

## Submersible Pump in Discharge Tube **Amacan S**

50 Hz

### Type Series Booklet



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Type Series Booklet Amacan S

KSB Aktiengesellschaft Halle

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## Water: Water Transport

### Submersible Pump in Discharge Tube

## Amacan S



#### Main applications

- Irrigation and drainage pumping stations
- Stormwater pumping stations
- Raw and clean water pumps in water works
- Cooling water pumps in power stations and in industry
- Industrial water supply
- Water pollution and flood control
- Pumps for docks and locks
- Aquaculture

#### Fluids handled

- Grey waste water
- River water
- Stormwater
- Activated sludge
- Seawater

#### Operating data

Characteristic	Value	
Flow rate	Q	up to 3000 l/s
Head	H	Up to 40 m
Motor rating	P <sub>2</sub>	Up to 420 kW
Temperature of fluid pumped <sup>1)</sup>	t	Up to 40 °C

<sup>1)</sup> Higher temperatures on request

#### Designation

**Example: Amacan S 1000-655 / 250 8 UTG2**

Key to the designation

Code	Description	
<b>Amacan</b>	Type series	
<b>S</b>	Impeller type, e.g. S = mixed flow impeller	
<b>1000</b>	Nominal diameter of the discharge tube [mm]	
<b>655</b>	Nominal impeller diameter [mm]	
<b>250</b>	Motor size	
<b>8</b>	<b>Number of motor poles</b>	
	4	4-pole
	6	6-pole
	8	8-pole
<b>UT</b>	<b>Motor version</b>	
	UT	
	UA	
<b>G2</b>	<b>Material variant</b>	
	G2	
	G3	

#### Design details

##### Design

- Fully floodable submersible pump in discharge tube (submersible motor pump)
- Not self-priming
- Close-coupled design
- Single-stage
- Vertical installation

##### Drive

- Three-phase asynchronous squirrel-cage motor

##### Shaft seal

- Two bi-directional mechanical seals in tandem arrangement, with liquid reservoir
- Leakage chamber

##### Impeller type

- Open or closed mixed flow impeller

##### Bearings

- Grease-packed rolling element bearings

#### Materials

Description	Material
Pump casing	JL 1040
Motor housing	JL 1040
Shaft	1.4021 / 1.4057
Impeller	1.4517 (duplex steel)
Casing wear ring	Stainless steel
Screws, bolts and nuts	Stainless steel

## Coating and preservation

### Paint

- **Surface treatment:** SA 2 1/2 (SIS 055900) AN 1865
- **Primer coat:** Primer coat on unfinished casting 0.025 mm to 0.035 mm
- **Top coat:** Environmentally-friendly KSB standard coating (RAL 5002)

### Special coating

- Available on request (extra charge and a longer delivery period apply).

## Product advantages / customer benefits

- Three-phase motor and optimum motor cooling by fluid handled make for efficient power utilisation.
- The pump's own weight ensures self-centring seating in the discharge tube, and an O-ring seals it; quick to install or remove.
- The slim motor minimises discharge tube flow losses.
- High reliability thanks to bearing temperature monitoring, vibration sensor, thermal motor protection, leakage sensors in the motor and connection space, and leakage monitoring of the mechanical seal system.
- Low-vibration hydraulic system; inlet ribs and optimised bellmouth for vortex-free inflow.

## Acceptance tests / Warranties

### Functional test

- Each pump is subjected to a performance test to KSB Standard ZN 56535.
- Operating data is guaranteed to DIN EN ISO 9906 / 2 / 2B.

### Acceptance tests

- Acceptance tests to ISO/DIN or comparable standards are available against a surcharge.

### Warranties

- Quality is assured by means of an audited and certified quality assurance system to DIN EN ISO 9001.

## Selection information

### Information for pump selection

The guaranteed point of submersible pumps in discharge tubes is measured at a head 0.5 m above the motor (DIN 1184). The documented characteristic curves refer to this data. This must be taken into account when calculating system losses. The indicated heads and performance data apply to pumped fluids with a density  $\rho = 1 \text{ kg/dm}^3$  and a kinematic viscosity  $\nu$  of up to  $20 \text{ mm}^2/\text{s}$ .

The pump input power must be matched to the density of the fluid handled:

$$P_{2\text{req}} = \rho_{\text{fluid}} [\text{kg/dm}^3] \times P_{2\text{docu}}$$

The operating point with the largest pump input power is decisive for the operating range of the motor. To compensate

the unavoidable tolerances of the characteristic curves of system, pump and motor we recommend selecting a motor size which provides sufficient power reserves.

Recommended minimum reserves<sup>2)</sup>

Required pump input power [kW]	Motor power reserve	
	Mains operation	With frequency inverter
< 30	10 %	15 %
> 30	5 %	10 %

### Intake chamber

Determine the minimum water level  $t_{1\text{min}}$  (diagram in general arrangement drawing):

The minimum water level  $t_{1\text{min}}$  is the water level required in the pump's suction chamber to ensure:

- that there is a sufficient liquid cover above the hydraulic system (propeller) (shown in diagram depending on pump size)
- that the pump does not draw in air-entraining vortices (shown in diagram depending on flow rate)
- that there is no cavitation in the hydraulic system (check against the  $\text{NPSH}_{\text{required}}$  value indicated in the technical literature). The following conditions must be met:
  - $\text{NPSH}_{\text{available}} > \text{NPSH}_{\text{required}} + \text{safety allowance}$
  - $\text{NPSH}_{\text{available}} = 10.0 + (t_1 - t_3 - h_7/2)$
  - Safety allowance:  
up to  $Q_{\text{opt}} \Rightarrow 0.5 \text{ m}$   
larger than  $Q_{\text{opt}} \Rightarrow 1.0 \text{ m}$

### Head (H)

The total pump head is composed as follows:

$$H = H_{\text{geo}} + \Delta H_V$$

$H_{\text{geo}}$  (static head)

- Without discharge elbow – Difference between suction-side water level and overflow edge
- With discharge elbow – Difference between suction-side and discharge-side water level

$\Delta H_V$  (losses in the system)

- Starting 0.5 m downstream of the pump: e.g. pipe friction, elbow, swing check valve, etc.

### Losses by inlet, riser and elbow

Losses are caused by the inlet, riser and elbow (or free discharge).

- Losses in the riser up to the indicated reference level (0.5 m above the motor) are taken into account in the documented characteristic curves.
- Inlet and elbow losses are system losses and must be taken into account for selection.
- For information on structural requirements, pump installation and pump sump design please refer to the KSB know-how brochure "Planning information: Amacan submersible pumps in discharge tubes" 0118.55.

<sup>2)</sup> If larger reserves are stipulated by local regulations or are required to compensate for uncertain factors in system calculations, these larger reserves must be provided.

### Table of fluids handled

The table below for your guidance is based on KSB's long-standing experience. The data are standard values and are not to be considered as generally binding recommendations. More detailed advice is available from our specialist department in Halle. Make use of our laboratory's wealth of experience when selecting materials.

Fluid pumped <sup>3)</sup> not containing stringy material	Notes, recommendations
Waste water (without long fibres and large solid particles)	Pre-screen with fine screen.
Surface water (stormwater, river water)	Pre-screen.
Activated sludge	Max. dry substance 2 %
Seawater <sup>4)</sup>	Material variant G3 up to t = 25 °C <sup>5)</sup>

Space between screen bars

Size	Coarse screen	Fine screen <sup>6)</sup>
	[mm]	[mm]
650-364	40	15
650-365	40	15
650-404	40	15
650-405	40	15
800-505	40	15
800-535 / 850-535	40	15
850-550	40	15
900-600 / 1000-600	50	25
900-615 / 1000-615	50	25
900-620 / 1000-620	40	15
1000-655	60	25
1300-820	60	25

### Related documents

- General Arrangement Drawings 1589.39
- Motor Data Booklet 1589.566
- Planning Information 0118.55

<sup>3)</sup> Fluids to be pumped which are not listed in this table usually require higher-grade materials. Request particulars.

<sup>4)</sup> Use of anodes required (efficiency reduced by 2 % to 3 %); anode to be checked every 6 to 12 months

<sup>5)</sup> For t > 25 °C contact KSB (stainless steel variant).

<sup>6)</sup> Fine screens must be used for high pollution loads.

**Material variants**

Standard range (up to approximately 400 kW)

Part No.	Description	G2	G3 <sup>7)</sup> (seawater variant)
101	Pump casing		JL 1040
138	Bellmouth		JL 1030
233	Open counter-clockwise impeller		1.4517
	Closed counter-clockwise impeller <sup>8)</sup>		1.4517
350/330	Bearing housing / bearing bracket		JL 1040
360	Bearing cover		JL 1030
412	O-ring		NBR <sup>9)</sup> (Viton FPM) <sup>10)</sup>
433	Mechanical seal pump end		SiC/SiC (NBR bellows <sup>9)</sup> , Viton FPM <sup>10)</sup>
	Mechanical seal motor end		Carbon/SiC
502	Casing wear ring		1.4571 (stainless steel)
571	Bail		JS 1030 / S235JRG2 <sup>11)</sup>
811	Motor housing		JL 1040
812	Motor housing cover		JL 1040
818	Shaft (rotor)	1.4021	1.4057
82-5	Adapter		JL 1040
834	Cable gland		–
	Gland housing		JL 1040
Various	Screws/bolts		Stainless steel
99-16	Anode	–	Zn
Other materials on request.			

**Comparison of materials**

EN	ASTM
JL 1030	A 48 Class 30 B
JL 1040	A 48 Class 40 B
1.4517	A 890 CD 4 M Cu
1.4021	A 276 Type 420
1.4057	A 276 Type 431
NBR	NBR
FPM	FKM
JS 1030	A 536: 60–40–18
S235JRG2	A 284 B

**Notes on material**
**Duplex stainless steel (1.4517 or technically equivalent material)**

This type of carbon steel is corrosion-resistant, has good strength characteristics and is used for high circumferential speeds. This ferritic-austenitic stainless carbon steel is the preferred material for handling acidic waste water with a high chloride content as well as seawater and brackish water due to its excellent resistance to pitting corrosion. Its good chemical resistance, e.g. also against phosphorous and sulphuric acid contained in waste water, has made this material become a popular choice for a wide range of applications in the chemical and process industries. Even in brines and chemical effluent (pH 1–12), waste water and landfill seepage waters, pumps made of duplex steel have a long service life.

**Data to be indicated in the purchase order**

- Designation of the pump
- Flow rate Q
- Head  $H_{total}$
- Type and temperature of the fluid pumped
- Voltage, frequency, starting method, cable length
- Quantity and language of operating manuals
- Required accessories
  - For discharge tubes indicate all required elevations and the type of installation.
  - For flow-straightening vanes indicate the type of installation and whether the design is with or without suction umbrella.
  - For a support rope indicate dimension "L", the number of lifting rings (depending on the lifting height of the hoisting tackle) as well as the elevations and type of installation.

<sup>7)</sup> Pump set with cathodic protection (anodes to be checked every 6 to 12 months) and top coat of 250 µm

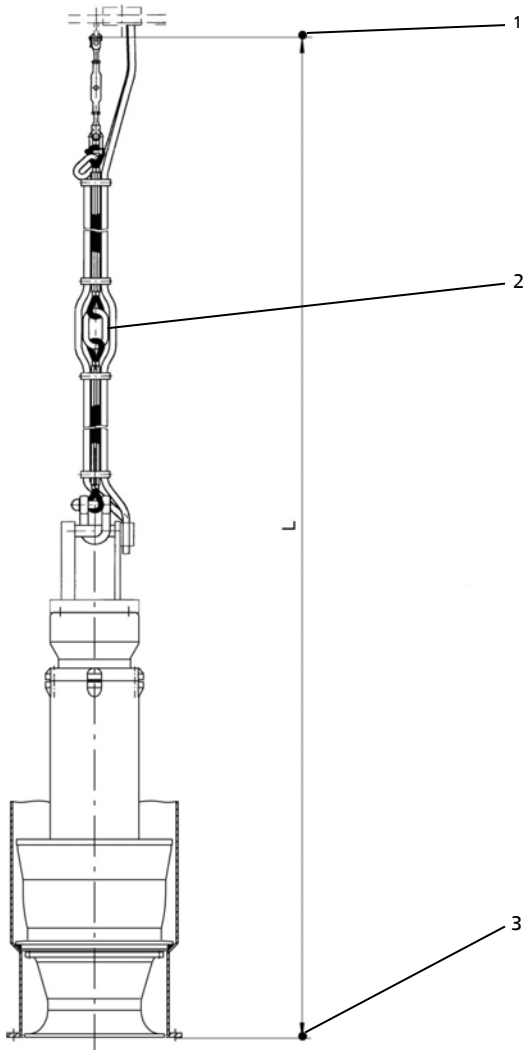
<sup>8)</sup> Sizes 900/1000-620

<sup>9)</sup> Nitrile butadiene rubber (Perbunan)

<sup>10)</sup> FPM fluoro rubber variant available as an option against a surcharge

<sup>11)</sup> JS 1030 on motors: 120 6 ... 205 6 TG, 85 8 ... 120 8 TG; all other motors S235JRG2

Always define dimension "L" when ordering a support rope to allow the correct length to be determined. The lifting height of the crane must be taken into account when ordering a support rope. This determines the number of lifting rings required for installing the pump in or removing it from the discharge tube.



1	Suspension arrangement attached to cover (or cross beam for BU/BG)
2	Optional lifting ring
3	Lower edge of discharge tube = lower edge of pump

### Length L and number of lifting rings

- Length L = \_\_\_\_\_ [mm]
- and number of lifting rings: \_\_\_\_\_ [Qty.]

