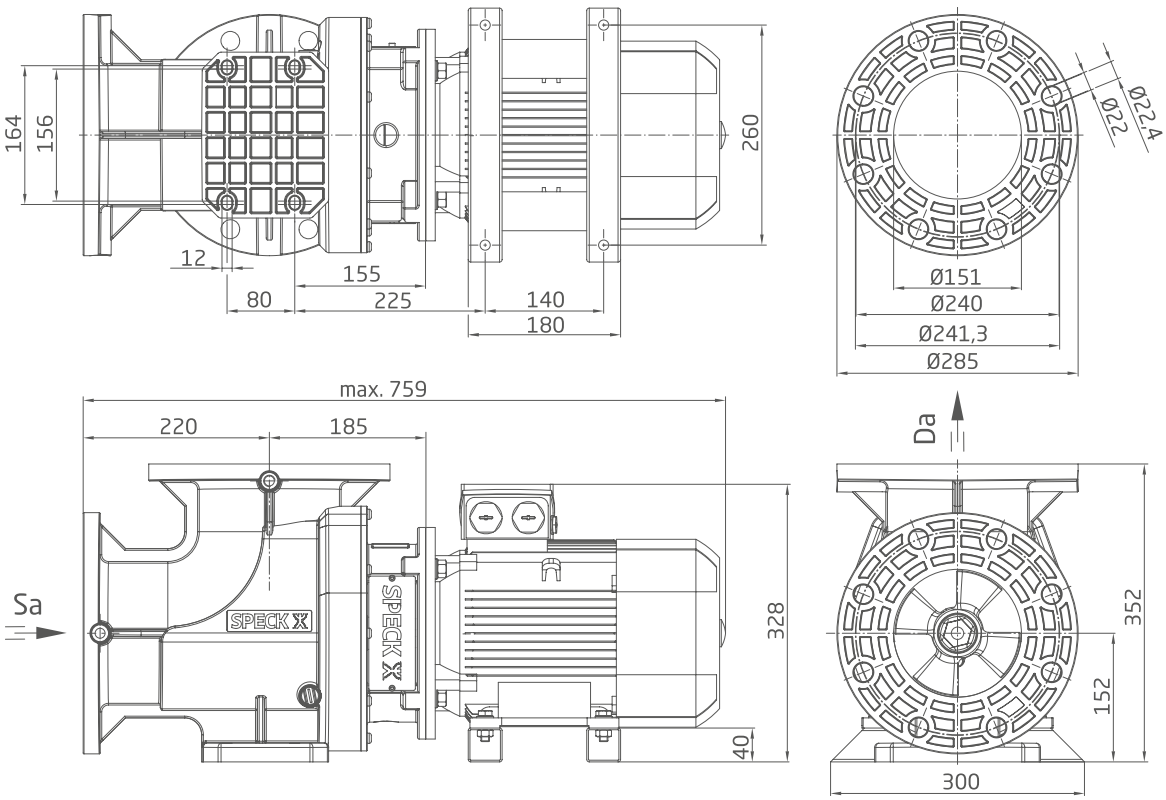
Directly mounted, low-noise operation, surface-cooled electric motor with permanently lubricated, sealed ball bearings.

Technical data at 50 Hz		BADU Powerstar-S
Inlet Sa/outlet connection Da		150/150
Rec. inlet/outlet pipe, PVC pipe		200/200
Power input P_1 (kW)	3~ 400 V	4.60
Power output P_2 (kW)	3~ 400 V	4.00
Idle speed (rpm)		2950
Frequency (Hz)		50
Rated current (A)	3~ 400 V	7.40
Max. operating pressure (bar)		2.5

For detailed technical data regarding motors/devices please see page 66.

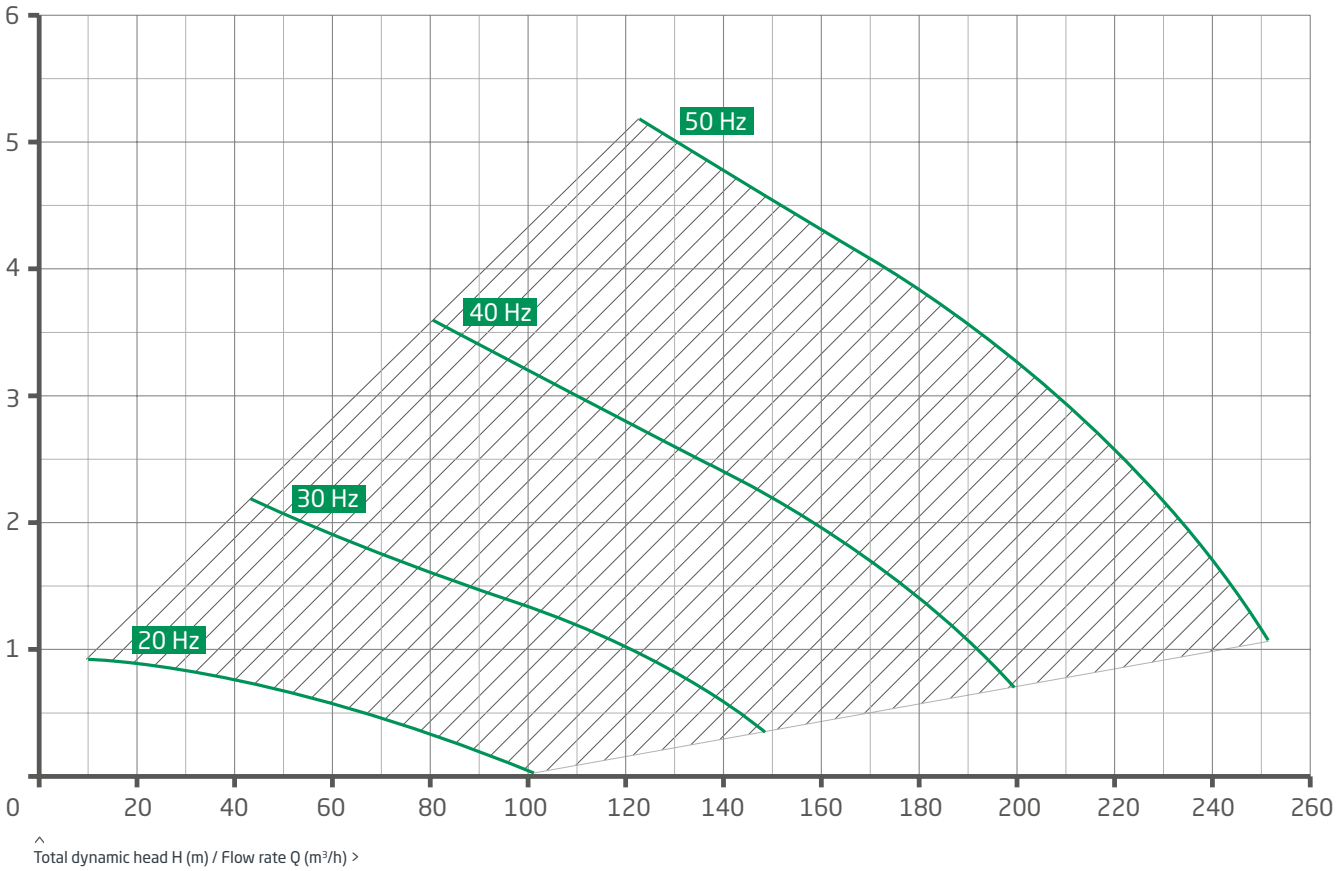
Technical data may vary.

Dimensions BADU Powerstar-S



Detailed dimensions available on request.

Characteristics BADU Powerstar-S



Total dynamic head H (m) / Flow rate Q (m³/h) >

Normblock Multi-S

Field of application

> Freshwater
> Saltwater

Design

The Normblock Multi-S is a non-self-priming, single-stage, volute casing pump with performance classification and main dimensions according to NF E 44-112 and DIN EN 733 (replacement for DIN 24255).
OL version = open impeller.

See page 16 for materials used.

Construction

Pump and replacable standard motor are flanged to one modular unit.

Paintwork

RAL 5002, ultramarine blue.
Customised paintwork on request.

Flange sizes

Normblock Multi-S 65/250 ..... DND 65/DNS 80
Normblock Multi-S 80/200 ..... DND 80/DNS 100
Normblock Multi-S 100/250 ..... DND 100/DNS 125
Normblock Multi-S 125/250 ..... DND 125/DNS 150

Flanges

compatible with EN 1092-2 PN-16 and ASME.

Noise generation

Sound intensity and sound pressure level are mainly influenced by the motor and the pump and especially by the installation conditions and the respective installation situation. Special sound insulation measures are to be taken to reduce the transmission of structure-borne or airborne noise.

Connection positions

Inlet connection ..... axial
Outlet connection ..... radial upwards, side options

Installation

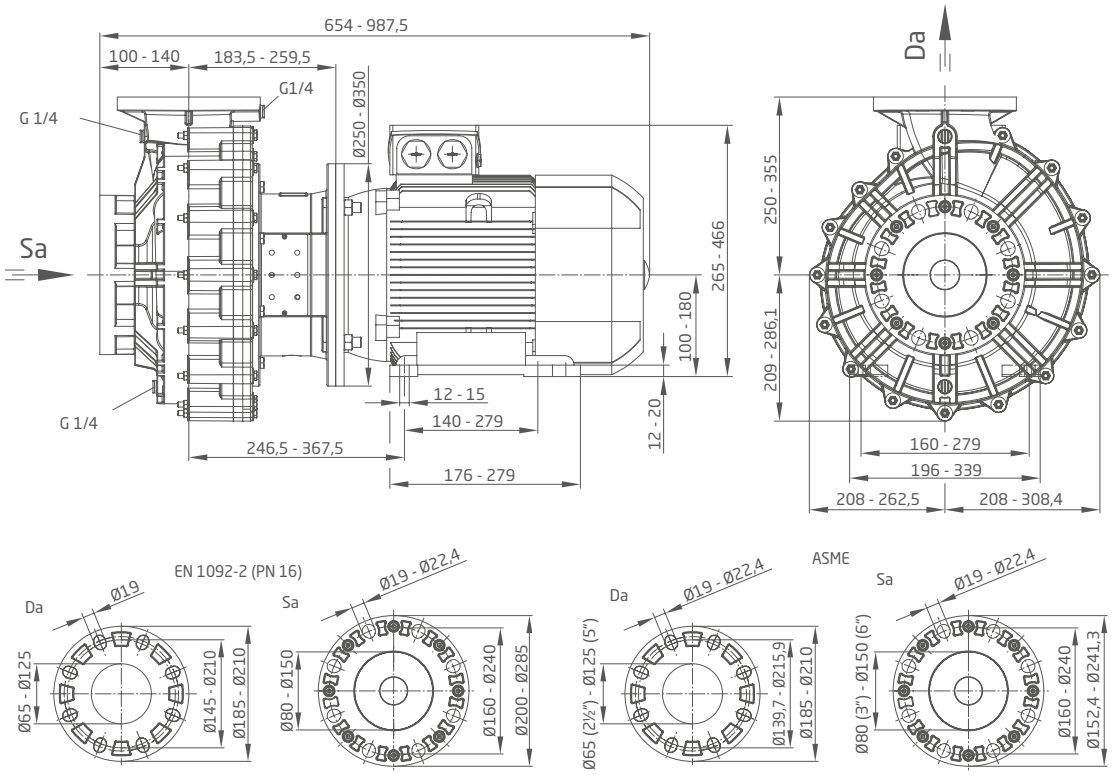
The Normblock Multi-S is installed horizontally in the pipe network.

Vertical installation with the motor facing downwards is not permitted.

Types

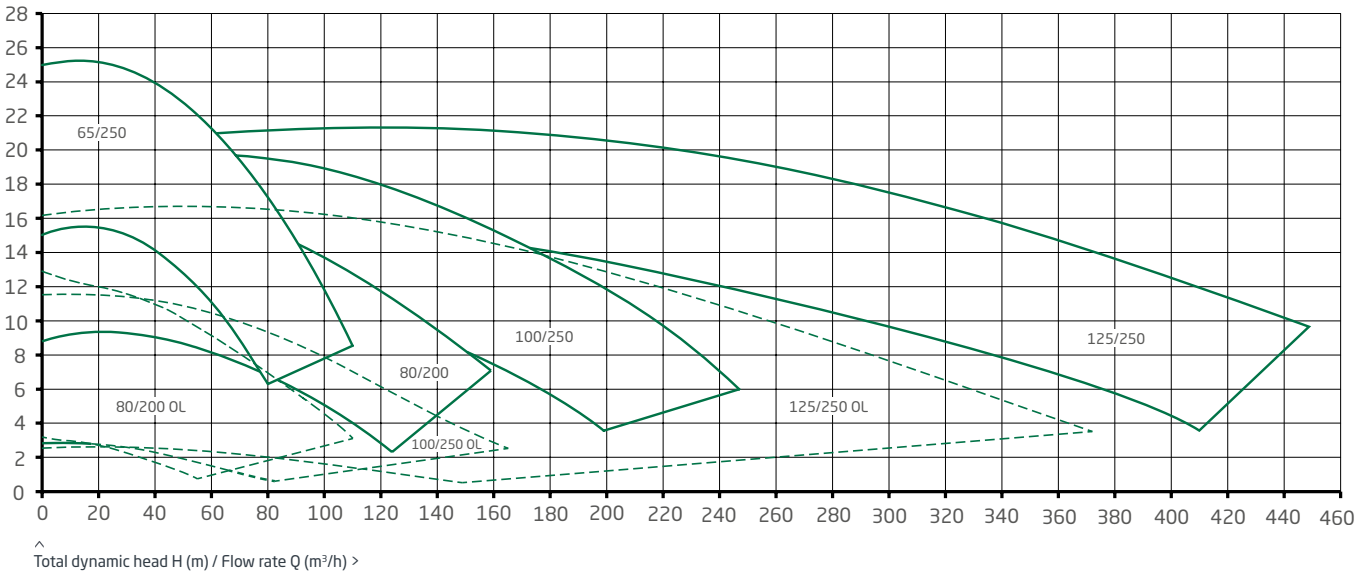
> Normblock Multi-S 65/250
> Normblock Multi-S 80/200
> Normblock Multi-S 100/250
> Normblock Multi-S 125/250

Dimensions Normblock Multi-S



Detailed dimensions available on request.

Characteristics Normblock Multi-S



Normblock Multi-S

Motor and materials

Motor

Directly-mounted, low noise, surface-cooled and removable DIN-IEC motor in German brand quality.
Energy efficiency class IE3 from 0.75 kW, including PTC resistor sensor with fixed bearings on the pump side. The motors are produced in the factory with closed condensation drain holes.

Construction ..... IM B 35
Protection class ..... IP 55
Idle speed ..... 1450/1750 rpm
Voltage 50 Hz ..... up to 2.20 kW: 230 V Δ/400 V Y
60 Hz ..... up to 2.60 kW: 265 V Δ/460 V Y
Voltage 50 Hz ..... from 3.00 kW: 400 V Δ/690 V Y
60 Hz ..... from 3.60 kW: 460 V Δ
Class of insulation ..... F
Cooling air temperature ..... max. 40 °C

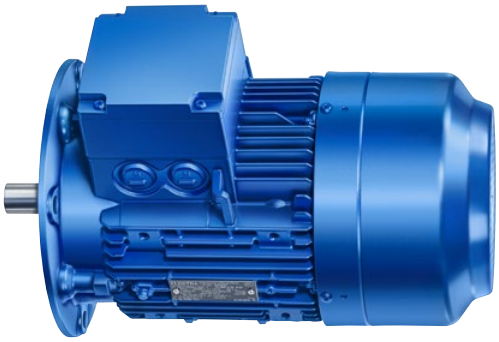
Special motors on request.

Direction of rotation

Clockwise, as seen on the motor fan.

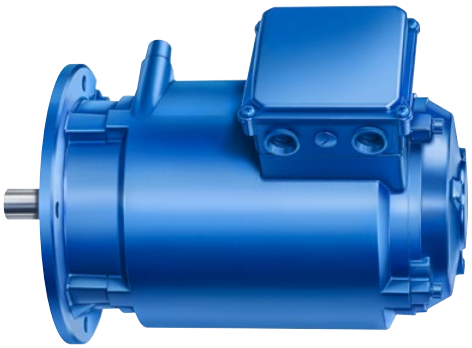
Bearing/lubrication

Motors up to construction size 180 have sufficiently dimensioned, maintenance-free, deep groove ball bearings according to DIN 625 with permanent grease lubrication.



1 **Standard motor**

2 **PM motor**



3 **Water-cooled motor**

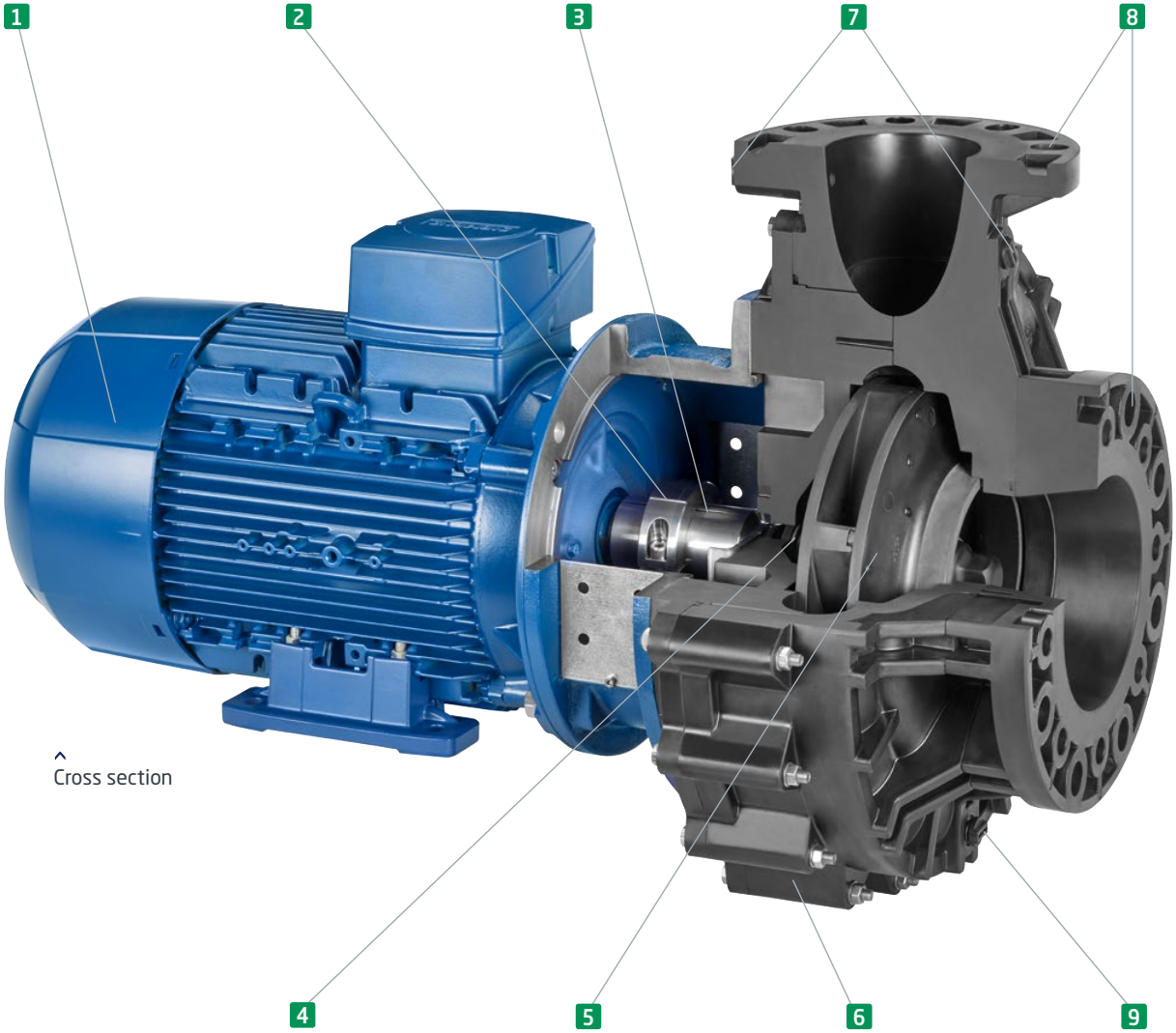
1 Standard motor
IE3 motor from 0.75 kW.
Advantage: very high grade of efficiency.

2 PM motor
IE4/IE5 motor.
Advantage: very high grade of efficiency.

3 Water-cooled motor
Energy efficiency class depends on the temperature of the media.
Advantage: heat recovery.
Motor design only available on request.

Materials used	Normblock Multi-S
Casing parts	THP, PPE GF 30, PP GF 30
Impeller	THP, PPE GF 30
Mechanical seal	SiC/SiC/EPDM
Pump shaft (no contact with pump liquid)	stainless steel 1.4057
Motor lantern	cast iron EN-JL 1040

Technical data may vary.



^ Cross section

1 Motor

Standard brand motor, optimised for the operating point with ball bearings that are lubricated for their whole operating life.

2 Plug-in shaft system

Motor can be replaced without having to completely disassemble the pump or having to dismantel the mechanical seal.

3 Pump shaft

Pump shaft made from stainless steel. Motor/pump shaft has no contact with the medium providing complete electrical separation.

4 Mechanical seal

Liquid cooling and lubrication of the maintenance-free bellow-type mechanical seal ensures long durability and maintenance intervals.

5 Impeller

Closed impeller for optimal smooth running and durability of the whole pump.
OL version = open impeller.

6 Pump material

THP (technically high-performance plastic).
Permanent corrosion protection and protection against aggressive media for all wetted parts due to all-plastic design.

7 Auxiliary connections

Holes for additional connections e.g. pressure gauge.

8 Connections

Standardised connections, compatible with DIN and ASME (American standard).

9 Drainage

Easy drainage without having to remove the pump.

