

Submersible Motor Pump

Amarex KRT

60 Hz

Type Series Booklet



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Type Series Booklet Amarex KRT

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Waste Water

Submersible Motor Pump

Amarex KRT



Main applications

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

Fluids handled

- Sewage containing feces
- Activated sludge
- Digested sludge
- Raw sludge
- Fluids containing gas
- Industrial waste water

Operating data

Operating properties

Characteristic	Value	
Flow rate	Q [US.gpm]	≤ 45000
	Q [l/s]	≤ 2800
Head	H [ft]	≤ 330
	H [m]	≤ 100
Fluid temperature	T [°F]	≤ 140
	T [°C]	≤ 60

Characteristic	Value	
Motor rating	P ₂ [hp]	≤ 1140
	P ₂ [kW]	≤ 850

Designation

Example: Amarex KRT K 150-401/80 4 UN G-S IE3

Designation key

Code	Description	
Amarex KRT	Type series	
K	Impeller type (⇒ Page 5)	
	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]	
401	Maximum nominal impeller diameter [mm]	
80	Motor size	
4	Number of poles	
	2, 4, 6, 8, 10, 12	
UN	Motor version	
	U/UN/UE	Not explosion-proof, for fluid temperatures of up to 104 °F [40 °C]
	W/WN/WE	Not explosion-proof, for fluid temperatures of up to 140 °F [60 °C]
	X/XN/XE	Explosion-proof, for fluid temperatures of up to 104 °F [40 °C]
	Z/ZN/ZE	Explosion-proof, for fluid temperatures of up to 140 °F [60 °C]
G	Material variant	
	G	Standard design, gray 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 components made of duplex stainless steel, mechanical seal with elastomer bellows, screws made of A4/A 276 type 316 Ti
	C2	Wetted components made of duplex stainless steel, mechanical seal with covered spring, screws made of 1.4462/A 182 F51
S	Type of installation (⇒ Page 30)	
	S	Stationary wet installation with guide cable or guide rail installation (without cooling jacket)
	D	Stationary dry installation, vertical
	P	Transportable model in wet installation

Code	Description	
	K	Stationary wet installation with guide cable or guide rail installation (with cooling jacket)
	H	Stationary dry installation, horizontal
IE3	Motor efficiency classification	
	1)	No efficiency classification
	IE2, IE3	Efficiency classification ²⁾

Design details

Design

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

Drive

- Three-phase asynchronous squirrel-cage motor
- Version with explosion protection to NEC 500: Explosion-proof for Class I, Division 1, Groups C and D, T3, hazardous (classified) locations.


Shaft seal

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


Impeller type

- Various, application-oriented impeller types

D impeller:

	Open, diagonal single-vane impeller (D impeller)	For use with the following fluids: Fluids containing solid substances and long fibers
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E impeller:

	Closed single-channel impeller (impeller type E)	For use with the following fluids: Fluids containing solid substances and stringy material
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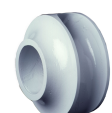
F impeller/F-max impeller:

D, E and F/Fmax impellers are suitable for handling the following fluids:

- Activated sludge
- Digested sludge
- Heating sludge

- Mixed water
- Raw waste water
- Raw sludge
- Recirculated sludge

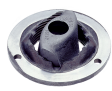
K impeller:

	Closed multi-channel impeller (impeller type K)	For use with the following fluids: Contaminated, solids-laden, non-gaseous fluids without stringy material
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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/S-max impeller:

	Impeller with cutter (impeller type S/S-max)	For use with the following fluids: Fluids containing coarse substances and/or long fibers
---	--	---

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

- Domestic waste water
- Waste water
- Sewage containing feces

Bearings

Standard bearings:

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

Reinforced bearings:

Drive end:

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

Pump end:

- Grease-packed bearings sealed for life
- Can be re-lubricated

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 standardized motors acc. to the IEC 60034-30 standard.

