

Submersible Motor Pump

# Amarex KRT

50 Hz

## Type Series Booklet



## **Legal information/Copyright**

Type Series Booklet Amarex KRT

All rights reserved. The contents provided herein must neither be distributed, copied, reproduced, edited or processed for any other purpose, nor otherwise transmitted, published or made available to a third party without the manufacturer's express written consent.

Subject to technical modification without prior notice.

© KSB Aktiengesellschaft, Frankenthal 23.11.2015

## Contents

<b>Waste Water .....</b>	<b>4</b>
Submersible Motor Pump .....	4
Amarex KRT .....	4
Main applications .....	4
Fluids handled .....	4
Operating data .....	4
Designation .....	4
Design details .....	5
Materials .....	6
Product benefits .....	7
FluidFuture energy efficiency concept developed by KSB .....	7
Acceptance tests / warranties .....	7
Selection information .....	7
Programme overview / selection tables .....	8
Table of fluids handled .....	8
Overview of product features .....	10
Shaft seal .....	15
Technical data .....	16
Mass moments of inertia as a function of motor size .....	18
Selection charts .....	20
Amarex KRT, n = 2900 rpm, S impeller .....	20
Amarex KRT, n = 2900 rpm, S-max impeller .....	20
Amarex KRT, n = 2900/1450/960 rpm, F impeller .....	21
Amarex KRT, n = 2900/1450 rpm, F-max impeller .....	21
Amarex KRT, n = 1450/960 rpm, E impeller .....	22
Amarex KRT, n = 2900/1450/960 rpm, D impeller .....	22
Amarex KRT, n = 2900/1450 rpm, K impeller .....	23
Amarex KRT, n = 960 rpm, K impeller .....	23
Amarex KRT, n = 725 rpm, K impeller .....	24
Amarex KRT, n = 580/480 rpm, K impeller .....	24
Installation types .....	25
Scope of supply .....	25
General assembly drawings with list of components .....	26
Amarex KRT, 1.8 kW to 7 kW .....	26
Amarex KRT, 4 kW to 27 kW .....	28
Amarex KRT, 27 kW to 62 kW .....	29
Amarex KRT, 4.8 kW to 37.3 kW .....	30
Amarex KRT, 50 kW to 480 kW, without cooling jacket .....	31
Amarex KRT, 50 kW to 480 kW, with cooling jacket .....	32

## Waste Water

### Submersible Motor Pump

## Amarex KRT



#### Main applications

- Waste water management
- Service water supply systems
- Disposal
- Sewage treatment plants
- Sludge disposal

#### Fluids handled

- Waste water with faeces
- Activated sludge
- Digested sludge
- Raw sludge
- Gas-containing fluids
- Industrial waste water

#### Operating data

Operating properties

Characteristic		Value
Flow rate	Q [m <sup>3</sup> /h]	≤ 10000
	Q [l/s]	≤ 2778
Head	H [m]	≤ 120
Motor rating	P <sub>N</sub> [kW]	0,8 - 850
Fluid temperature	T [°C]	≤ 60

#### Designation

**Example: Amarex KRT K 150-500/155 4 UN G-D IE3**

Designation key

Code	Description	
Amarex KR	Type series	
T		
K	Impeller type	
	D	Open, diagonal single-channel impeller
	E	Closed single-channel impeller
	F/F-max	Free-flow impeller
	K	Closed multi-channel impeller
S/S-max	Impeller with cutter	
150	Nominal discharge nozzle diameter [mm]	
500	Maximum nominal impeller diameter [mm]	
155	Motor size	
4	Number of poles	
	2, 4, 6, 8, 10, 12	
UN	Motor version (⇒ Page 10)	
	U/UN/UE	Without explosion protection, for fluid temperatures of up to 40 °C
	W/WN/WE	Without explosion protection, for fluid temperatures of up to 60 °C
	X/XN/XE	Explosion protection to ATEX II 2G T3, for fluid temperatures of up to 40 °C
	Y/YN/YE	Explosion protection to ATEX II 2G T4, for fluid temperatures of up to 40 °C
ZE	Explosion protection to ATEX II 2G T3, for fluid temperatures of up to 60 °C	
G	Material variant (⇒ Page 6)	
	G	Standard variant, grey cast iron
	G1	Like G, impeller made of duplex stainless steel
	G2	Like G, impeller made of white cast iron
	GH	Like G, impeller and intermediate casing made of white cast iron
	H	Hydraulic components made of white cast iron
	C1	Wetted parts made of duplex stainless steel, mechanical seal with elastomer bellows, screws/bolts made of A4
C2	Wetted parts made of duplex stainless steel, mechanical seal with covered spring, screws/bolts made of 1.4462	
D	Installation type (⇒ Page 25)	
	S	Stationary wet installation with guide wire or guide rail arrangement (without cooling jacket)
	D	Stationary dry installation, vertical
	P	Transportable version for wet installation
	K	Stationary wet installation with guide wire or guide rail arrangement (with cooling jacket)
H	Stationary dry installation, horizontal	
IE3	Motor efficiency classification	
	1)	No efficiency classification
	IE2, IE3	Efficiency classification <sup>2)</sup>

1) Blank

2) IEC 60034-30 standard not binding for submersible motor pumps. Efficiencies calculated/determined according to the measurement method specified in IEC 60034-2. The marking is used for submersible motors that achieve efficiency levels similar to those of standardised motors acc. to the IEC 60034-30 standard.

**Design details**

**Design**

- Fully floodable submersible motor pump
- Not self-priming
- Close-coupled design

**Drive**

- Three-phase asynchronous squirrel-cage motor
- Motors integrated in explosion-proof pump sets are supplied in Ex d IIB type of protection.
- Enclosure: IP68 to EN 60529/IEC529


**Shaft seal**

- Two bi-directional mechanical seals in tandem arrangement, with liquid reservoir
- Pumps with reinforced bearings: with leakage chamber


**Impeller type**

- Various, application-based impeller types


D impeller:

	Open, diagonal single-vane impeller (impeller type D)	<b>Suitable for the following fluids:</b> fluids containing solid substances and long fibres
---	---	---

E impeller:

	Closed single-channel impeller (impeller type E)	<b>Suitable for the following fluids:</b> fluids containing solid substances and long fibres
--	--	---

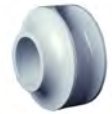
F impeller/F-max impeller:

	Free-flow impeller (impeller types F/F-max)	<b>Suitable for the following fluids:</b> fluids containing solid substances and long fibres as well as fluids with entrapped air or gas
---	---	---

D, E, F and F-max impellers are suitable for handling the following fluids:

- Activated sludge
- Digested sludge
- Heating sludge
- Mixed water
- Raw waste water
- Raw sludge
- Recirculated sludge

K impeller:


	Closed multi-channel impeller (impeller type K)	<b>Suitable for the following fluids:</b> contaminated, solids-laden, non-gaseous fluids not containing stringy material
---	---	---

K impellers are suitable for handling the following fluids:

- Activated sludge
- Landfill waste water
- Industrial waste water

- Industrial effluent
- Mechanically treated waste water
- Pre-screened waste water
- Stormwater

S impeller / S-max impeller:

	Impeller with cutter (impeller type S/S-max)	<b>Suitable for the following fluids:</b> fluids containing coarse substances and/or long fibres
---	--	---

S/S-max impellers are suitable for handling the following fluids:

- Domestic waste water
- Grey water
- Waste water with faeces

**Bearings**

Standard bearings:

- Grease-lubricated bearings sealed for life
- Maintenance-free

**Reinforced bearings:**

Drive end:

- Grease-lubricated bearings sealed for life
- Maintenance-free

Pump end:

- Grease-lubricated bearings sealed for life
- Re-lubricable

## Materials

Overview of available materials

Part No.	Description	Material variant						
		G	G1	G2	GH	H	C1	C2
<b>Pump set</b>								
101	Pump casing	EN-GJL-250			EN-GJN-HB555		1.4517	
135	Wear plate <sup>3)</sup>	EN-GJL-250			-		1.4517	
230	Impeller <sup>4)</sup>	EN-GJL-250	1.4517	EN-GJN-HB555			1.4517	
113/163	Intermediate casing / discharge cover	EN-GJL-250			EN-GJN-HB555		1.4517	
433.01	Mechanical seal (drive end)	Carbon / SiC						
433.02	Mechanical seal (pump end)	SiC/SiC						
210	Shaft	1.4021 / C45+N (⇒ Page 10)					1.4021 / 1.4462 / C45+N (⇒ Page 10)	
330	Bearing bracket	EN-GJL-250					1.4517	
410	Elastomer seals	Nitrile butadiene rubber (NBR)						Viton (FKM)
502	Casing wear ring <sup>5)</sup>	EN-GJL-250			VG 434			1.4517
66-2	Cooling jacket	1.4571/1.0038			-			1.4571
811	Motor housing	EN-GJL-250 / 1.0038					1.4517	
824	Power cable	(⇒ Page 14)						
900	Screws/bolts	A4 <sup>6)</sup>						1.4462
<b>Installation parts</b>								
72-1	Flanged bend	EN-GJL-250			EN-GJN-HB555		1.4517	
732	Claw	EN-GJL-250 and/or EN-GJS-400-15 / EN-GJS-500-7					1.4517	
894	Mounting bracket	1.4571 to DN 200; 1.0038 + Z from size 200-500						1.4571
572	Clamp	1.4571 to DN 200; EN-GJL-250 from size 200-500						1.4571
59-24	Guide wire	1.4401						1.4401 / TEFZEL
892	Foot plate / feet	1.0038 + Z					1.4571	1.4517 / 1.4462
885	Lifting chain / lifting rope	Lifting chain: 1.4404 Lifting rope: polyamide / polypropylene					Lifting rope: polypropylene	

### Description of materials

#### Grey cast iron EN-GJL-250 (lamellar graphite cast iron):

Lamellar graphite cast iron to EN 1561 is the most widely used cast material for handling municipal sewage, waste water and sludges as well as stormwater and surface water. It is suitable for neutral fluids which are only slightly aggressive and cause little wear. The pH value should be  $\geq 6.5$ , the sand content  $\leq 0.5$  g/l.

#### Duplex stainless steel (1.4517 or technically equivalent material)

This type of carbon steel is resistant to cavitation, has excellent strength values and is used for high circumferential speeds. An excellent resistance to pitting corrosion makes ferritic-austenitic stainless carbon steel a popular choice for pumping acidic waste water with a high chloride content as well as seawater and brackish water. Thanks to its good chemical resistance, e.g. also against waste water containing phosphorous and sulphuric acid, this material is used in a wide range of applications in the chemical industry and process engineering. Pumps made of duplex stainless steel have a very long service life, even when handling brines, chemical waste water (pH value 1 - 12), grey water and landfill leachate.

#### Wear-resistant white cast iron (EN-GJN-HB555 (XCR14) or technically equivalent material)

This is a wear-resistant white cast iron for highly abrasive fluids containing sand, ash or iron ore sinter. It has a Rockwell hardness of 61.5 to 68, which is higher than that of hardened chrome steel. Owing to its hardness, the chromium-molybdenum alloy cast iron features a notably higher wear resistance than EN-GJL-250 grey cast iron and other cast materials.

- 3) For D impeller  
 4) D impeller: EN-GJL-250, with hardened edges  
 5) For E and K impellers  
 6) Equivalent to 1.4571

**Product benefits**

- Absolutely water-tight resin-sealed cable entries prevent any water from entering the motor – even in the event of a damaged cable.
- Reliable operation ensured by moisture sensors signalling any ingress of moisture into the motor
- Reliable operation ensured by sensors monitoring the motor temperature and preventing overheating
- Non-clogging low-maintenance design with large free passages reduces clogging risk and, consequently, maintenance work.
- High-efficiency motors and variable hydraulic systems for optimum hydraulic and energy efficiency

For material variants C1 and C2:

- Long service life due to corrosion-resistant hydraulic components made of stainless steel

**FluidFuture energy efficiency concept developed by KSB**



<http://www.ksb.com/fluidfuture>

**Acceptance tests / warranties**

**Functional test**

- Every pump undergoes functional testing to KSB standard ZN 56525.
- Operating data is guaranteed to DIN EN ISO 9906 / A.

**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**

- The indicated heads and performance data apply to material variant G in combination with handled fluids with a density  $\rho = 1 \text{ kg/dm}^3$  and a kinematic viscosity  $\nu \leq 20 \text{ mm}^2/\text{s}$ .
- For hydraulic acceptance tests of pumps made of different materials the documented efficiencies must be reduced by 2 percent.

**Impeller types**

- S, F, D and E impellers can only be supplied with the documented impeller diameters. In the purchase order, the impeller diameter must always be added to the designation of the pump set.

- K impellers are trimmed to match the duty point. Purchase orders must always contain the QH data or impeller diameter. If the hydraulic selection program is used, the impeller diameter is automatically computed based on the QH data and added to the designation of the pump set.

**Power input**

- The pump input power must be matched to the density of the fluid handled:  
 $P_{2\text{requ.}} = \rho_{\text{fluid}} [\text{kg/dm}^3] \times P_{2\text{docu}}$
- The duty 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 and pump we recommend selecting a motor size which provides sufficient power reserves.

Recommended minimum reserves<sup>7)</sup>

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

- If larger reserves are stipulated by local regulations or are required to compensate for uncertain factors in system calculations, these larger power reserves must be provided.
- For installation types K and D (with cooling jacket) a power reserve of 1.5 kW must always be added for the cooling circuit.

**General information on operating submersible pumps in waste water**

**i** In the case of waste water, too low a flow velocity in the discharge line will lead to clogging and increased wear. A minimum flow velocity in the vertical riser of 2 m/s must be observed.