BADU® 42-AK

Field of application

> Freshwater
> Saltwater

Design

Monoblock-type pump with a closed bellow-type mechanical seal mounted on a plastic shaft protector sleeve. Motor/pump shaft has no contact with the pool water providing complete electrical separation.

Materials used

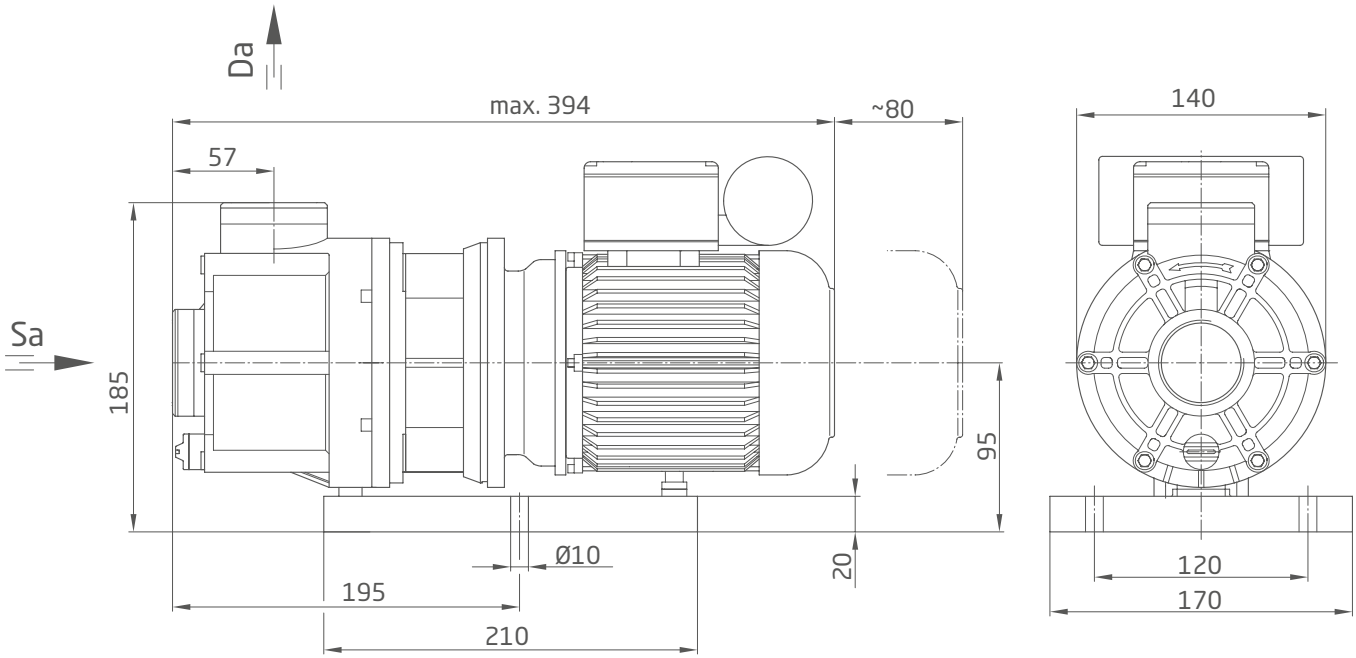
Pump casing ..... PP GF 30
Housing cover ..... PP GF 30
Lantern ..... PPE GF 30
Impeller ..... PP GF 30/PA 66 GF 30
Mechanical seal ..... SiC/SiC/Viton
Screws ..... stainless steel
Elastomers ..... viton

Technical data at 50 Hz		42/6-AK	42/9-AK	42/12-AK
Inlet Sa/outlet connection Da (Rp [2])		1½/1½	1½/1½	1½/1½
Rec. inlet/outlet pipe, PVC pipe		50/50	50/50	50/50
Power input P_1 (kW)	1~ 230 V	0.58	0.62	0.97
Power input P_1 (kW)	3~ 400/230 V	0.55	0.68	0.85
Power output P_2 [1] (kW)	1~ 230 V	0.30	0.45	0.65
Power output P_2 [1] (kW)	3~ 400/230 V	0.30	0.45	0.65
Idle speed (rpm)		2840	2840	2840
Frequency (Hz)		50	50	50
Rated current (A)	1~ 230 V	2.60	3.00	4.70
Rated current (A)	3~ 400/230 V	1.00/1.75	1.25/2.15	1.75/3.00
Max. operating pressure (bar)		2.5	2.5	2.5

For detailed technical data regarding motors/devices please see page 66.

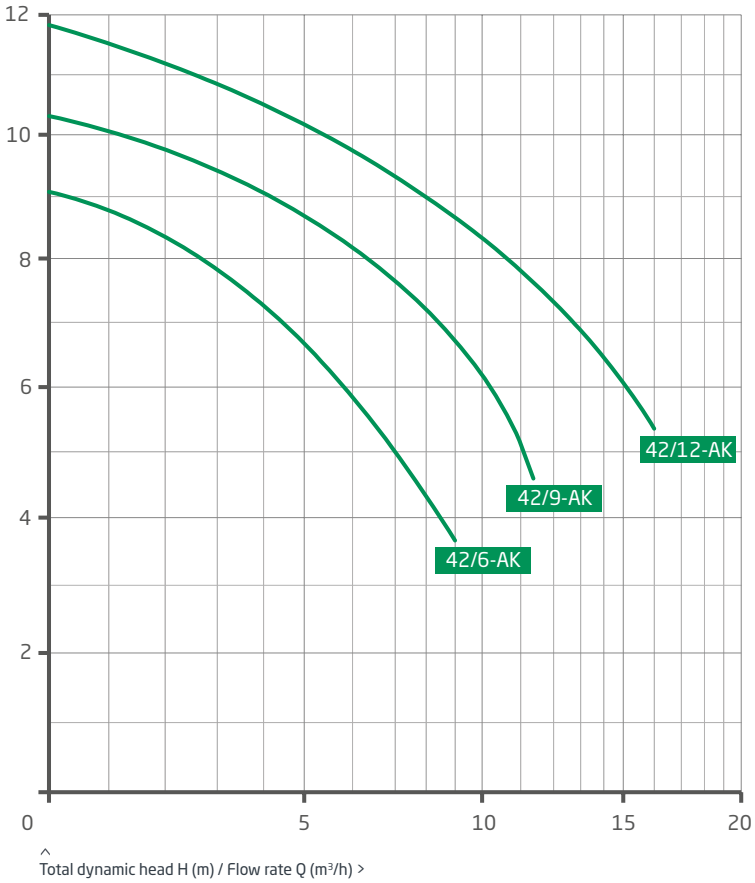
Technical data may vary.

Dimensions BADU 42-AK



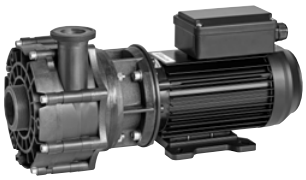
Detailed dimensions available on request.

Characteristics BADU 42-AK



BADU® 21-AK

Technical data



BADU 21-40-AK

BADU 21-41-AK

BADU 21-50-AK

BADU 21-60-AK

BADU 21-80-AK

BADU 21-81-AK

Field of application

- Freshwater
- Saltwater

Design

The bellow-type mechanical seal is mounted on a plastic shaft protector sleeve.
Motor/pump shaft has no contact with the pool water providing complete electrical separation.
Discharge outlet swivels gradually by 90°.
Various connection possibilities in the pipework for optimal installation conditions.

Features

BADU 21-40-AK and BADU 21-41-AK range
The unit may be installed vertically with the pump underneath.
The pump is self-draining when installed vertically.
Also available with Ø 50/Ø 40 hose adapters.

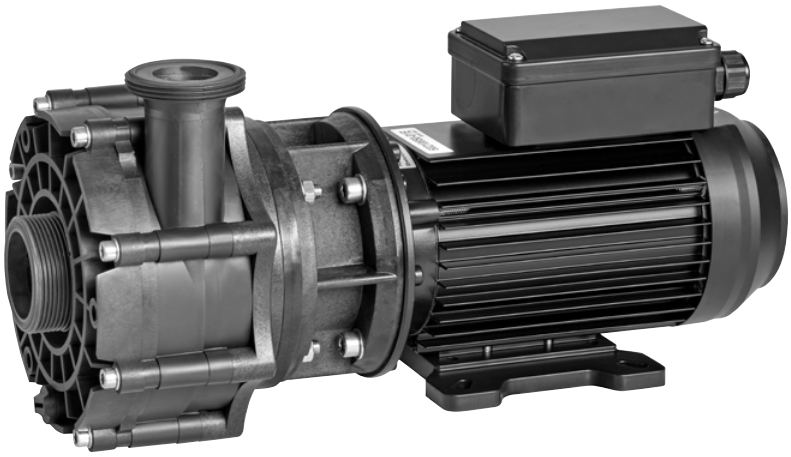
BADU 21-50-AK and BADU 21-60-AK range
Discharge outlet swivels infinitely.

BADU 21-80-AK and BADU 21-81-AK range
Discharge outlets swivel gradually by 90° each and by 29° clockwise when viewing the pump from the suction side.
Pumps also available with Ø 82 mm hose connections.

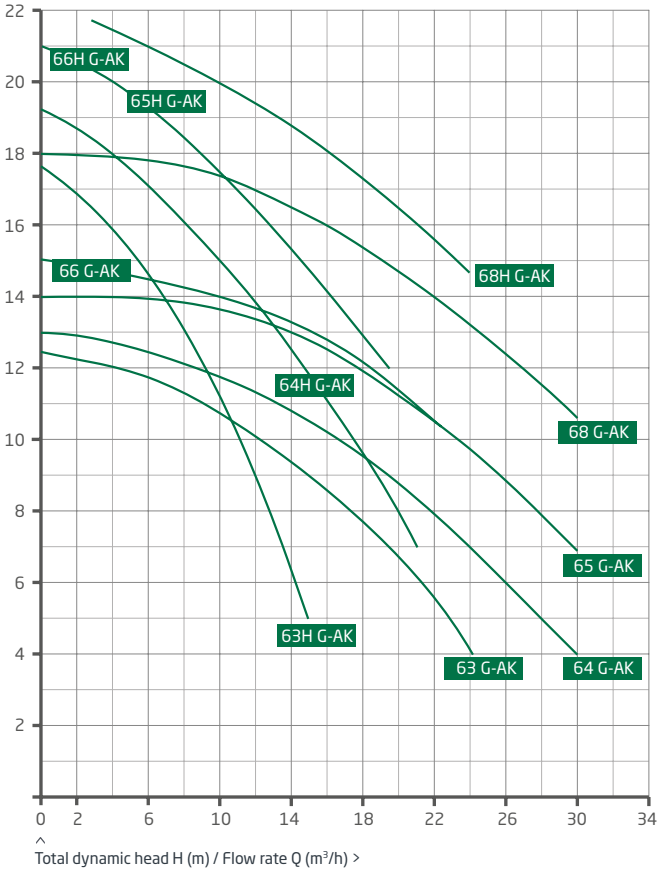
BADU 21-80-AK/... SG range
These pumps can be delivered conditionally self-priming up to 0.5 m on request.

Accessories for all models in the BADU 21-AK range
Suitable connection unions for the suction and discharge sides.

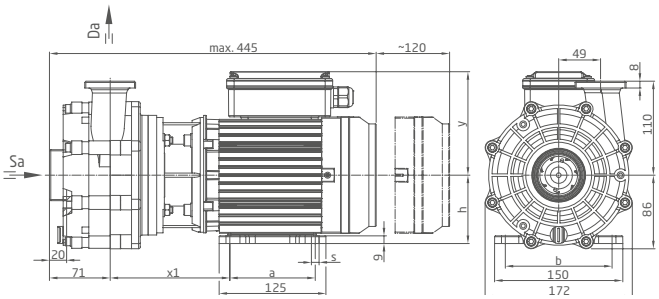
BADU® 21-40-AK, 21-41-AK



Characteristics BADU 21-40-AK



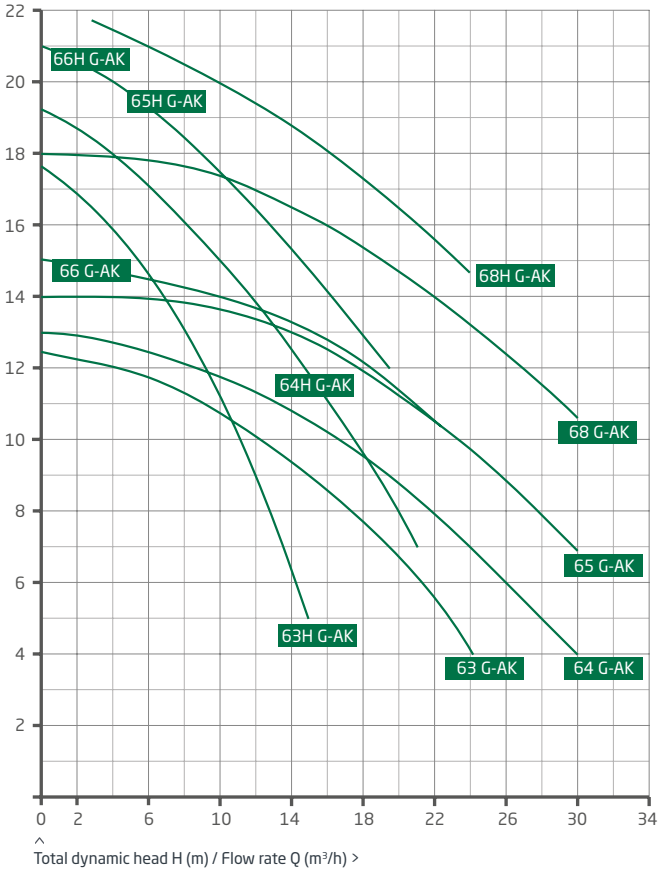
Dimensions BADU 21-40-AK



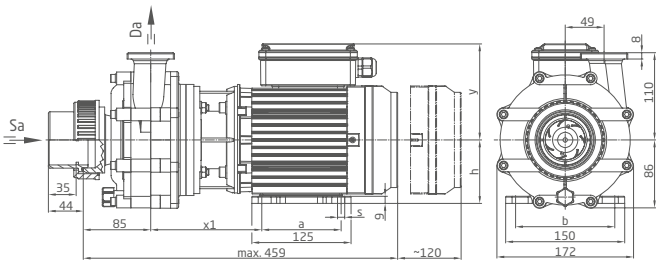
Detailed dimensions available on request.

	a	b	h	s	x1	y	max. L-AK
21-40/63 G/H G /-AK 1~	90	112	71	**7**	149	106	408
21-40/63 G/H G /-AK 3~	100	125	80	**9**	140	121	382
21-40/64 G/H G /-AK 1~	100	125	80	**9**	140	121	382
21-40/64 G/H G /-AK 3~	100	125	80	**9**	140	121	410
21-40/65 G/H G /-AK 1~	100	125	80	**9**	140	121	400
21-40/66 G/H G /-AK 3~	100	125	80	**9**	140	121	432
21-40/68 G/H G /-AK 1~	100	125	80	**9**	140	121	432
21-40/68 G/H G /-AK 3~	100	125	80	**9**	140	121	445

Characteristics BADU 21-41-AK



Dimensions BADU 21-41-AK



Detailed dimensions available on request.

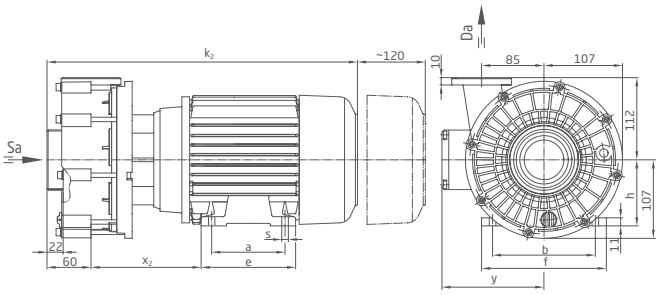
	a	b	h	s	x1	y	max. L-AK
21-41/63 G/H G /-AK 1~	90	112	71	**7**	149	106	422
21-41/63 G/H G /-AK 3~	100	125	80	**9**	140	121	396
21-41/64 G/H G /-AK 1~	100	125	80	**9**	140	121	396
21-41/64 G/H G /-AK 3~	100	125	80	**9**	140	121	424
21-41/65 G/H G /-AK 1~	100	125	80	**9**	140	121	414
21-41/66 G/H G /-AK 3~	100	125	80	**9**	140	121	446
21-41/68 G/H G /-AK 1~	100	125	80	**9**	140	121	446
21-41/68 G/H G /-AK 3~	100	125	80	**9**	140	121	459

BADU® 21-50-AK, 21-60-AK

Characteristics BADU 21-50-AK

Total dynamic head H (m) / Flow rate Q (m³/h) >

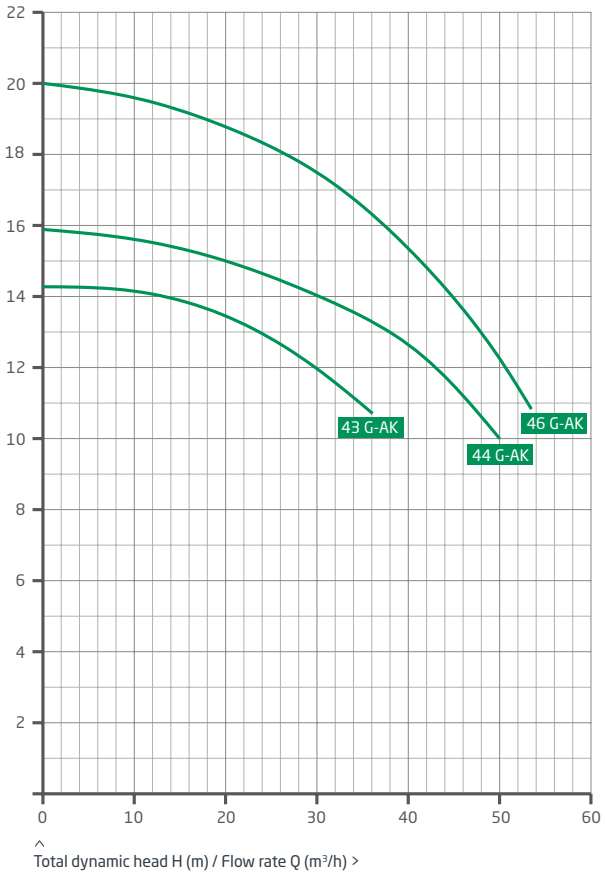
Dimensions BADU 21-50-AK



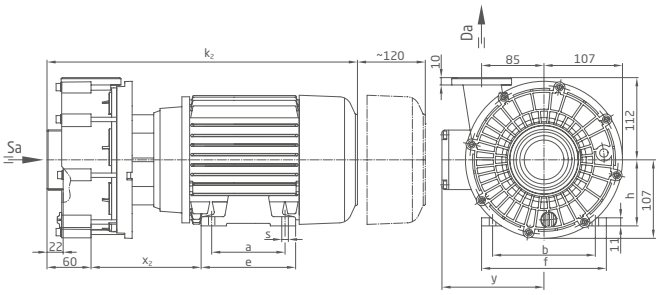
Detailed dimensions available on request.

	a	b	e	f	h	s	x_2	y	k_2
21-50/42 G /-AK 1~	125	140	155	170	90	9	135	139	408
21-50/42 G /-AK 3~	100	125	125	156	80	9	144	129	383
21-50/43 G /-AK 1~	125	140	155	170	90	9	135	139	408
21-50/43 G /-AK 3~	125	140	155	170	90	9	150	139	427
21-50/44 G /-AK 1~	125	140	155	170	90	9	150	139	423
21-50/44 G /-AK 3~	140	160	176	195	100	12	157	155	457

Characteristics BADU 21-60-AK



Dimensions 21-60-AK

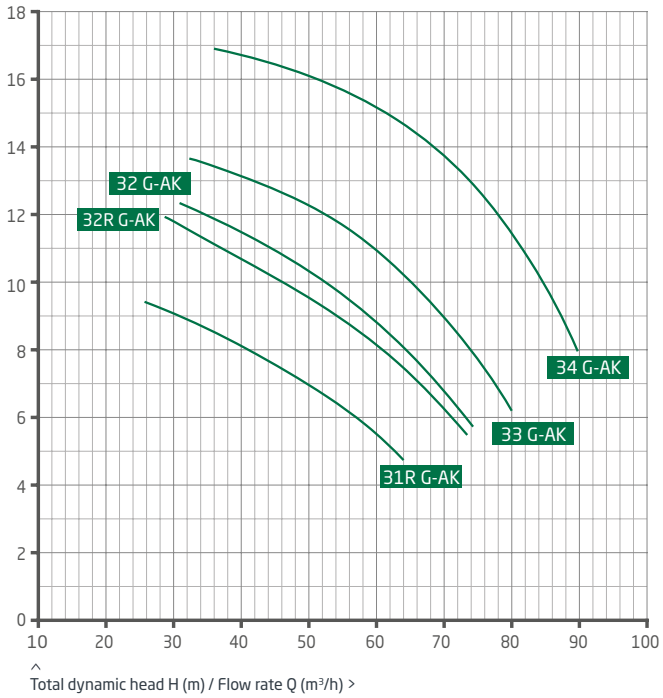


Detailed dimensions available on request.

	a	b	e	f	h	s	x_2	y	k_2
21-60/43 G /-AK 1~	125	140	155	170	90	9	135	139	408
21-60/43 G /-AK 3~	125	140	155	170	90	9	150	139	427
21-60/44 G /-AK 1~	125	140	155	170	90	9	150	139	423
21-60/44 G /-AK 3~	140	160	176	195	100	12	157	155	457
21-60/46 G /-AK 1~	140	160	176	195	100	12	157	154	477
21-60/46 G /-AK 3~	140	160	176	195	100	12	157	155	457