Materials

Overview of available materials

Part No.	Description	Material variant						
		G	G1	G2	GH	H	C1	C2
Pump set								
101	Pump casing	EN-GJL-250			EN-GJN-HB555		1.4517	
135	Wear plate ³⁾	EN-GJL-250			-			
230	Impeller ⁴⁾	EN-GJL-250	1.4517	EN-GJN-HB555			1.4517	
113/163	Intermediate housing/ 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 ⁵⁾	EN-GJL-250			VG 434			
66-2	Cooling jacket	1.4571/1.0038			-			
811	Motor housing	EN-GJL-250/1.0038					1.4517	
824	Power cable	(⇒ Page 14)						
900	Screws/bolts	A4 ⁶⁾						1.4462
Installation parts								
72-1	Flanged elbow	EN-GJL-250			EN-GJN-HB555		1.4517	
732	Claw	EN-GJL-250 or EN-GJS-400-15/EN-GJS-500-7					1.4517	
894	Bracket	1.4571 to DN 200; 1.0038 + Z from size 200-500						1.4571
572	Guide cable suspension bracket	1.4571 to DN 200; EN-GJL-250 from size 200-500						1.4571
59-24	Guide cable	1.4401						1.4401/ TEFZEL
892	Foot plate / feet	1.0038 + Z					1.4571	1.4517/ 1.4462
885	Lifting chain/rope	Lifting chain: 1.4404 Lifting rope: polyamide/polypropylene					Lifting rope: polypropylene	

Comparison of materials

EN	ASTM
EN-GJL-250	A 48 Class 35 B
EN-GJS-400-15	A 536 Class 60-40-18
EN-GJN-HB555	A 532 Class II Type B (15 % Cr-Mo)
1.4517	A 890 CD4MCuN
1.4021	A 276 Type 410 T
1.4401	A 276 Type 316 L
1.4462	A 182 F51
VG 434	-
1.4571	A 276 Type 316 Ti
C45+N	A 576 Gr. 1045
NBR	NBR
FKM	FKM

Description of materials

Gray cast iron EN-GJL-250 (lamellar graphite cast iron):
Lamellar graphite cast iron to DIN 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 ≥ 6.5 , the sand content ≤ 0.5 g/l.

Duplex stainless steel (1.4517 or technically equivalent material)

Cast 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 steel a popular choice for pumping acidic waste water containing large amounts of chlorine, 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), gray 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. The chromium-molybdenum alloy cast iron features a notably higher wear resistance than EN-GJL-250 gray 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 connection cable.
- Reliable operation ensured by moisture sensors signaling 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.
- Optimum hydraulic and energy efficiency by high-efficiency motors and variable hydraulic systems

For material variants C1 and C2:

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

FluidFuture energy-efficiency concept by KSB



www.ksb.com/fluidfuture

Acceptance tests / guarantees

Functional test

- Every pump undergoes functional testing to KSB standard ZN 56535.
- Operating data is guaranteed to DIN EN ISO 9906/2/2B or Hydraulic Institute Level A/B.

Acceptance tests

- Acceptance tests to ISO/DIN or a comparable standard are available against a surcharge.
- Acceptance tests to Hydraulic Institute available on request.

Quality assurance

- 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 H/Q data or impeller diameter. If the hydraulic selection program is used, the impeller diameter is automatically computed based on the H/Q data and added to the designation of the pump set.

Pump input power

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

Recommended minimum reserves⁷⁾

Required pump input power		Motor power reserve	
[hp]	[kW]	Mains operation	With frequency inverter
≤ 40	≤ 30	10 %	15 %
> 40	> 30	5 %	10 %

- If larger power reserves are stipulated by local regulations or are required to compensate for uncertain factors in system calculations, these larger reserves must be provided!
- For installation types K and D (with cooling jacket) a power reserve of 2 hp [1.5 kW] must always be added for the cooling circuit.
- The motors are designed for frequency inverter operation.
- The service factor for all motors equals 1.15.

General information for operating submersible motor 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 6.56 ft/s [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 49.21 ft/s [15 m/s] must be observed.

⁷⁾ 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.

Overview of product features / 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 impeller type per fluid