**i** In the case of waste water, too low a circumferential speed of the impeller will lead to clogging of the hydraulic system (frequency inverter operation). A minimum circumferential speed (measured at the outside diameter of the impeller) of 15 m/s must be observed.

<sup>7)</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.

**Programme overview / selection tables**

**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 expertise when selecting materials.

Selection aid for materials and hydraulic systems per fluid

Fluids handled <sup>8)</sup>	Recommended material	Recommended impeller type <sup>9)</sup>	Comments, further recommendations
<b>Grey water</b>	Grey cast iron	K, D, E, F	Free passage > any solids contained, possibly pre-screened
<b>River water</b>	Grey cast iron	K, D, E, F	Free passage > any solids contained, possibly pre-screened
<b>Stormwater</b>	Grey cast iron	K, D, E, F	Free passage > any solids contained, possibly pre-screened
<b>Waste water</b>			
▪ Untreated municipal waste water	Grey cast iron	F, S, D, E, K	ATV <sup>10)</sup> recommends a free passage of 100 mm; minimum free passage: 76 mm
▪ Waste water containing air or gas	Grey cast iron	F	Up to 8 %, contact KSB for handling fluids with high outgassing rates
<b>Sludges</b>			
▪ Raw sludge	Grey cast iron	F, D, E	Pumpable up to a dry substance content of: 13 % (D), 8 % (F), 6 % (E)
▪ Digested sludge	Grey cast iron	F, D, E	Pumpable up to a dry substance content of: 13 % (D), 8 % (F), 6 % (E)
▪ Activated sludge	Grey cast iron	D, K	Pumpable up to a dry substance content of: 13 % (D), 5 % (K)
<b>Industrial waste water containing:</b>			
▪ Paint suspensions	Grey cast iron	K	Solvent-free, observe the operator's instructions.
▪ Lacquer/paint/varnish suspensions	Grey cast iron	F, E	Solvent-free, contact KSB for silicone-free version
▪ Fibres/pulp	Grey cast iron	F, S, D	-
▪ Chips/swarf	Grey cast iron	K, F	G2 or GH variant, special mechanical seal; solids content < 5 g/l
▪ Abrasive substances <sup>11)</sup>	Grey cast iron	K, F	G2 or GH variant, special mechanical seal; solids content < 5 g/l
<b>Mildly acidic industrial waste water</b>	Grey cast iron	K, F	Ph value ≥ 6.5 material variant G1 and FPM (Viton) O-rings
<b>Non-corrosive waste water</b>			
▪ Ammonium water	Grey cast iron	K	-
▪ Ammonium hydroxide 5 % NH <sub>4</sub> OH	Grey cast iron	K	-
▪ Urea 25 % (NH <sub>2</sub> ) <sub>2</sub> -CO	Grey cast iron	K	-
▪ Potassium hydroxide 10 % KOH	Grey cast iron	K	-
▪ Calcium hydroxide 5 % Ca(OH) <sub>2</sub>	Grey cast iron	K	-
▪ Sodium hydroxide 5 % NaOH	Grey cast iron	K	-
▪ Sodium carbonate 30 % Na <sub>2</sub> CO <sub>3</sub>	Grey cast iron	K	-
<b>Non-corrosive waste water containing:</b>			
▪ Aliphatic hydrocarbons, e.g. oils, petrol, butane, methane	Grey cast iron	K	-
▪ Aromatic hydrocarbons, e.g. benzene, styrene	Grey cast iron	K	FPM (Viton) O-rings <sup>12)</sup>

8) For any fluids which are not listed in this table contact KSB.

9) The first impeller type listed should be given preference.

10) ATV = German regulatory body for waste water management

11) Severe hydroabrasive wear occurs if solids contents of approx. 0.5 g/l or higher are combined with circumferential speeds exceeding 20 m/s or low-flow conditions to the left of the duty point.

12) The hydrocarbons mentioned may occur in very high concentrations due to the difference in specific weight and their low solubility. If this is the case, contact KSB.



Fluids handled <sup>8)</sup>	Recommended material	Recommended impeller type <sup>9)</sup>	Comments, further recommendations
<ul style="list-style-type: none"> <li>▪ Chlorinated hydrocarbons (e.g. tetrachloroethylene, ethylene chloride, chloroform, methylene chloride)</li> </ul>	Grey cast iron	K	FPM (Viton) O-rings <sup>12)</sup>
<b>Highly abrasive industrial waste water causing wear (chemically neutral)<sup>13)</sup></b>			
<ul style="list-style-type: none"> <li>▪ Lime water</li> </ul>	Wear-resistant white cast iron	K	Sinter contents < 5 g/l: material variant GH Sinter contents > 5 g/l: material variant H
<ul style="list-style-type: none"> <li>▪ Lime milk containing quartz and pigment suspensions</li> </ul>	Wear-resistant white cast iron	K	Lime milk contents < 15 %: material variant GH Lime milk contents > 15 %: material variant H
<ul style="list-style-type: none"> <li>▪ Wash water containing solids</li> </ul>	Wear-resistant white cast iron	K, F	Material selection based on fluid analysis
<ul style="list-style-type: none"> <li>▪ Waste water containing dust or ash</li> </ul>	Wear-resistant white cast iron	K	Material selection based on fluid analysis
<b>Water/sand mixture</b>	Wear-resistant white cast iron	K, F	Solids contents < 5 g/l: material variant GH Solids contents > 5 g/l: material variant H
<b>Seawater</b>	Duplex stainless steel	K, F	Material variant C2 up to a fluid temperature of 25 °C max. <sup>14)</sup>
<b>Brackish water</b>	Duplex stainless steel	K, F	C1 or G1 variant (with 250 µm two-component epoxy resin) - depending on salt content
<b>Corrosive industrial waste water</b>	Duplex stainless steel	K, F	C1 or C2 variant, depending on fluid analysis

8) For any fluids which are not listed in this table contact KSB.

9) The first impeller type listed should be given preference.

13) The required material variants highly depend on the operating hours, rotational speed and flow velocity.

14) Higher fluid temperatures on request.

## Overview of product features

Material variants G, G1, G2, GH

Feature	Motors							
2 poles	3 2E ... 7 2E	-	5 2 ... 25 2	37 2 ... 55 2	-	-	-	-
4 poles	2 4E ... 5 4E	4 4.KG 5 4.KG 7 4.KG	4 4 ... 29 4	35 4 ... 65 4	35 4.N ... 80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N	-
6 poles	-	4 6.KG 6 6.KG	4 6 ... 19 6	32 6 ... 50 6	32 6.N ... 60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N	530 6.N ... 850 6.N
8 poles	-	-	-	26 8 ... 35 8	26 8.N ... 50 8.N	75 8.N ... 130 8.N	150 8.N ... 400 8.N	460 8.N ... 760 8.N
10 poles	-	-	-	-	-	40 10.N ... 80 10.N	110 10.N ... 350 10.N	390 10.N ... 660 10.N
12 poles	-	-	-	-	-	-	105 12.N ... 300 12.N	340 12.N ... 560 12.N
<b>Shaft material</b>								
Shaft	1.4021	1.4021	1.4021	1.4021	C45+N	1.4021	1.4021	1.4021
Shaft protecting sleeve	-	-	-	-	1.4021	1.4021	1.4021	1.4021
<b>Bearings</b>	Grease-packed rolling element bearings sealed for life			Grease-packed rolling element bearings sealed for life <sup>15)</sup>	Pump end: regreasable rolling element bearings; drive end: grease-packed rolling element bearings sealed for life			
<b>Explosion protection</b>								
Version U	Not explosion-proof							
Version X	⊕ ATEX II 2G T3							
Version Y	⊕ ATEX II 2G T4							
Version W	Not explosion-proof							
Version Z	⊕ ATEX II 2G T3							
<b>Motor</b>								
Starting method	DOL or star-delta (690 V only DOL)							DOL
Voltage	400 V <sup>16)</sup>							400 V <sup>17)</sup>
Cooling	Cooled by surrounding fluid	<sup>18)</sup>	Cooled by surrounding fluid	Cooled by surrounding fluid or via cooling jacket				
Immersion depth	30 m max.							
<b>Power cable</b>								
Type	See table "Overview of power cables"							
Length	10 m <sup>19)</sup>							
Cable entry	Totally watertight							
<b>Sealing elements</b>								
Elastomers	Nitrile butadiene rubber NBR <sup>20)</sup>							
Shaft seal	Bellows-type mechanical seal <sup>21)</sup>							Mechanical seal with covered spring
<b>Monitoring equipment</b>								

- 15) For D impeller: pump end: regreasable rolling element bearings; drive end: grease-packed rolling element bearings sealed for life
- 16) Optional: 380 V, 415 V, 500 V, 690 V
- 17) Optional: 690 V
- 18) Air cooling (convection)
- 19) Optional: up to 50 m
- 20) Optional: Viton = fluorocarbon rubber FPM
- 21) Optional: mechanical seal with covered spring

Feature	Motors								
2 poles	3 2E ... 7 2E	-	5 2 ... 25 2	37 2 ... 55 2	-	-	-	-	
4 poles	2 4E ... 5 4E	4 4.KG 5 4.KG 7 4.KG	4 4 ... 29 4	35 4 ... 65 4	35 4.N ... 80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N	-	
6 poles	-	4 6.KG 6 6.KG	4 6 ... 19 6	32 6 ... 50 6	32 6.N ... 60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N	530 6.N ... 850 6.N	
8 poles	-	-	-	26 8 ... 35 8	26 8.N ... 50 8.N	75 8.N ... 130 8.N	150 8.N ... 400 8.N	460 8.N ... 760 8.N	
10 poles	-	-	-	-	-	40 10.N ... 80 10.N	110 10.N ... 350 10.N	390 10.N ... 660 10.N	
12 poles	-	-	-	-	-	-	105 12.N ... 300 12.N	340 12.N ... 560 12.N	
Winding temperature, versions U, W; installation types S, P	Temperature switch (bimetal) in the winding	PTC	Temperature switch (bimetal) in the winding						
Winding temperature, versions X, Y; installation types S, P	Temperature switch (bimetal) in the winding, plus PTC for explosion protection	PTC	Temperature switch (bimetal) in the winding, plus PTC for explosion protection					-	
Winding temperature; installation types D, H, K	PTC	PTC	-		PTC				
Coolant temperature; installation types D, K	-	-	-	-	PTC				
Bearing temperature	-	-	-	..22)	Pt100 on pump end <sup>22)</sup>			Pump-end and drive-end Pt100	
Leakage in the motor space	Leakage sensor in the motor space								
Mechanical seal leakage	-	-	-	23)	Float switch in leakage area				
Vibration sensor	-	-	-	-	..24)				
<b>Coating</b>	Environmentally friendly KSB standard coating, colour RAL 5002 <sup>25)</sup>								
<b>Max. fluid temperature</b>									
Version U	40 °C								
Version X, Y	40 °C							-	
Version W	60 °C							-	
Version Z	60 °C								
<b>Tests/inspections</b>									
Hydraulic system	KSB standard (ZN 56525) <sup>26)</sup>								
General	KSB standard (ZN 56525)								
<b>Installation type</b>									
Stationary, with guide wire	Installation depth: 4.5 m <sup>27)</sup>								
Transportable	Up to size 300-401, except sizes 200-500/501, 200-631, 250-630							-	

22) Optional: drive-end Pt100

23) Float switch in leakage area for D impeller

24) Optional: internal vibration sensor

25) Optional: 250 µm two-component epoxy coating

26) Optional: impeller types S, D, E, F to ISO 9906/A, K impellers to ISO 9906//1/2/A

27) Optional: up to 30 m, from size 200-500 up to 15 m

Feature	Motors							
2 poles	3 2E ... 7 2E	-	5 2 ... 25 2	37 2 ... 55 2	-	-	-	-
4 poles	2 4E ... 5 4E	4 4.KG 5 4.KG 7 4.KG	4 4 ... 29 4	35 4 ... 65 4	35 4.N ... 80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N	-
6 poles	-	4 6.KG 6 6.KG	4 6 ... 19 6	32 6 ... 50 6	32 6.N ... 60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N	530 6.N ... 850 6.N
8 poles	-	-	-	26 8 ... 35 8	26 8.N ... 50 8.N	75 8.N ... 130 8.N	150 8.N ... 400 8.N	460 8.N ... 760 8.N
10 poles	-	-	-	-	-	40 10.N ... 80 10.N	110 10.N ... 350 10.N	390 10.N ... 660 10.N
12 poles	-	-	-	-	-	-	105 12.N ... 300 12.N	340 12.N ... 560 12.N
Stationary, with guide rail(s)	Installation depth: 4.5 m <sup>28)</sup>							
Stationary, dry- installed	-	<sup>29)</sup>	-	With cooling jacket				