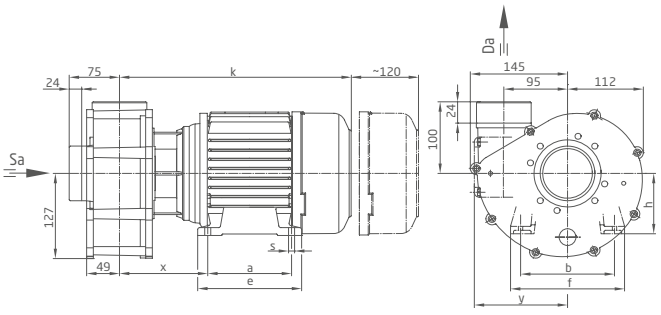
BADU® 21-80-AK, 21-81-AK

Characteristics BADU 21-80-AK



Total dynamic head H (m) / Flow rate Q (m³/h) >

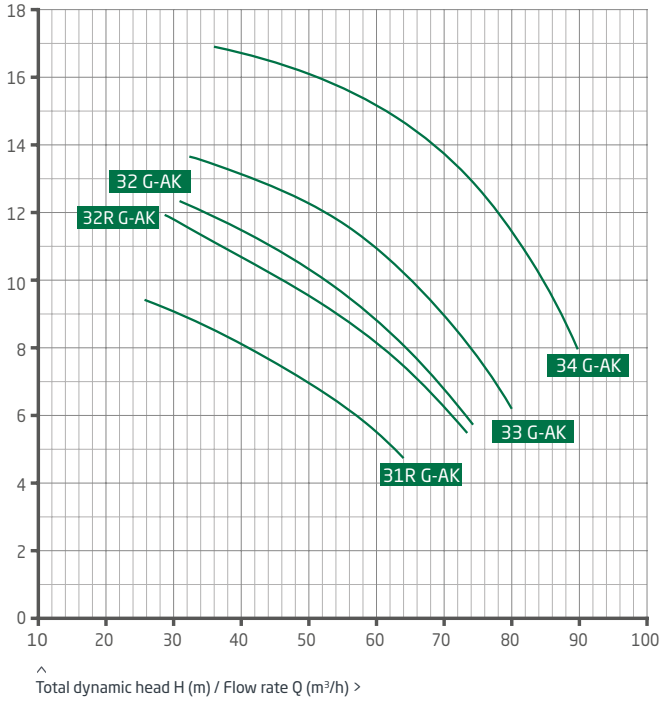
Dimensions BADU 21-80-AK



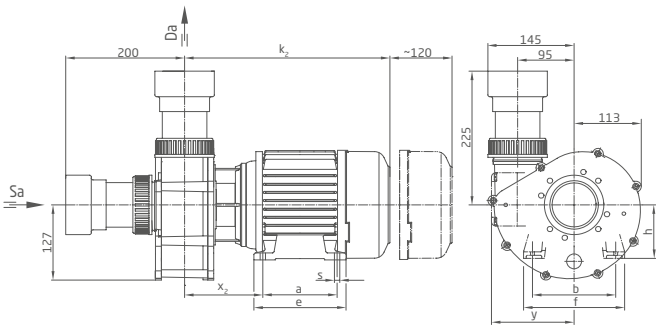
Detailed dimensions available on request.

	a	b	e	f	h	s	x	y	k
21-80/31 R G-AK 1~	125	140	155	170	90	9	135	139	348
21-80/31 R G-AK 3~	125	140	155	170	90	9	150	139	372
21-80/32 R G-AK 1~	125	140	155	170	90	9	150	139	363
21-80/32 R G-AK 3~	140	160	176	195	100	12	157	155	397
21-80/32 R G-AK 3~	140	160	176	195	100	12	157	155	397
21-80/33 R G-AK 1~	140	160	176	195	100	12	157	154	417
21-80/33 R G-AK 3~	140	160	176	195	100	12	157	155	397
21-80/34 R G-AK 3~	140	160	176	195	100	12	157	155	414

Characteristics BADU 21-81-AK



Dimensions 21-81-AK



Detailed dimensions available on request.

	a	b	e	f	h	s	x_2	y	k_2
21-81/31 R G-AK 1~	125	140	155	170	90	9	135	139	348
21-81/31 R G-AK 3~	125	140	155	170	90	9	150	139	372
21-81/32 R G-AK 1~	125	140	155	170	90	9	150	139	363
21-81/32 R G-AK 3~	140	160	176	195	100	12	157	155	397
21-81/32 R G-AK 3~	140	160	176	195	100	12	157	155	397
21-81/33 R G-AK 1~	140	160	176	195	100	12	157	154	417
21-81/33 R G-AK 3~	140	160	176	195	100	12	157	155	397
21-81/34 R G-AK 3~	140	160	176	195	100	12	157	155	414

BADU® SuperPro-AK

Field of application

> Freshwater
> Saltwater

Design

Monoblock-type pump with integrated strainer basket.
The bellow-type mechanical seal is mounted on a plastic shaft protector sleeve.
Motor/pump shaft has no contact with the water in the circuit, providing complete electrical separation.

Strainer tank capacity ..... approx. 3 l
Strainer basket mesh size ..... approx. 3.2 x 2.6 mm

Materials used

Pump casing ..... PP GF 30
Housing cover ..... PP GF 30
Gland housing ..... PP TV 40
Lantern ..... PPE GF 30
Diffuser ..... PA 66 GF 30/PP GF 30/ PP TV 40/PA 6 GF 15
Impeller ..... PA 66 GF 30/PP GF 30/PPE GF 30
Strainer basket ..... PP
Lid ..... PC, transparent/PP GF 30
Mechanical seal ..... SiC/SiC/viton
Screws ..... stainless steel
Unions with glue sockets ..... PVC-U
Elastomers ..... viton

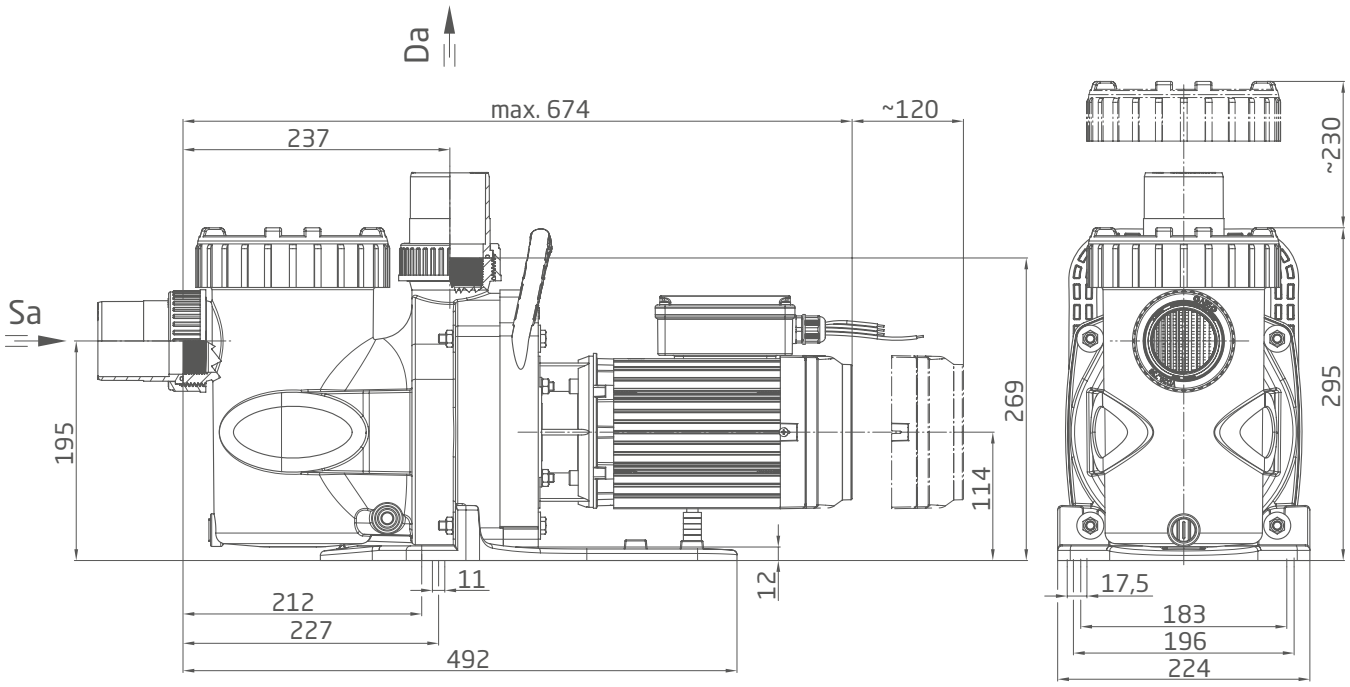
Technical data at 50 Hz		9-AK	12-AK	15-AK	19-AK	23-AK	29-AK	33-AK	40-AK
Inlet Sa/outlet connection Da (Rp 2 *))		63/63	63/63	63/63	63/63	63/63	63/63	63/63	63/63
Rec. inlet/outlet pipe, PVC pipe, (mm)		50/50	63/50	63/63	63/63	63/63	75/63	75/75	75/75
Power input P_1 (kW)	1~ 230 V	0.58	0.69	0.97	1.20	1.45	1.70	2.20	2.92
Power input P_1 (kW)	3~ 400/230 V	0.55	0.66	0.90	1.00	1.32	1.65	2.10	2.54
Power output P_2 1) (kW)	1~ 230 V	0.30	0.45	0.65	0.80	1.00	1.30	1.80	2.20
Power output P_2 1) (kW)	3~ 400/230 V	0.30	0.45	0.65	0.80	1.00	1.30	1.80	2.20
Idle speed (rpm)		2840	2840	2840	2840	2840	2840	2840	2840
Frequency (Hz)		50	50	50	50	50	50	50	50
Rated current (A)	1~ 230 V	2.60	3.20	4.70	5.30	6.40	7.40	9.40	13.10
Rated current (A)	3~ 400/230 V	1.00/1.75	1.25/2.15	1.75/3.00	1.73/3.00	2.90/5.02	2.74/4.76	3.50/6.10	4.50/7.80
Max. operating pressure (bar)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

For detailed technical data regarding motors/devices please see page 66.

Technical data may vary.

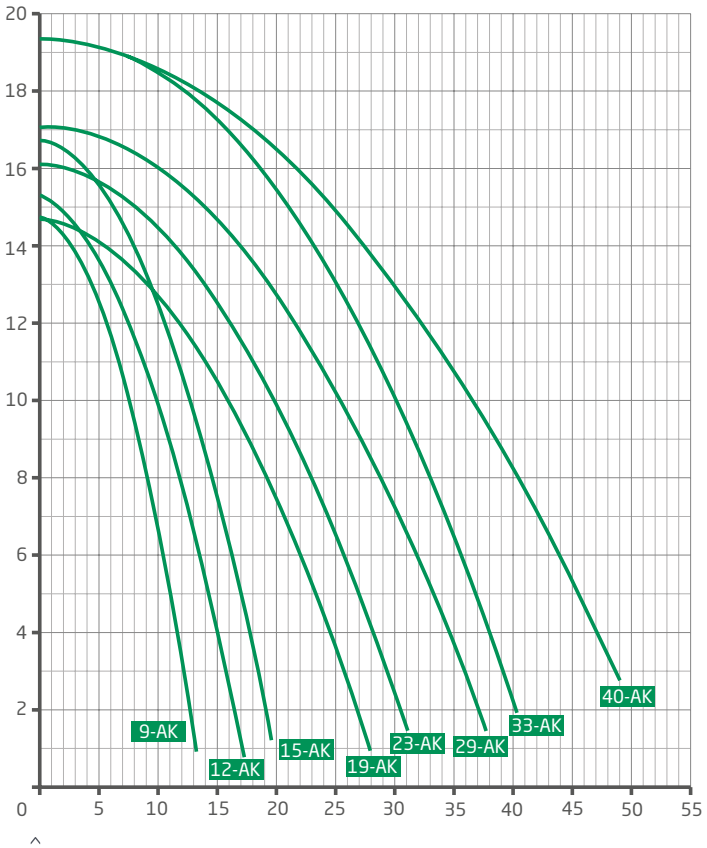
*) Union with Ø 63 mm glue sockets and Rp 2 inner thread.

Dimensions BADU SuperPro-AK



Detailed dimensions available on request.

Characteristics BADU SuperPro-AK



Total dynamic head H (m) / Flow rate Q (m³/h) >

BADU® Resort-AK

Field of application

> Freshwater
> Saltwater

Design

Monoblock-type pump with integrated strainer tank. The bellow-type mechanical seal is mounted on a plastic shaft protector sleeve. Motor/pump shaft has no contact with the pool water providing complete electrical separation. Actuator incl. PTC thermistor sensor.

Strainer tank capacity ..... approx. 10 l
Strainer basket mesh size ..... approx. 3.4 x 3.2 mm

Glue sockets made from PVC suitable for
BADU Resort 50-AK to BADU Resort 110-AK available.

Materials used

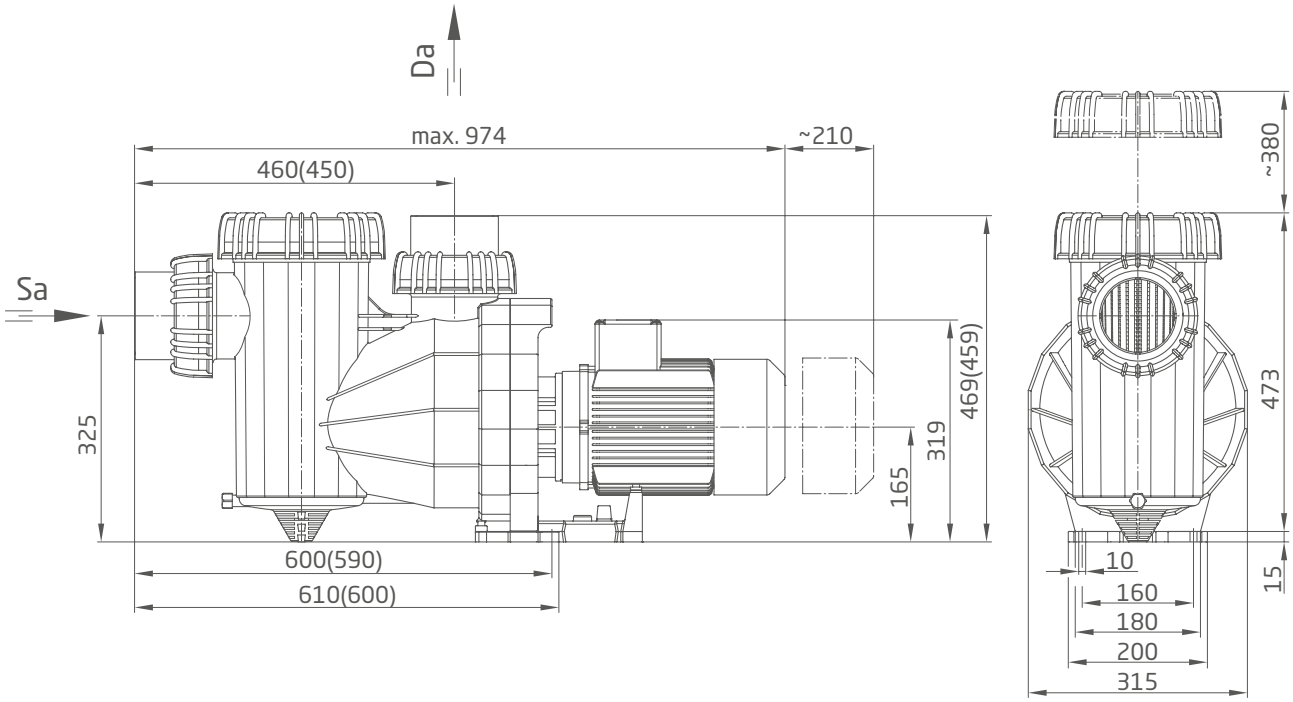
Pump casing ..... PP GF 30
Intermediate housing ..... PP TV 40
Gland housing ..... PP TV 40
Lantern ..... PPE GF 30
Diffuser ..... PP GF 30
Impeller ..... PPE GF 30/PP GF 30
Impeller nut ..... PP GF 30
Strainer basket ..... PP
Lid ..... PC, transparent/PA 66 GF 30
Glue sockets ..... ABS
Mechanical seal ..... SiC/SiC/viton
Screws ..... stainless steel
Elastomers ..... viton

Technical data at 50 Hz		30-AK	40-AK	45-AK	50-AK	55-AK	60-AK	70-AK	80-AK	110-AK
Inlet Sa/outlet connection Da		75/75	90/90	90/90	110/110	110/110	110/110	110/110	110/110	110/110
Rec. inlet/outlet pipe, PVC pipe		75/75	90/90	90/90	110/110	110/110	110/110	110/110	140/140	160/140
Power input P_1 (kW)	3~ 400/230 V	1.77	2.55	3.00	3.45	-/-	3.00	3.45	-/-	-/-
Power input P_1 (kW)	3~ 690/400 V	-/-	-/-	-/-	-/-	4.55	-/-	-/-	4.55	6.15
Power output P_2 [1] (kW)	3~ 400/230 V	1.50	2.20	2.60	3.00	-/-	2.60	3.00	-/-	-/-
Power output P_2 [1] (kW)	3~ 690/400 V	-/-	-/-	-/-	-/-	4.00	-/-	-/-	4.00	5.50
Idle speed (rpm)		2840	2840	2840	2840	2840	2840	2840	2840	2840
Frequency (Hz)		50	50	50	50	50	50	50	50	50
Rated current(A)	3~ 400/230 V	3.30/5.72	4.60/8.00	5.50/9.50	6.20/10.70	-/-	5.50/9.50	6.20/10.70	-/-	-/-
Rated current (A)	3~ 690/400 V	-/-	-/-	-/-	-/-	4.60/7.90	-/-	-/-	4.60/7.90	6.00/10.40
Max. operating pressure (bar)		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

For detailed technical data regarding motors/devices please see page 66.

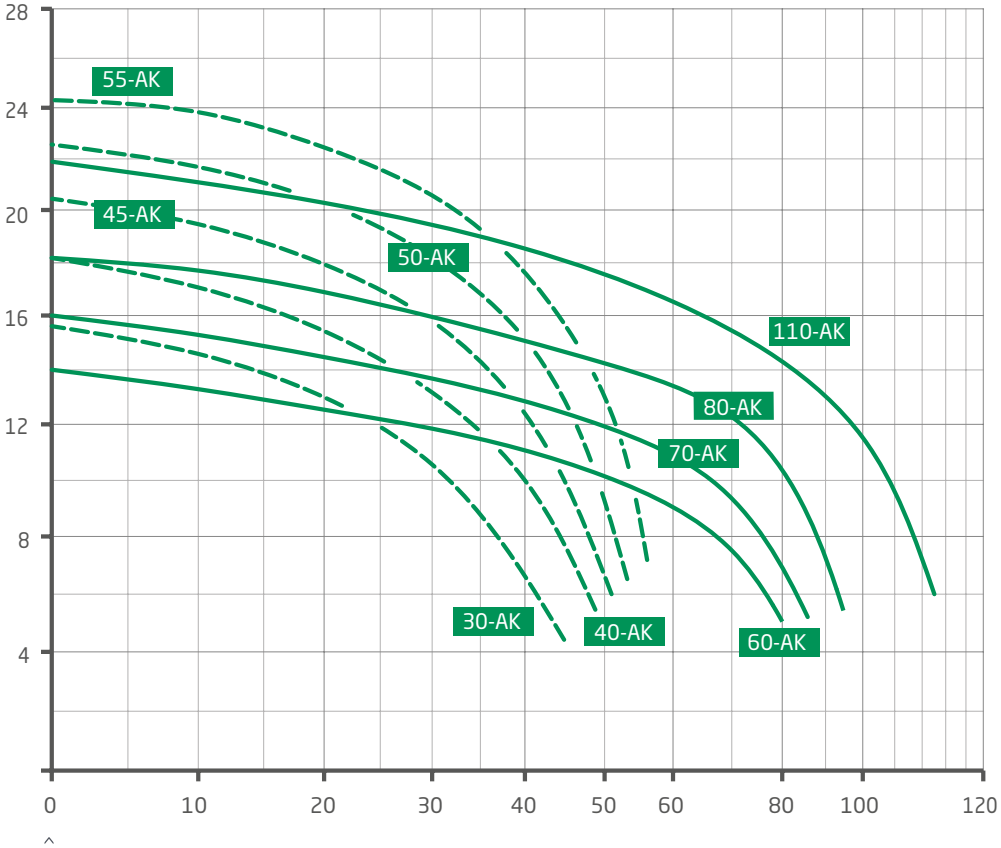
Technical data may vary.

Dimensions BADU Resort-AK



Detailed dimensions available on request.

Characteristics BADU Resort-AK



Total dynamic head H (m) / Flow rate Q (m³/h) >

IN-VB-S / IN-VC-S

Field of application

- Freshwater
- Saltwater
- Flexible use as a rinsing pump

Design

Multistage, vertical centrifugal pump. Equipped with ceramic, wear resistant, liquid lubricated bearings. Shaft seal in the form of a mechanical seal. The pump has the CE sign of approval and corresponds to the newest safety regulations.

Motor

Voltage ..... 1~ 230 V ± 10 %
3~ 230/400 V ± 10 %
Frequency ..... 50 Hz

PTC thermistor sensor included from 3.00 kW. Motors in special voltage and special frequency available on request.

Pumped fluid

Clear, moderately aggressive fluids, which don't chemically and mechanically attack the pump materials.

Detailed dimensions available on request.