The support rope is an accessory and can be supplied with lifting rings and a support spacer (⇒ Page 31) as an option. The basic version is supplied without lifting rings.



**Technical data**

Technical data depending on the motor version

Technical feature	Motor version					
	UAG		UTG			
4-pole	45 4 ... 140 4	160 4 ... 220 4	–	–	–	–
6-pole	100 6 ... 140 6	150 6 ... 175 6	120 6	155 6 ... 205 6	250 6 ... 340 6	–
8-pole	–	–	–	85 8 ... 120 8	205 8 ... 290 8	350 8
10-pole	–	–	–	–	220 10 ... 250 10	310 10 ... 420 10
Version U..	Standard, not explosion-proof					
<b>Motor</b>						
Starting method	DOL		DOL or star-delta (690 V only DOL)			
Voltage	400 V <sup>12)</sup>					
Cooling	Cooled by surrounding fluid					
Immersion depth	12 m max.					
Power cable	Rubber-sheathed cable, type see Motor Data Booklet <sup>13)</sup>					
Length	10 m <sup>14)</sup>					
Cable entry	Absolutely watertight					
<b>Sealing elements</b>						
Elastomer seals	Nitrile butadiene rubber NBR <sup>15)</sup>					
Shaft seal	Bellows-type mechanical seal					
<b>Monitoring</b>						
Motor temperature	PTC in the winding					
Bearing temperature	Pump end PT100 Drive end PT100		Pump end PT100 <sup>16)</sup>			
Leakage inside the motor	Electrode monitoring the winding for leakage		Electrode monitoring the winding and connection space for leakage			
Mechanical seal leakage	Float switch in leakage area					
Vibration sensor	–		Option: internal vibration transducer			
<b>Coating</b>	Environmentally-friendly KSB standard, colour RAL 5002 <sup>17)</sup>					
<b>Installation</b>	(⇒ Page 28)					
<b>Maximum temperature of fluid handled</b>						
G2	40 °C					
G3	25 °C					
<b>Tests/inspections</b>						
Hydraulic system	KSB Standard (ZN 56525)					

12) Optional: 500 V, 690 V

13) Optional: EMC cable

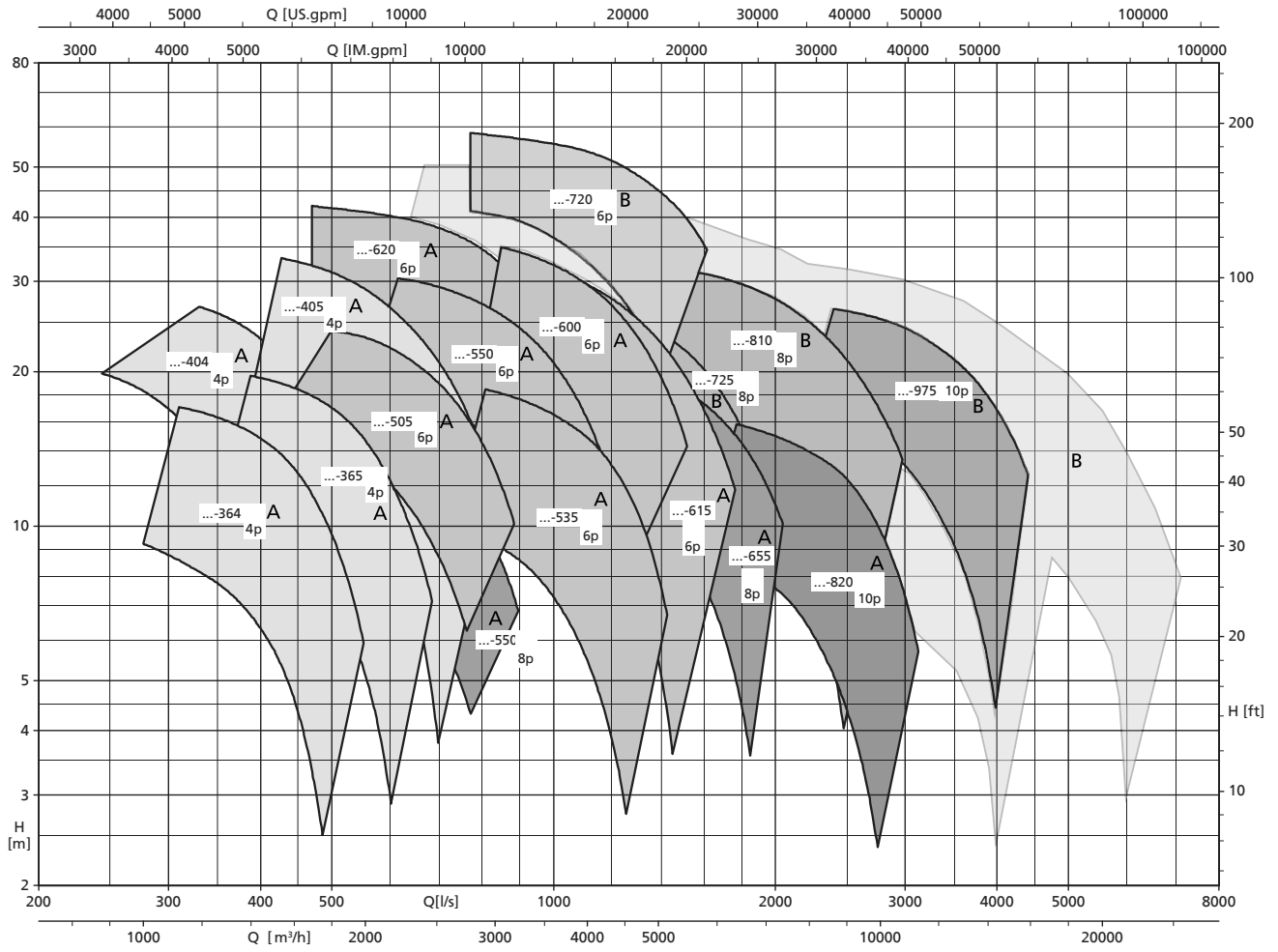
14) Optional: up to 50 m

15) Optional: Viton = fluoro rubber FPM

16) Optional: motor end PT 100

17) Optional: 250 µm

**Selection chart**



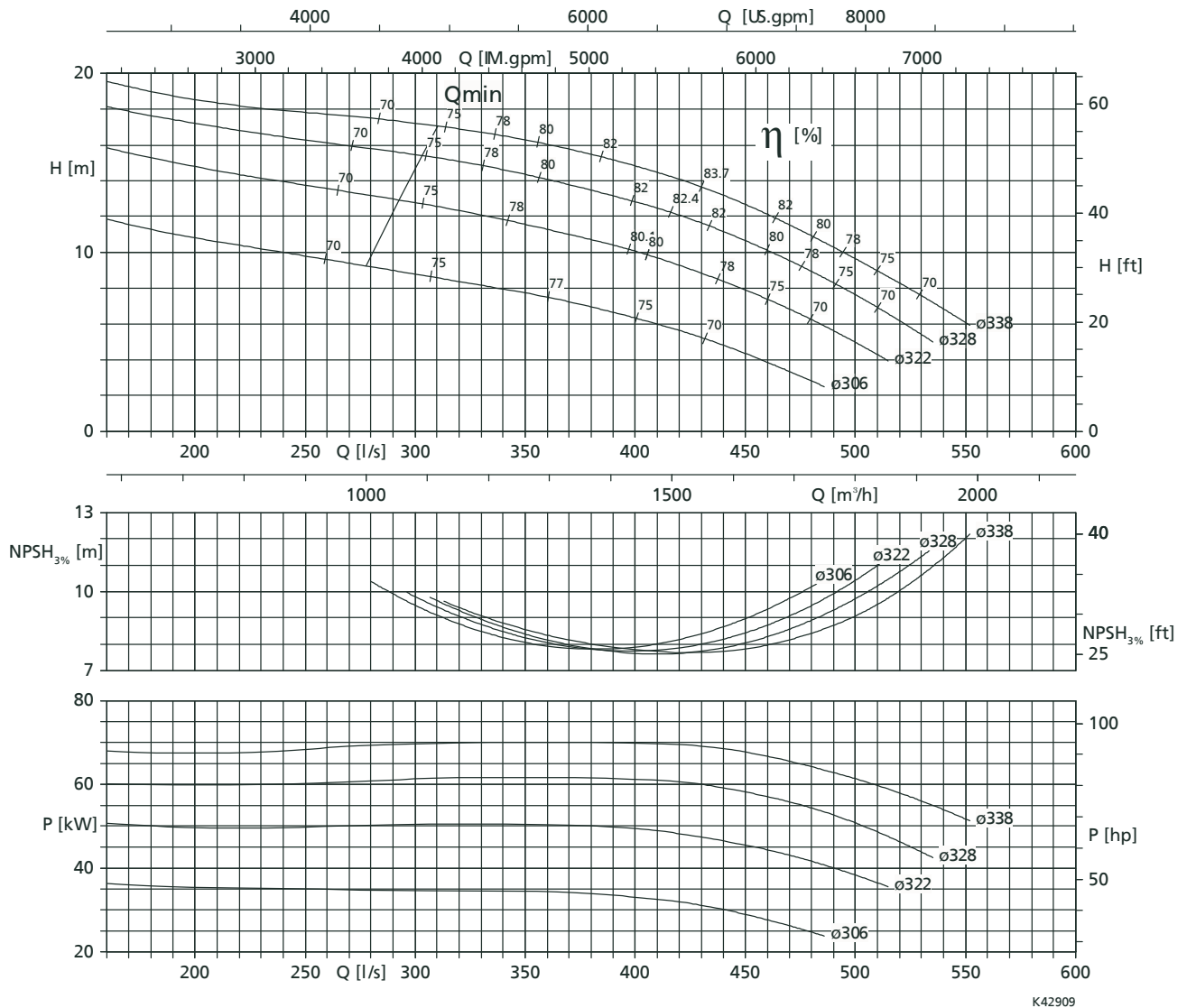
A	Standard range	B	Special range on request
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**Characteristic curves**

**n = 1450 rpm**

**Amacan S 650-364, n = 1450 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



K42909

Free passage                      Ø 39 mm

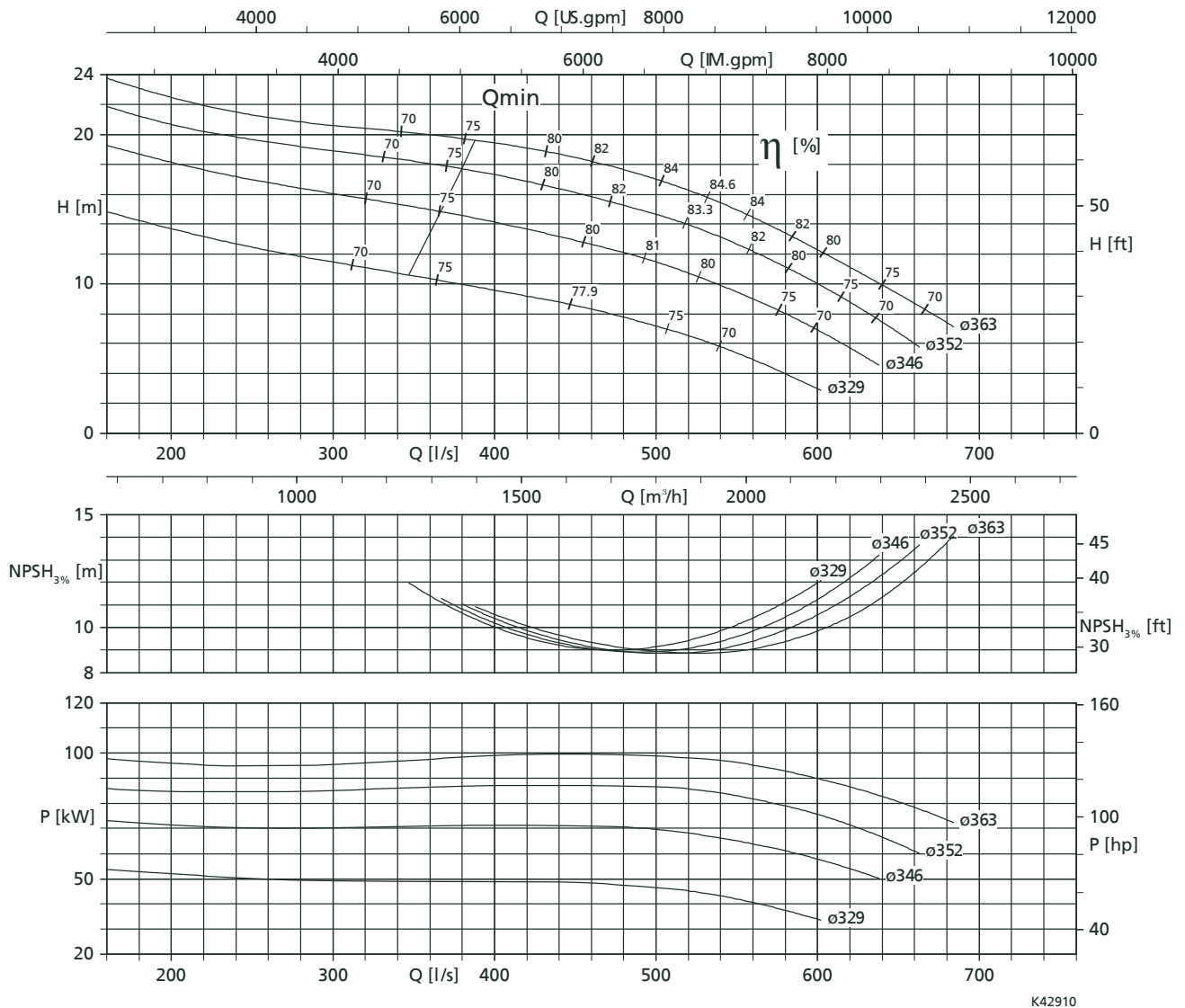
Rated power  $P_2$  and mass moment of inertia  $J^{18)}$