Fluid handled ⁸⁾	Recommended material	Recommended impeller type ⁹⁾	Comments, further recommendations
Gray water	Gray cast iron	K, D, E, F	Free passage > any solids contained, possibly pre-screened
River water	Gray cast iron	K, D, E, F	Free passage > any solids contained, possibly pre-screened
Stormwater	Gray cast iron	K, D, E, F	Free passage > any solids contained, possibly pre-screened
Waste water			
▪ Untreated municipal waste water	Gray cast iron	F, S, D, E, K	ATV ¹⁰⁾ recommends a free passage of 4" [100 mm], min. free passage of 3" [76 mm]
▪ Waste water containing air or gas	Gray cast iron	F	Up to 8 %, contact KSB for fluids with high outgassing rates
Sludge			
▪ Raw sludge	Gray cast iron	F, D, E, K	Pumpable up to a dry substance content of: 13 % (D), 8 % (F), 6 % (E), 5 % (K)
▪ Digested sludge	Gray cast iron	F, D, E, K	Pumpable up to a dry substance content of: 13 % (D), 8 % (F), 6 % (E), 5 % (K)
▪ Activated sludge	Gray cast iron	D, K	Pumpable up to a dry substance content of: 13 % (D), 5 % (K)
Industrial waste water containing ...			
▪ Paint suspensions	Gray cast iron	K	Solvent-free, observe the operator's instructions.
▪ Lacquer/paint/varnish suspensions	Gray cast iron	F, E	Solvent-free, contact KSB to handle silicone-free fluids
▪ Fibers/pulp	Gray cast iron	F, S, D	-
▪ Chips/swarf	Gray cast iron	K, F	Material variants G2 or GH, special mechanical seal, solids content < 5 g/l
▪ Abrasive substances ¹¹⁾	Gray cast iron	K, F	Material variants G2 or GH, special mechanical seal, solids content < 5 g/l
Mildly acidic industrial waste water	Gray cast iron	K, F	pH value ≥ 6.5, material variant C1 and FPM (Viton) O-rings
Neutral non-corrosive waste water			
▪ Ammonium hydroxide	Gray cast iron	K	-
▪ Ammonium hydroxide 5 % NH ₄ OH	Gray cast iron	K	-
▪ Urea 25 % (NH ₂) ₂ -CO	Gray cast iron	K	-
▪ Potassium hydroxide 10 % KOH	Gray cast iron	K	-
▪ Calcium hydroxide 5 % Ca(OH) ₂	Gray cast iron	K	-
▪ Sodium hydroxide 5 % NaOH	Gray cast iron	K	-
▪ Sodium carbonate 30 % Na ₂ CO ₃	Gray cast iron	K	-

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 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.

Fluid handled ⁸⁾	Recommended material	Recommended impeller type ⁹⁾	Comments, further recommendations
Neutral, non-corrosive waste water containing ...			
▪ Aliphatic hydrocarbons, e.g. oils, petrol, butane, methane	Gray cast iron	K	-
▪ Aromatic hydrocarbons, e.g. benzene, styrene	Gray cast iron	K	FPM (Viton) O-rings ¹²⁾
▪ Chlorinated hydrocarbons, e.g. tetrachloroethylene, ethylene chloride, chloroform, methylene chloride	Gray cast iron	K	FPM (Viton) O-rings ¹²⁾
Highly abrasive industrial waste water causing wear (chemically neutral)¹³⁾			
▪ Water containing iron ore sinter	Wear-resistant white cast iron	K	Sinter content < 5 g/l: material variant GH Sinter content > 5 g/l: material variant H
▪ Lime milk containing quartz and pigment suspensions	Wear-resistant white cast iron	K	Lime milk content < 15 %: material variant GH Lime milk content > 15 %: material variant H
▪ Wash water containing solids	Wear-resistant white cast iron	K, F	Material selection based on fluid analysis
▪ Waste water containing dust or ash	Wear-resistant white cast iron	K	Material selection based on fluid analysis
Water/sand mixture	Wear-resistant white cast iron	K, F	Solids content < 5 g/l: material variant GH Solids content > 5 g/l: material variant H
Seawater	Duplex stainless steel	K, F	Material variant C2 up to a max. fluid temperature of 25 °C ¹⁴⁾
Brackish water	Duplex stainless steel	K, F	Material variant C1 or G1 (with 250 µm two-component epoxy resin) - depending on salt content
Corrosive industrial waste water	Duplex stainless steel	K, F	Material variant C1 or C2 based 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.


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.