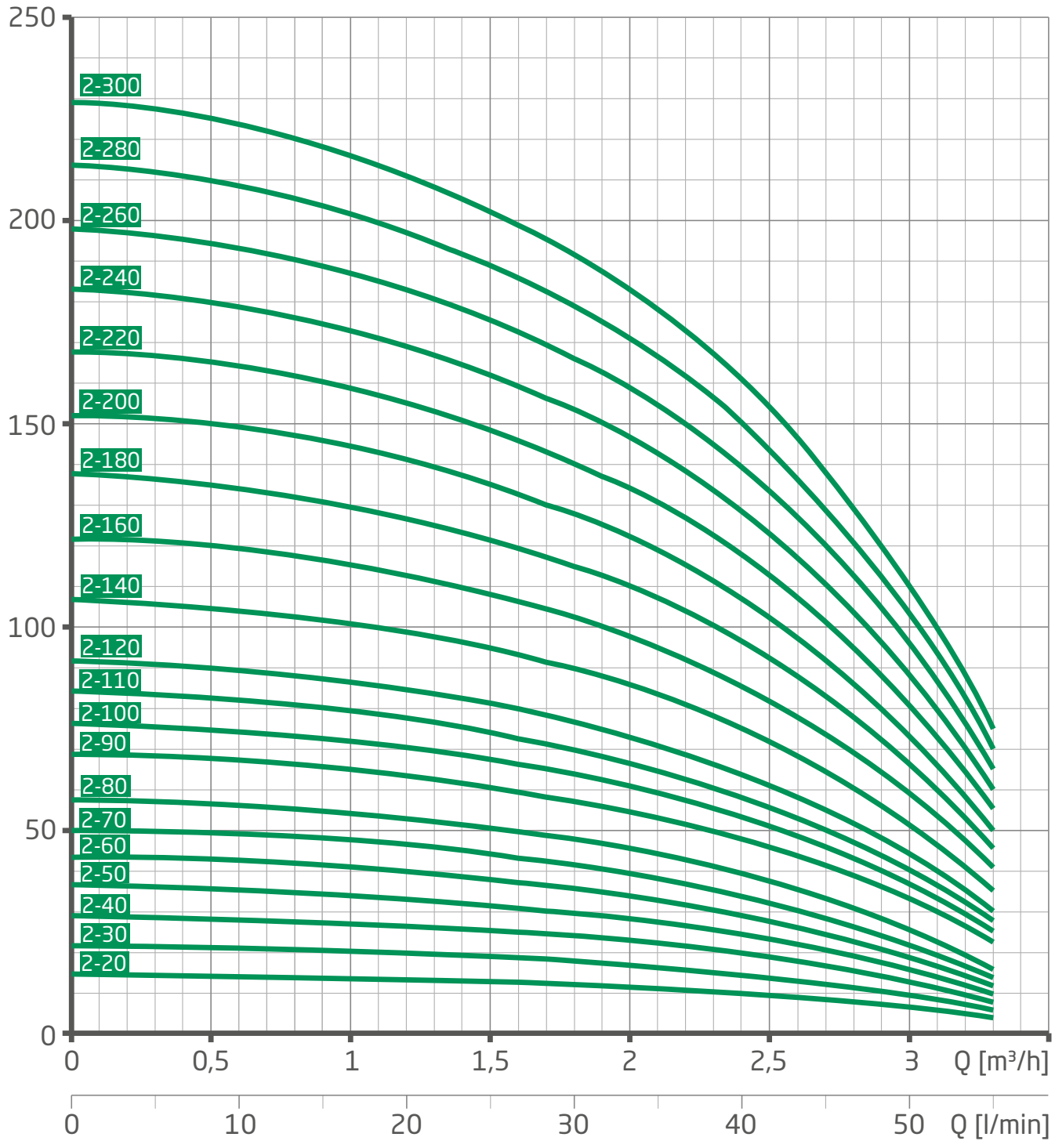
Motor data

P [kW]		0.37	0.55	0.75	1.10	1.50	2.20	3.00	4.00	5.50
I_N [A]	3~ 400 V	0.95	1.20	1.80	2.30	3.20	4.60	5.80	7.40	10.00
$I_{max.}$ [A]	3~ 400 V	1.40	1.50	2.40	3.10	4.60	6.20	7.50	9.80	15.00

P [kW]		7.50	11.00	15.00	18.50	22.00	30.00	37.00	45.00
I_N [A]	3~ 400 V	13.30	19.30	26.20	32.10	38.10	51.60	63.30	76.80
$I_{max.}$ [A]	3~ 400 V	18.10	27.00	36.70	40.30	53.70	59.30	72.80	88.30

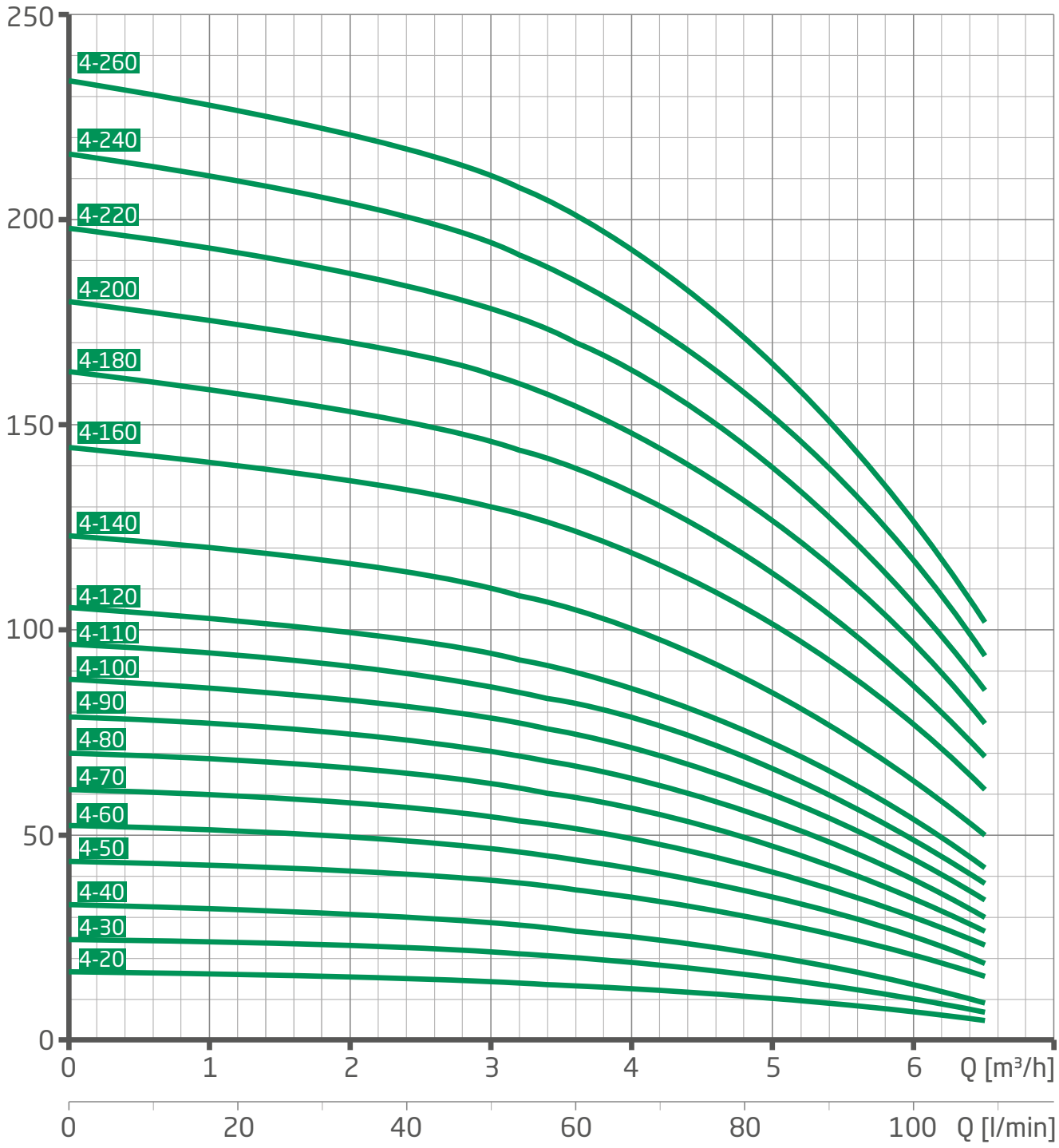
IN-VB-S 2, IN-VB-S 4

Characteristics IN-VB-S 2



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

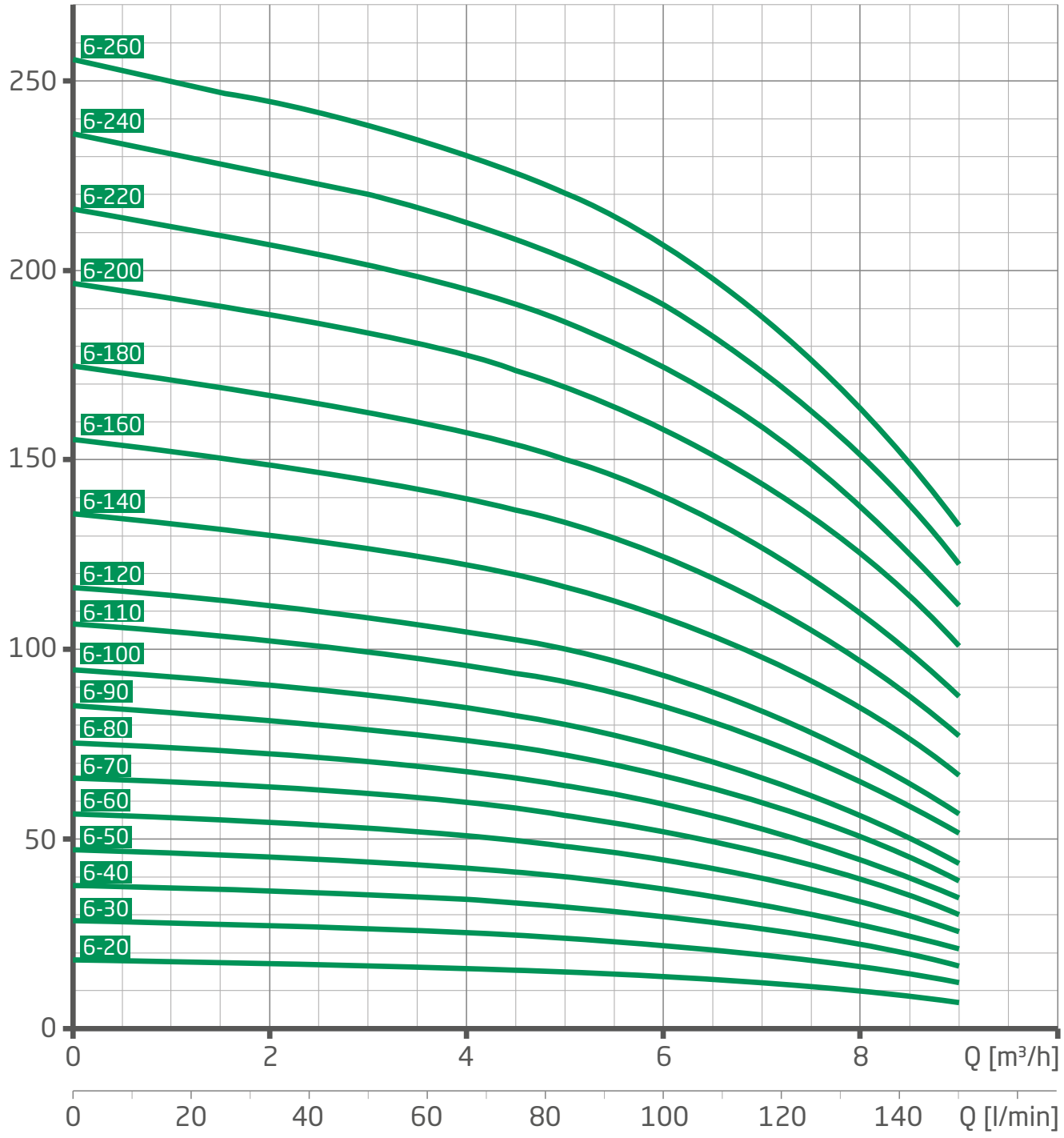
Characteristics IN-VB-S 4



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

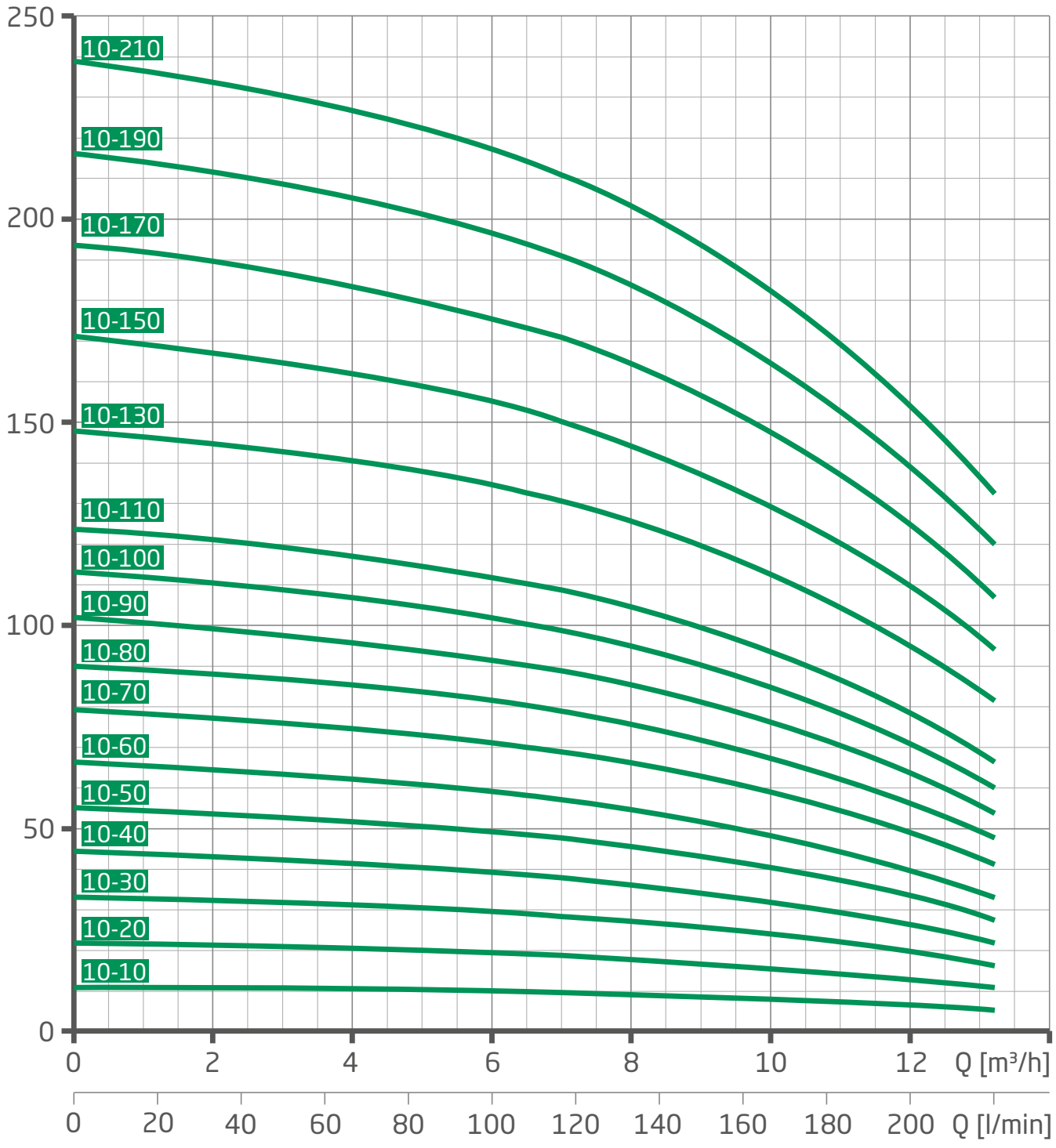
IN-VB-S 6, IN-VB-S 10

Characteristics IN-VB-S 6



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

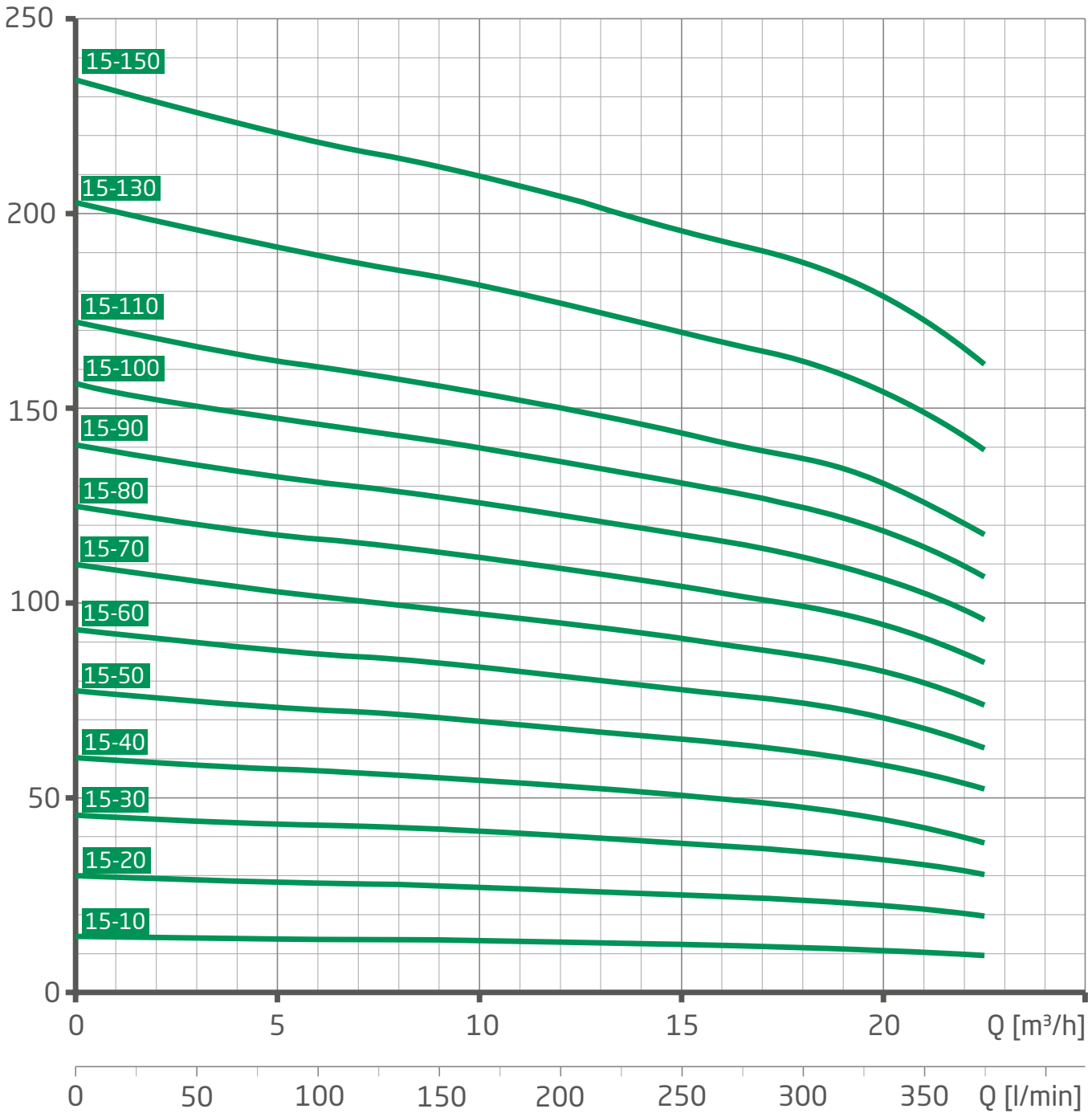
Characteristics IN-VB-S 10



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

IN-VC-S 15, IN-VB-S 25

Characteristics IN-VC-S 15



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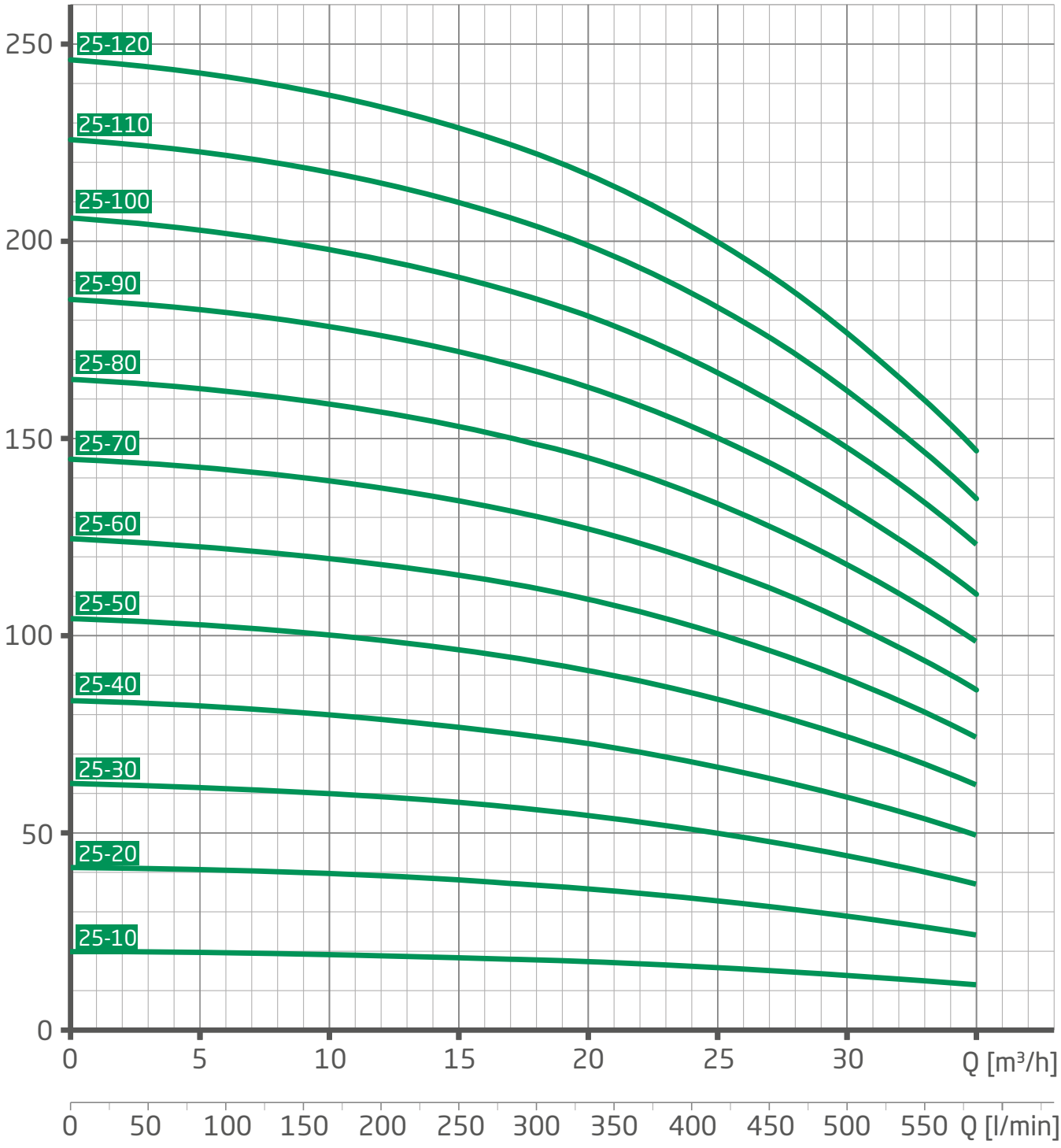
Total dynamic head H (m) / Flow rate Q (m³/h) >