Size	Rated power $P_2$	Mass moment of inertia $J$
	[kW]	[kgm <sup>2</sup> ]
650-364 / 45 4 UAG	45	0.55
650-364 / 65 4 UAG	55	0.55
650-364 / 80 4 UAG	75	0.64

<sup>18)</sup> These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 650-365, n = 1450 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage  $\quad \quad \quad \phi 39 \text{ mm}$

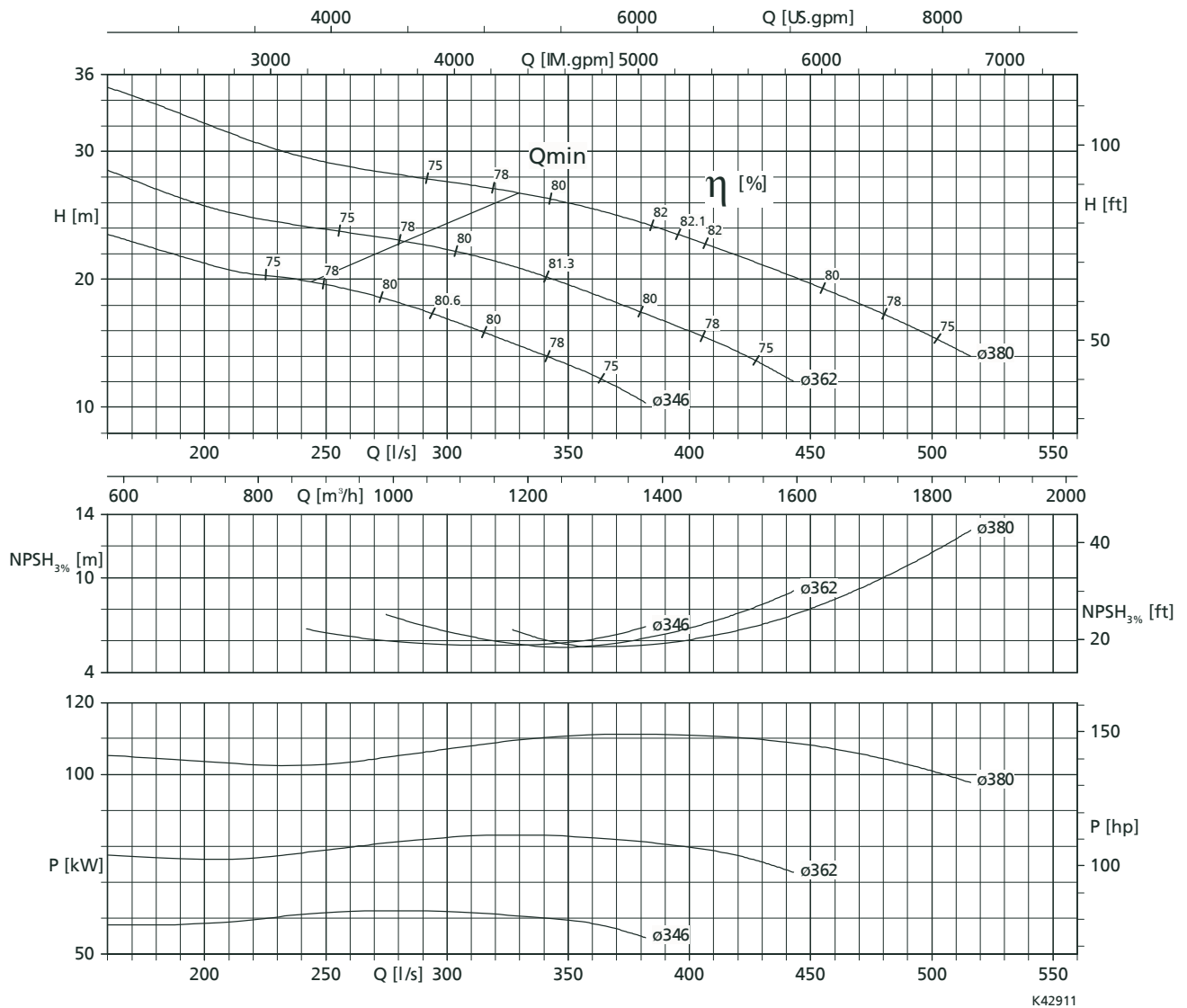
Rated power  $P_2$  and mass moment of inertia  $J^{19)}$

Size	Rated power $P_2$	Mass moment of inertia $J$
	[kW]	[kgm <sup>2</sup> ]
650-365 / 65 4 UAG	55	0.55
650-365 / 80 4 UAG	75	0.64
650-365 / 100 4 UAG	90	0.71
650-365 / 120 4 UAG	110	0.79

<sup>19)</sup> These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 650-404, n = 1450 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



K42911

Free passage                      Ø 42 mm

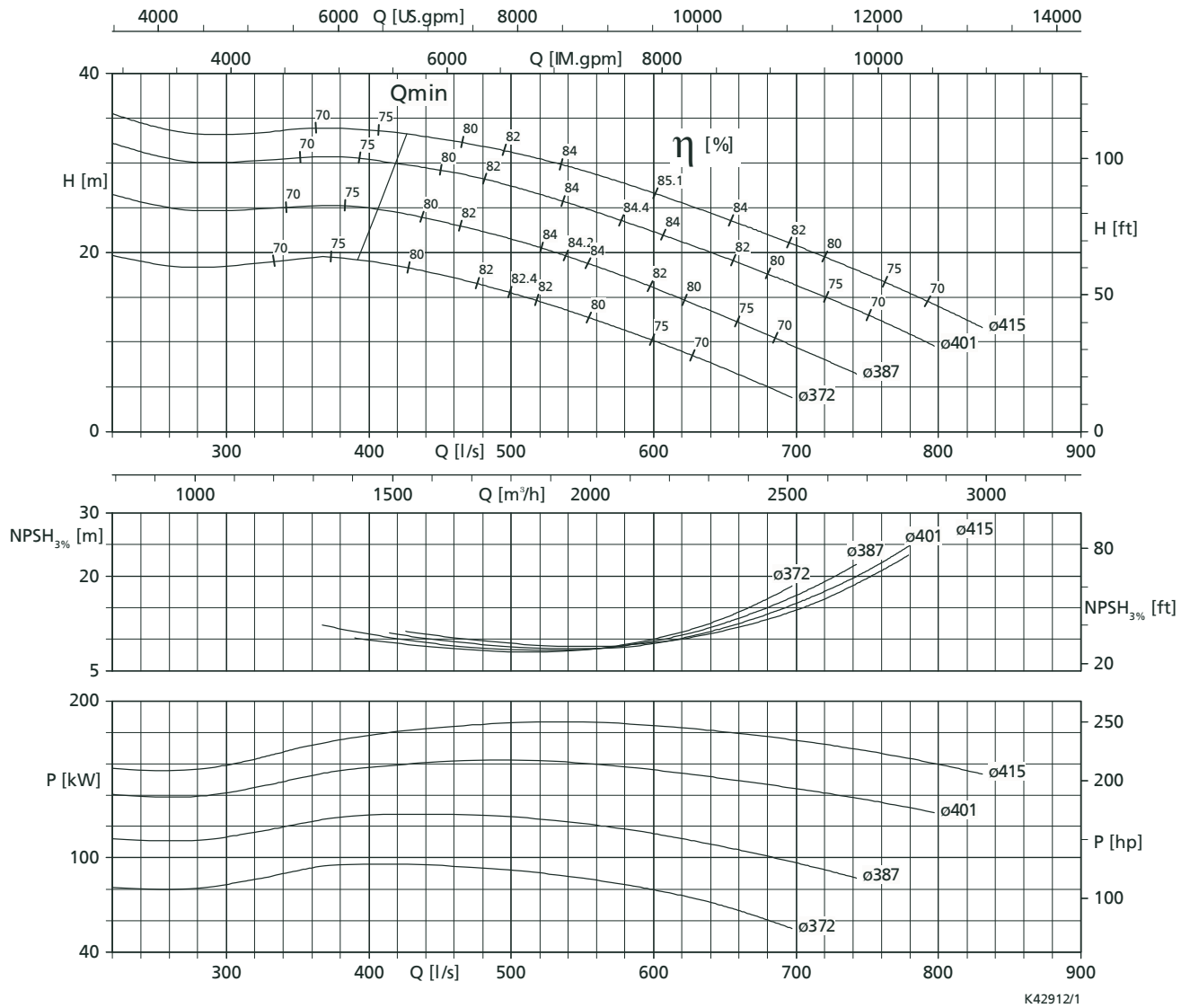
Rated power  $P_2$  and mass moment of inertia  $J^{20)}$

Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
650-404 / 80 4 UAG	75	0.84
650-404 / 100 4 UAG	90	0.91
650-404 / 120 4 UAG	110	0.99
650-404 / 140 4 UAG	135	1.03

20) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 650-405, n = 1450 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage                      Ø 42 mm

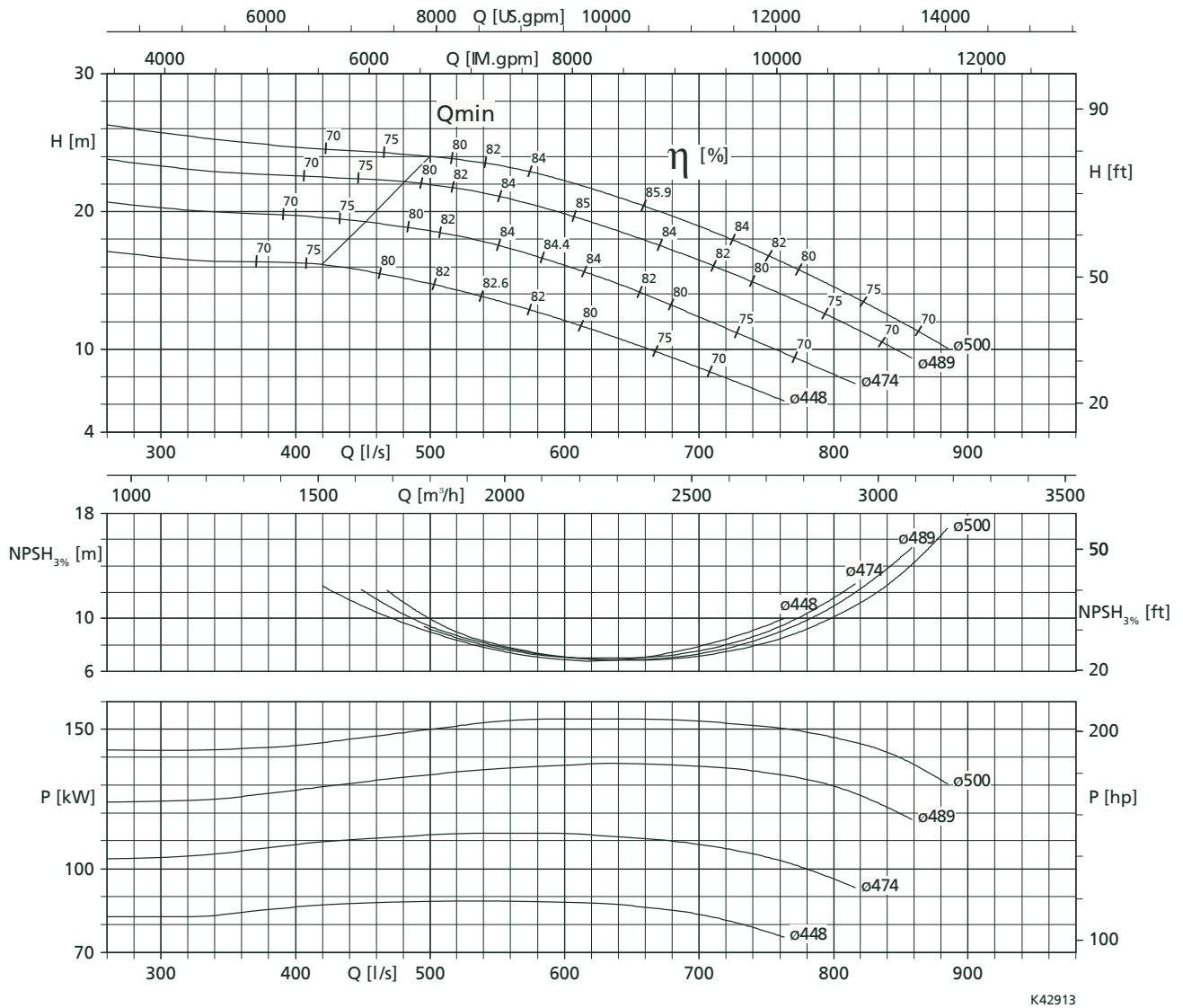
Rated power  $P_2$  and mass moment of inertia  $J^{21)}$

Size	Rated power $P_2$	Mass moment of inertia $J$
	[kW]	[kgm <sup>2</sup> ]
650-405 / 120 4 UAG	110	1.10
650-405 / 140 4 UAG	135	1.15
650-405 / 160 4 UAG	150	1.70
650-405 / 180 4 UAG	180	1.82
650-405 / 200 4 UAG	200	2.00
650-405 / 220 4 UAG	220	2.11

21) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 800-505, n = 1450 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage                      Ø 57 mm