<sup>28)</sup> Optional: up to 30 m

<sup>29)</sup> With convection cooling

Material variants H, C1, C2

Feature	Motors						
2 poles	3 2E ... 7 2E	01 2 ... 03 2	5 2 ... 25 2	-	-	-	-
4 poles	2 4E ... 5 4E	01 4 ... 03 4	4 4 ... 29 4	35 4 ... 65 4	80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N
6 poles	-	-	4 6 ... 19 6	32 6 ... 50 6	60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N
8 poles	-	-	-	26 8 ... 35 8	50 8.N	75 8.N ... 130 8.N	150 8.N ... 480 8.N
10 poles	-	-	-	-	-	-	110 10.N ... 350 10.N
12 poles	-	-	-	-	-	-	105 12.N ... 300 12.N
Shaft material for material variant H							
Shaft	1.4021	1.4021	1.4021	1.4021	C45+N	1.4021	1.4021
Shaft protecting sleeve	-	-	-	-	1.4021	1.4021	1.4021
Shaft material for material variants C1, C2							
Shaft	1.4462 / C45+N	1.4462 / C45+N	1.4462 / C45+N	1.4462 / C45+N	1.4021	1.4021	1.4021
Shaft protecting sleeve	-	-	-	-	1.4462	1.4462	1.4462
Suction flange	30)						
Bearings	Grease-packed rolling element bearings sealed for life				Pump end: regreasable rolling element bearings; drive end: grease-packed rolling element bearings sealed for life		
<b>Explosion protection</b>							
Version U	Not explosion-proof						
Version X	⊕ ATEX II 2G T3	-	⊕ ATEX II 2G T3				
Version Y	⊕ ATEX II 2G T4						-
Version W	Not explosion-proof						
Version Z	⊕ ATEX II 2G T3						
<b>Motor</b>							
Starting method	DOL or star-delta (690 V only DOL)	DOL	DOL or star-delta (690 V only DOL)				
Voltage	400 V <sup>31)</sup>	400 V <sup>32)</sup>	400 V <sup>31)</sup>				
Cooling	Cooled by surrounding fluid						
Immersion depth	30 m max.						
<b>Power cable</b>							
Type	See table "Overview of power cables"						
Length	10 m <sup>33)</sup>						
Cable entry	Totally watertight						
<b>Sealing elements</b>							
Elastomers	Nitrile butadiene rubber NBR <sup>34)</sup> , C2: always fluorocarbon rubber FPM						
Shaft seal	C1: bellows-type mechanical seal <sup>35)</sup> H, C2: mechanical seal with covered spring						Mechanical seal with covered spring
<b>Monitoring equipment</b>							
Winding temperature, versions U, W	Temperature switch (bimetal) in the winding						

- 30) Optional: drilled to DN 2501  
 31) Optional: 500 V, 690 V  
 32) Optional: 230 V, 500 V, 690 V  
 33) Optional: up to 50 m  
 34) Optional: Viton = fluorocarbon rubber FPM  
 35) Optional: mechanical seal with covered spring

Feature	Motors						
2 poles	3 2E ... 7 2E	01 2 ... 03 2	5 2 ... 25 2	-	-	-	-
4 poles	2 4E ... 5 4E	01 4 ... 03 4	4 4 ... 29 4	35 4 ... 65 4	80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N
6 poles	-	-	4 6 ... 19 6	32 6 ... 50 6	60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N
8 poles	-	-	-	26 8 ... 35 8	50 8.N	75 8.N ... 130 8.N	150 8.N ... 480 8.N
10 poles	-	-	-	-	-	-	110 10.N ... 350 10.N
12 poles	-	-	-	-	-	-	105 12.N ... 300 12.N
Winding temperature, versions X, Y	Temperature switch (bimetal) in the winding, plus PTC for explosion protection	Temperature switch (bimetal) in the winding	Temperature switch (bimetal) in the winding, plus PTC for explosion protection				
Bearing temperature	-	-	-	-	Pump-end Pt100		
Motor leakage	Leakage sensor in the motor space						
Coating	H: environmentally friendly KSB standard coating, colour RAL 5002 <sup>36)</sup> C1, C2: without coating						
<b>Max. fluid temperature</b>							
Version U	40 °C						
Version X, Y	40 °C						
Version W	60 °C						
Version Z	60 °C						
<b>Tests/inspections</b>							
Hydraulic system	KSB standard (ZN 56525) <sup>37)</sup>						
General	KSB standard (ZN 56525)						
<b>Installation type</b>							
Stationary, with guide wire	Installation depth: 4.5 m <sup>38)</sup>						
Transportable	Installation depth: 4.5 m						

Overview of power cables

Feature	S1BN8-F rubber-sheathed cable	S07RC4N8-F rubber-sheathed cable	TEHSITE Tefzel cable
Design	Standard	Optional	Optional
Rated voltage	1000 V	750 V	750 V
EMC screening	-	✓	-
Insulation material	EPR <sup>39)</sup>	EPR <sup>39)</sup>	ETFE <sup>40)</sup>
Max. continuous temperature of insulation	90 °C	90 °C	135 °C
For permanent immersion in waste water to DIN VDE 0282-16/HD22.16	✓	✓	✓

<sup>36)</sup> Optional: 250 µm two-component epoxy coating

<sup>37)</sup> Optional: impeller types S, F to ISO 9906/A, K impellers to ISO 9906//1/2/A

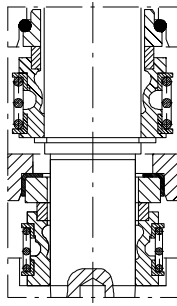
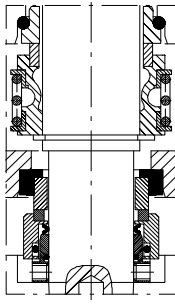
<sup>38)</sup> Optional: up to 30 m

<sup>39)</sup> EPR = ethylene propylene rubber

<sup>40)</sup> ETFE = ethylene tetrafluoroethylene

### Shaft seal

Available shaft seal types per bearing bracket

Standard design	Standard variant <sup>41)</sup>
Mechanical seal with elastomer bellows (NBR, optional: Viton) <sup>42)</sup>	Product-side mechanical seal with covered spring <sup>43)44)</sup>
	

41) A surcharge and longer delivery times apply to standard variants.

42) For all types of waste water

43) For very abrasive fluids or fluids containing metallic particles (e.g. shavings from drilling)

44) Standard on material variants H and C2 (optionally available for material variants G, G1, G2, GH and C1)

**Technical data**

Grey cast iron (G, G1, G2, GH)

Size	Material variant	Impeller				Dry installation (installation types D, H)		Wet installation (installation types S, P, K)		Mass moment of inertia J <sup>45)</sup>
		Impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Maximum operating pressure <sup>4)</sup> 6)	Maximum test pressure	Maximum operating pressure <sup>4)</sup> 6)	Maximum test pressure	
		Quantity	[mm]	[mm]	[mm]	[bar]	[bar]	[bar]	[bar]	
S 40-250	G	4	7	235	175	-	-	10	13	0,03
S 50-216	G	4	4	210	175	-	-	9	12	0,018
F 40-250	G, G1, G2, GH	-	25	210	150	-	-	7,6	9,8	0,03
F 50-215	G, G1, G2, GH	-	42	210	130	-	-	8	10,5	0,019
F 50-216	G, G1, G2, GH	-	25	210	120	-	-	6,5	8,5	0,025
F 65-215	G, G1, G2, GH	-	65	210	120	-	-	5,5	7,5	0,025
F 80-216	G, G1, G2, GH	-	76	210	120	-	-	5,0	6,5	0,025
F 80-250	G, G1, G2, GH	-	76	265	150	6	9	6,3	8,2	0,14
F 80-251	G	-	50	230	145	-	-	6,2	8,1	0,057
F100-215	G, G1, G2, GH	-	100	210	120	-	-	4,0	5,5	0,025
F 100-240	G, G1, G2, GH	-	100	190	170	-	-	3,6	4,7	0,13
F 100-250	G, G1, G2, GH	-	100	265	200	6	9	3,4	4,5	0,056
F 100-315	G, G1, G2, GH	-	100	310	270	-	-	3,5	4,6	0,056
F 100-401	G, G1, G2, GH	-	100	390	325	10	15	7,6	9,8	0,248
F 150-315	G, G1, G2, GH	-	120	290	250	6	9	1,8	2,3	0,144
F 150-401	G, G1, G2, GH	-	135	390	270	10	15	4,2	5,5	0,248
E 80-250	G	1	76	270	225	6	9	2,8	3,7	0,17
E 100-250	G	1	90	245	202	6	9	2,2	2,9	0,16
E 100-315	G	1	100	330	262	-	-	4,3	5,6	0,26
E 100-401	G	1	80	412	389	-	-	5,1	6,6	0,6
E 150-315	G	1	110	320	254	6	9	3,1	4,1	0,31
E 150-401	G	1	115	407	348	10	15	6,3	8,2	0,68
E 200-401	G	1	120	400	319	10	15	5,7	7,4	0,86
D 80-315	G, G1	1	65	260	230	10	15	10,4	13,6	0,124
D 100-251	G, G1	1	76	265	234	6	9	3,5	4,6	0,115
D 100-315	G, G1	1	75	222	196	-	-	6,8	8,8	0,065
D 100-316	G, G1	1	85	306	270	-	-	3,6	4,7	0,233
D 150-251	G, G1	1	100	254	225	6	9	1,9	2,4	0,15
D 150-315	G, G1	1	100	317	280	6	9	3,3	4,3	0,289
D 150-400	G, G1	1	100	363	326	-	-	5,2	6,8	0,573
D 150-401	G, G1	1	110	384	370	-	-	5,3	6,9	0,999
D 200-315	G, G1	1	100	315	280	6	9	2,7	3,4	0,261
D 200-400	G, G1	1	100	375	355	-	-	4,2	5,5	0,825
D 250-400	G, G1	1	120	370	320	-	-	3,5	4,6	0,653
D 300-400	G, G1	1	150	408	375	-	-	1,7	2,2	0,925
K 40-250	G, G1, GH	3	15	260	150	-	-	10	13	0,047
K 80-251	G, G1, GH	2	33	220	140	-	-	6,6	8,6	0,15
K 100-250	G, G1, GH	2	71	256	210	6	9	2,5	3,2	0,07
K 100-315	G, G1, GH	2	80	312	254	-	-	4	5,2	0,15
K 100-400	G, G1	2	76	408	355	10	15	9,2	12	1,1
K 100-401	G, G1, GH	2	50	404	310	10	15	9,3	12,1	0,504
K 150-315	G, G1, GH	2	76	310	235	6	9	3,5	4,6	0,18
K 150-400	G	3	76	404	300	10	15	8,4	11	0,83
K 150-401	G, G1, GH	2	76	404	310	10	15	8,9	11,6	0,916
K 151-401	G, G1, GH	3	80	408	300	10	15	8,6	11,2	0,52
K 150-500	G, G1, GH	3	60	460	420	10	15	8,6	11,2	0,71
K 200-315	G, G1, GH	3	70	295	245	6	9	1,9	2,4	0,22
K 200-316	G, G1, GH	2	100	305	265	6	9	1,7	2,2	0,22
K 200-330	G, G1, GH	3	70	326	287	10	15	5,2	6,8	0,35
K 200-400	G	3	80	408	300	10	15	6,5	8,5	0,52
K 200-401	G, G1, GH	3	80	408	300	10	15	7,1	9,2	0,52

45) Data applies to maximum impeller diameter and impeller with water fill

46) Permissible operating pressure = inlet pressure + pressure at Q = 0



Size	Material variant	Impeller				Dry installation (installation types D, H)		Wet installation (installation types S, P, K)		Mass moment of inertia J <sup>45)</sup>
		Impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Maximum operating pressure <sup>4)</sup> 6)	Maximum test pressure	Maximum operating pressure <sup>4)</sup> 6)	Maximum test pressure	
		Quantity	[mm]	[mm]	[mm]	[bar]	[bar]	[bar]	[bar]	
K 200-500	G, G1	3	76	504	400	10	15	9,7	12,6	0,83
K 200-501	G, G1	2	105	502	450	10	15	6,4	8,3	1,68
K 200-631	G, G1	2	105	622	540	10	15	9,8	12,8	4,41
K 250-400	G, G1, GH	3	85	370	300	10	15	6,6	8,5	0,5
K 250-401	G, G1, GH	2	105	400	310	10	15	6	7,8	0,55
K 250-630	G, G1	4	90	630	500	10	15	10,4	13,5	2,76
K 250-900	G, G1	3	110	840	717	13	19,5	11,7	15,2	19,03
K 300-400	G, G1, GH	3	100	408	332	10	15	3,5	4,6	0,75
K 300-401	G, G1, GH	2	135	408	367	10	15	2,3	2,9	0,75
K 300-420	G, G1	3	100	408	370	6	9	5,6	7,3	0,95
K 300-500	G, G1	3	90	504	430	10	15	6,2	8	1,48
K 300-503	G, G1	5	50	480	405	10	15	8,9	11,6	2,5
K 350-420	G, G1	3	100	450	387	6	9	3,5	4,6	1,22
K 350-500	G, G1	3	110	508	426	6	9	5,7	7,4	3,12
K 350-501	G	2	170	509	495	6	9	2,8	3,7	3
K 350-630	G, G1	3	135	630	500	10	15	7,3	9,4	5,22
K 350-636	G, G1	5	75	595	510	10	15	6,4	8,3	5,42
K 350-710	G, G1	3	110	730	580	10	15	9,4	12,2	10,6
K 400-500	G, G1	3	130	508	443	6	9	3,4	4,5	3,37
K 400-630	G, G1	3	132	620	546	6	9	6,2	8	8,21
K 400-710	G, G1	3	165	739	587	10	15	8,8	11,5	16
K 400-900	G, G1	3	130	830	659	13	19,5	11,3	14,7	17,79
K 500-630	G, G1	3	133	582	520	4	6	4,2	5,5	6,11
K 500-710	G, G1	3	150	700	586	8	12	6,9	9	16
K 500-900	G, G1	3	202	908	721	9	13,5	8	10,3	45
K 600-520	G, G1	3	145	532	457	4	6	2,4	3,2	7,02
K 600-710	G, G1	3	165	736	685	4	6	4,2	5,5	16,96
K 700-900	G, G1	3	190	850	738	3	4,5	3,3	4,3	40
K 700-901	G, G1	3	180	908	760	9	13,5	7,2	9,3	50