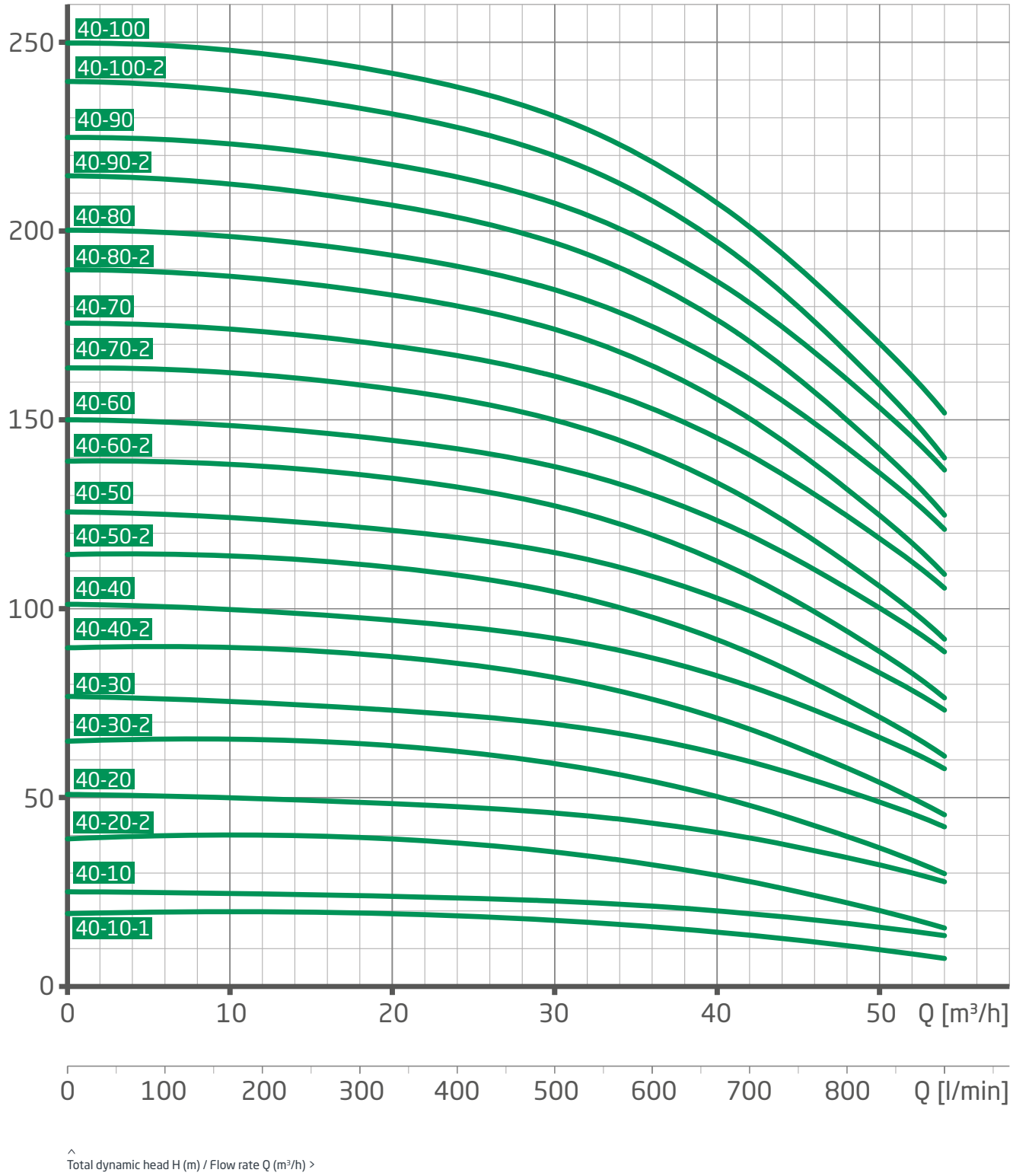
Characteristics IN-VB-S 25



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

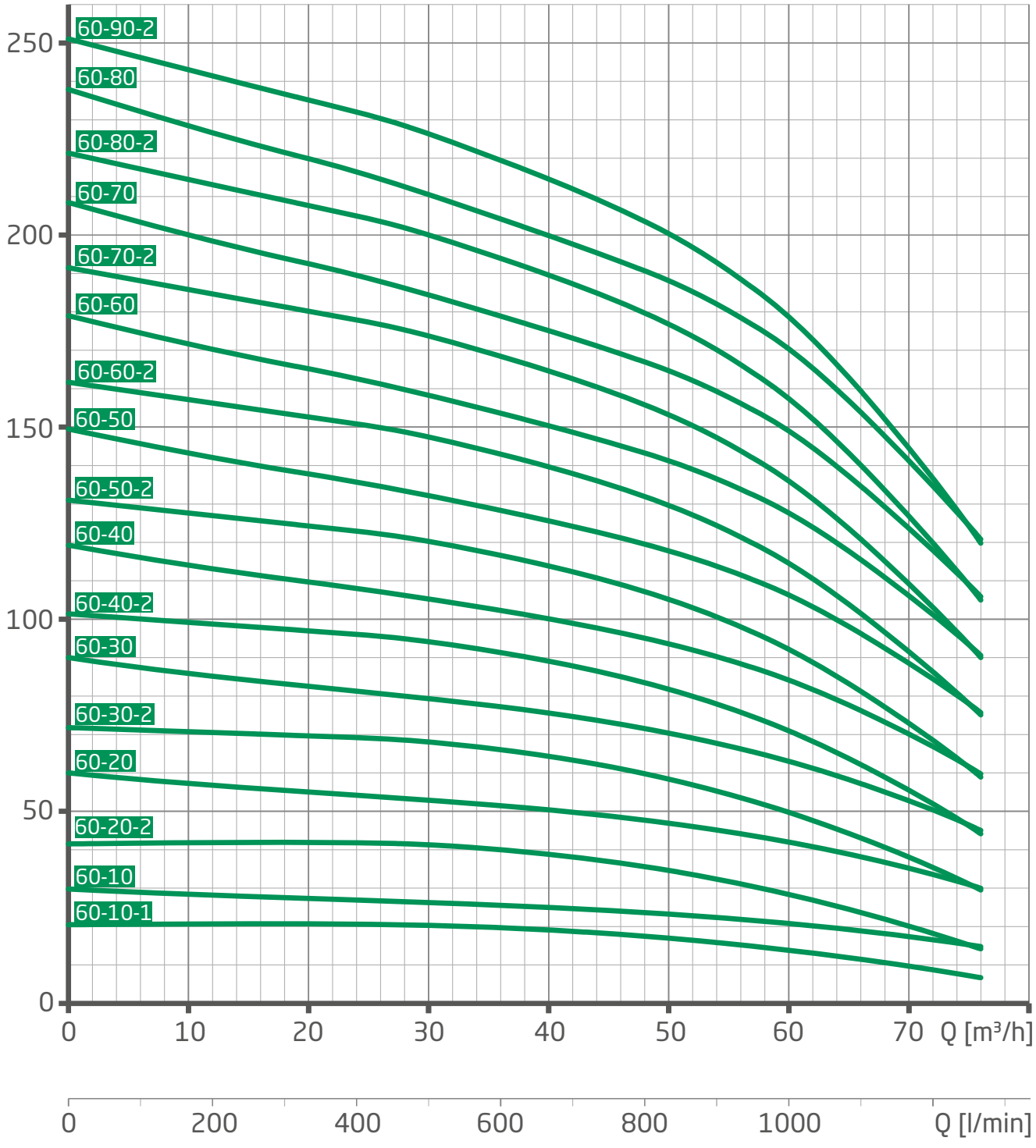
IN-VB-S 40, IN-VB-S 60

Characteristics IN-VB-S 40



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

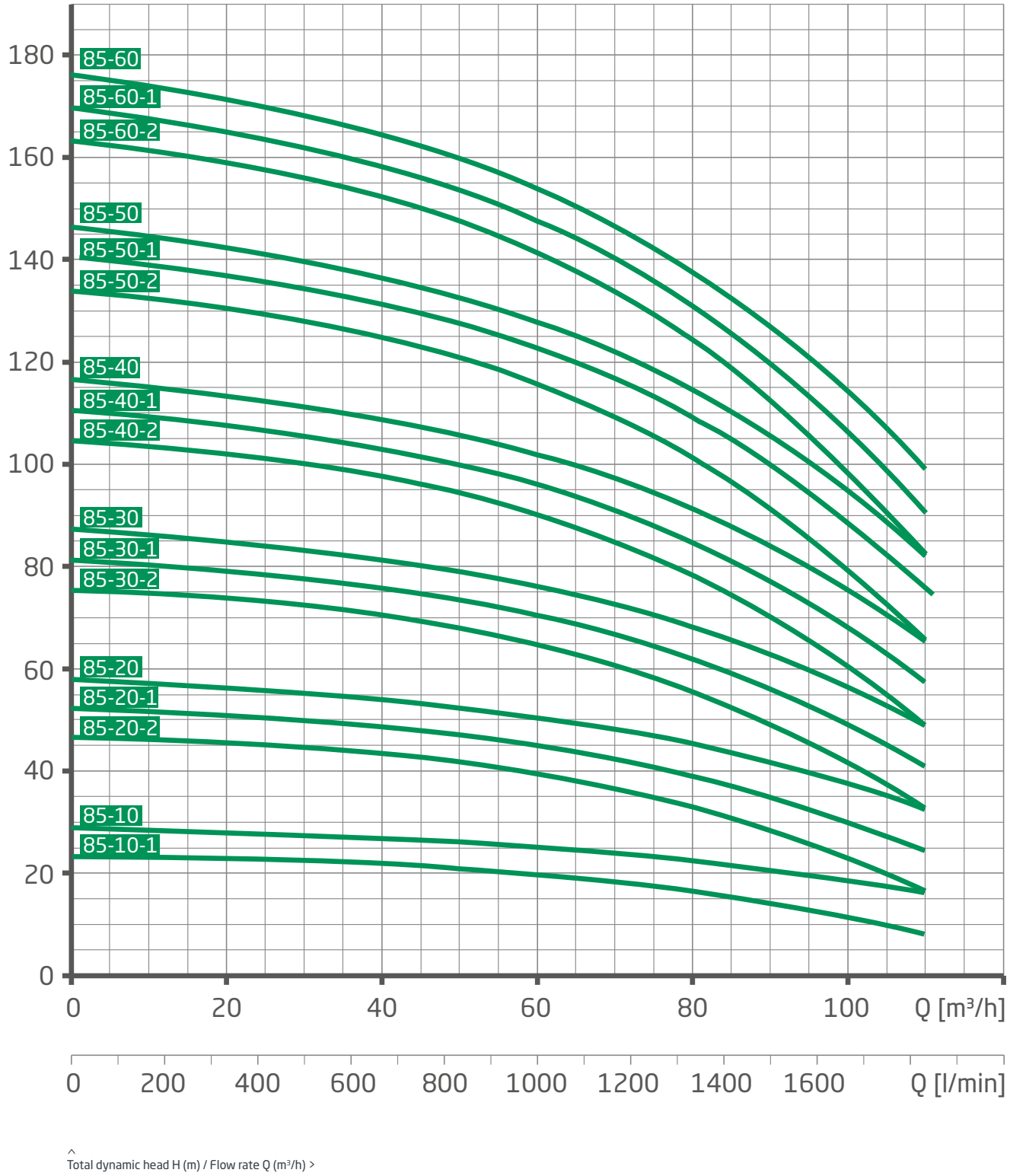
Characteristics IN-VB-S 60



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

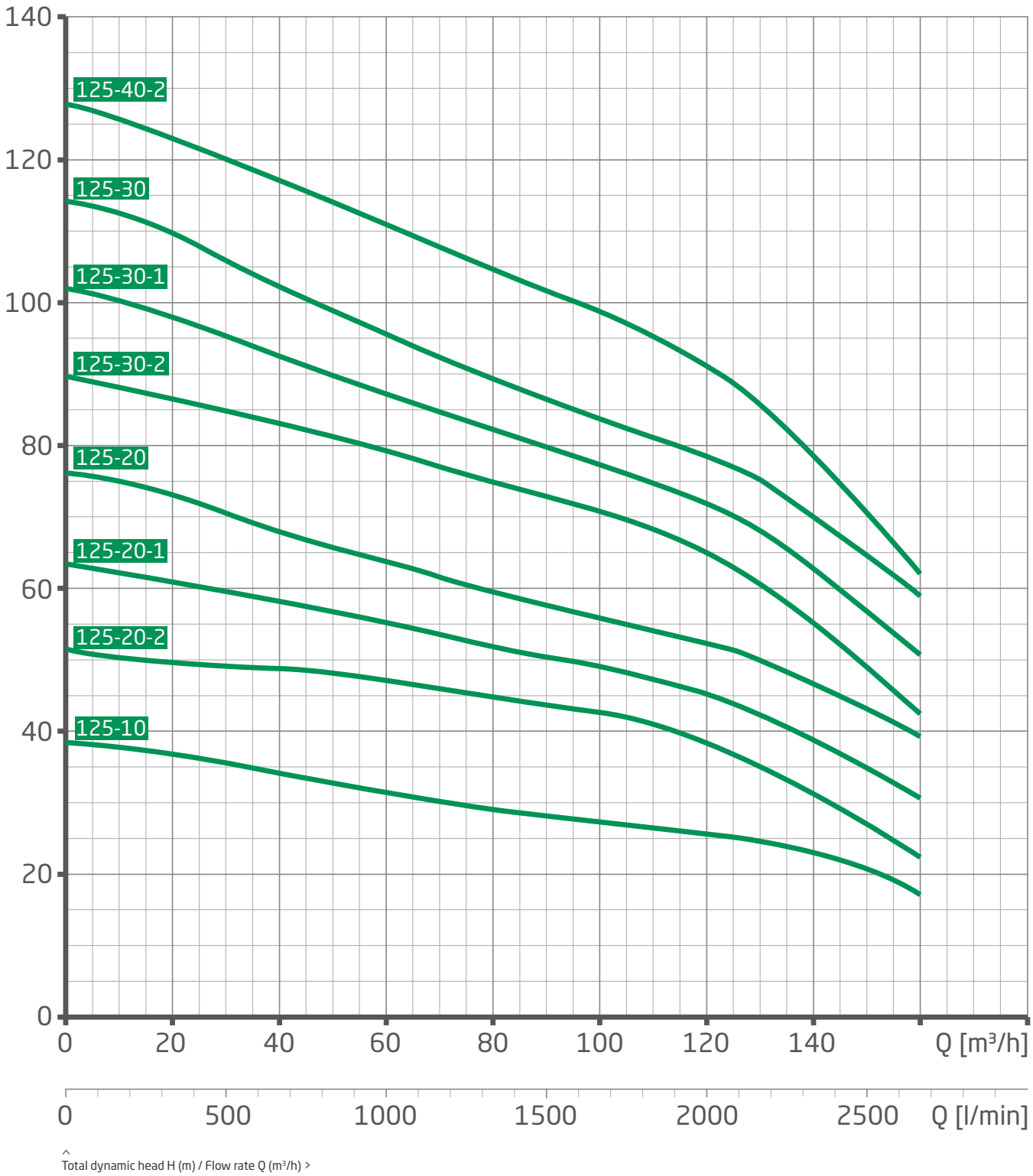
IN-VB-S 85, IN-VB-S 125

Characteristics IN-VB-S 85



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics IN-VB-S 125



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

VGX / 2 VGX

Field of application

> Freshwater
> As a rinsing pump for smaller units

Design

Monoblock pump with surface-cooled motor, extended motor shaft to accommodate the impellers, shaft seal in the form of a mechanical seal, configured for constant operation. 1~ 230 V built-in overload protection.

Pumped fluid

Clear, moderately aggressive fluids, which don't chemically and mechanically attack the pump materials.

Materials used

Pump housing ..... stainless steel AISI 304
Impellers ..... stainless steel AISI 304
Shaft ..... stainless steel AISI 303
Engine mount ..... die cast aluminium
Elastomers ..... NBR
Mechanical seal ..... carbon/ceramic

Type key

2 VGX 12/30
VGX ..... 1 stage pump type
2 VGX ..... 2 stage pump type
12/30 ..... pump size

Motors with special voltages and frequencies available on request.

Technical data at 50 Hz		7/5	7/7	9/10	12/7
Inlet/outlet connection (Rp [2])		1¼/1	1¼/1	1¼/1	1¼/1
Power input P_1 (kW)	1~ 230 V	0.65	0.95	1.15	0.95
Power input P_1 (kW)	3~ 400/230 V	0.71	0.91	1.05	0.91
Power output P_2 (kW)	1~ 230 V	0.45	0.75	0.90	0.75
Power output P_2 (kW)	3~ 400/230 V	0.37	0.55	0.75	0.55
Idle speed (rpm)		2850	2850	2850	2850
Frequency (Hz)		50	50	50	50
Rated current (A)	1~ 230 V	3.00	4.50	5.30	4.50
Rated current (A)	3~ 400/230 V	1.40/2.40	1.70/3.00	1.90/3.30	1.70/3.30
Max. operating pressure (bar)		8	8	8	8

Technical data at 50 Hz		12/12	12/20	20/12	20/20	20/25
Inlet/outlet connection (Rp [2])		1¼/1	1¼/1	1½/1	1½/1	1½/1
Power input P_1 (kW)	1~ 230 V	1.60	2.10	1.40	2.30	-/-
Power input P_1 (kW)	3~ 400/230 V	1.34	2.01	1.34	2.01	2.55
Power output P_2 (kW)	1~ 230 V	0.90	1.50	0.90	1.50	1.80
Power output P_2 (kW)	3~ 400/230 V	0.90	1.50	0.90	1.50	1.80
Idle speed (rpm)		2850	2850	2850	2850	2850
Frequency (Hz)		50	50	50	50	50
Rated current (A)	1~ 230 V	5.50	8.90	5.50	9.00	-/-
Rated current (A)	3~ 400/230 V	2.50/4.30	4.10/7.10	2.50/4.30	4.10/7.10	4.70/8.20
Max. operating pressure (bar)		8	8	8	8	8

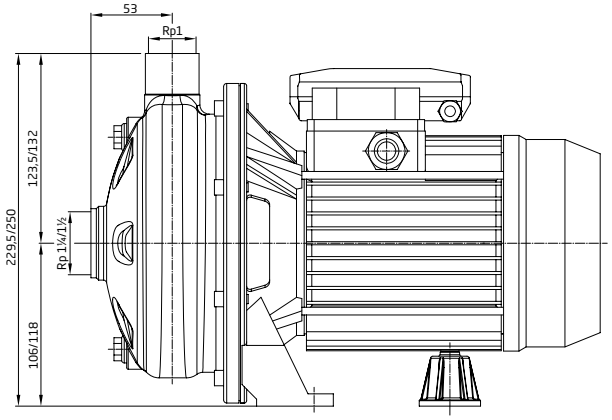
Technical data at 50 Hz		7/10	7/12	7/15	7/20	12/15
Inlet/outlet connection (Rp [2])		1¼/1	1¼/1	1¼/1	1¼/1	1¼/1
Power input P_1 (kW)	1~ 230 V	1.30	1.55	1.80	2.30	1.80
Power input P_1 (kW)	3~ 400/230 V	1.11	1.34	1.77	2.30	1.77
Power output P_2 (kW)	1~ 230 V	0.75	0.90	1.10	1.50	1.00
Power output P_2 (kW)	3~ 400/230 V	0.75	0.90	1.10	1.50	1.00
Idle speed (rpm)		2850	2850	2850	2850	2850
Frequency (Hz)		50	50	50	50	50
Rated current (A)	1~ 230 V	6.00	7.00	8.10	10.0	8.30
Rated current (A)	3~ 400/230 V	2.00/3.40	2.50/4.30	3.30/5.80	4.50/7.80	3.30/5.80
Max. operating pressure (bar)		8	8	8	8	8

Technical data at 50 Hz		12/20	12/30	12/40	20/30	20/40	20/50
Inlet/outlet connection (Rp [2])		1¼/1	1¼/1	1¼/1	1½/1	1½/1	1½/1
Power input P_1 (kW)	1~ 230 V	2.35	-/-	-/-	-/-	-/-	-/-
Power input P_1 (kW)	3~ 400/230 V	2.30	2.55	3.44	3.44	3.76	4.52
Power output P_2 (kW)	1~ 230 V	1.50	2.20	3.00	2.20	3.00	3.70
Power output P_2 (kW)	3~ 400/230 V	1.50	2.20	3.00	2.20	3.00	3.70
Idle speed (rpm)		2850	2850	2850	2850	2850	2850
Frequency (Hz)		50	50	50	50	50	50
Rated current (A)	1~ 230 V	10.2	-/-	-/-	-/-	-/-	-/-
Rated current (A)	3~ 400/230 V	4.50/7.80	4.70/8.20	6.40/11.10	6.40/11.10	6.50/11.20	8.70/15.10
Max. operating pressure (bar)		8	8	8	8	8	8

For detailed technical data regarding motors/devices please see page 66.