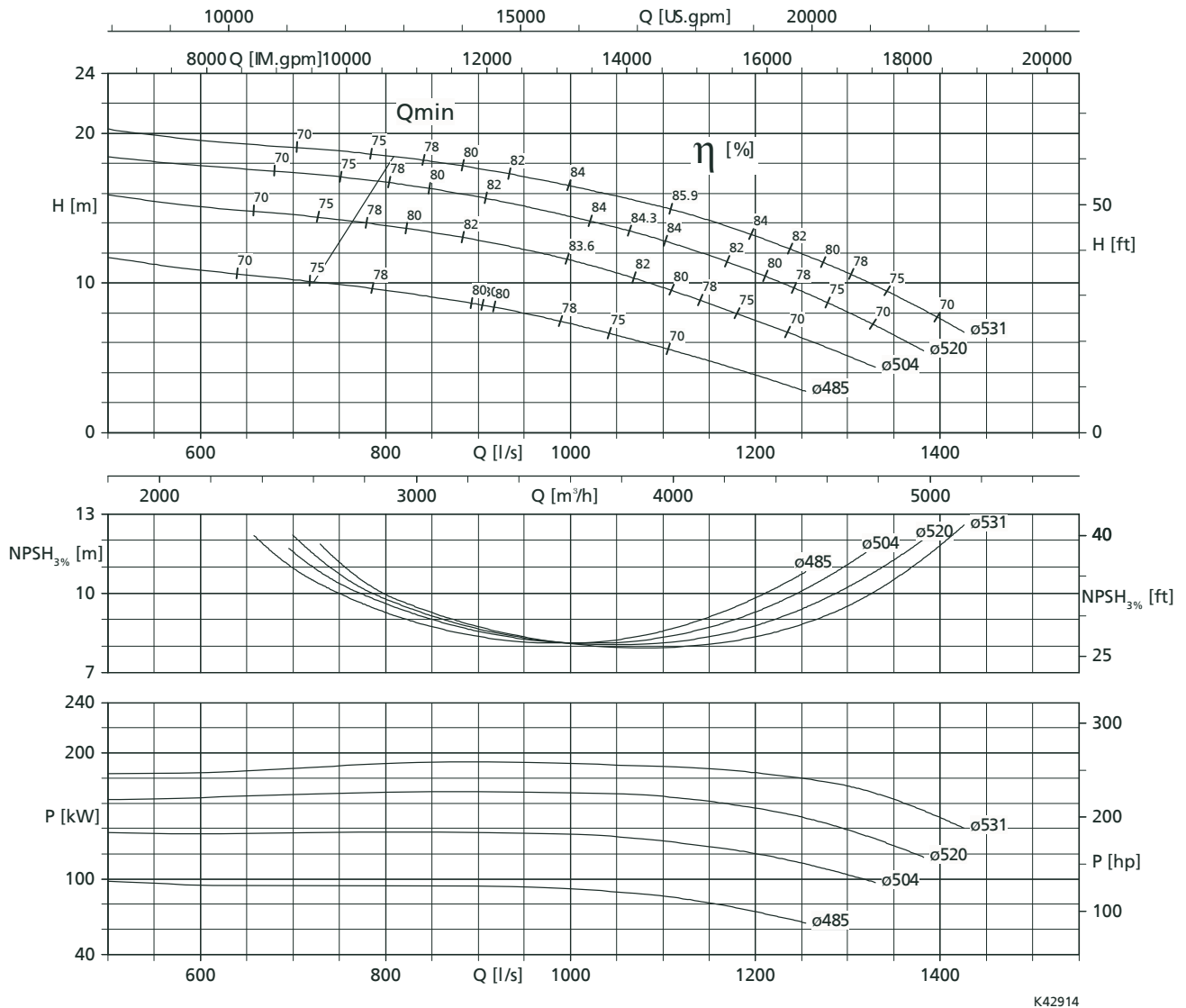
Rated power  $P_2$  and mass moment of inertia  $J^{22)}$

Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
800-505 / 100 6 UAG	95	2.21
800-505 / 120 6 UAG	110	2.28
800-505 / 140 6 UAG	125	2.44
800-505 / 150 6 UAG	150	3.28
800-505 / 175 6 UAG	175	3.60

22) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 800-535 / 850-535, n = 1450 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



K42914

Free passage                      Ø 72 mm

Rated power  $P_2$  and mass moment of inertia  $J^{23)}$

Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
800-535 / 120 6 UTG	115	2.3
800-535 / 155 6 UTG	155	3.3
800-535 / 180 6 UTG	180	3.6
800-535 / 205 6 UTG	205	3.9
850-535 / 200 6 UTG	250	8.6

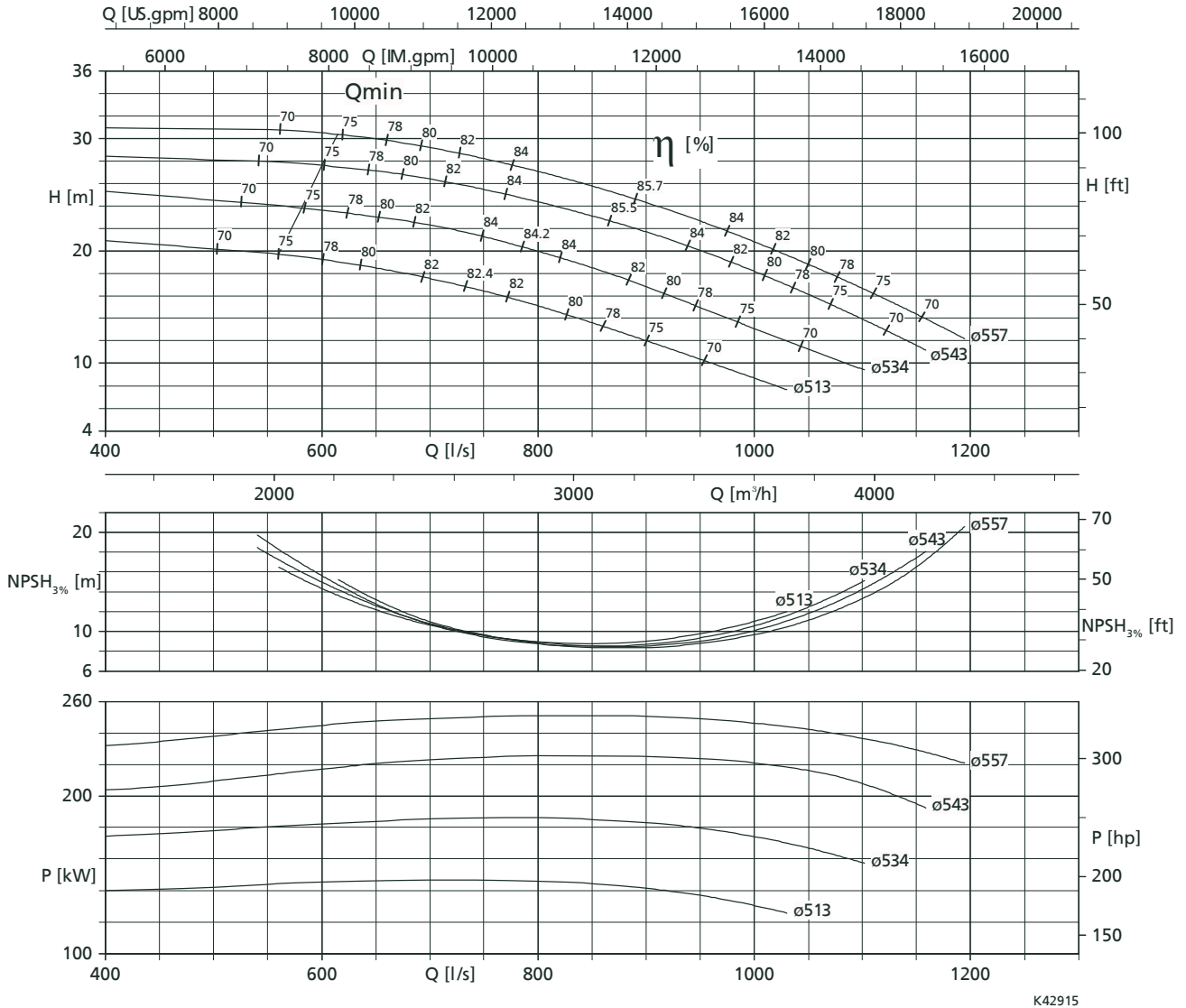
23) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.



**n = 960 rpm**

**Amacan S 850-550, n = 960 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage      Ø 72 mm

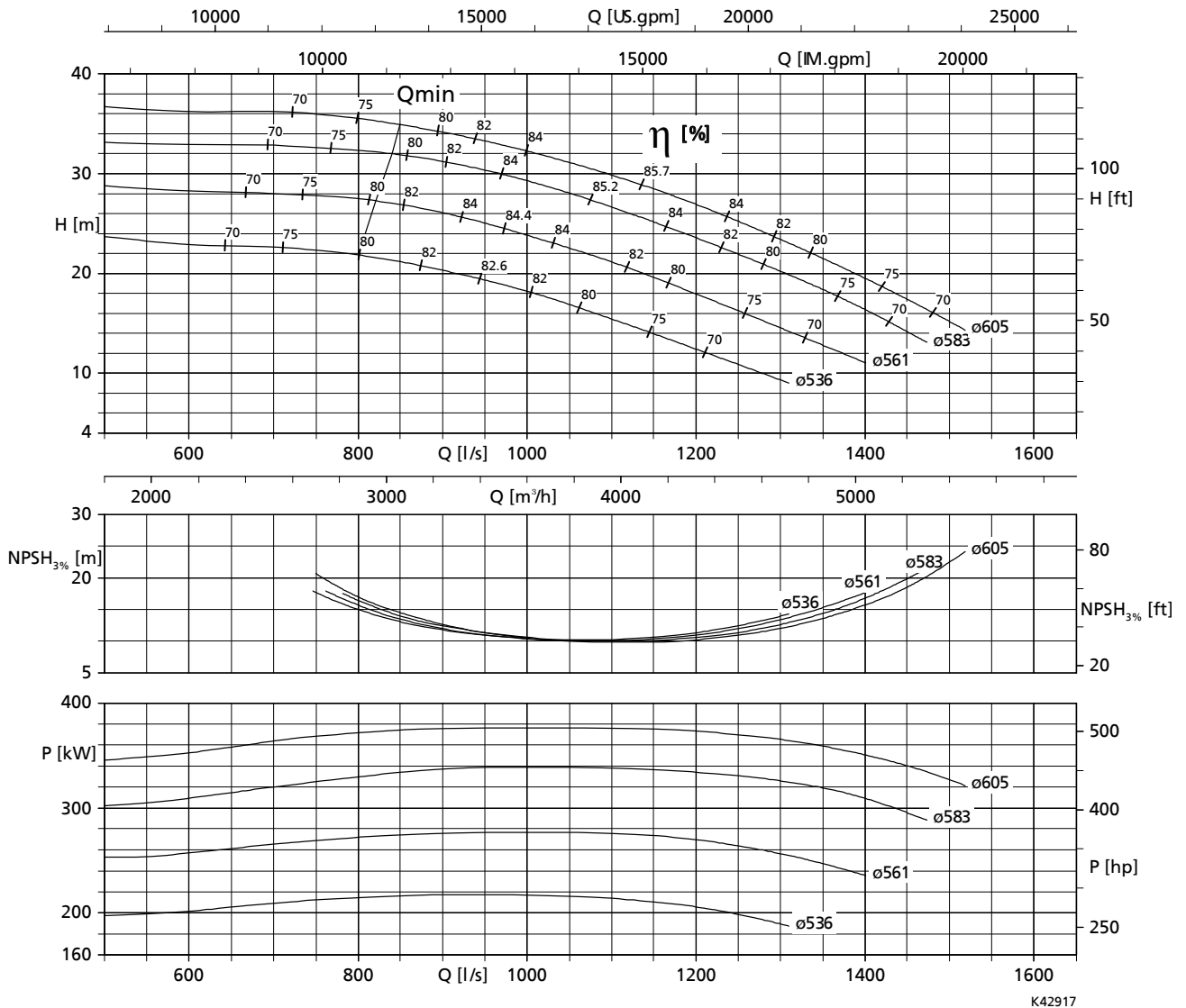
Rated power  $P_2$  and mass moment of inertia  $J^{24)}$

Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
850-550 / 155 6 UTG	155	4.7
850-550 / 180 6 UTG	180	5.0
850-550 / 205 6 UTG	205	5.3
850-550 / 250 6 UTG	250	9.9
850-550 / 290 6 UTG	290	11.2

24) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 900-600 / 1000-600, n = 960 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage                      Ø 72 mm