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

14) Higher fluid temperatures on request

Overview of product features

Material variants G, G1, G2, GH

Feature	Motors							
2-pole	3 2E ... 7 2E	-	5 2 ... 25 2	37 2 ... 55 2	-	-	-	-
4-pole	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-pole	-	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-pole	-	-	-	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-pole	-	-	-	-	-	40 10.N ... 80 10.N	110 10.N ... 350 10.N	390 10.N ... 660 10.N
12-pole	-	-	-	-	-	-	105 12.N ... 300 12.N	340 12.N ... 560 12.N
Suction flange	15)							
Shaft material								
Shaft	A 276 Type 420				A 576 Gr. 1045	A 276 Type 420	A 276 Type 420	A 276 Type 420
Shaft protecting sleeve	-	-	-	-	A 276 Type 420	A 276 Type 420	A 276 Type 420	A 276 Type 420
Bearings	Grease-packed rolling element bearings sealed for life			Grease-packed rolling element bearings sealed for life ¹⁶⁾	Pump end: re-greasable rolling element bearings drive end: grease-packed rolling element bearings sealed for life			
Explosion protection								
Versions U, W	Not explosion-proof							
Versions X, Z	 Explosion-proof Class I, Division 1, Groups C & D, T3							-
Motor								
Starting method	DOL, soft starter, frequency inverter or star-delta				DOL, soft starter, frequency inverter			
Voltage	460 V ¹⁷⁾						460 V ¹⁸⁾	
Cooling	Cooled by surrounding fluid	Air cooling (convection)	Cooled by surrounding fluid	Cooled by surrounding fluid or via cooling jacket				
Immersion depth	100 ft [30 m] max.							
Power cable								
Type	See table "Overview of power cables"							
Length	30 ft [10 m] ¹⁹⁾							
Cable entry	Absolutely watertight							
Sealing elements								

15) Drilled to ANSI B16.1 Class 125; not available for all sizes; on request

16) For D impeller: re-greasable rolling element bearings at the pump end, grease-packed rolling element bearings sealed for life at the drive end

17) Optional: 200 V, 230 V, 380 V, 575 V

18) Optional: 380 V, 575 V

19) Optional: up to 164 ft [50 m]

Feature	Motors							
2-pole	3 2E ... 7 2E	-	5 2 ... 25 2	37 2 ... 55 2	-	-	-	-
4-pole	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-pole	-	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-pole	-	-	-	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-pole	-	-	-	-	-	40 10.N ... 80 10.N	110 10.N ... 350 10.N	390 10.N ... 660 10.N
12-pole	-	-	-	-	-	-	105 12.N ... 300 12.N	340 12.N ... 560 12.N
Elastomer seals	Nitrile butadiene rubber NBR ²⁰⁾							
Shaft seal	Bellows-type mechanical seal ²¹⁾							Mechanical seal with covered spring
Monitoring equipment								
Winding temperature version U, W; installation type S, P	Temperature switch (bimetal) in the winding	PTC	Temperature switch (bimetal) in the winding					
Winding temperature version X, Z; installation type 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 type D, H, K	-	PTC	-		PTC			
Coolant temperature; installation type D, K	-	-	-	-	PTC			
Bearing temperature	-	-	-	22)	Pt100 at the pump end ²³⁾			Pt100 at the pump and drive end
Leakage inside the motor	Leakage sensor in the motor space							
Mechanical seal leakage	-	-	-	Float switch in the leakage area for D impeller	Float switch in leakage area			
Vibration sensor	-	-	-	-	24)			
Coating	Environmentally friendly KSB standard coating, color RAL 5002 ²⁵⁾							
Maximum fluid and ambient temperature								
Version U	104 °F [40 °C]							
Version X	104 °F [40 °C]							-

- 20) Optional: Viton = fluorocarbon rubber FPM
 21) Optional: mechanical seal with covered spring
 22) Optional: Pt100 at the pump end
 23) Optional: Pt100 at the drive end
 24) Optional: internal vibration sensor
 25) Optional: 250 µm two-component epoxy coating

Feature	Motors								
2-pole	3 2E ... 7 2E	-	5 2 ... 25 2	37 2 ... 55 2	-	-	-	-	
4-pole	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-pole	-	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-pole	-	-	-	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-pole	-	-	-	-	-	40 10.N ... 80 10.N	110 10.N ... 350 10.N	390 10.N ... 660 10.N	
12-pole	-	-	-	-	-	-	105 12.N ... 300 12.N	340 12.N ... 560 12.N	
Versions W, Z	140 °F [60 °C]	-	140 °F [60 °C]					-	
Tests/inspections									
Hydraulic system	KSB standard (ZN 56525) ²⁶⁾								
General	KSB standard (ZN 56525)								
Type of installation									
Stationary, with guide cable arrangement	Installation depth 15 ft [4.5 m] ²⁷⁾								
Stationary, with guide rail arrangement	Installation depth 15 ft [4.5 m] ²⁸⁾								
Transportable	Up to size 300-401, except sizes 200-500/501, 200-631, 250-630						-		
Stationary, dry	-	²⁹⁾	-	With cooling jacket					