Technical data may vary.

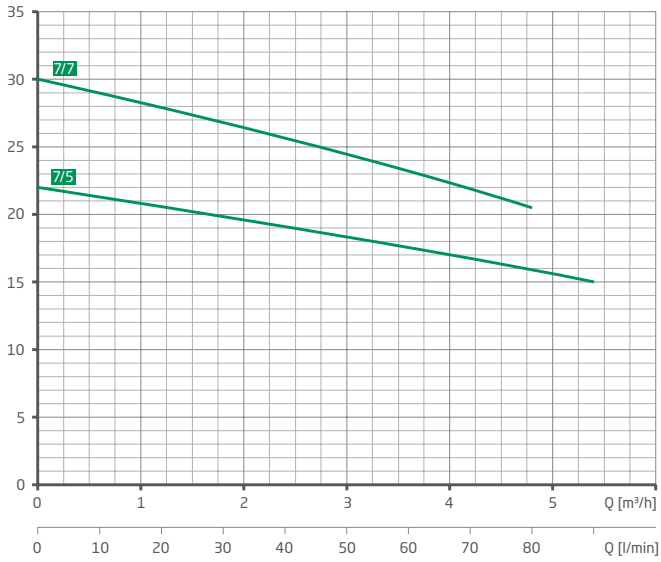
Dimensions VGX



Detailed dimensions available on request.

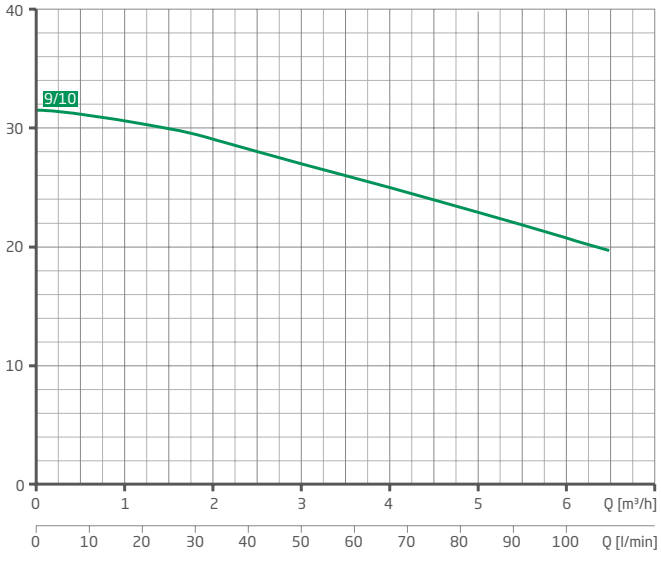
VGX / 2 VGX

Characteristics VGX 7



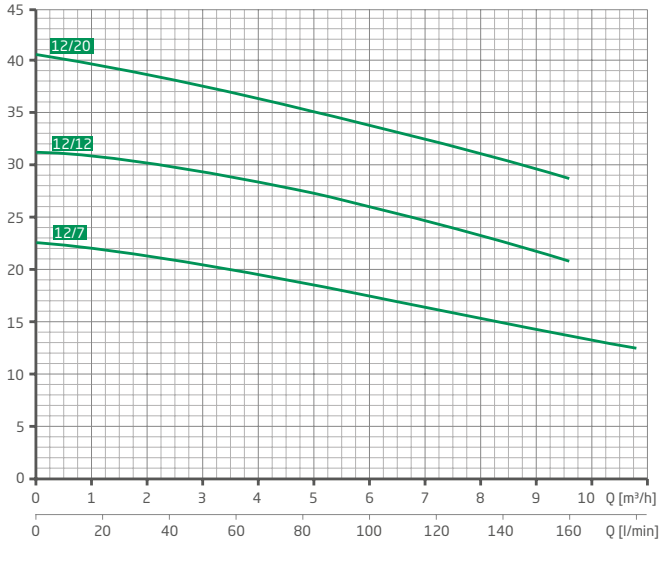
^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics VGX 9



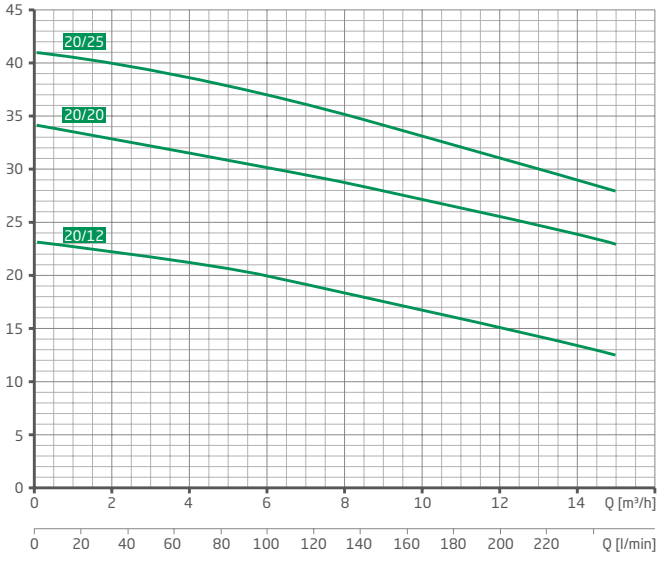
^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics VGX 12



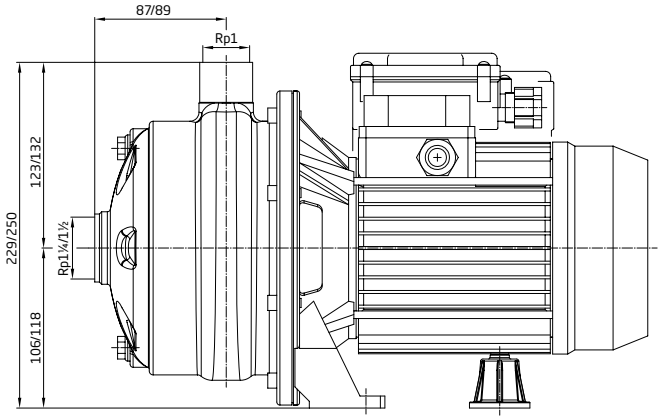
^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics VGX 20



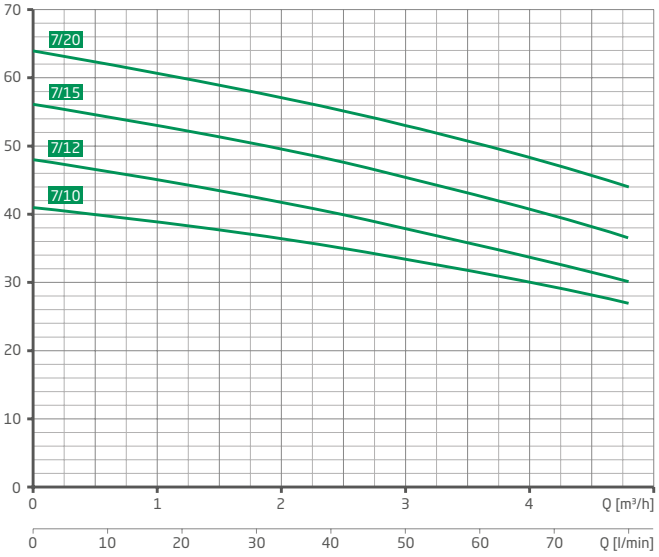
^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Dimensions 2 VGX



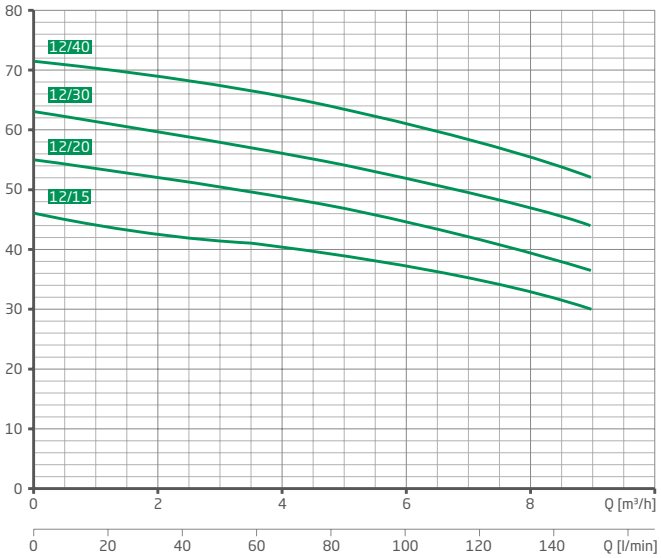
Detailed dimensions available on request.

Characteristics 2 VGX 7



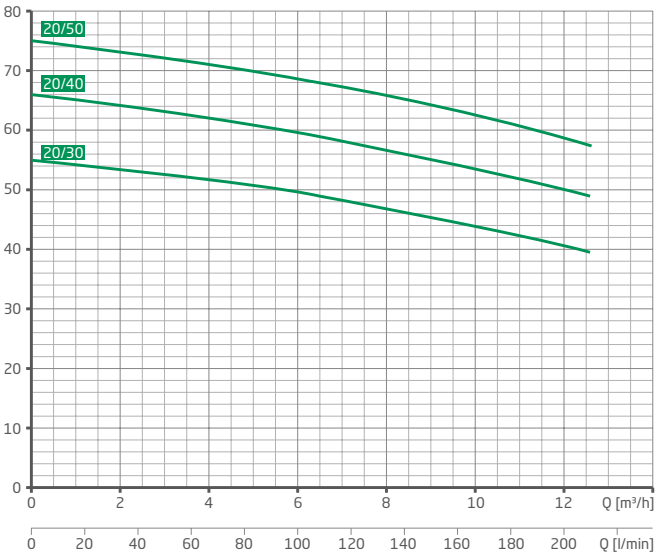
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics 2 VGX 12



Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics 2 VGX 20



Total dynamic head H (m) / Flow rate Q (m³/h) >

MTX

Field of application

> Freshwater
> As a rinsing pump for medium-sized units

Design

Monoblock pump with surface-cooled motor, extended motor shaft to accommodate the impellers, shaft seal in the form of a mechanical seal, configured for constant operation. 1~ 230 V built-in overload protection.

Pumped fluid

Clear, moderately aggressive fluids, which don't chemically and mechanically attack the pump materials.

Materials used

Pump housing ..... stainless steel AISI 304
Impellers ..... stainless steel AISI 304
Shaft ..... stainless steel AISI 304
Seal mount ..... stainless steel AISI 304
Engine mount ..... die cast aluminium
Elastomers ..... EPDM
Mechanical seal ..... carbon/ceramic

Type key

MTX 5/60
MTX ..... pump type
5 ..... pump size
60 ..... number of stages x 10

Technical data at 50 Hz		3-20	3-30	3-40	3-50
Inlet/outlet connection (Rp [2])		1/1	1/1	1/1	1/1
Power input P_1 (kW)	1~ 230V	0.73	0.97	0.97	1.14
Power input P_1 (kW)	3~ 400/230 V	0.71	0.91	0.91	0.91
Power output P_2 (kW)	1~ 230 V	0.45	0.65	0.65	0.75
Power output P_2 (kW)	3~ 400/230 V	0.45	0.65	0.65	0.75
Idle speed (rpm)		2850	2850	2850	2850
Frequency (Hz)		50	50	50	50
Rated current (A)	1~ 230 V	3.00	4.20	4.20	5.20
Rated current (A)	3~ 400/230 V	1.30/2.30	1.60/2.80	1.60/2.80	1.70/3.00
Max. operating pressure (bar)		10	10	10	10

MTX

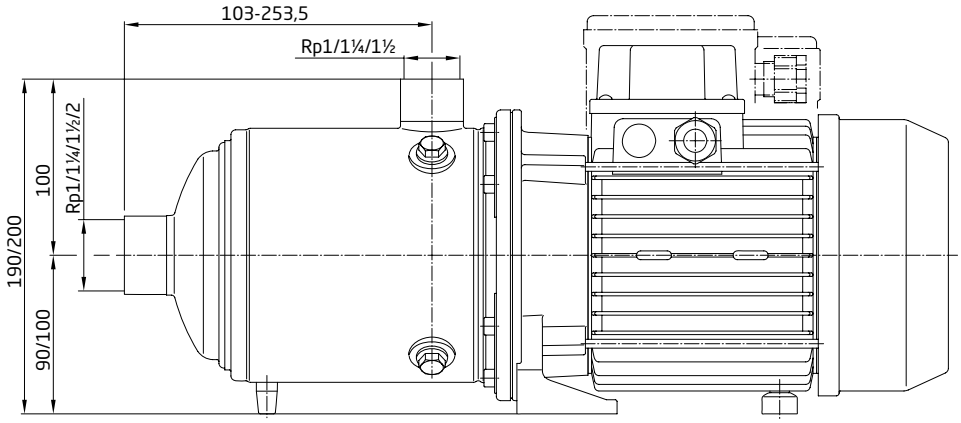
Technical data at 50 Hz		3-60	3-70	3-80	3-90
Inlet/outlet connection (Rp [2])		1/1	1/1	1/1	1/1
Power input P_1 (kW)	1~ 230 V	1.28	1.75	1.75	1.95
Power input P_1 (kW)	3~ 400/230 V	1.34	1.77	1.77	1.72
Power output P_2 (kW)	1~ 230 V	0.90	1.30	1.30	1.50
Power output P_2 (kW)	3~ 400/230 V	0.90	1.30	1.30	1.50
Idle speed (rpm)		2850	2850	2850	2850
Frequency (Hz)		50	50	50	50
Rated current (A)	1~ 230 V	5.50	7.50	7.50	8.50
Rated current (A)	3~ 400/230 V	2.50/4.30	3.30/5.80	3.30/5.80	3.80/6.60
Max. operating pressure (bar)		10	10	10	10
Technical data at 50 Hz		**5-20**	**5-30**	**5-40**	**5-50**
Inlet/outlet connection (Rp [2])		1¼/1	1¼/1	1¼/1	1¼/1
Power input P_1 (kW)	1~ 230 V	0.73	0.97	1.28	1.75
Power input P_1 (kW)	3~ 400/230 V	0.71	0.91	1.34	1.77
Power output P_2 (kW)	1~ 230 V	0.45	0.65	0.90	1.30
Power output P_2 (kW)	3~ 400/230 V	0.45	0.65	0.90	1.30
Idle speed (rpm)		2850	2850	2850	2850
Frequency (Hz)		50	50	50	50
Rated current (A)	1~ 230 V	3.20	4.50	5.70	7.50
Rated current (A)	3~ 400/230 V	1.30/2.30	1.60/2.80	2.50/4.30	3.30/5.80
Max. operating pressure (bar)		10	10	10	10
Technical data at 50 Hz		**5-60**	**5-70**	**5-80**	**5-90**
Inlet/outlet connection (Rp [2])		1¼/1	1¼/1	1¼/1	1¼/1
Power input P_1 (kW)	1~ 230 V	1.75	1.95	2.92	2.92
Power input P_1 (kW)	3~ 400/230 V	1.77	1.72	2.55	2.55
Power output P_2 (kW)	1~ 230 V	1.30	1.50	2.20	2.20
Power output P_2 (kW)	3~ 400/230 V	1.30	1.50	2.20	2.20
Idle speed (rpm)		2850	2850	2850	2850
Frequency (Hz)		50	50	50	50
Rated current (A)	1~ 230 V	7.50	8.50	12.30	12.30
Rated current (A)	3~ 400/230 V	3.30/5.80	3.80/6.60	4.70/8.20	4.70/8.20
Max. operating pressure (bar)		10	10	10	10
Technical data at 50 Hz		**10-30**	**10-40**	**10-50**	**10-60**
Inlet/outlet connection (Rp [2])		1½/1¼	1½/1¼	1½/1¼	1½/1¼
Power input P_1 (kW)	1~ 230 V	1.75	1.95	2.92	2.92
Power input P_1 (kW)	3~ 400/230 V	1.77	1.72	2.55	2.55
Power output P_2 (kW)	1~ 230 V	1.30	1.50	2.20	2.20
Power output P_2 (kW)	3~ 400/230 V	1.30	1.50	2.20	2.20
Idle speed (rpm)		2850	2850	2850	2850
Frequency (Hz)		50	50	50	50
Rated current (A)	1~ 230 V	7.50	8.50	12.30	12.30
Rated current (A)	3~ 400/230 V	3.30/5.80	3.80/6.60	4.70/8.20	4.70/8.20
Max. operating pressure (bar)		10	10	10	10

Technical data at 50 Hz		18-20	18-30	18-40	18-50	18-60
Inlet/outlet connection (Rp [2)])		2/1½	2/1½	2/1½	2/1½	2/1½
Power input P_1 (kW)	1~ 230 V	1.95	2.92	-/-	-/-	-/-
Power input P_1 (kW)	3~ 400/230 V	1.75	2.55	3.44	4.52	4.52
Power output P_2 (kW)	1~ 230 V	1.50	2.20	3.00	4.00	4.00
Power output P_2 (kW)	3~ 400/230 V	1.50	2.20	3.00	4.00	4.00
Idle speed (rpm)		2850	2850	2850	2850	2850
Frequency (Hz)		50	50	50	50	50
Rated current (A)	1~ 230 V	8.50	12.30	-/-	-/-	-/-
Rated current (A)	3~ 400/230 V	5.80/6.60	4.70/8.20	6.40/11.10	8.70/15.10	8.70/15.10
Max. operating pressure (bar)		10	10	10	10	10

For detailed technical data regarding motors/devices please see page 66.

Technical data may vary.

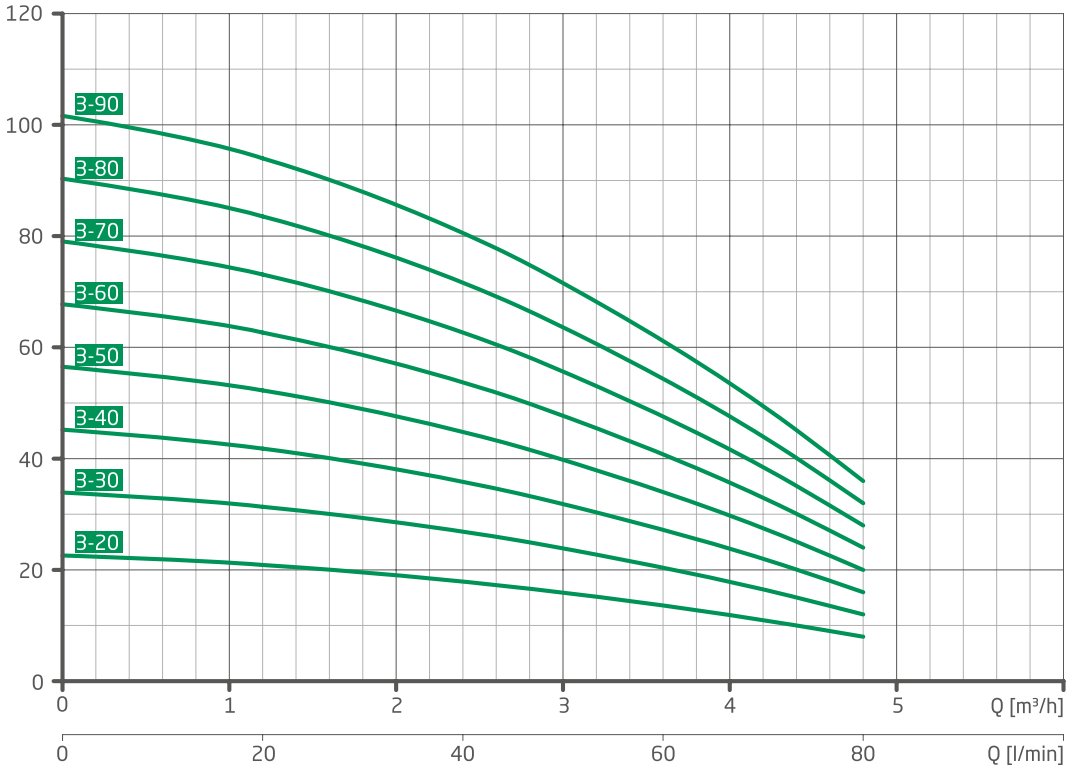
Dimensions MTX



Detailed dimensions available on request.