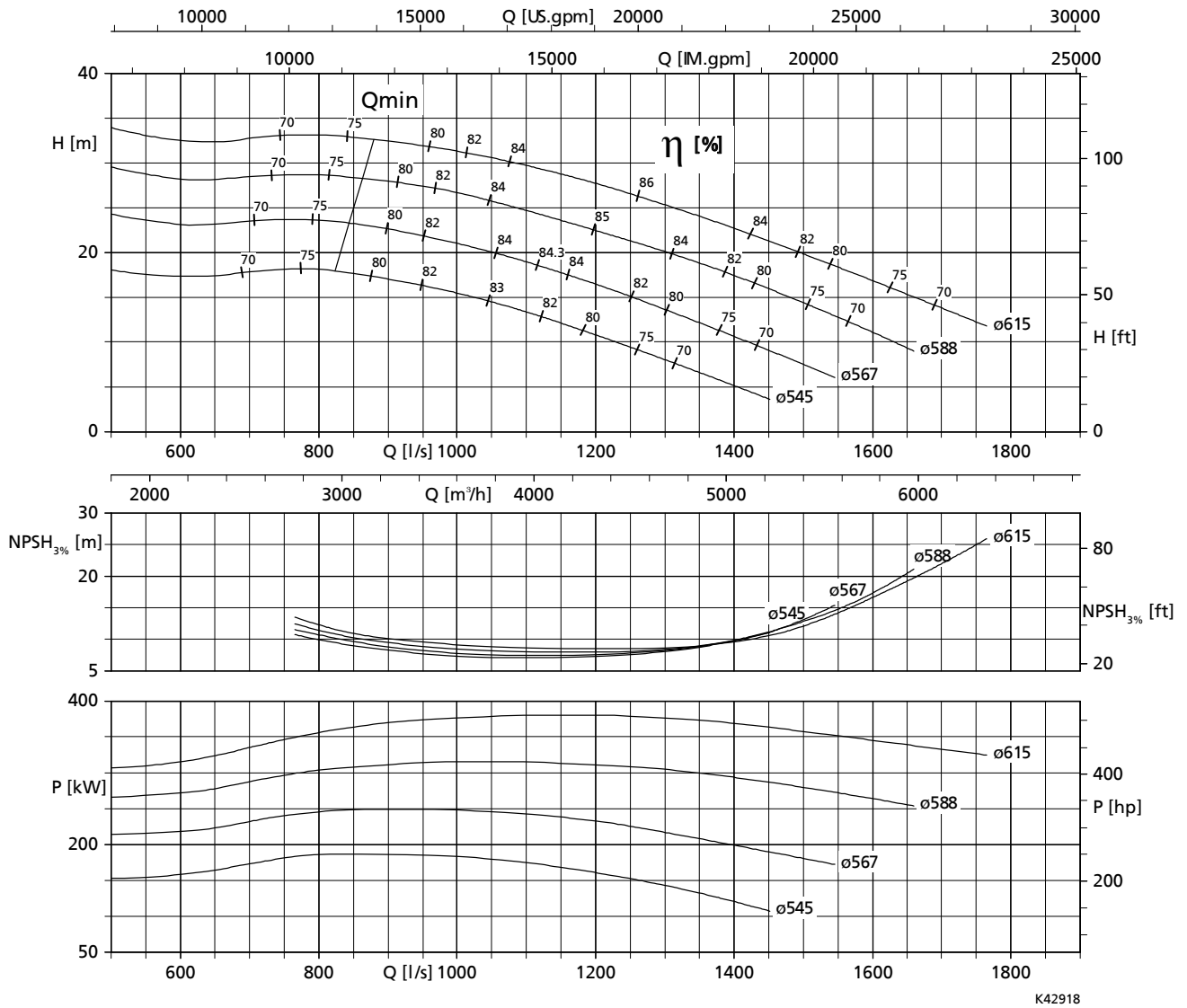
Rated power  $P_2$  and mass moment of inertia  $J^{25)}$

Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
900-600 / 250 6 UTG	250	10.8
900-600 / 290 6 UTG	290	12.1
900-600 / 340 6 UTG	340	13.4
1000-600 / 415 6 UTG	415	17.9

25) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 900-615 / 1000-615, n = 960 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



K42918

Free passage                      Ø 67 mm

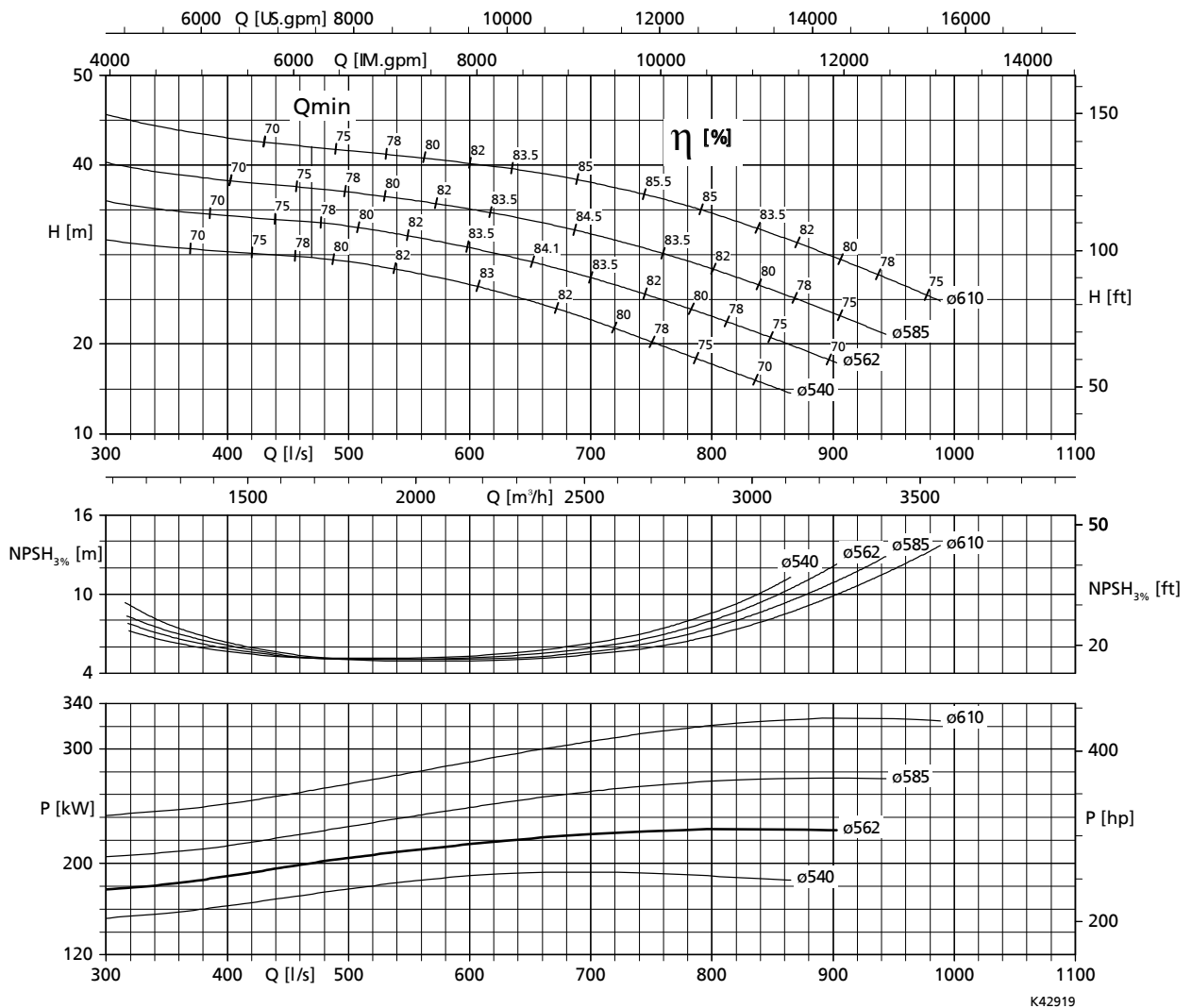
Rated power  $P_2$  and mass moment of inertia  $J^{26)}$

Size	Rated power $P_2$	Mass moment of inertia $J$
	[kW]	[kgm <sup>2</sup> ]
900-615 / 250 6 UTG	250	11.1
900-615 / 290 6 UTG	290	12.4
900-615 / 340 6 UTG	340	13.7
1000-615 / 415 6 UTG	415	18.2

26) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 900-620 / 1000-620, n = 960 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage  $\quad \quad \quad \phi 58 \text{ mm}$

Rated power  $P_2$  and mass moment of inertia  $J^{27)}$

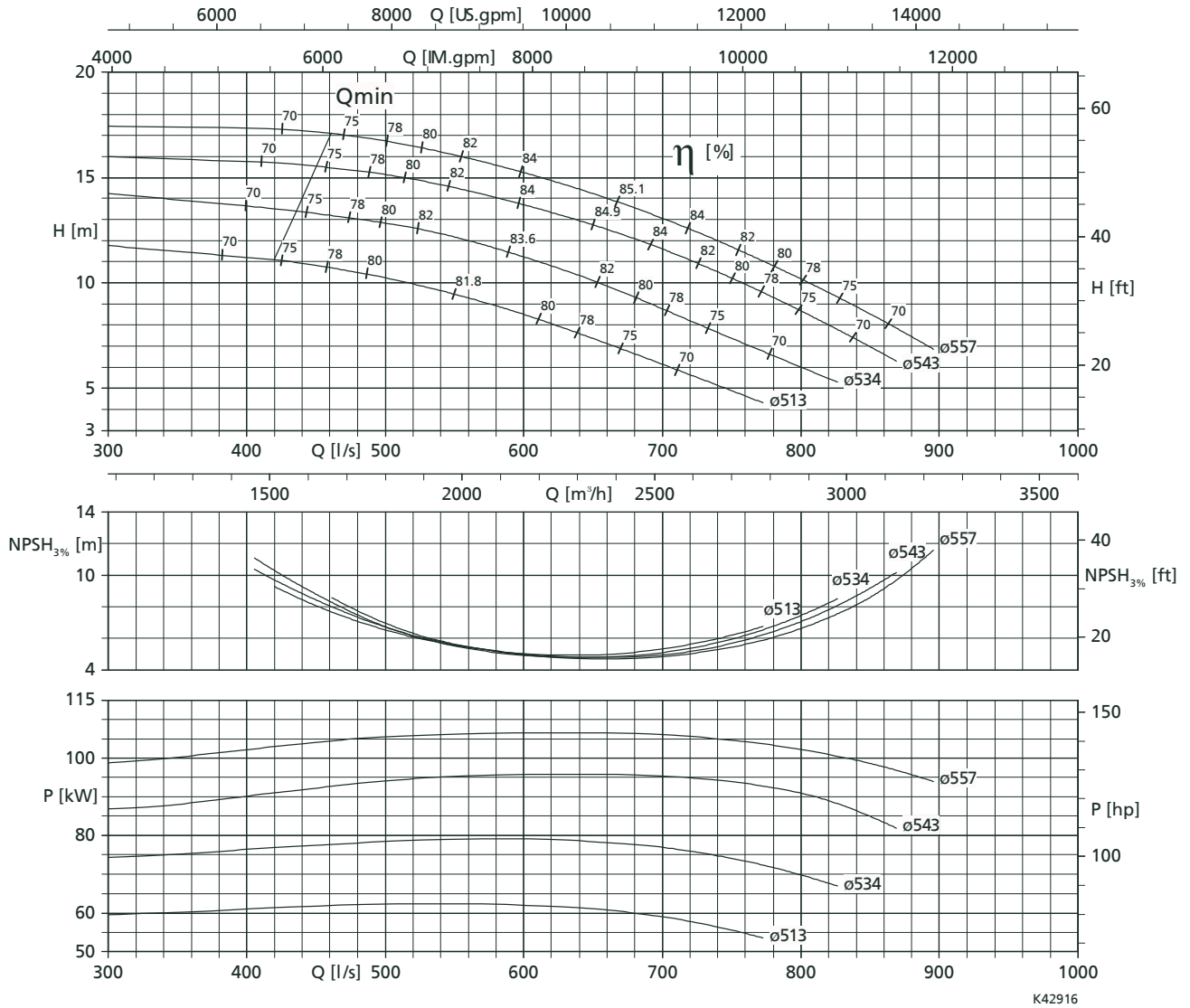
Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
900-620 / 250 6 UTG	250	12.8
900-620 / 290 6 UTG	290	14.1
900-620 / 340 6 UTG	340	15.4
1000-620 / 415 6 UTG	415	19.9

27) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

n = 725 rpm

**Amacan S 850-550, n = 725 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage      Ø 72 mm

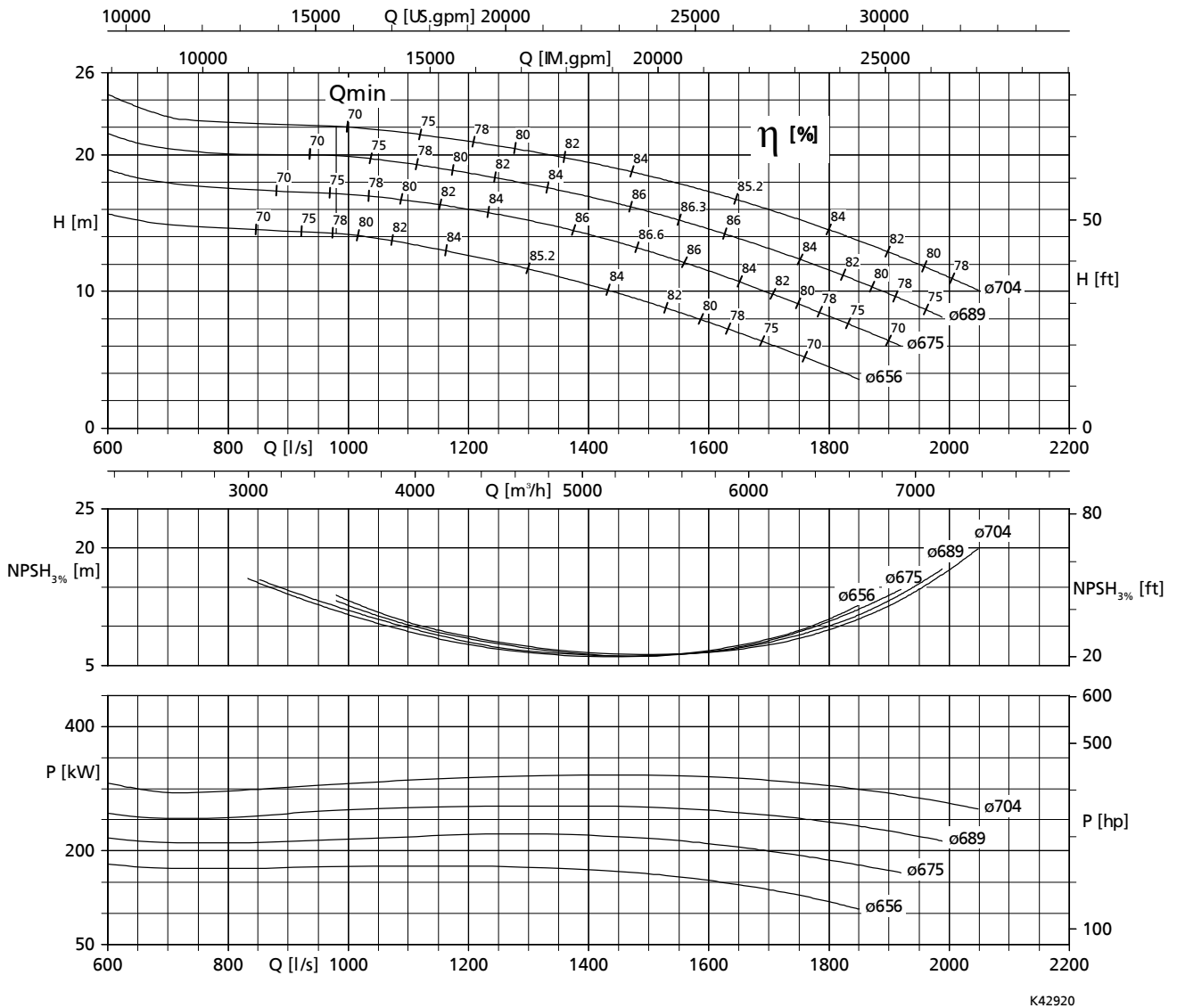
Rated power P<sub>2</sub> and mass moment of inertia J<sup>28)</sup>