**Industrial materials (H, C1, C2)**

Size	Material variant	Impeller				Wet installation (installation types S, P)		Mass moment of inertia J <sup>45)</sup>
		Impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Maximum operating pressure <sup>46)</sup>	Maximum test pressure	
		Quantity	[mm]	[mm]	[mm]	[bar]	[bar]	
F 40-250	H, C1, C2	-	25	210	150	7,6	9,8	0,03
F 50-215	H, C1, C2	-	42	210	130	8,0	10,5	0,019
F 50-216	H, C1, C2	-	25	210	120	6,5	8,5	0,025
F 65-215	H, C1, C2	-	65	210	120	5,5	7,5	0,025
F 80-216	H, C1, C2	-	76	210	120	5,0	6,5	0,025
F 80-250	H, C1, C2	-	76	265	150	6,3	8,2	0,14
F 100-240	H, C1, C2	-	100	190	170	3,6	4,7	0,13
F 100-250	H, C1, C2	-	100	265	200	3,4	4,5	0,056
F 100-315	H, C1, C2	-	100	310	270	3,5	4,6	0,056
F 100-401	H, C1, C2	-	100	390	325	7,6	9,8	0,248
F 150-315	H, C1, C2	-	120	290	250	1,8	2,3	0,144
F 150-401	H, C1, C2	-	135	390	270	4,2	5,5	0,248
K 40-250	H, C1, C2	3	15	260	150	10	13	0,047
K 80-251	H, C1, C2	2	33	220	140	6,6	8,6	0,15
K 100-250	H, C1, C2	2	71	256	210	2,5	3,2	0,07

<sup>45)</sup> Data applies to maximum impeller diameter and impeller with water fill

<sup>46)</sup> Permissible operating pressure = inlet pressure + pressure at Q = 0

Size	Material variant	Impeller				Wet installation (installation types S, P)		Mass moment of inertia J <sup>45)</sup>
		Impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Maximum operating pressure <sup>46)</sup>	Maximum test pressure	
		Quantity	[mm]	[mm]	[mm]	[bar]	[bar]	
K 100-315	H, C1, C2	2	80	312	254	4	5,2	0,15
K 100-400	C1, C2	2	76	408	355	9,2	12	1,1
K 100-401	H, C1, C2	2	50	404	310	9,3	12,1	0,504
K 150-315	H, C1, C2	2	76	310	235	3,5	4,6	0,18
K 150-401	H, C1, C2	2	76	404	310	8,9	11,6	0,916
K 151-401	H, C1, C2	3	80	404	300	8,6	11,2	0,52
K 150-500	C1, C2	3	60	460	420	8,6	11,2	0,71
K 200-315	H, C1, C2	3	70	295	245	1,9	2,4	0,22
K 200-316	H, C1, C2	2	100	305	265	1,7	2,2	0,22
K 200-330	H, C1, C2	3	70	326	287	5,2	6,8	0,35
K 200-401	H, C1, C2	3	80	404	330	7,1	9,2	0,52
K 200-500	C1, C2	3	76	504	400	9,7	12,6	0,83
K 200-501	C1, C2	2	105	502	450	6,4	8,3	1,68
K 200-631	C1, C2	2	105	622	540	9,8	12,8	4,41
K 250-400	H, C1, C2	3	85	370	300	6,6	8,5	0,5
K 250-401	H, C1, C2	2	105	400	310	6	7,8	0,55
K 250-630	C1, C2	3	90	630	500	10,4	13,5	2,76
K 300-400	H, C1, C2	3	100	408	332	3,5	4,6	0,75
K 300-401	H, C1, C2	2	135	408	367	2,3	2,9	0,75
K 300-420	C1, C2	3	100	408	370	5,6	7,3	0,95
K 300-500	C1, C2	3	90	504	430	6,2	8	1,48
K 300-503	C1, C2	5	50	480	405	8,9	11,6	2,5
K 350-420	C1, C2	3	100	450	387	3,5	4,6	1,22
K 350-500	C1, C2	3	110	508	426	5,7	7,4	3,12
K 350-630	C1, C2	3	135	630	500	7,3	9,4	5,22
K 350-636	C1, C2	5	75	595	510	6,4	8,3	5,42
K 350-710	C1, C2	3	110	730	580	9,4	12,2	10,6
K 400-500	C1, C2	3	130	508	443	3,4	4,5	3,37
K 400-630	C1, C2	3	132	620	546	6,2	8	8,21
K 500-630	C1, C2	3	133	582	520	4,2	5,5	6,11
K 600-520	C1, C2	3	145	532	457	2,4	3,2	7,02
K 600-710	C1, C2	3	165	736	685	4,2	5,5	16,96
K 700-900	C1, C2	3	190	850	738	3,3	4,3	40
K 700-901	C1, C2	3	180	908	760	7,2	9,3	50

**Mass moments of inertia as a function of motor size**

2 poles

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
3 2	0,002
4 2	0,002
5 2	0,01
6 2	0,01
7 2	0,01
8 2	0,01
12 2	0,02
17 2	0,03
22 2 / 25 2	0,04
23 2	0,05
37 2	0,13
55 2	0,14

4 poles

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
2 4	0,002
3 4	0,002
4 4	0,01

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
5 4	0,01
7 4	0,02
11 4	0,04
16 4	0,05
4 4.KG / 5 4.KG	0,05
7 4.KG	0,06
19 4 / 21 4	0,06
23 4	0,07
29 4	0,11
35 4	0,22
50 4	0,25
65 4	0,30
35 4.N	0,25
50 4.N	0,28
65 4.N	0,33
80 4.N	0,46
95 4.N	0,55
110 4.N	0,63
130 4.N	1,26
155 4.N	1,43
175 4.N	1,57

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
200 4.N	3,78
250 4.N	4,13
300 4.N	4,82
350 4.N	5,51

6 poles

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
4 6	0,02
6 6	0,02
9 6	0,05
12 6	0,07
4 6.KG	0,07
6 6.KG	0,09
15 6	0,09
19 6	0,09
20 6	0,10
26 6	0,13
32 6	0,34
40 6	0,42
50 6	0,51
32 6.N	0,37
40 6.N	0,45
50 6.N	0,54
60 6.N	0,66
80 6.N	0,80
100 6.N	0,94
120 6.N	1,89
140 6.N	2,25
165 6.N	2,55
190 6.N	7,30
225 6.N	8,57
260 6.N	9,84
320 6.N	14,3
360 6.N	15,9
400 6.N	17,6
440 6.N	19,2
480 6.N	20,7
530 6.N	31,5
580 6.N	36,3
630 6.N	41,1
690 6.N	45,8
770 6.N	50,6
850 6.N	55,3

8 poles

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
10 8	0,09
17 8	0,12
21 8	0,18
26 8	0,37
35 8	0,47
26 8.N	0,40
35 8.N	0,50
50 8.N	0,66
75 8.N	0,94
90 8.N	1,98
110 8.N	2,25
130 8.N	2,55
150 8.N	7,30
185 8.N	8,57
220 8.N	9,84
260 8.N	13,3

Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
300 8.N	15,9
350 8.N	19,1
400 8.N	20,7
460 8.N	31,5
530 8.N	36,3
580 8.N	41,1
630 8.N	45,8
690 8.N	50,6
760 8.N	55,3

10 poles

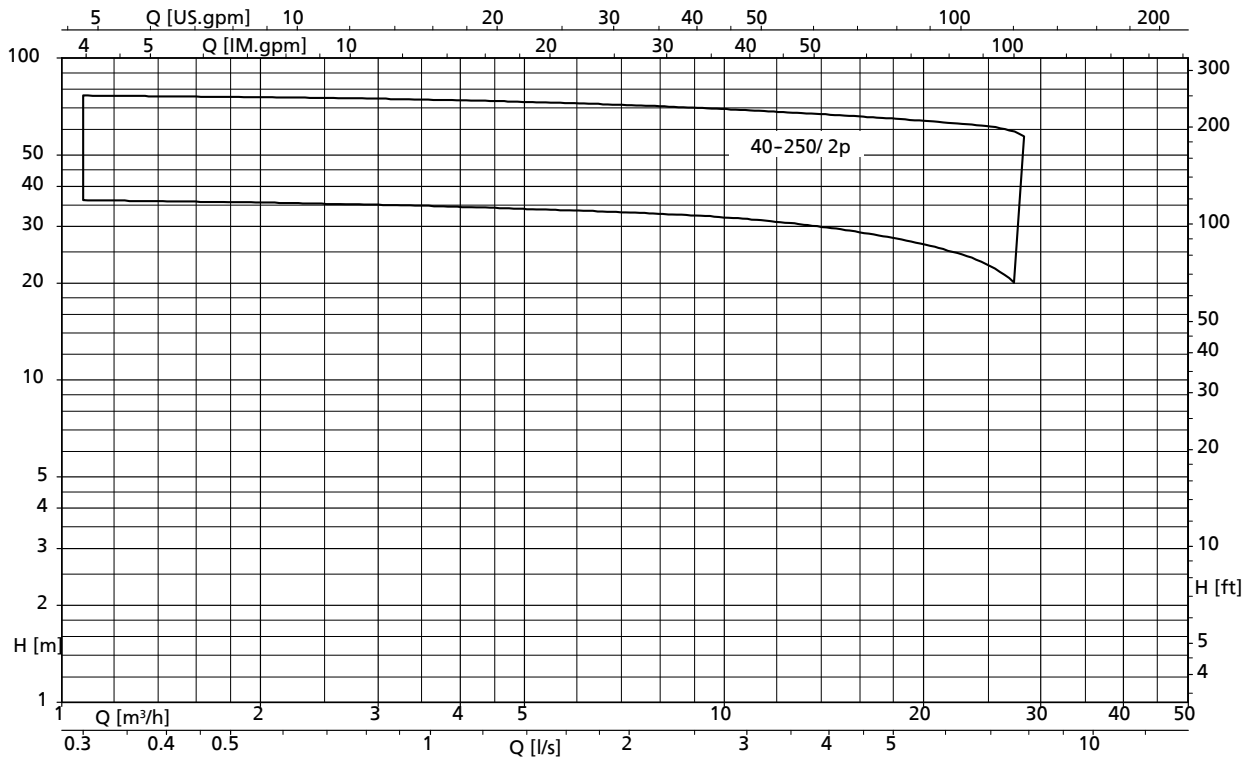
Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
40 10.N	1,75
60 10.N	1,93
75 10.N	2,20
90 10.N	2,49
110 10.N	7,96
150 10.N	9,66
190 10.N	11,8
230 10.N	17,7
270 10.N	20,5
310 10.N	23,2
350 10.N	25,8
390 10.N	36,1
430 10.N	41,6
475 10.N	47,2
535 10.N	52,7
600 10.N	58,2
660 10.N	63,7

12 poles

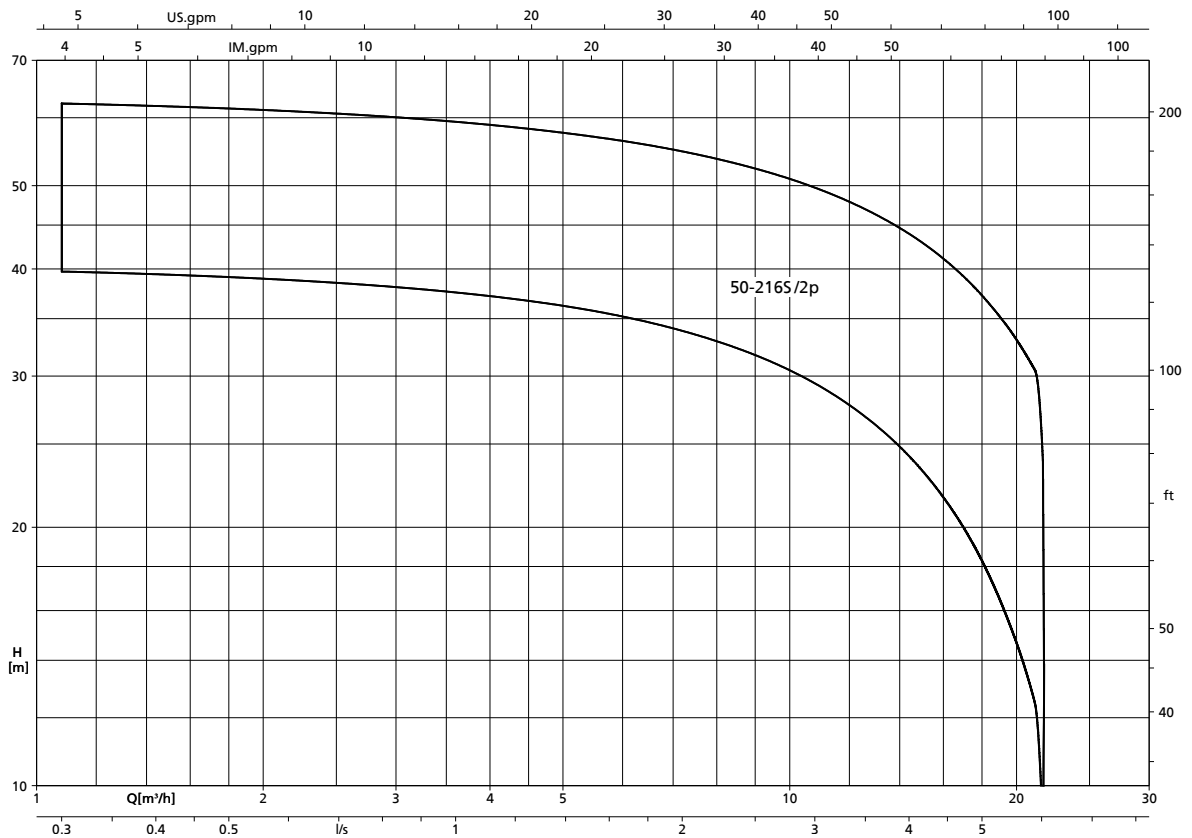
Motor	Mass moment of inertia J
	[kgm <sup>2</sup> ]
105 12.N	7,96
135 12.N	9,66
165 12.N	11,8
195 12.N	17,7
230 12.N	20,5
265 12.N	23,2
290 12.N	36,1
300 12.N	25,8
340 12.N	41,6
380 12.N	47,2
450 12.N	52,7
490 12.N	58,2
560 12.N	63,7