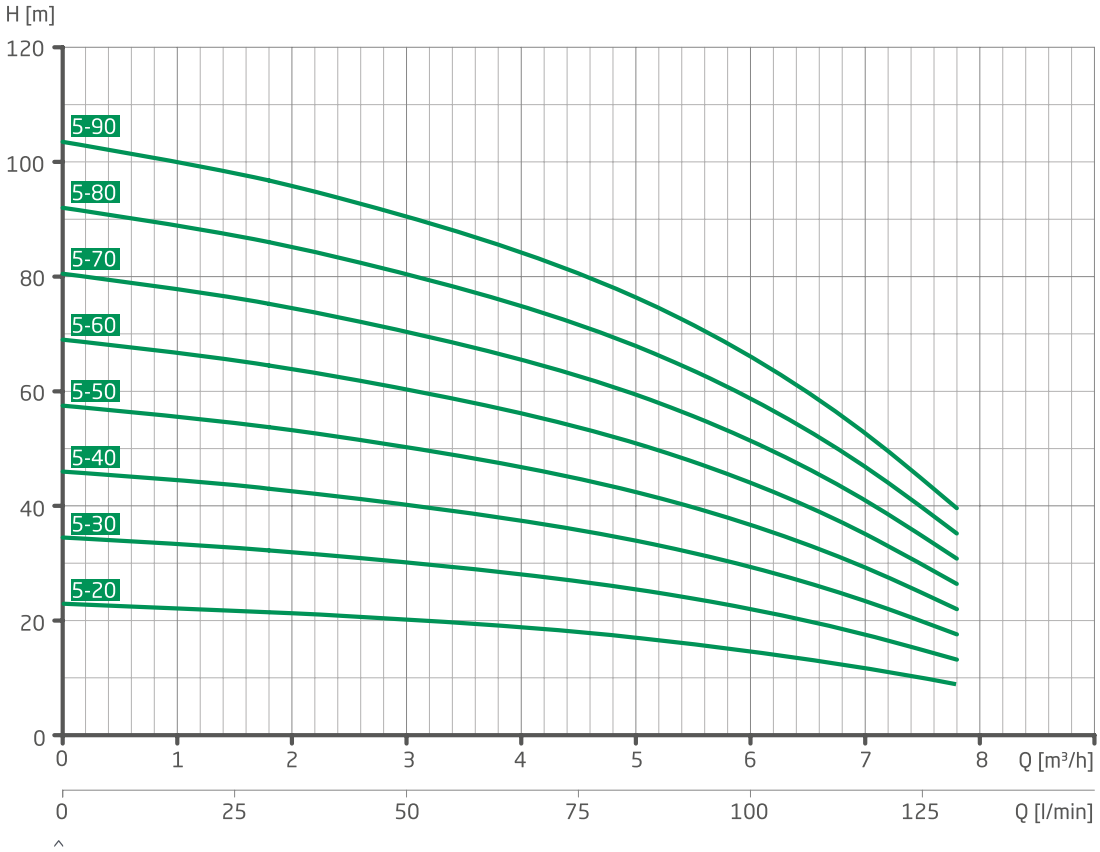
MTX

Characteristics MTX 3



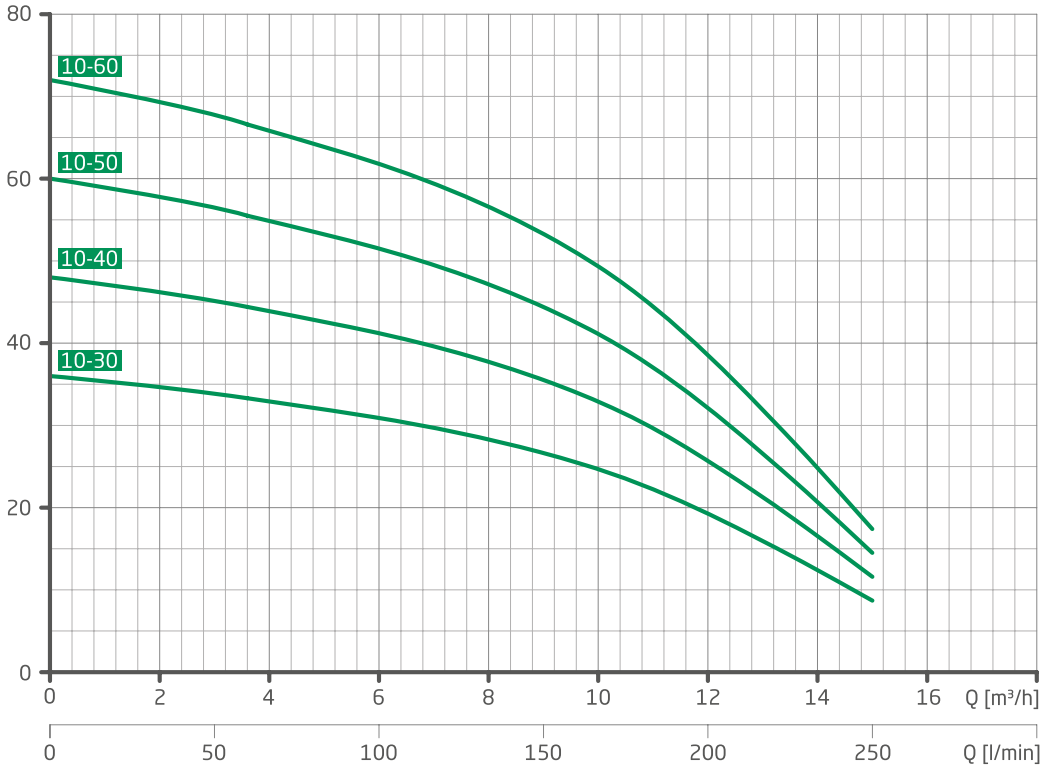
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics MTX 5



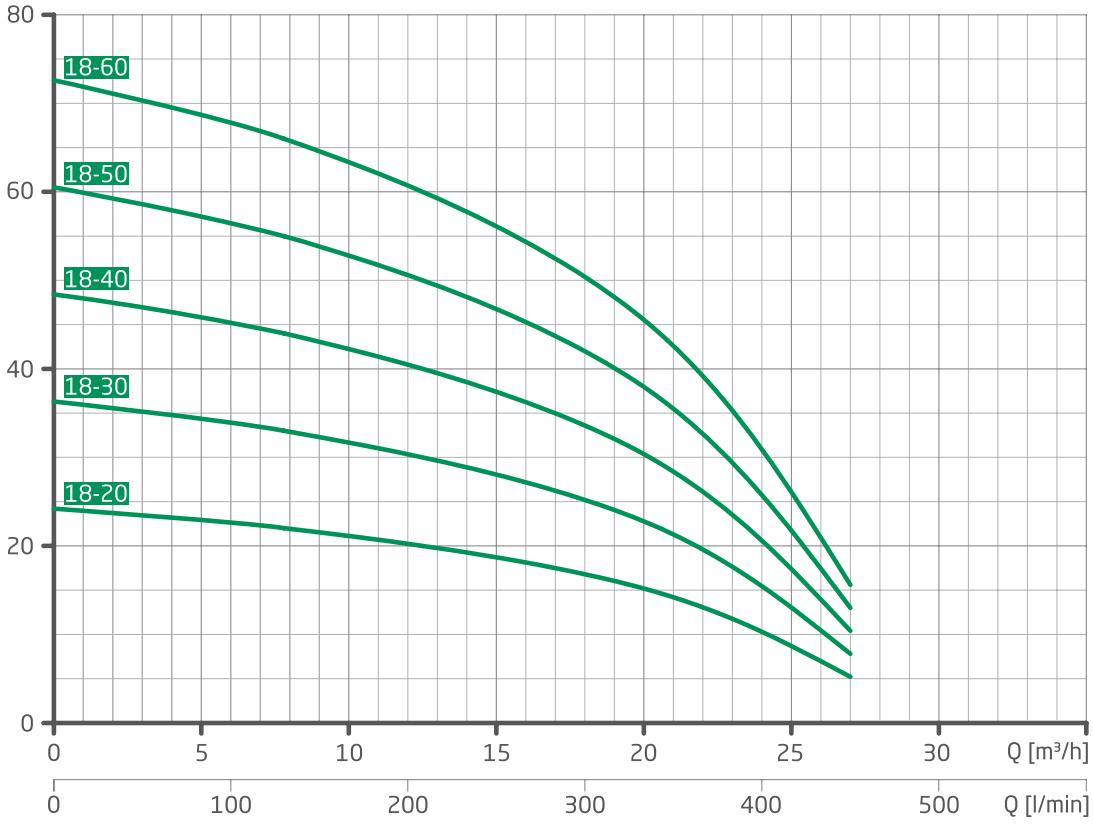
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics MTX 10



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics MTX 18



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

TOP 71

Field of application

> Freshwater
> As an emergency pump or for water disposal

Design

Completely submersible pump made from stainless steel. Motor with built-in thermal overload protection (single phase motors). Wired ready for connection with 10 m cable and shock proof plug (single phase motors), with free cable end (three phase motors).

Type key

W = single phase motor 1~ 230 V, without float switch
WS = single phase motor 1~ 230 V, with float switch
D = three phase motor 3~ 400 V, without float switch
Flat suction device = residual water up to 3 mm

Motor

Voltage ..... 1~ 230 V ± 10 %
3~ 400 V ± 10 %
Frequency ..... 50 Hz

Pumped fluid

Pure, cloudy or slightly contaminated water without long fibre components.

Materials used

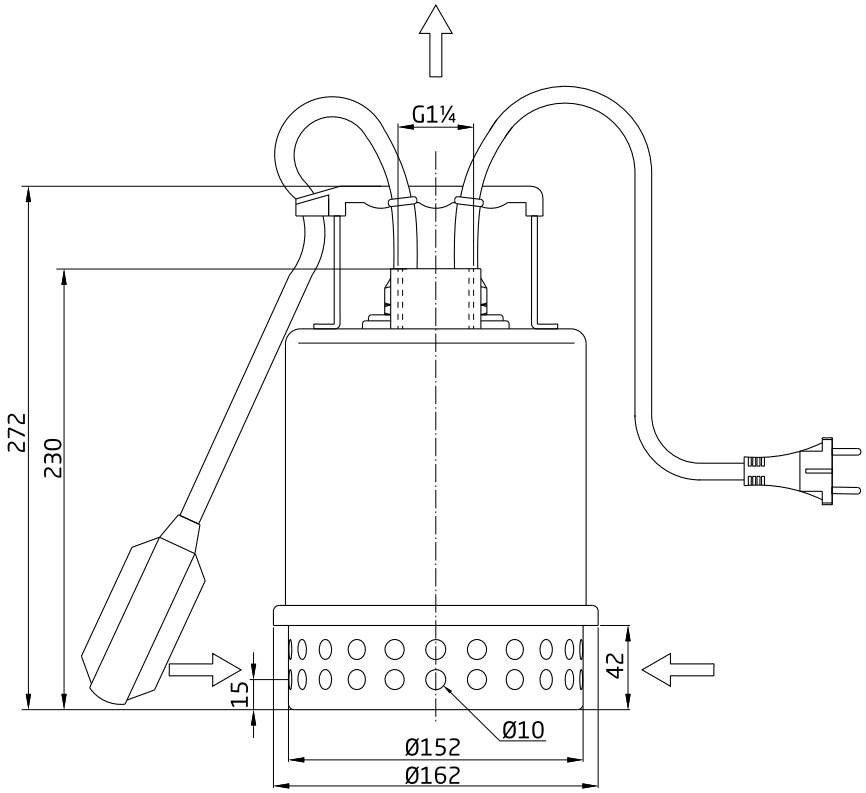
Pump and outer housing ..... stainless steel AISI 304
Impeller ..... stainless steel AISI 304
Intake grille ..... stainless steel AISI 304
Pump shaft ..... stainless steel AISI 303
Motor housing ..... stainless steel AISI 304
Shaft ..... stainless steel AISI 304
Shaft seal ..... mechanical seal
O-rings ..... NBR
Shaft end in fluid ..... stainless steel AISI 303
Cable H07RN8-F

Technical data at 50 Hz		71 D	71 W/WS
Inlet/outlet connection (Rp [2)])		1¼	1¼
Power input P_1 (kW)	1~ 230 V	-/-	0.51
Power input P_1 (kW)	3~ 400 V	0.47	-/-
Power output P_2 (kW)	1~ 230 V	-/-	0.25
Power output P_2 (kW)	3~ 400 V	0.25	-/-
Idle speed (rpm)		2850	2850
Frequency (Hz)		50	50
Rated current (A)	1~ 230 V	-/-	2.20
Rated current (A)	3~ 400 V	0.93	-/-

For detailed technical data regarding motors/devices please see page 66.

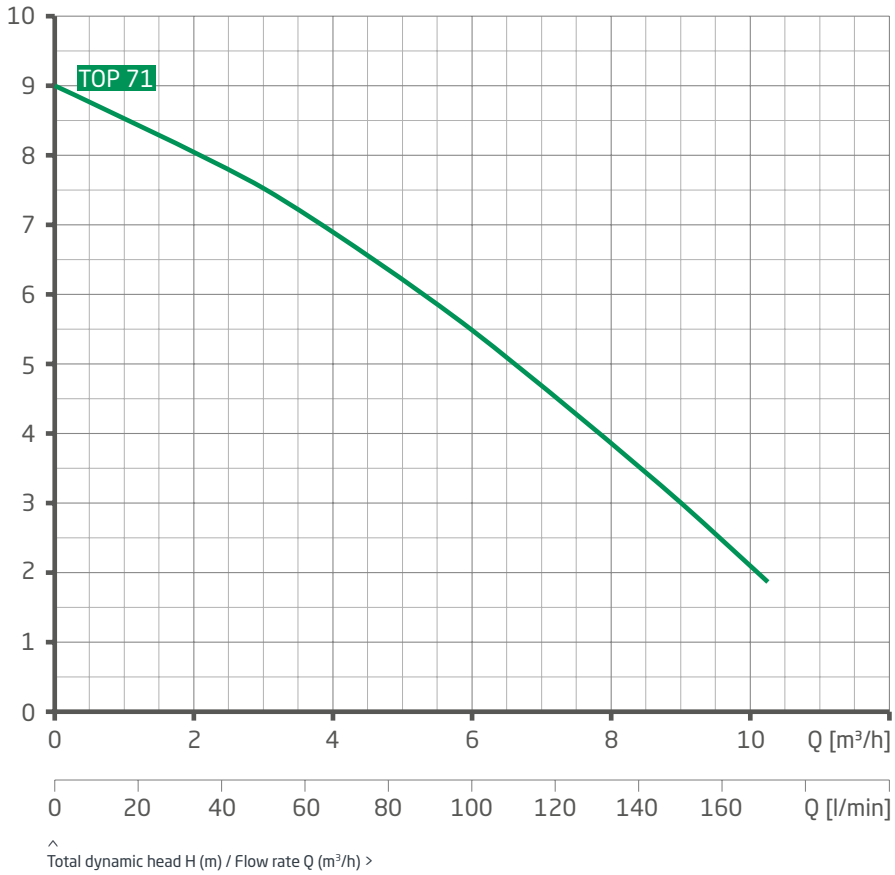
Technical data may vary.

Dimensions TOP 71



Detailed dimensions available on request.

Characteristics TOP 71



Total dynamic head H (m) / Flow rate Q (m³/h) >

TOP 72-80

Field of application

> Freshwater
> As an emergency pump or for water disposal

Design

Completely submersible pump made from stainless steel. Motor with built-in thermal overload protection (single phase motors). Wired ready for connection with 10 m cable and shock proof plug (single phase motors), with free cable end (three phase motors).

Type key

W = single phase motor 1~ 230 V, without float switch
WS = single phase motor 1~ 230 V, with float switch
D = three phase motor 3~ 400 V, without float switch

Motor

Voltage ..... 1~ 230 V ± 10 %
3~ 400 V ± 10 %
Frequency ..... 50 Hz

Pumped fluid

Pure, cloudy or slightly contaminated water without long fibre components.

Materials used

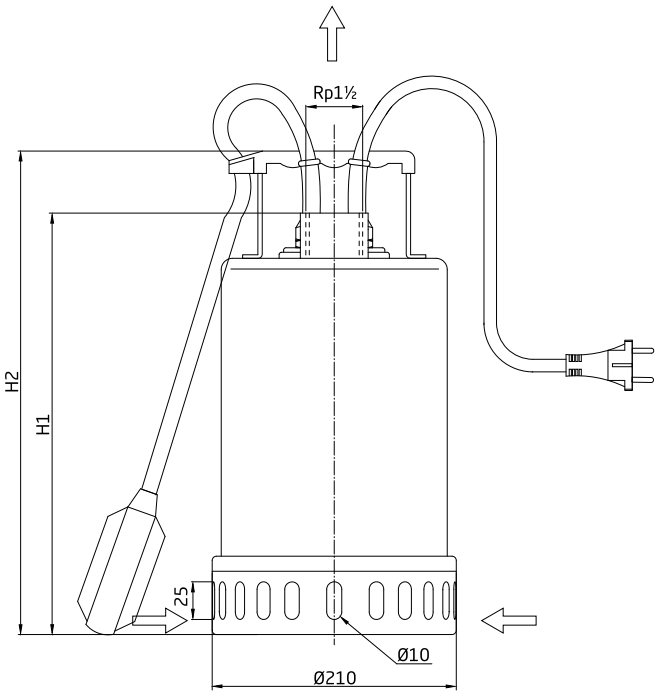
Pump and outer housing ..... stainless steel AISI 304
Impeller ..... stainless steel AISI 304
Intake grille ..... stainless steel AISI 304
Pump shaft ..... stainless steel AISI 303
Motor housing ..... stainless steel AISI 304
Shaft ..... stainless steel AISI 304
Shaft seal ..... 2 seals in oil tank
O-rings ..... NBR
Shaft end in fluid ..... stainless steel AISI 303
Cable H07RN8-F

Technical data at 50 Hz		72 D	72 W/WS	73 D	73 W/WS	74 D	74 W/WS	80 D
Inlet/outlet connection (Rp [2])		1½	1½	1½	1½	1½	1½	1½
Power input P_1 (kW)	1~ 230 V	-/-	0.90	-/-	1.30	-/-	1.70	-/-
Power input P_1 (kW)	3~ 400 V	1.00	-/-	1.20	-/-	1.60	-/-	1.70
Power output P_2 (kW)	1~ 230 V	-/-	0.55	-/-	0.75	-/-	1.10	-/-
Power output P_2 (kW)	3~ 400 V	0.55	-/-	0.75	-/-	1.10	-/-	1.50
Idle speed (rpm)		2850	2850	2850	2850	2850	2850	2850
Frequency (Hz)		50	50	50	50	50	50	50
Rated current (A)	1~ 230 V	-/-	4.40	-/-	5.60	-/-	8.20	-/-
Rated current (A)	3~ 400 V	2.00	-/-	2.40	-/-	3.60	-/-	4.20

For detailed technical data regarding motors/devices please see page 66.

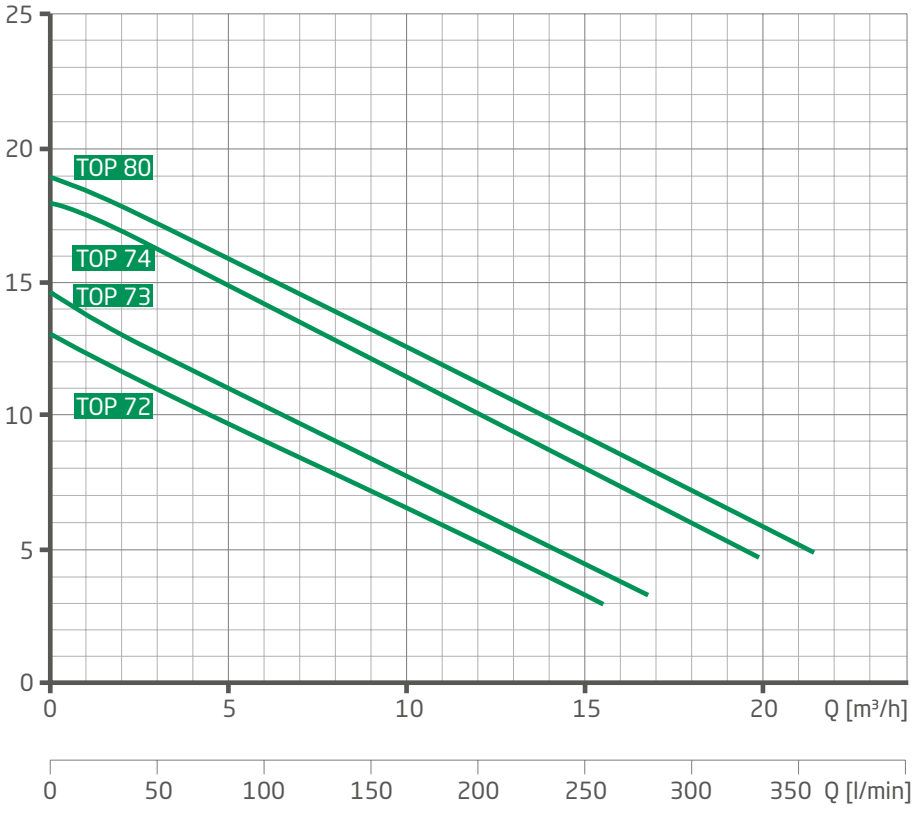
Technical data may vary.

Dimensions TOP 72-80



Detailed dimensions available on request.

Characteristics TOP 72-80



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

TOP 90 - 300

Field of application

> Freshwater
> As an emergency pump or for water disposal

Design

Completely submersible pump made from stainless steel. Motor with built-in thermal overload protection (single phase motors). Wired ready for connection with 10 m cable and shock proof plug (single phase motors), with free cable end (three phase motors).

Type key

WS = single phase motor 1~ 230 V, with float switch
D = three phase motor 3~ 400 V, without float switch
VOX = open impeller

Motor

Voltage ..... 1~ 230 V ± 10 %
3~ 400 V ± 10 %
Frequency ..... 50 Hz

Pumped fluid

Pure water, sewage or slightly contaminated water without long fibre components.