Size	Rated power P <sub>2</sub>	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
850-550 / 85 8 UTG	85	3.7
850-550 / 120 8 UTG	120	4.7

28) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

**Amacan S 1000-655, n = 725 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



K42920

Free passage                      Ø 103 mm

Rated power  $P_2$  and mass moment of inertia  $J^{29)}$

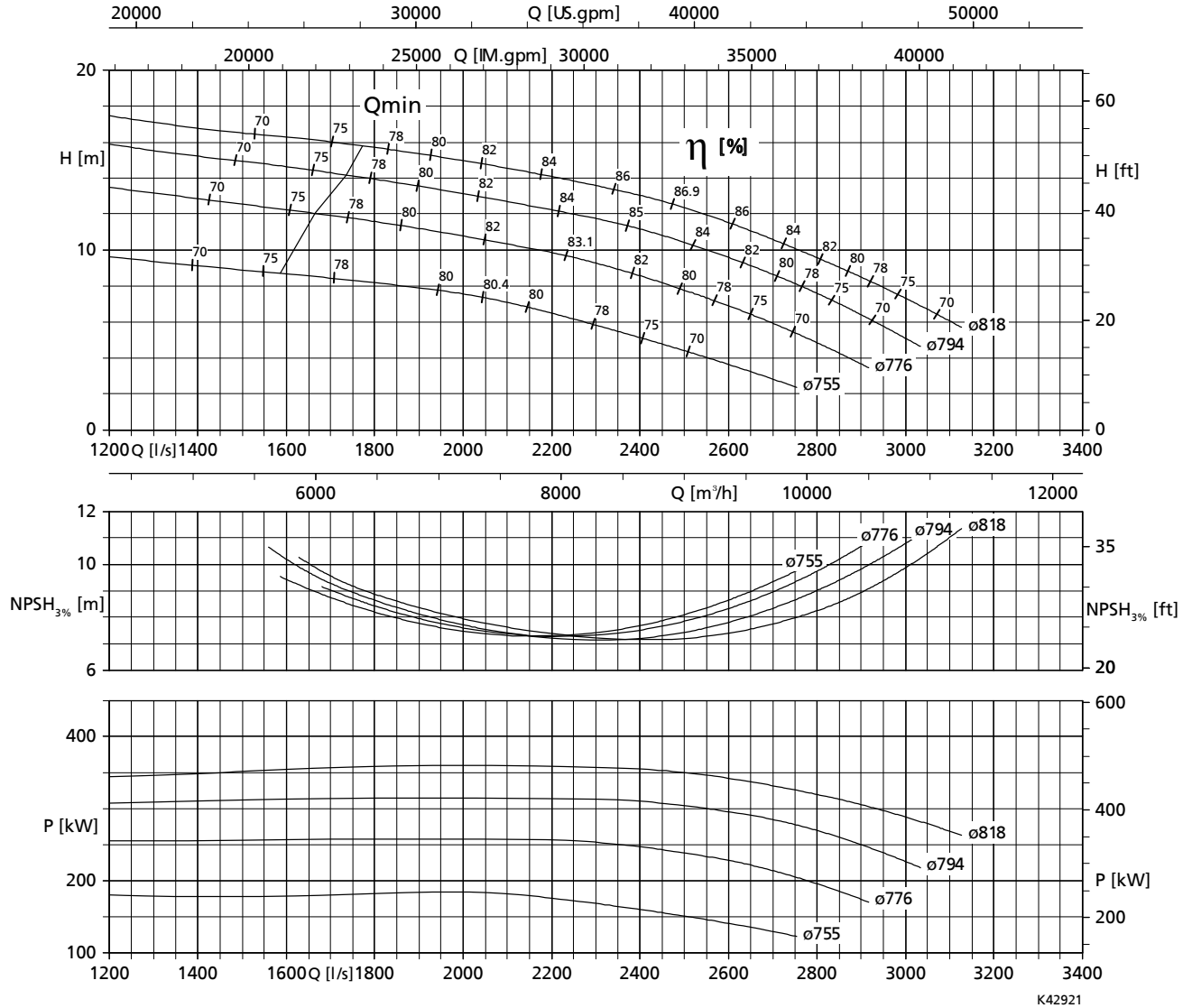
Size	Rated power $P_2$	Mass moment of inertia $J$
	[kW]	[kgm <sup>2</sup> ]
1000-655 / 205 8 UTG	205	13.3
1000-655 / 250 8 UTG	250	14.6
1000-655 / 290 8 UTG	290	15.8
1000-655 / 350 8 UTG	350	20.4

29) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

n = 580 rpm

**Amacan S 1300-820, n = 580 rpm**

Characteristic curves in acc. with ISO 9906 / 2 / 2B. The characteristic curves correspond to the effective motor speed.



Free passage                      Ø 116 mm

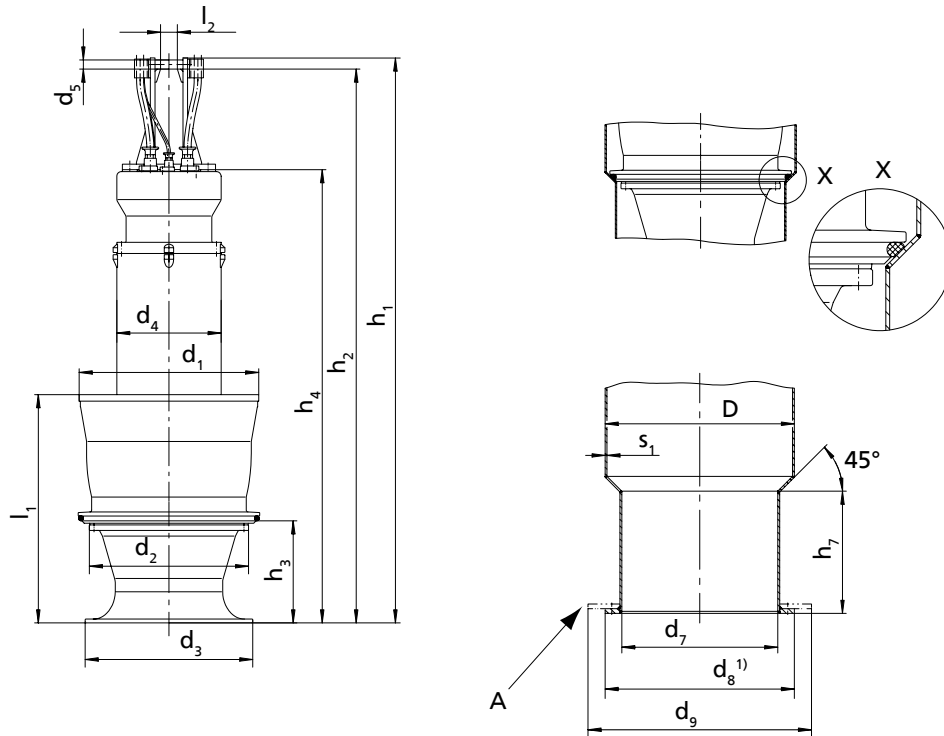
Rated power  $P_2$  and mass moment of inertia  $J^{30)}$

Size	Rated power $P_2$	Mass moment of inertia J
	[kW]	[kgm <sup>2</sup> ]
1300-820 / 200 10 UTG	200	22.5
1300-820 / 250 10 UTG	250	24.7
1300-820 / 310 10 UTG	310	30.6
1300-820 / 365 10 UTG	365	33.3
1300-820 / 420 10 UTG	420	36.0

30) These values are valid for a density = 1 kg/dm<sup>3</sup> and a kinematic viscosity of up to 20 mm<sup>2</sup>/s.

Dimensions

UAG motors (650-364 to 800-505)



Outline drawing

A	Suction umbrella; option for reducing the minimum water level
1)	Dimension see general assembly drawing on the following pages.

Dimensions of the pump set

Size	Motor size	Number of poles	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	l <sub>1</sub>	l <sub>2</sub>	Weight <sup>31)</sup> [kg]
			[mm]											
650 - 364	45	4	2090	2042	260	1605	625	500	510	390	35	651	70	970
650 - 364	65	4	2090	2042	260	1605	625	500	510	390	35	651	70	970
650 - 364	80	4	2290	2242	260	1805	625	500	510	390	35	651	70	1080
650 - 365	65	4	2090	2042	260	1605	625	500	510	390	35	651	70	960
650 - 365	80	4	2290	2242	260	1805	625	500	510	390	35	651	70	1070
650 - 365	100	4	2290	2242	260	1805	625	500	510	390	35	651	70	1100
650 - 365	120	4	2290	2242	260	1805	625	500	510	390	35	651	70	1150
650 - 404	80	4	2305	2258	290	1820	620	-	500	390	35	665	70	1080
650 - 404	100	4	2305	2258	290	1820	620	-	500	390	35	665	70	1120
650 - 404	120	4	2305	2258	290	1820	620	-	500	390	35	665	70	1170
650 - 404	140	4	2505	2458	290	2020	620	-	500	390	35	665	70	1300
650 - 405	120	4	2305	2258	290	1820	620	-	500	390	35	665	70	1160
650 - 405	140	4	2505	2458	290	2020	620	-	500	390	35	665	70	1290
650 - 405	160	4	2585	2528	290	2100	620	-	500	480	45	665	90	1550
650 - 405	180	4	2585	2528	290	2100	620	-	500	480	45	665	90	1610
650 - 405	200	4	2665	2608	290	2180	620	-	500	480	45	665	90	1690
650 - 405	220	4	2665	2608	290	2180	620	-	500	480	45	665	90	1730
800 - 505	100	6	2375	2328	370	1890	775	665	645	390	35	795	70	1340
800 - 505	120	6	2375	2328	370	1890	775	665	645	390	35	795	70	1380

31) Pump set complete with 10 m power cable and 5 m support rope



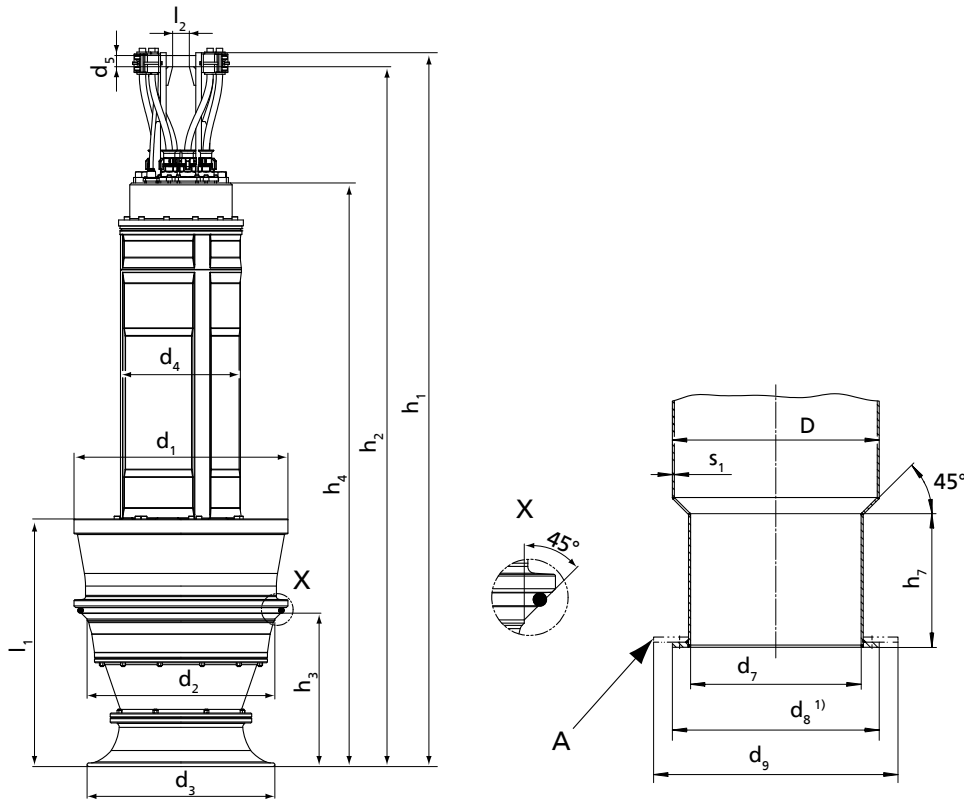
Size	Motor size	Number of poles	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	l <sub>1</sub>	l <sub>2</sub>	Weight <sup>31)</sup> [kg]
			[mm]											
800 - 505	140	6	2575	2528	370	2090	775	665	645	390	35	795	70	1480
800 - 505	150	6	2520	2463	370	2035	775	665	645	480	45	795	90	1790
800 - 505	175	6	2600	2543	370	2115	775	665	645	480	45	795	90	1890