Selection charts

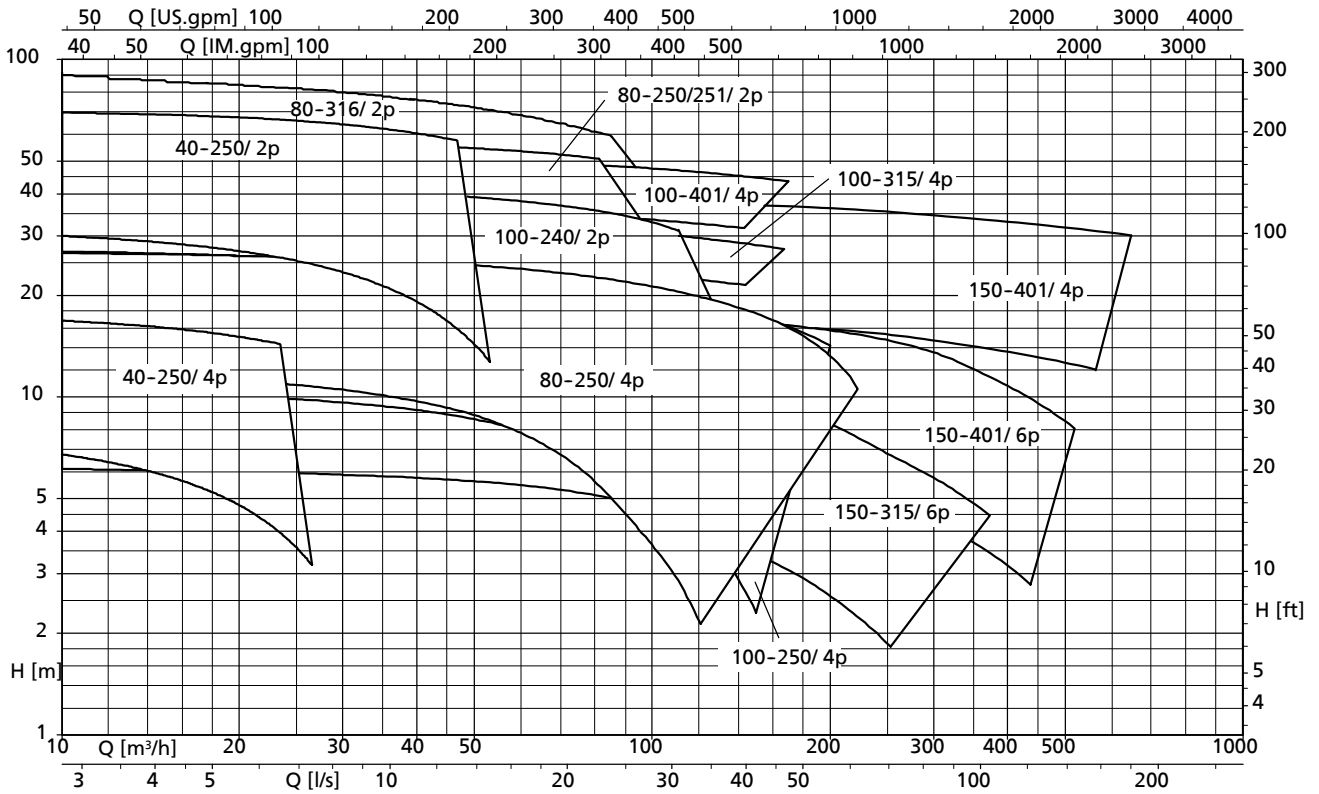
Amarex KRT, n = 2900 rpm, S impeller



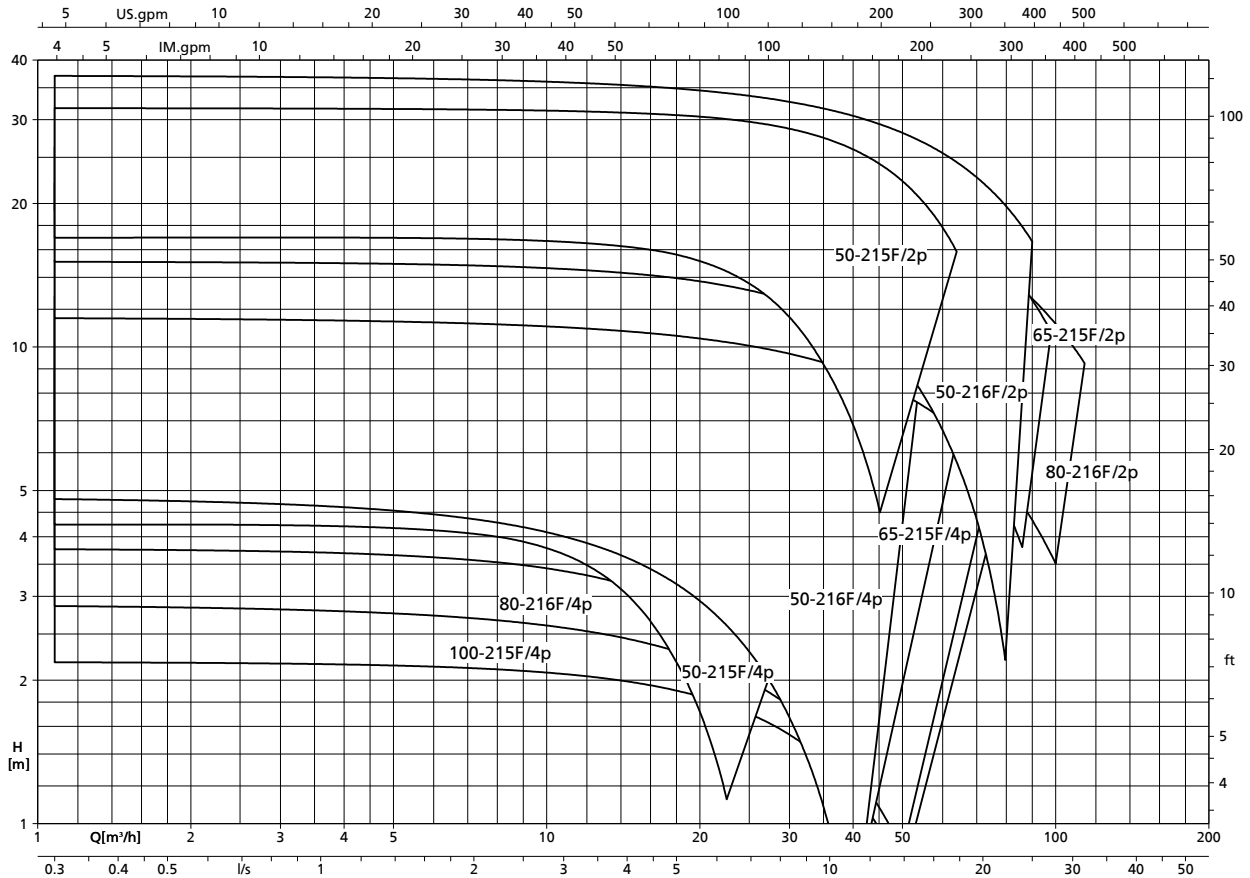
Amarex KRT, n = 2900 rpm, S-max impeller



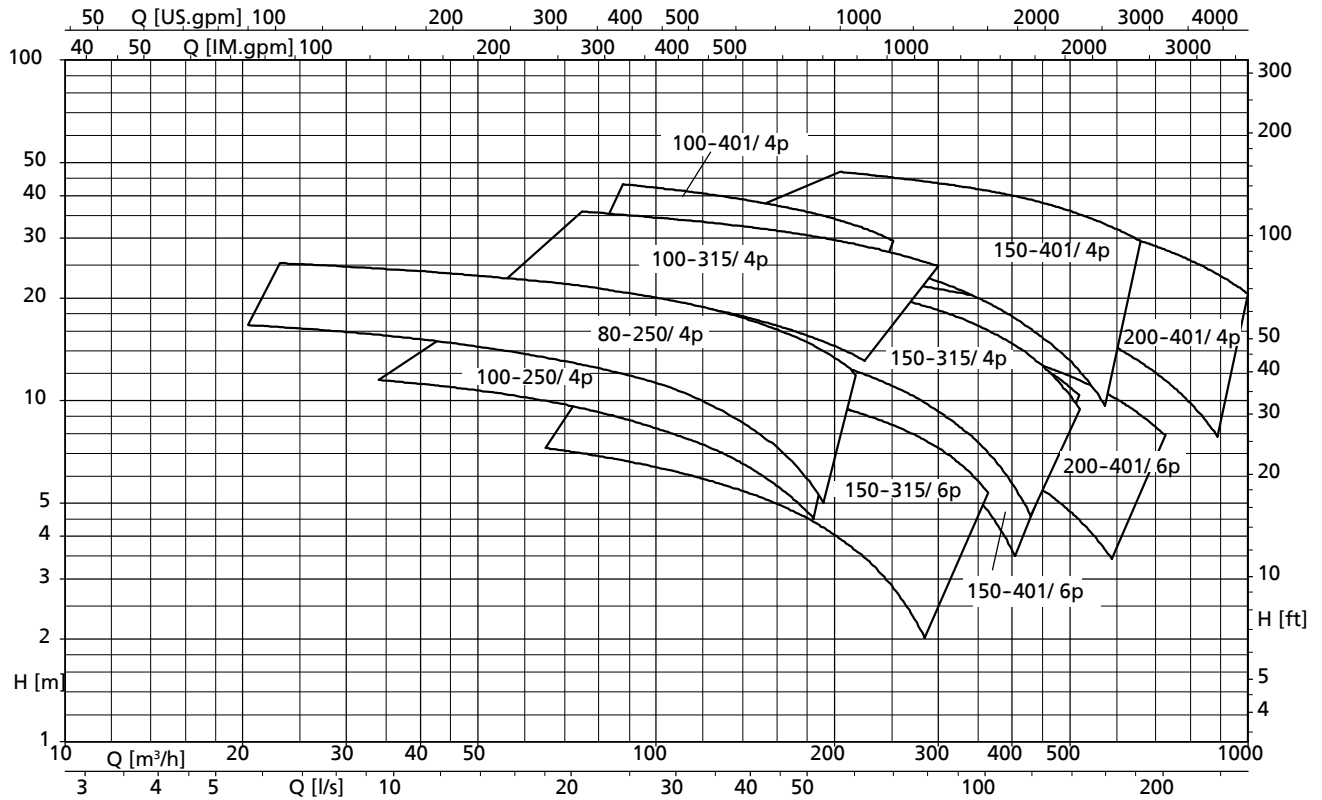
Amarex KRT, n = 2900/1450/960 rpm, F impeller



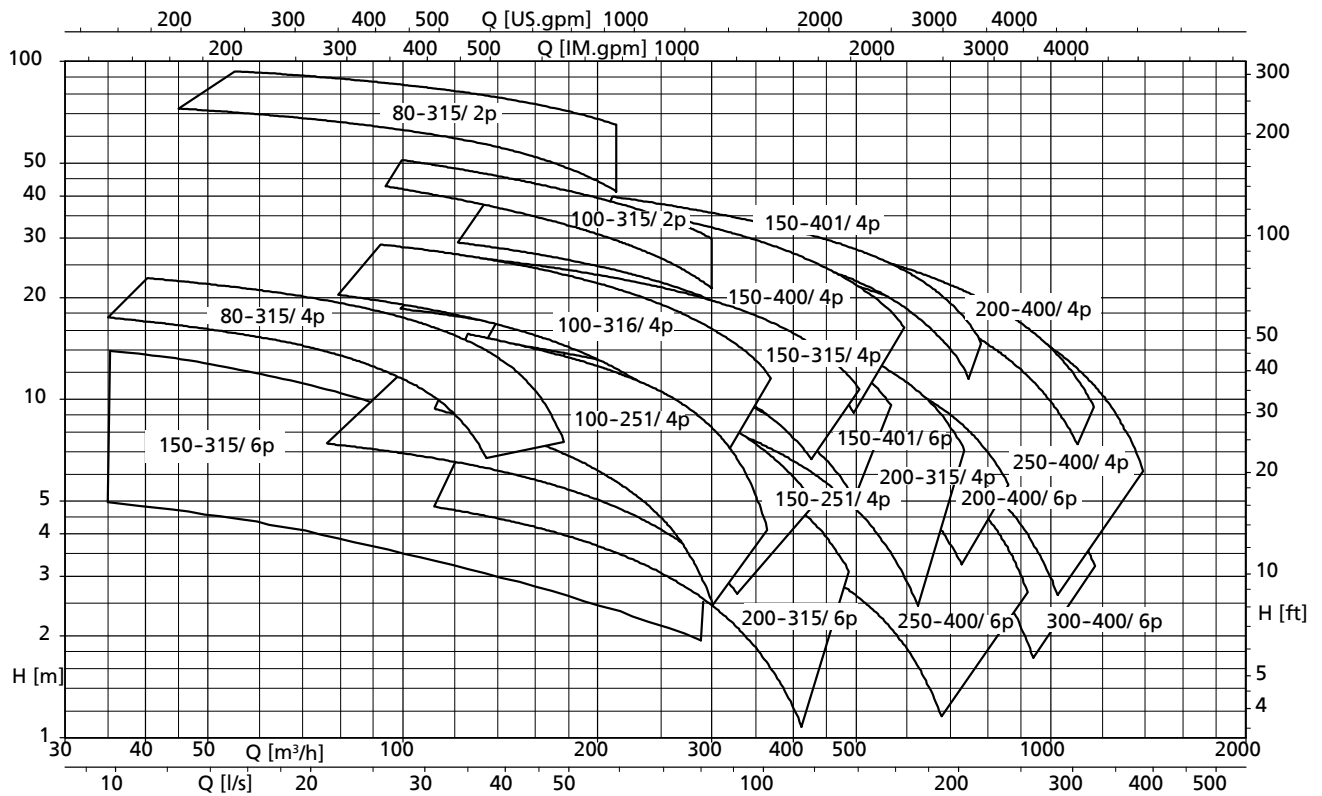
Amarex KRT, n = 2900/1450 rpm, F-max impeller