Materials used

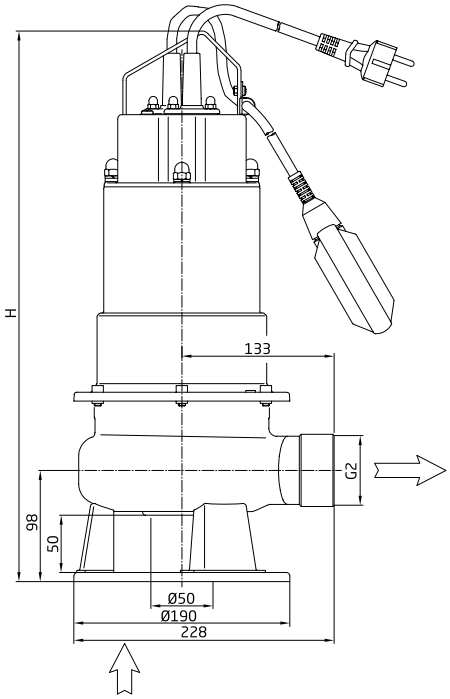
Pump and outer housing ..... stainless steel AISI 304
Impeller ..... stainless steel AISI 304
Pump shaft ..... stainless steel AISI 303
Shaft seal ..... 2 seals in oil tank
O-ring ..... NBR
Seal carrier ..... stainless steel AISI 304
Motor spacer ring ..... cast iron (TOP 300)
Cable H07RN8-F

Technical data at 50 Hz		90 VOX D	90 VOX WS	100 VOX D	100 VOX WS	150 VOX D	150 VOX WS	200 VOX D	300 VOX D
Inlet/outlet connection (Rp [2])		2	2	2	2	2	2	2	2
Power input P_1 (kW)	1~ 230 V	-/-	0.88	-/-	1.25	-/-	1.58	-/-	-/-
Power input P_1 (kW)	3~ 400 V	0.80	-/-	1.18	-/-	1.57	-/-	1.92	2.40
Power output P_2 (kW)	1~ 230 V	-/-	0.55	-/-	0.75	-/-	1.10	-/-	-/-
Power output P_2 (kW)	3~ 400 V	0.55	-/-	0.75	-/-	1.10	-/-	1.50	2.20
Idle speed (rpm)		2850	2850	2850	2850	2850	2850	2850	2850
Frequency (Hz)		50	50	50	50	50	50	50	50
Rated current (A)	1~ 230 V	-/-	3.90	-/-	5.80	-/-	7.30	-/-	-/-
Rated current (A)	3~ 400 V	1.40	-/-	2.10	-/-	2.80	-/-	3.30	4.40

For detailed technical data regarding motors/devices please see page 66.

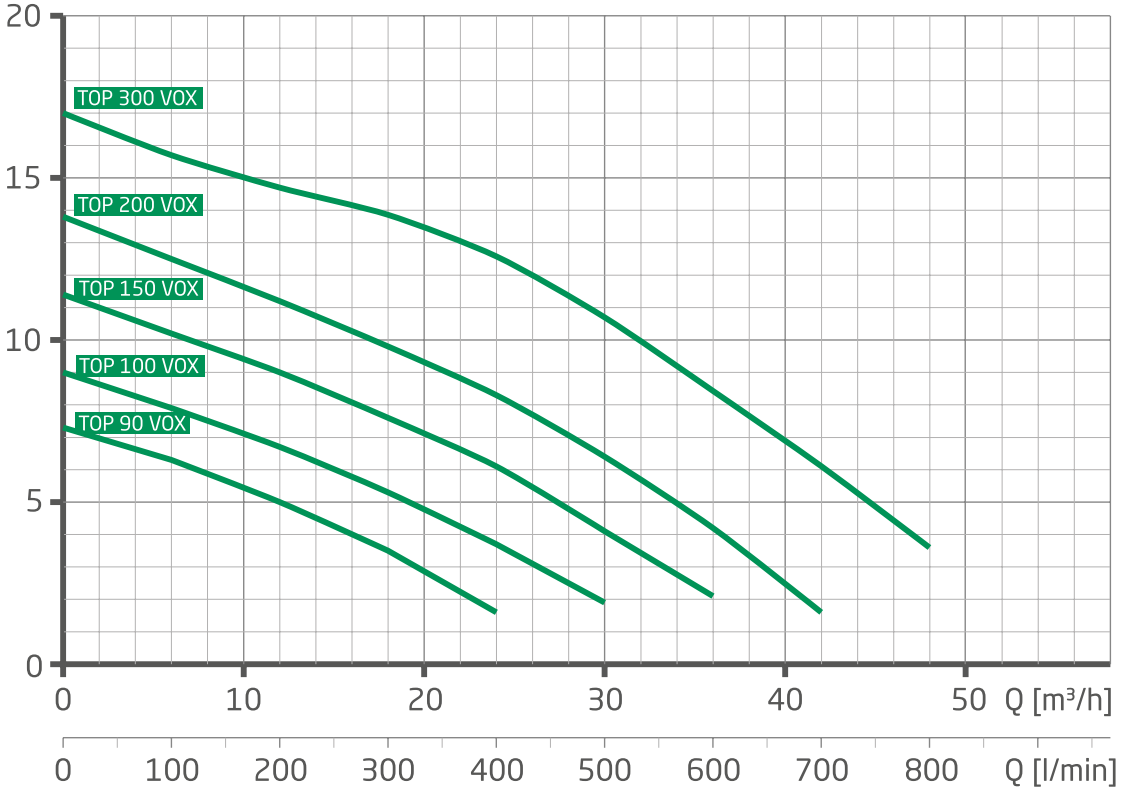
Technical data may vary.

Dimensions TOP 90-300



Detailed dimensions available on request.

Characteristics TOP 90-300



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

CONTROL UNITS

BADU® Eco Drive II

Graphic display >

Field of application

> Frequency control of pumps with three phase motors

Mode of operation

There are various operating conditions in pool water treatment, for example filtering and water circulation.

Performance characteristics

> Unnecessary energy loss, e.g. through a shut-off valve, is avoided.
> Energy saving potential through adjustable flow rate, e.g. in public pools with low pool usage or outside pool operating hours.
> Pump is always run at its optimal and most economic operating point.

Special on site requirements

> Protected cable between motor and frequency converter.
> We recommend providing a PTC thermistor sensor for the motor winding.
> We recommend not running the motor below 30 Hz.
> Residual current circuit breaker type B.

Control

The frequency converter offers a wide range of control options: direct control via buttons, digital inputs to approach fixed speeds or external control via the 0-10 V or 4-20 mA interface. It can therefore be integrated into building control systems.
Relay output functions e.g. indicating operational readiness or motor overload, relay input functions e.g. “start” or “stop”, PTC thermistor sensor evaluation and time functions round up its range of applications.

Technical data at 50 Hz	0.75 kW	1.50 kW	2.20 kW	4.00 kW
Mains frequency (Hz)	50-60	50-60	50-60	50-60
Mains voltage (V)	3~ 380-480	3~ 380-480	3~ 380-480	3~ 380-480
Max. possible rated current (A)	2.40	4.10	5.60	10.00
Analogue input (mA)	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20
Cooling	ventilation	ventilation	ventilation	ventilation
Max. ambient temperature (°C)	50	50	50	50

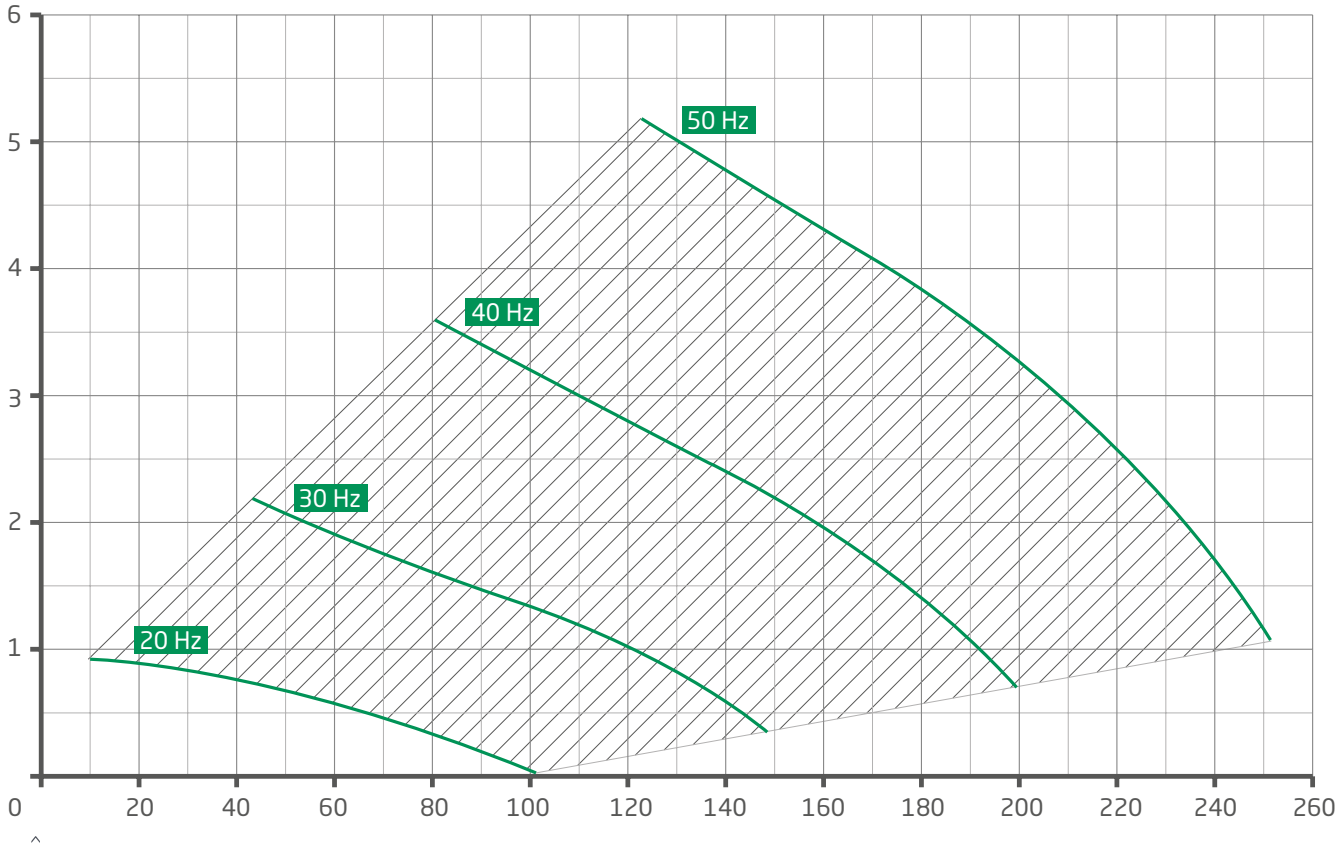
Technical data at 50 Hz	5.50 kW	7.50 kW	11.00 kW	15.00 kW	18.50 kW
Mains frequency (Hz)	50-60	50-60	50-60	50-60	50-60
Mains voltage (V)	3~ 380-480	3~ 380-480	3~ 380-480	3~ 380-480	3~ 380-480
Max. possible rated current (A)	13.00	16.00	24.00	32.00	37.50
Analogue input (mA)	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20
Cooling	ventilation	ventilation	ventilation	ventilation	ventilation
Max. ambient temperature (°C)	50	50	50	50	50

Technical data at 50 Hz	22.00 kW	30.00 kW	37.00 kW	45.00 kW	55.00 kW
Mains frequency (Hz)	50-60	50-60	50-60	50-60	50-60
Mains voltage (V)	3~ 380-480	3~ 380-480	3~ 380-480	3~ 380-480	3~ 380-480
Max. possible rated current (A)	44.00	61.00	73.00	90.00	106.00
Analogue input (mA)	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20	0-10 V/4-20
Cooling	ventilation	ventilation	ventilation	ventilation	ventilation
Max. ambient temperature (°C)	50	50	50	50	50

For detailed technical data regarding motors/devices please see page 66.

Technical data may vary.

Characteristics BADU Eco Drive II



^
Total dynamic head H (m) / Flow rate Q (m³/h) >

Characteristics calculated for the BADU Powerstar-S at different frequencies.

SERVICE

Detailed technical data for motors/devices

This overview shows the safety classifications for the aquaculture products.

BADU Variostar, BADU Novastar-S

Motor protection class	IP 55
Class of insulation	F
Approx. motor speed (rpm)	variable
Max. water temperature (°C)	40 (60)[3)]
Max. casing pressure (bar)	2.5

IN-VB-S, IN-VC-S, VGX, MTX

Motor protection class	IP 55
Class of insulation	F
Approx. motor speed (rpm)	2840
Max. water temperature (°C)	40 (60)[3)]

BADU Powerstar-S, BADU 21-AK, BADU 42-AK, SuperPro-AK, Resort-AK

Motor protection class	IP 55
Class of insulation	F
Approx. motor speed (rpm)	2840
Max. water temperature (°C)	40 (60)[3)]
Max. casing pressure (bar)	2.5

BADU Eco Drive II

Motor protection class	IP 55

Normblock Multi-S

Motor protection class	IP 55
Class of insulation	F
Approx. motor speed (rpm)	1450
Max. water temperature (°C)	40
Max. casing pressure (bar)	2.5

TOP 71 / 72-80 / 90-300

Motor protection class	IP 68
Class of insulation	F
Max. water temperature (°C)	40

Footnotes / abbreviations

1) **Single phase motors**
1~ 230 V single phase motors are fitted with a built-in overload switch or winding protection as a series feature. Further information can be found in the pump data sheet. Three phase motors are not fitted with a motor protection device.

Special voltage, special frequency, 2-speed or direct current motors on request.

Suitable for standard voltage according to DIN IEC 60038 and DIN EN 60034 (euro voltage), i.e. suitable for continuous operation at:
1~ 220-240 V.
3~ Y/Δ 380-420 V/220-240 V.
3~ Y/Δ 660-725 V/380-420 V.
Tolerances ± 5 %.
GS approved pumps according to EN 60335-1.

2) **Thread**
according to DIN EN 10226-1 and ISO 7-1.
Description for pipe thread sealing inside the thread.
Internal pipe thread: e.g. Rp 1½,
External pipe thread: e.g. R 1½.
(Sealed with teflon tape only.)

according to DIN ISO 228-1.
Description for pipe thread sealing on the end.
Internal pipe thread: e.g. G 2,
External pipe thread: e.g. G 2.
(Sealed with additional sealing ring.)

3) **Clarification of water temperature 40 °C (60 °C)**
40 °C: The maximum water temperature allowed according to GS approval.
(60 °C): The pump is suitable/configured for a maximum water temperature of 60 °C.

Materials
ABS..... Acrylonitrile butadiene styrene copolymer
ABS GF 20..... Acrylonitrile butadiene styrene copolymer, glass fibre reinforced
EPDM ..... Ethylene-propylene-diene rubber
NBR ..... Acrylonitrile butadiene rubber (Perbunan)
PA 66 GF 30..... Polyamide, glass fibre reinforced
PC.....Polycarbonate
POM GF 30..... Polyoxymethylene, glass fibre reinforced
PP.....Polypropylene
PP GF 30/PP GF 15..... Polypropylene, glass fibre reinforced
PP TV 40 ..... Polypropylene, talc reinforced
PPE GF 30..... Polyphenylene Ether, glass fibre reinforced
PVC..... Polyvinyl chloride
PVC-U..... Polyvinyl chloride, unplasticised
SAN..... Styrene-acrylonitrile copolymer
SiC .....Silicon carbide
THP.....Technically high-performance plastic

1 bar = 100.000 Pa
1 bar = 10.2 m water column

All characteristics are measured according to EN ISO 9906.
Flow rate Q = ± 10 %. Total dynamic head H = ± 8 %.

Pumps classified as self-priming have a suction height of approx. 3 m geodetic. The pumps must be filled with water when priming.

References

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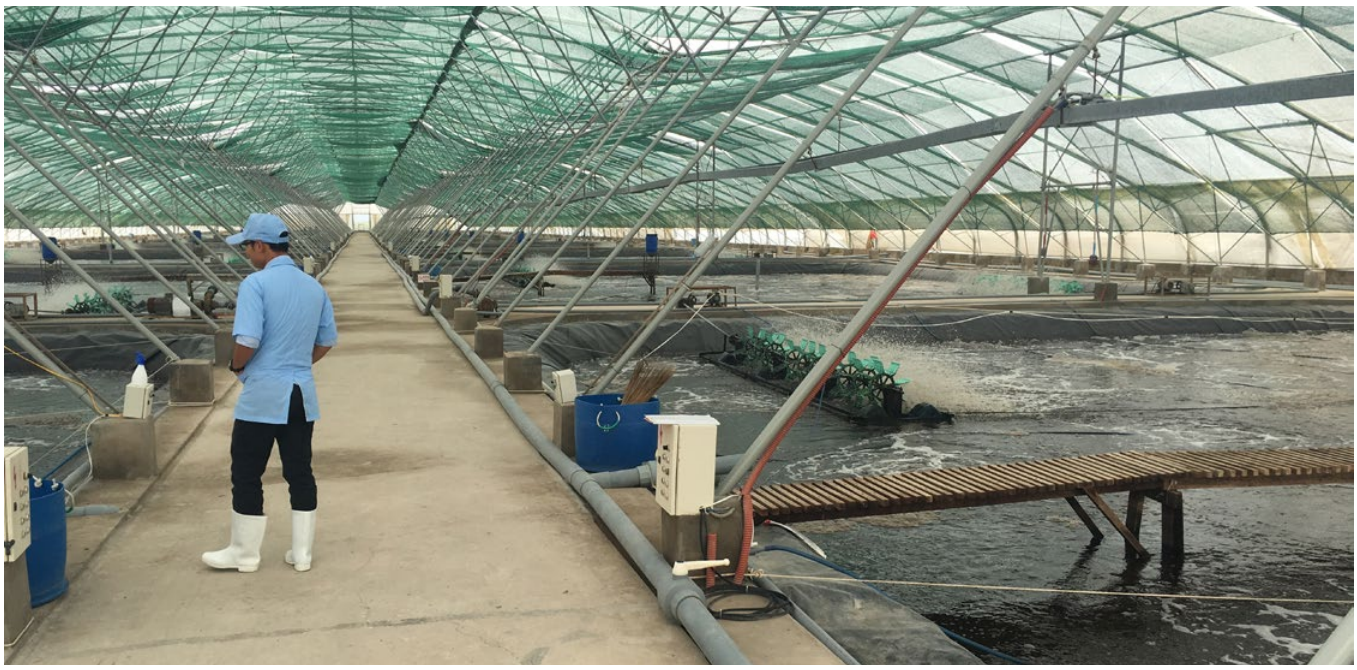
Even under the roughest conditions. SPECK Pumpen makes it possible.
With aquaculture technologies and solutions for your requirements.

River Queich in Landau



Shrimp farm in Vietnam

Aquaculture

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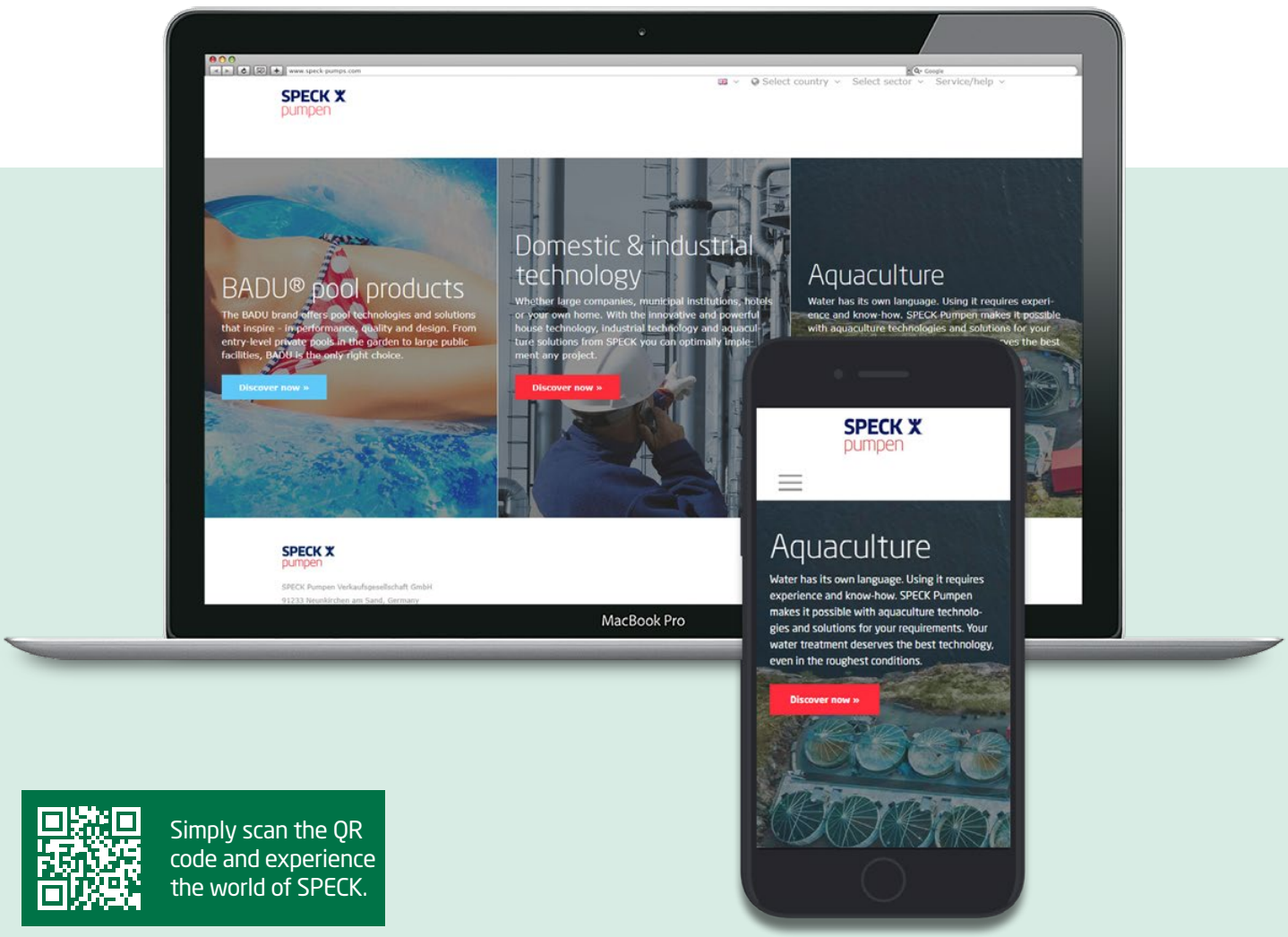

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