Dimensions of the discharge tube [mm]

Size	Motor size	Number of poles	D	d <sub>7</sub>	d <sub>9</sub>	h <sub>7</sub>	s <sub>1</sub>
650 - 364	45	4	660	530	900	225	7.1
650 - 364	65	4	660	530	900	225	7.1
650 - 364	80	4	660	530	900	225	7.1
650 - 365	65	4	660	530	900	225	7.1
650 - 365	80	4	660	530	900	225	7.1
650 - 365	100	4	660	530	900	225	7.1
650 - 365	120	4	660	530	900	225	7.1
650 - 404	80	4	660	530	900	265	7.1
650 - 404	100	4	660	530	900	265	7.1
650 - 404	120	4	660	530	900	265	7.1
650 - 404	140	4	660	530	900	265	7.1
650 - 405	120	4	660	530	900	265	7.1
650 - 405	140	4	660	530	900	265	7.1
650 - 405	160	4	660	530	900	265	7.1
650 - 405	180	4	660	530	900	265	7.1
650 - 405	200	4	660	530	900	265	7.1
650 - 405	220	4	660	530	900	265	7.1
800 - 505	100	6	813	680	1050	335	8
800 - 505	120	6	813	680	1050	335	8
800 - 505	140	6	813	680	1050	335	8
800 - 505	150	6	813	680	1050	335	8
800 - 505	175	6	813	680	1050	335	8

31) Pump set complete with 10 m power cable and 5 m support rope

UTG motors (800-535 to 1300-820)



Outline drawing

A	Suction umbrella; option for reducing the minimum water level
1)	Dimension see general assembly drawing on the following pages.

Dimensions of the pump set

Size	Motor size	Number of poles	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	l <sub>1</sub>	l <sub>2</sub>	Weight <sup>32)</sup>
			[mm]											[kg]
800 - 535	120	6	2720	2680	350	2030	775	670	700	385	40	885	80	1500
800 - 535	155	6	2740	2700	350	2050	775	670	700	475	40	885	80	1690
800 - 535	180	6	2740	2700	350	2050	775	670	700	475	40	885	80	1785
800 - 535	205	6	2740	2700	350	2050	775	670	700	475	40	885	80	1840
850 - 535	250	6	3150	3090	350	2550	775	670	700	555	50	885	90	2440
850 - 550	155	6	2780	2740	415	2090	826	720	700	475	40	865	80	1735
850 - 550	180	6	2780	2740	415	2090	826	720	700	475	40	865	80	1830
850 - 550	205	6	2780	2740	415	2090	826	720	700	475	40	865	80	1885
850 - 550	250	6	3190	3130	415	2590	826	720	700	555	50	865	90	2480
850 - 550	290	6	3190	3130	415	2590	826	720	700	555	50	865	90	2655
850 - 550	85	8	2780	2740	415	2090	826	720	700	475	40	865	80	1700
850 - 550	120	8	2780	2740	415	2090	826	720	700	475	40	865	80	1710
900 - 600	250	6	3145	3085	450	2545	875	780	750	555	50	895	90	2580
900 - 600	290	6	3145	3085	450	2545	875	780	750	555	50	895	90	2740
900 - 600	340	6	3145	3085	450	2545	875	780	750	555	50	895	90	2885
900 - 615	250	6	3120	3060	450	2520	870	760	730	555	50	815	90	2785
900 - 615	290	6	3120	3060	450	2520	870	760	730	555	50	815	90	2955
900 - 615	340	6	3120	3060	450	2520	870	760	730	555	50	815	90	3090
900 - 620	250	6	3105	3045	405	2505	875	755	645	555	50	970	90	2650
900 - 620	290	6	3105	3045	405	2505	875	755	645	555	50	970	90	2825
900 - 620	340	6	3105	3045	405	2505	875	755	645	555	50	970	90	2955

32) Pump set complete with 10 m power cable and 5 m support rope

Size	Motor size	Number of poles	h <sub>1</sub>	h <sub>2</sub>	h <sub>3</sub>	h <sub>4</sub>	d <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	d <sub>4</sub>	d <sub>5</sub>	l <sub>1</sub>	l <sub>2</sub>	Weight <sup>32)</sup>
			[mm]											[kg]
1000 - 600	415	6	3595	3520	450	2895	875	780	750	650	60	895	90	3570
1000 - 615	415	6	3570	3495	450	2870	960	760	730	650	60	1190	90	3780
1000 - 620	415	6	3555	3480	405	2855	875	755	645	650	60	970	90	3650
1000 - 655	205	8	3235	3175	550	2635	975	855	900	555	50	1220	90	2775
1000 - 655	250	8	3235	3175	550	2635	975	855	900	555	50	1220	90	2905
1000 - 655	290	8	3235	3175	550	2635	975	855	900	555	50	1220	90	3070
1000 - 655	350	8	3685	3610	550	2985	975	855	900	650	60	1220	90	3770
1300 - 820	200	10	3280	3220	600	2680	1200	970	1050	555	50	1195	90	3720
1300 - 820	250	10	3280	3220	600	2680	1200	970	1050	555	50	1195	90	3970
1300 - 820	310	10	3580	3505	600	2880	1200	970	1050	650	60	1195	90	4590
1300 - 820	365	10	3805	3730	600	3105	1200	970	1050	650	60	1195	90	4990
1300 - 820	420	10	3805	3730	600	3105	1200	970	1050	650	60	1195	90	5140

## Dimensions of the discharge tube [mm]

Size	Motor size	Number of poles	D	d <sub>7</sub>	d <sub>9</sub>	h <sub>7</sub>	s <sub>1</sub>
800 - 535	120	6	813	720	1300	325	8
800 - 535	155	6	813	720	1300	325	8
800 - 535	180	6	813	720	1300	325	8
800 - 535	205	6	813	720	1300	325	8
850 - 535	250	6	868	720	1300	325	8
850 - 550	155	6	868	740	1300	375	8
850 - 550	180	6	868	740	1300	375	8
850 - 550	205	6	868	740	1300	375	8
850 - 550	250	6	868	740	1300	375	8
850 - 550	290	6	868	740	1300	375	8
850 - 550	85	8	868	740	1300	375	8
850 - 550	120	8	868	740	1300	375	8
900 - 600	250	6	914	800	1300	415	10
900 - 600	290	6	914	800	1300	415	10
900 - 600	340	6	914	800	1300	415	10
900 - 615	250	6	914	780	1300	420	10
900 - 615	290	6	914	780	1300	420	10
900 - 615	340	6	914	780	1300	420	10
900 - 620	250	6	914	770	1300	365	10
900 - 620	290	6	914	770	1300	365	10
900 - 620	340	6	914	770	1300	365	10
1000 - 600	415	6	1016	800	1300	415	10
1000 - 615	415	6	1016	780	1300	420	10
1000 - 620	415	6	1016	770	1300	365	10
1000 - 655	205	8	1016	920	1500	515	10
1000 - 655	250	8	1016	920	1500	515	10
1000 - 655	290	8	1016	920	1500	515	10
1000 - 655	350	8	1016	920	1500	515	10
1300 - 820	200	10	1320	1080	1800	545	12
1300 - 820	250	10	1320	1080	1800	545	12
1300 - 820	310	10	1320	1080	1800	545	12
1300 - 820	365	10	1320	1080	1800	545	12
1300 - 820	420	10	1320	1080	1800	545	12

32) Pump set complete with 10 m power cable and 5 m support rope

### Installation types

Six design variants are available, depending on the installation type:<sup>33)</sup>

#### Installation types

<p align="center"><b>BU discharge tube</b></p> <p>Design with above floor discharge outlet for installation in open intake chamber</p>	<p align="center"><b>BG discharge tube</b></p> <p>Design with above floor discharge outlet for installation in covered intake chamber, for low suction-side water levels</p>
<p align="center"><b>CU discharge tube</b></p> <p>Design with underfloor discharge outlet for installation in open intake chamber</p>	<p align="center"><b>CG discharge tube</b></p> <p>Design with underfloor discharge outlet for installation in covered intake chamber, for low suction-side water levels</p>
<p align="center"><b>DU discharge tube</b></p> <p>Design with above floor discharge nozzle for installation in open intake chamber</p>	<p align="center"><b>DG discharge tube</b></p> <p>Design with above floor discharge nozzle for installation in covered intake chamber, for low suction-side water levels</p>

<sup>33)</sup> For information on the different installation types (foundation dimensions, intake chamber, etc.) see general arrangement drawings

### Scope of supply

Depending on the model, the following items are included in the scope of supply:

- **Basic model:** Pump set complete with 10 m power cable
- O-ring
- Back-up name plate

**Accessories (optional):**

- Support rope
- Accessories for cable support
  - Spacer
  - Turnbuckle
  - Support spacer
  - Shackle
  - Cable clamps
- Cable support sleeves
- Flow-straightening vane to prevent floor vortices
- Discharge tube in various designs (steel or GFK)

**Accessories**

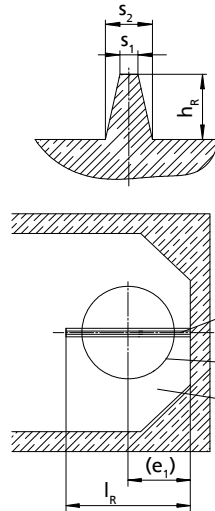
**Flow-straightening vane and intake chamber**

- The anti-swirl baffles in the bellmouth must be aligned with the flow-straightening vane.
- The bail of the pump is oriented in the same direction as the anti-swirl baffles in the bellmouth.

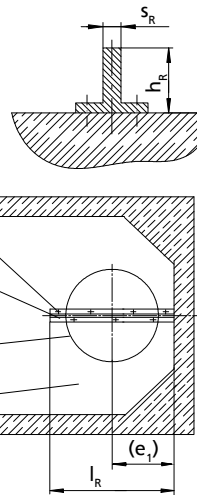
**Design of the intake chamber wall surfaces (to prevent vortex formation)**

The flow-straightening vane is indispensable for the inlet conditions of the pump set. It prevents the development of a submerged vortex (floor vortex) which could cause a drop in performance, for example. In addition, the floor and wall surfaces of the intake chamber should be designed as a rough concrete surface. Rough surfaces minimise the separation of boundary layers that may cause wall and floor vortices.

Variant 1 (concrete variant)  
Flow-straightening vane cast from concrete

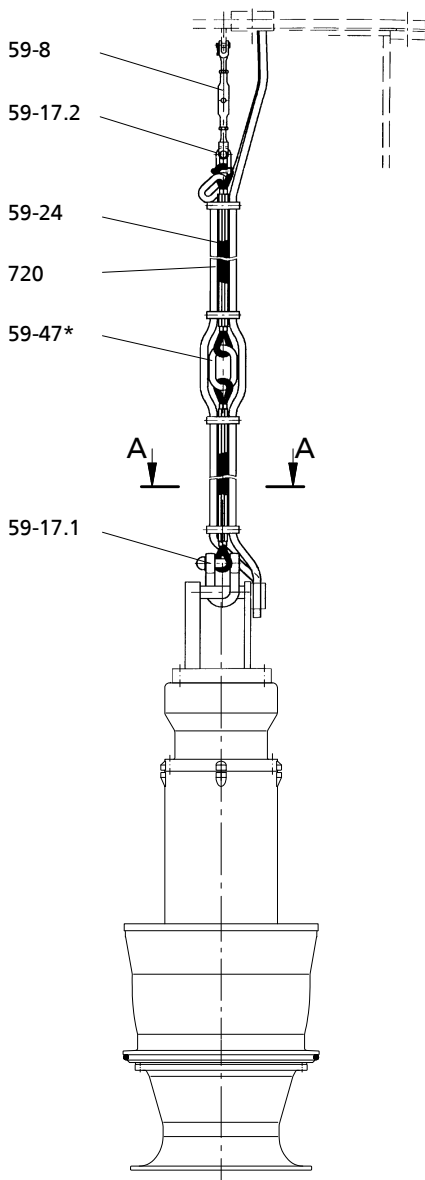


Variant 2  
Steel section

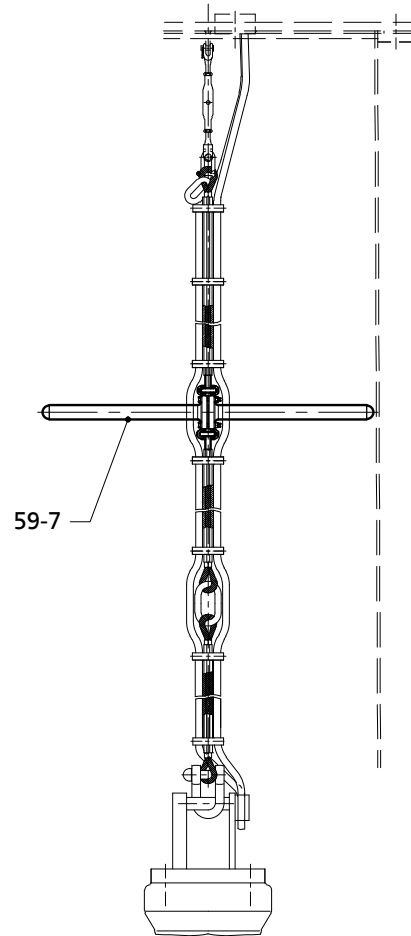


A	Bolted to the floor of the intake chamber	C	Discharge tube
B	Flow-straightening vane centred beneath the discharge tube	D	Intake chamber
The dimensions of the flow-straightening vane depend on the type of installation (see General Arrangement Drawings)			

**Support rope and turnbuckle in the discharge tube**



**For large installation depths  
(with support spacer)**

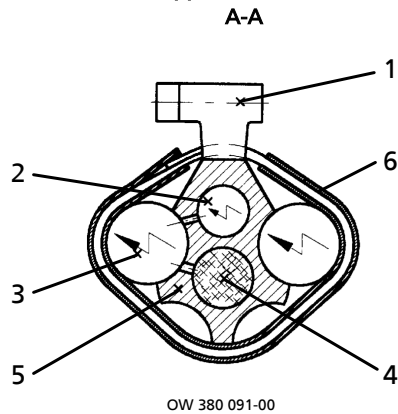


\*= The number of (optional) lifting rings depends on the lifting height of the hoisting tackle and on the building structure.