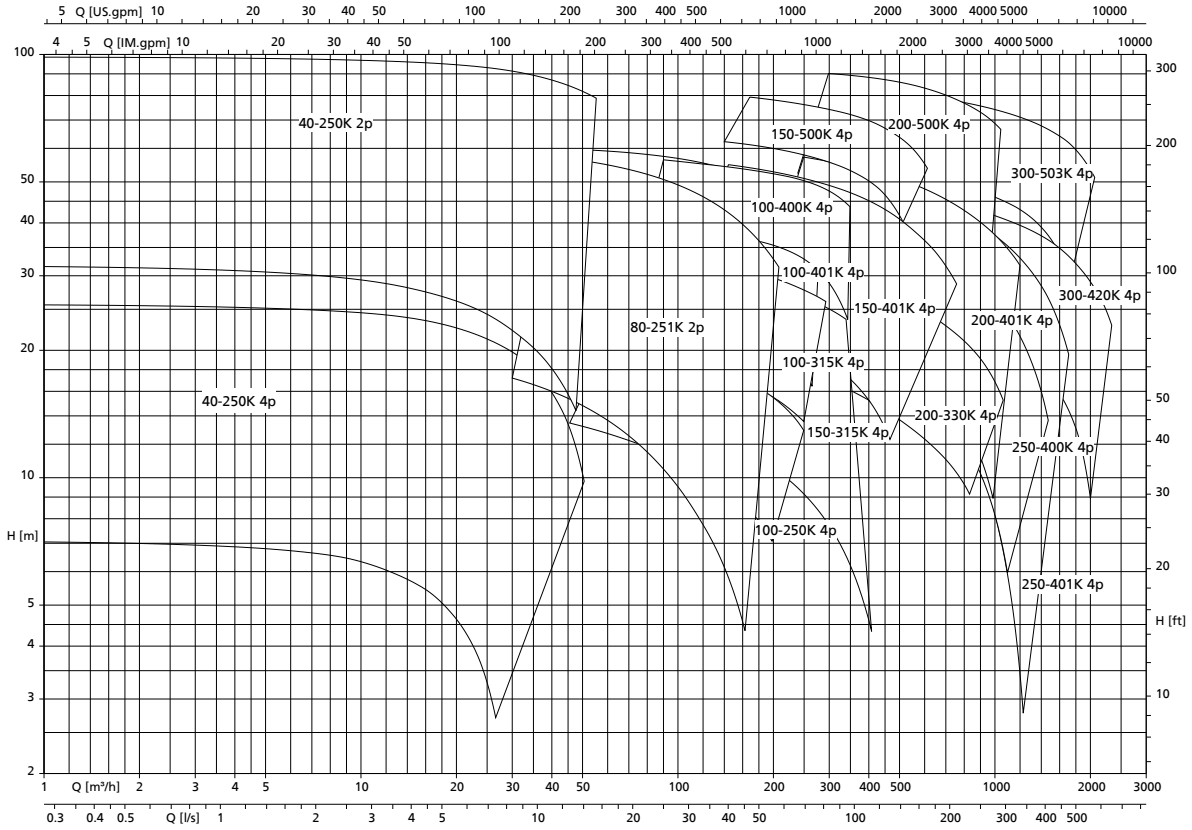
Amarex KRT, n = 1450/960 rpm, E impeller



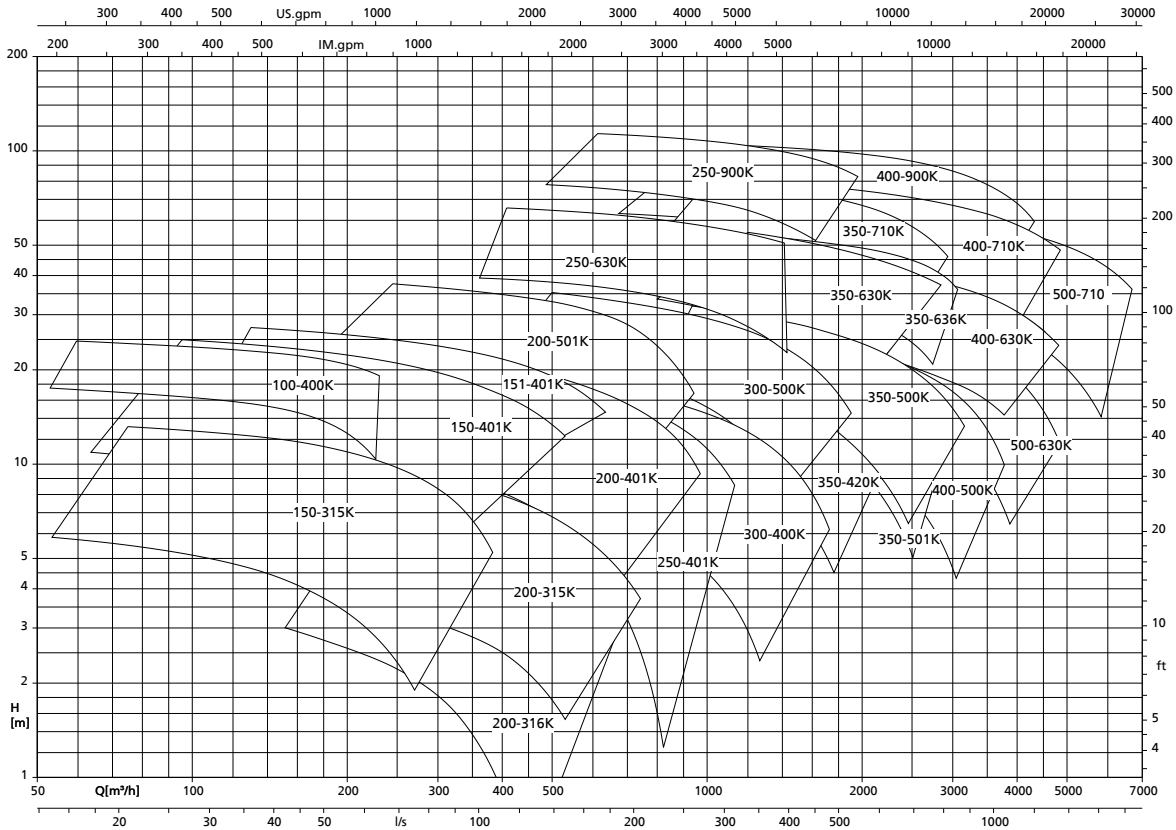
Amarex KRT, n = 2900/1450/960 rpm, D impeller



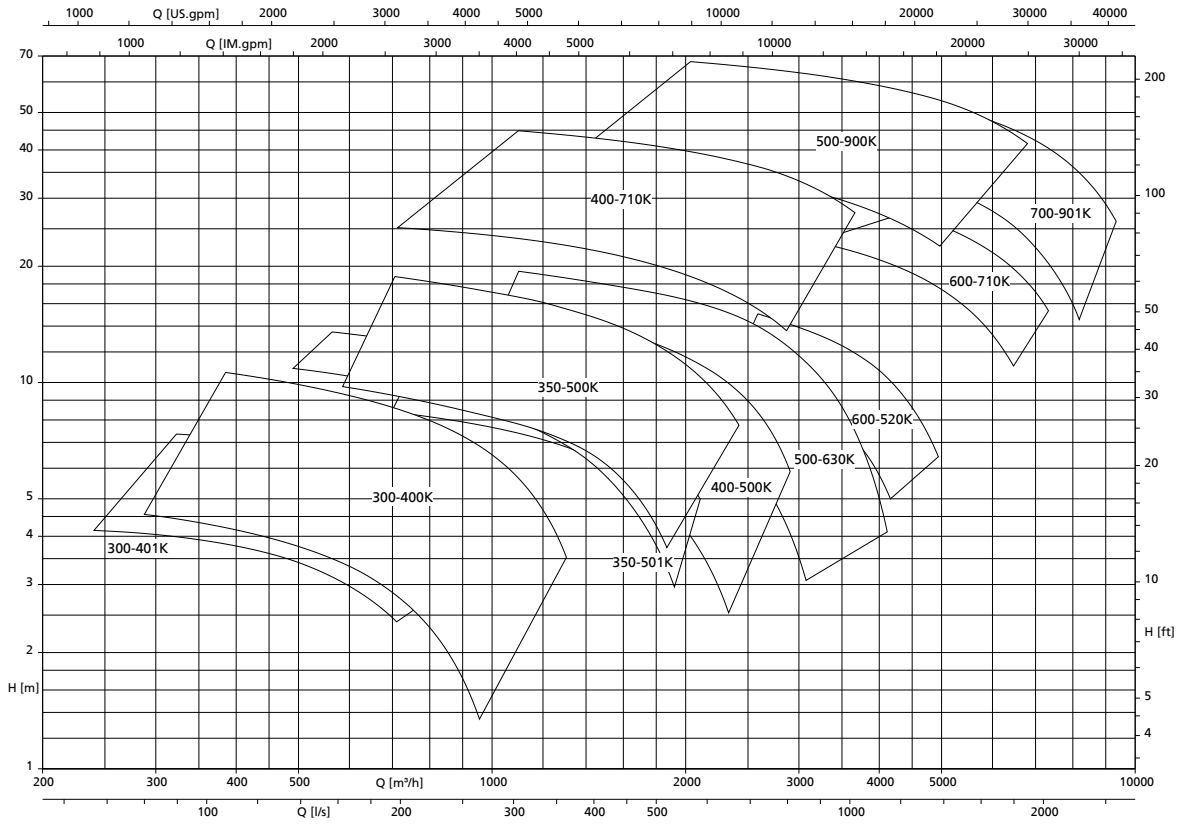
**Amarex KRT, n = 2900/1450 rpm, K impeller**



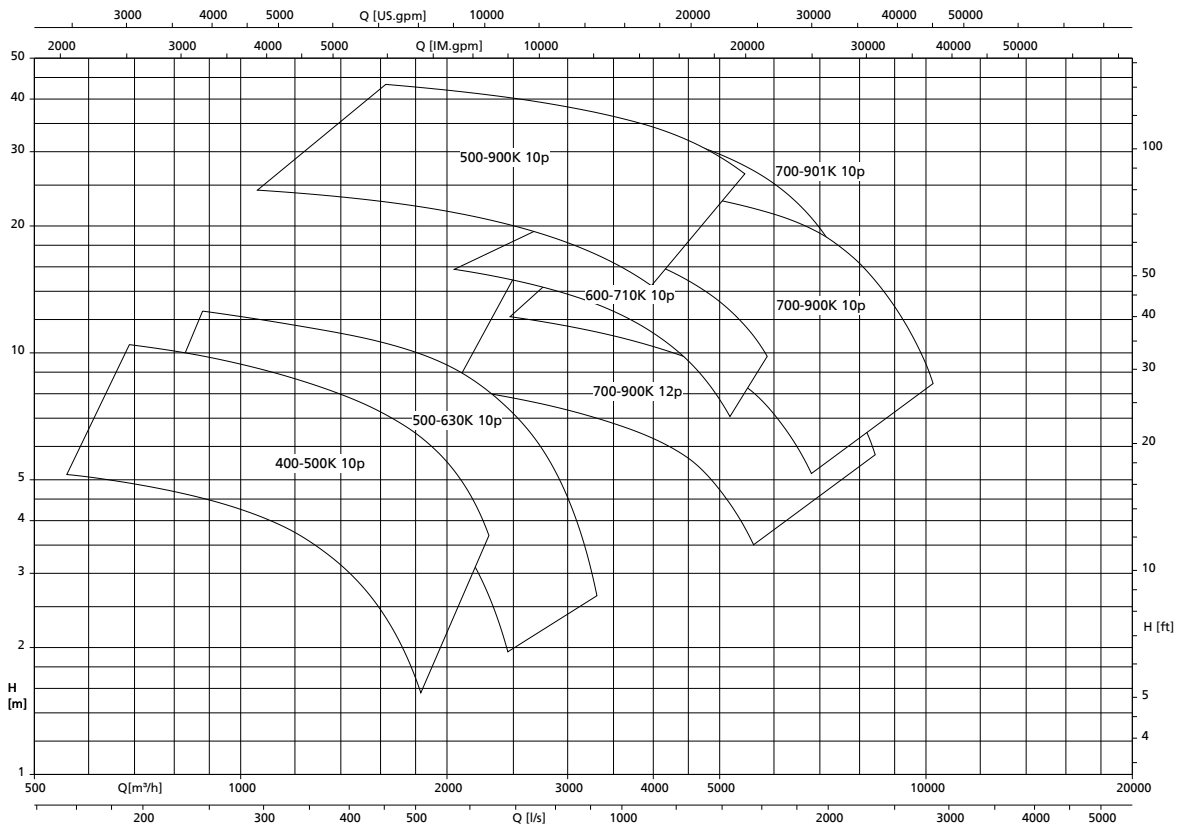
**Amarex KRT, n = 960 rpm, K impeller**



**Amarex KRT, n = 725 rpm, K impeller**



**Amarex KRT, n = 580/480 rpm, K impeller**





### Installation types

- Installation type S: stationary wet installation (S1 operation with submerged motor)
- Installation type D: stationary dry installation, vertical (S1 operation)
- Installation type P: wet installation of transportable version (S1 operation with submerged motor)
- Installation type K: stationary wet installation (S1 operation with motor outside of the fluid)
- Installation type H: stationary dry installation, horizontal (S1 operation)

### Scope of supply

#### Stationary wet installation (installation types K and S)

- Pump set complete with power cables
- Claw with sealing element (O-ring) and mounting elements
- Lifting rope, lifting chain or lifting bail (optional)
- Mounting bracket with mounting elements
- Duckfoot bend with inspection hole and fastening elements
- Guide wire  
(guide rails are not included in KSB's scope of supply)

#### Stationary dry installation - vertical (installation type D)

- Pump set complete with power cables
- Duckfoot bend with inspection hole and fastening elements
- or suction elbow with inspection hole

#### Transportable wet-installed model (installation type P)

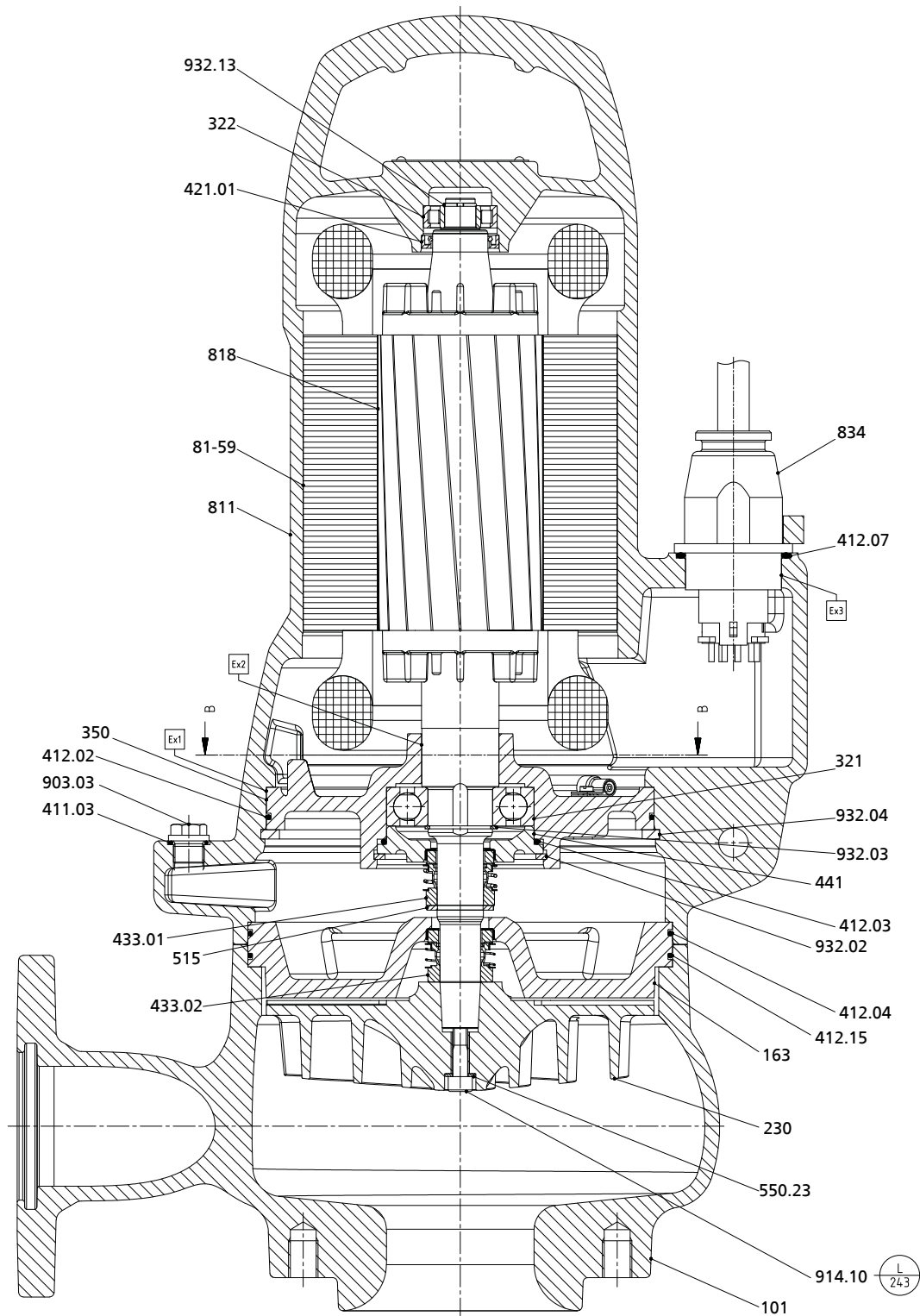
- Pump set complete with power cables
- Foot plate or pump stool with mounting elements
- Lifting rope, lifting chain or lifting bail (optional)

#### Stationary dry installation - horizontal (installation type H)

- Pump set complete with power cables
- Foundation rails
- Suction-side double-flanged taper with inspection hole (optional)

General assembly drawings with list of components

Amarex KRT, 1.8 kW to 7 kW

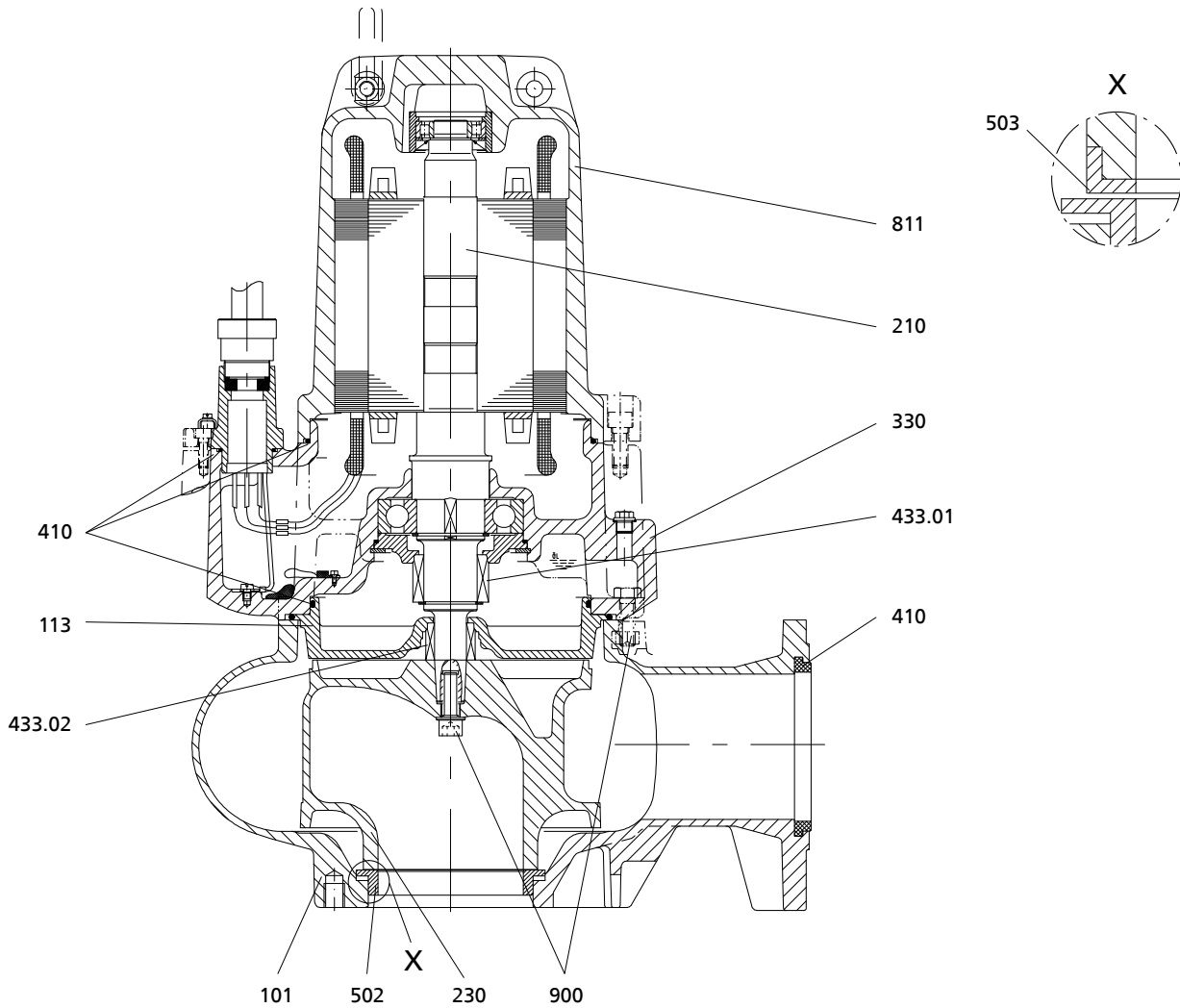


Part No.	Description	Part No.	Description
101	Pump casing	561.03	Grooved pin
162	Suction cover	596	Wire
23-7	Impeller body	69-14.02	Leakage monitor
230	Impeller	81-51	Clamping element
321	Radial ball bearing	81-59	Stator
322	Cylindrical roller bearing	811	Motor housing
350	Bearing housing	818	Rotor
411.03	Joint ring	834	Cable gland
412.02/.03/.04/.07/.15	O-ring	901.20	Hexagon head bolt
421.01	Lip seal	903.03	Screw plug
433.01/.02	Mechanical seal	914.04/.07/.10/.15/.16	Hexagon socket head cap screw
441	Shaft seal housing	930.20	Safety device
500.07	Ring	932.02/.03/.04/.05/.13	Circlip
515	Taper lock ring	970.02	Name plate
550.23	Disc		

**Amarex KRT, 4 kW to 27 kW**

Example: Amarex KRT E 150-315/20 6 WG

**Motors:**  
5 2 ... 25 2  
4 4 ... 29 4  
4 6 ... 26 6



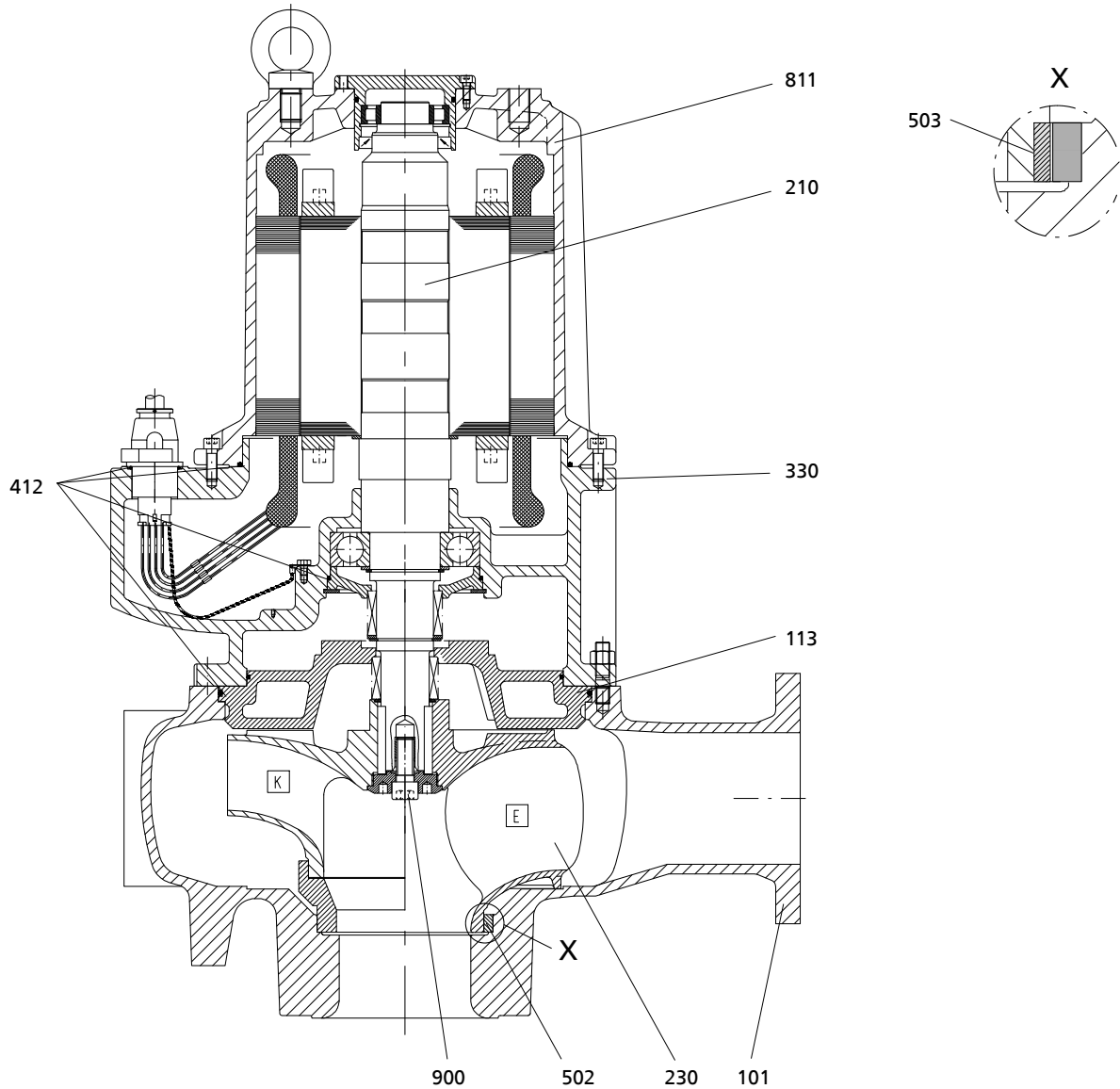
List of components

Part No.	Description	Part No.	Description
101	Pump casing	433.01/02	Mechanical seal
113	Intermediate casing	502	Casing wear ring
210	Shaft	503	Impeller wear ring
230	Impeller	811	Motor housing
330	Bearing bracket	900	Bolt/screw
410	Profile seal		