List of components

Part No.	Description	Material
59-8	Turnbuckle	Stainless steel
59-17.2	Shackle	Stainless steel
59-47	Lifting lug	Stainless steel
59-24	Rope to DIN 3088, type PK, low rotation design	Stainless steel
720	Spacer	EPDM
59-17.1	Shackle	Galvanised steel (stainless steel optional)
59-7	Support spacer	GFK

**Cross-section of cable support**

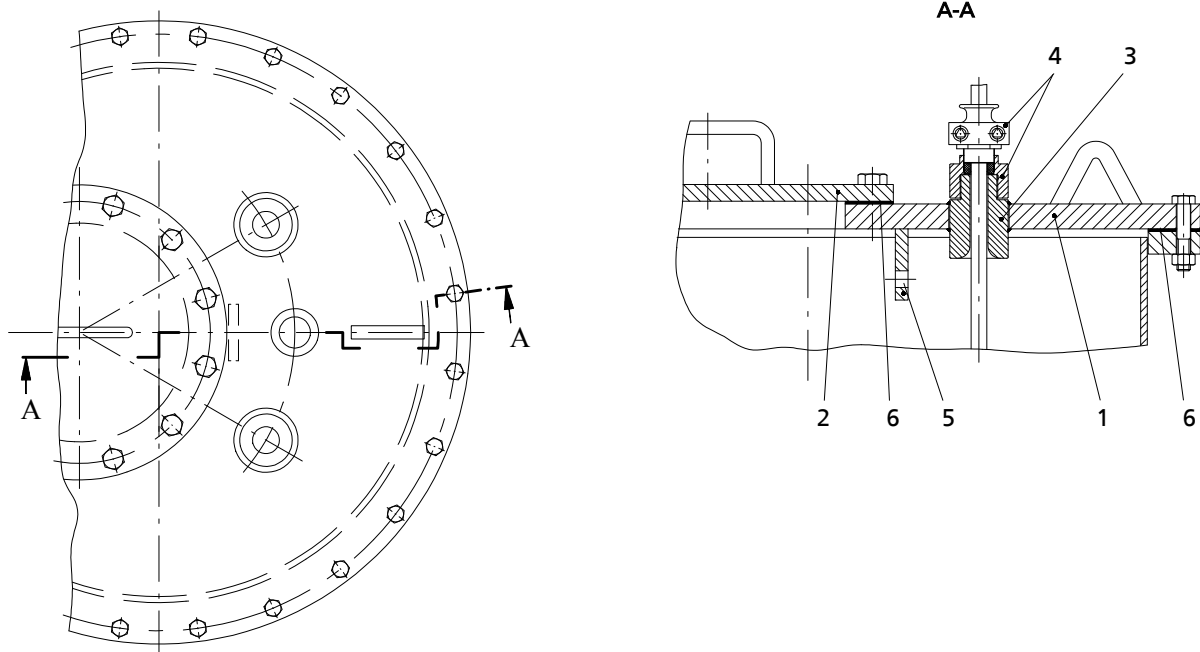


List of components

Part No.	Description	Part No.	Description
1	Cable clamp (approximately every 400 mm)	4	Support rope 59-24
2	Control cable	5	Spacer
3	Power cable	6	Clamp cover

**Discharge tube cover with cable gland**

**Design: with welding sleeve**



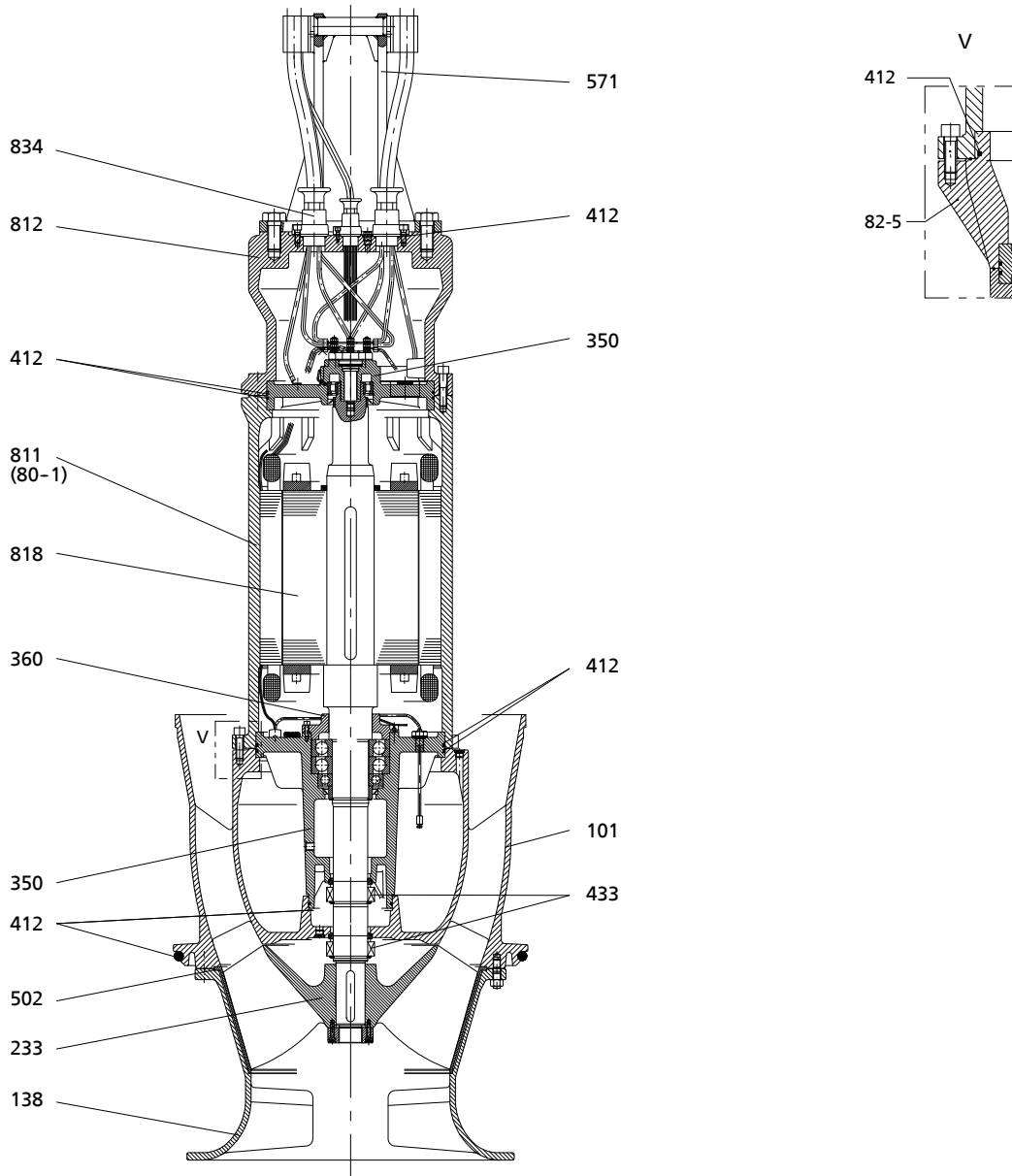
List of components

Part No.	Description
1	Discharge tube cover
2	Cover
3	Welding sleeve
4	Threaded bush with cable entry to DIN 22419 with strain relief and protection against kinking and twisting
5	Eyeplate for fastening the cable support (support rope)
6	Gasket, e.g. rubber with fabric reinforcement



**General assembly drawing**

Amacan S 650-364 / 365  
Amacan S 650-404 / 405  
Amacan S 800-505  
Motor version: UAG

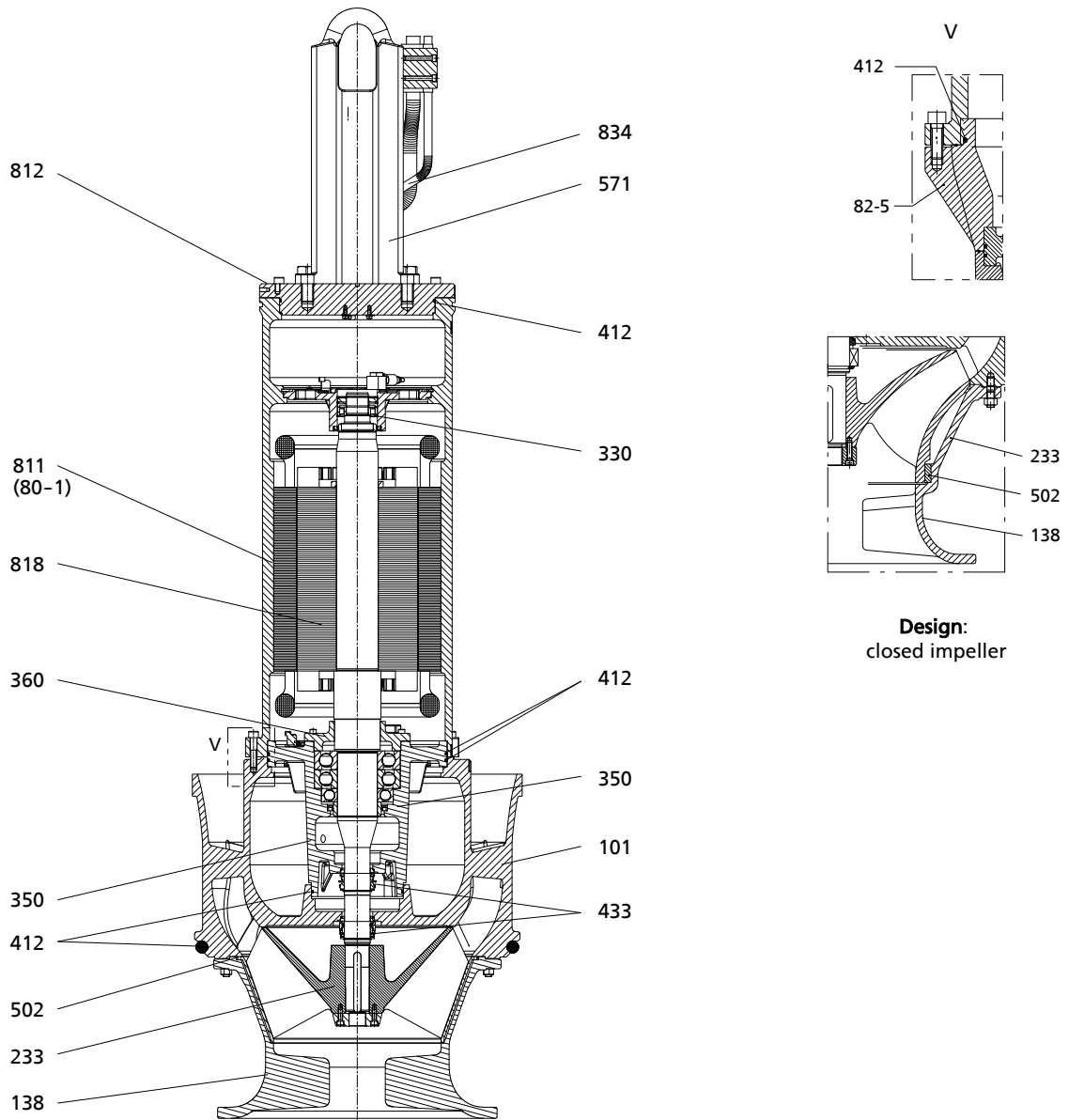


0W 383 890-00

List of components

Part No.	Description	Part No.	Description
101	Pump casing	502	Casing wear ring
138	Bellmouth	571	Bail
233	Open counter-clockwise impeller	811	Motor housing
	Closed counter-clockwise impeller	812	Motor housing cover
350	Bearing housing	82-5	Adapter
360	Bearing cover	818	Rotor
412	O-ring	834	Cable gland
433	Mechanical seal	-	-

Amacan S 800-535  
 Amacan S 850-535 / 850-550  
 Amacan S 900-600 / 900-615 / 900-620  
 Amacan S 1000-600 / 1000-615 / 1000-620 / 1000-655  
 Amacan S 1300-820  
 Motor version: UTG



UG 13169994

List of components

Part No.	Description	Part No.	Description
101	Pump casing	433	Mechanical seal
138	Bellmouth	502	Casing wear ring
233	Open counter-clockwise impeller	571	Bail
	Closed counter-clockwise impeller	811	Motor housing
330	Bearing bracket	812	Motor housing cover
350	Bearing housing	82-5	Adapter
360	Bearing cover	818	Rotor
412	O-ring	834	Cable gland





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15.05.2012

1589.5/06-EN