**Amarex KRT, 27 kW to 62 kW**

Example: Amarex KRT E/K 150-401/65 4 XG

**Motors:**  
29 4 ... 65 4  
20 6 ... 50 6  
10 8 ... 35 8



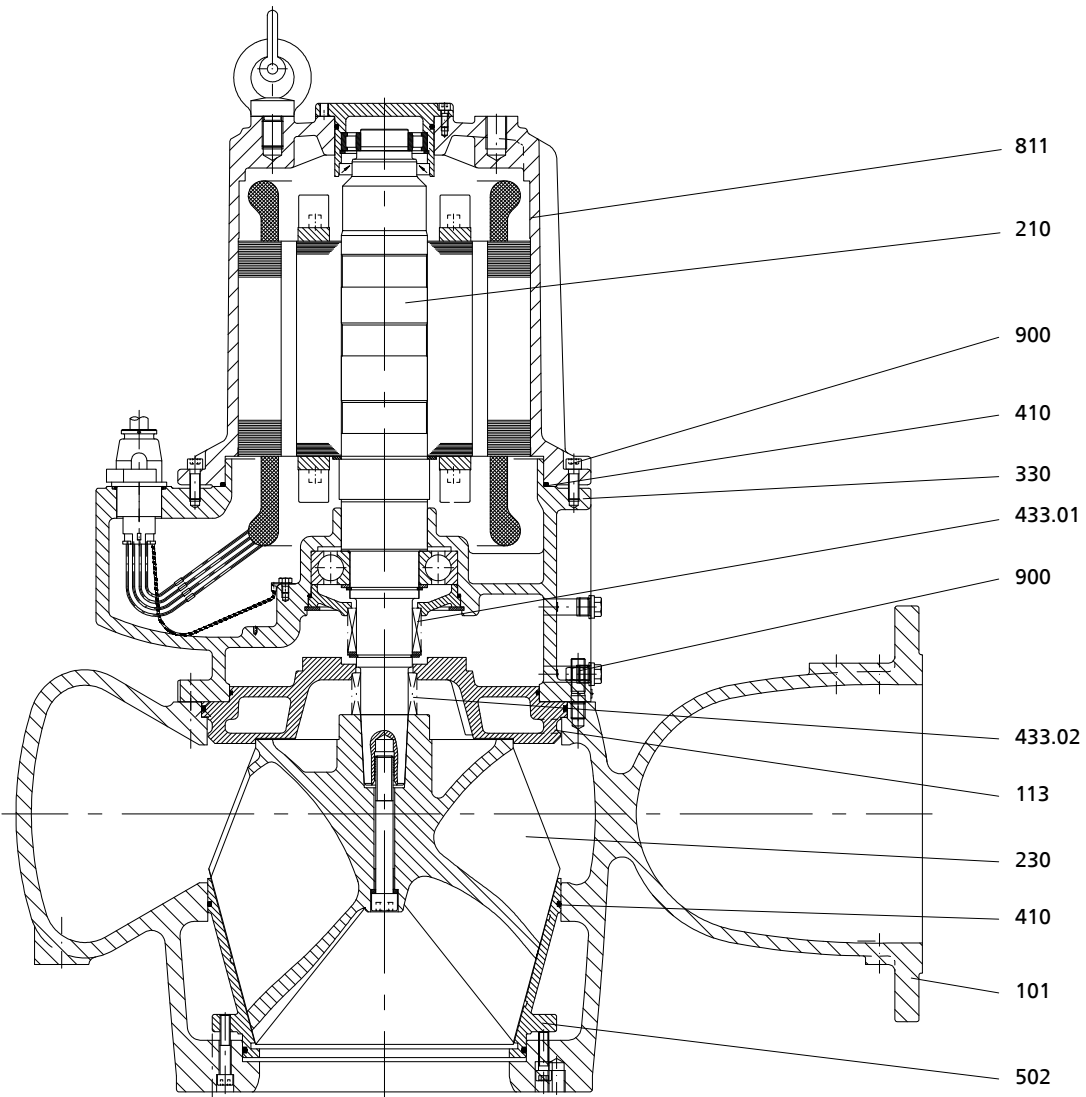
List of components

Part No.	Description	Part No.	Description
101	Pump casing	412	O-ring
113	Intermediate casing	502	Casing wear ring
210	Shaft	503	Impeller wear ring
230	Impeller	811	Motor housing
330	Bearing bracket	900	Bolt/screw

**Amarex KRT, 4.8 kW to 37.3 kW**

Example: Amarex KRT D 300-400 / 21 8 XG

**Motors:**  
5 4 ... 65 4  
4 6 ... 50 6  
10 8 ... 26 8



List of components

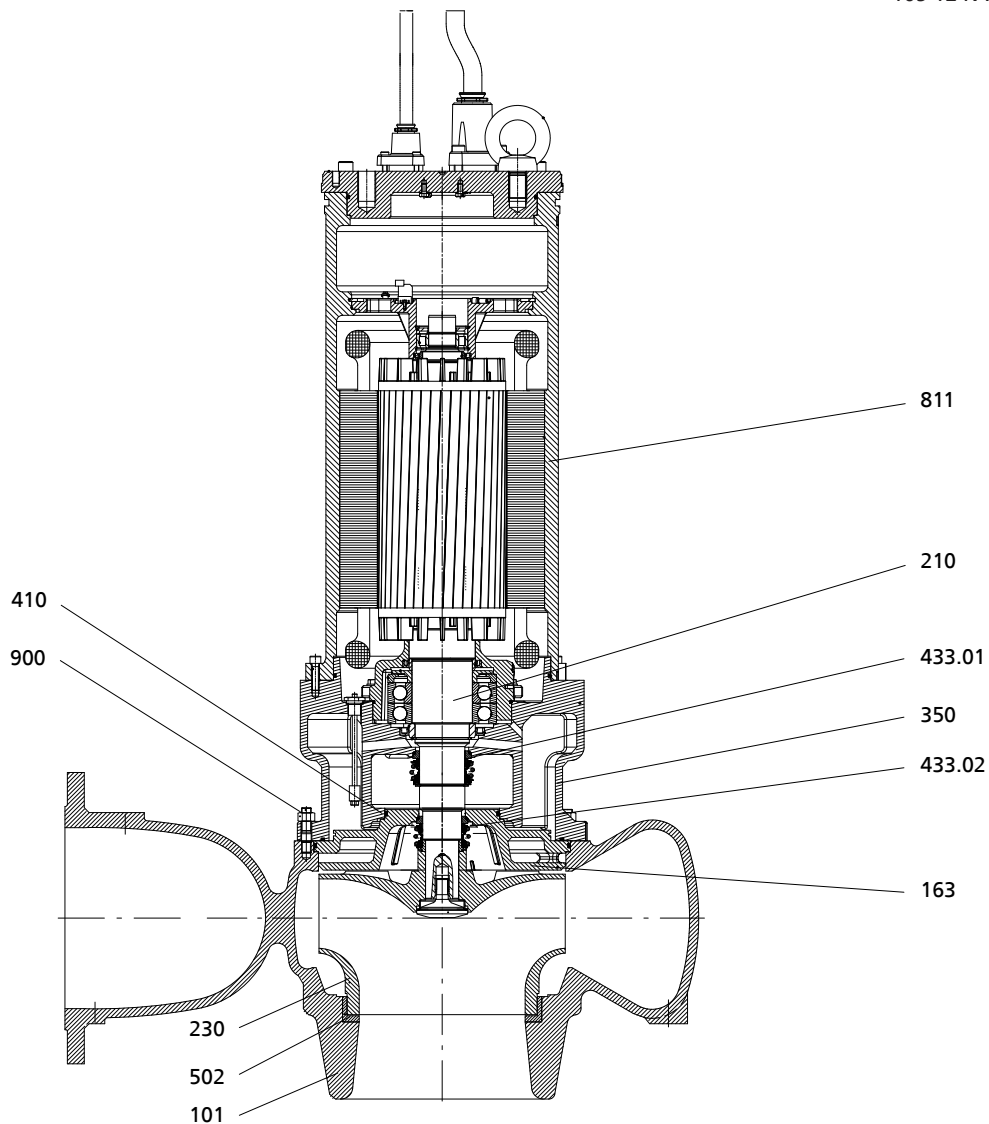
Part No.	Description	Part No.	Description
101	Pump casing	410	Profile seal
113	Intermediate casing	433.01/02	Mechanical seal
210	Shaft	502	Casing wear ring
230	Impeller	811	Motor housing
330	Bearing bracket	900	Bolt/screw

**Amarex KRT, 50 kW to 480 kW, without cooling jacket**

Example: Amarex KRT K 150-401 / 130 4 XNG-S, without cooling jacket

**Motors:**

- 80 4 N ... 350 4 N
- 60 6 N ... 480 6 N
- 50 8 N ... 400 8 N
- 40 10 N ... 350 10 N
- 105 12 N ... 310 12 N



List of components

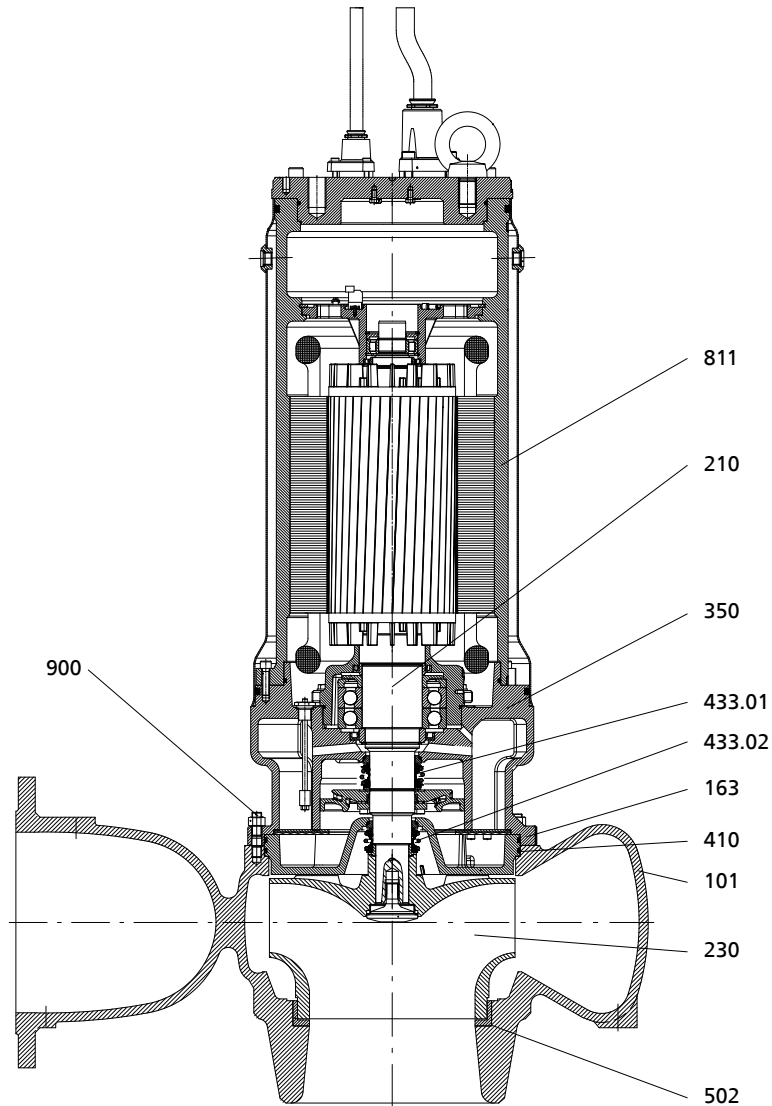
Part No.	Description	Part No.	Description
101	Pump casing	410	Profile seal
163	Discharge cover	433.01/02	Mechanical seal
210	Shaft	502	Casing wear ring
230	Impeller	811	Motor housing
350	Bearing housing	900	Bolt/screw

**Amarex KRT, 50 kW to 480 kW, with cooling jacket**

Example: Amarex KRT K 150-401 / 130 4 XNG-K, with cooling jacket

**Motors:**

- 80 4 N ... 350 4 N
- 60 6 N ... 480 6 N
- 50 8 N ... 400 8 N
- 40 10 N ... 350 10 N
- 105 12 N ... 310 12 N



List of components

Part No.	Description	Part No.	Description
101	Pump casing	410	Profile seal
163	Discharge cover	433.01/02	Mechanical seal
210	Shaft	502	Casing wear ring
230	Impeller	811	Motor housing
350	Bearing housing	900	Bolt/screw







**KSB Aktiengesellschaft**

P.O. Box 200743 • 06008 Halle (Saale) • Turmstraße 92 • 06110 Halle (Germany)

Tel. +49 345 4826-0 • Fax +49 345 4826-4699

[www.ksb.com](http://www.ksb.com)

23.11.2015

2553.5/13-EN