Material variants H, C1, C2

Feature	Motors						
2-pole	3 2E ... 7 2E		5 2 ... 25 2	-	-	-	-
4-pole	2 4E ... 5 4E		4 4 ... 29 4	35 4 ... 65 4	80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N
6-pole	-		4 6 ... 19 6	32 6 ... 50 6	60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N
8-pole	-		-	26 8 ... 35 8	50 8.N	75 8.N ... 130 8.N	150 8.N ... 480 8.N
10-pole	-		-	-	-	-	110 10.N ... 350 10.N
12-pole	-		-	-	-	-	105 12.N ... 300 12.N
Suction flange	³⁰⁾						
Shaft material for material variant H							
Shaft	A 276 Type 420				A 576 Gr. 1045	A 276 Type 420	
Shaft protecting sleeve	-		-	-	A 276 Type 420	A 276 Type 420	
Shaft material for material variant C1, C2							



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

²⁷⁾ Optional: up to 98 ft [30 m], from size 200-500 up to 49 ft [15 m]

²⁸⁾ Optional: up to 98 ft [30 m]

²⁹⁾ With convection cooling

³⁰⁾ Drilled to ANSI B16.1 Class 125; not available for all sizes; on request

Feature	Motors					
2-pole	3 2E ... 7 2E	5 2 ... 25 2	-	-	-	-
4-pole	2 4E ... 5 4E	4 4 ... 29 4	35 4 ... 65 4	80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N
6-pole	-	4 6 ... 19 6	32 6 ... 50 6	60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N
8-pole	-	-	26 8 ... 35 8	50 8.N	75 8.N ... 130 8.N	150 8.N ... 480 8.N
10-pole	-	-	-	-	-	110 10.N ... 350 10.N
12-pole	-	-	-	-	-	105 12.N ... 300 12.N
Shaft	A 182 F51 / A 576 Gr. 1045			A 276 Type 420		
Shaft protecting sleeve	-	-	-	A 182 F51	A 182 F51	A 182 F51
Bearings	Grease-packed rolling element bearings sealed for life			Pump end: re-greasable rolling element bearings drive end: grease-packed rolling element bearings sealed for life		
Explosion protection						
Versions U, W	Not explosion-proof					
Versions X, Z	 or  Explosion-proof Class I, Division 1, Groups C & D, T3					-
Motor						
Starting method	DOL, soft starter, frequency inverter or star-delta					
Voltage	460 V ³¹⁾					
Cooling	Cooled by surrounding fluid					
Immersion depth	100 ft [30 m] max.					
Power cable						
Type	See table "Overview of power cables"					
Length	30 ft [10 m] ³²⁾					
Cable entry	Absolutely watertight					
Sealing elements						
Elastomer seals	Nitrile butadiene rubber NBR ³³⁾ , for C2 generally fluorocarbon rubber FPM					
Shaft seal	C1: bellows-type mechanical seal ³⁴⁾ H, C2: mechanical seal with covered spring					Mechanical seal with covered spring
Monitoring equipment						
Winding temperature, version U, W	Temperature switch (bimetal) in the winding					
Winding temperature, version X, Z	Temperature switch (bimetal) in the winding, plus PTC for explosion protection					
Bearing temperature	-	-	- ³⁵⁾	Pt100 at the pump end ³⁶⁾		
Leakage inside the motor	Leakage sensor in the motor space					

³¹⁾ Optional: 200 V, 230 V, 380 V, 575 V

³²⁾ Optional: up to 164 ft [50 m]

³³⁾ Optional: Viton = fluorocarbon rubber FPM

³⁴⁾ Optional: mechanical seal with covered spring

³⁵⁾ Optional: Pt100 at the pump end

³⁶⁾ Optional: Pt100 at the drive end

Feature	Motors					
	2-pole	3 2E ... 7 2E	5 2 ... 25 2	-	-	-
4-pole	2 4E ... 5 4E	4 4 ... 29 4	35 4 ... 65 4	80 4.N	95 4.N ... 175 4.N	200 4.N ... 350 4.N
6-pole	-	4 6 ... 19 6	32 6 ... 50 6	60 6.N	80 6.N ... 165 6.N	190 6.N ... 480 6.N
8-pole	-	-	26 8 ... 35 8	50 8.N	75 8.N ... 130 8.N	150 8.N ... 480 8.N
10-pole	-	-	-	-	-	110 10.N ... 350 10.N
12-pole	-	-	-	-	-	105 12.N ... 300 12.N
Mechanical seal leakage	-	-	Float switch in the leakage area for D impeller	Float switch in leakage area		
Vibration sensor	-	-	_37)			
Coating	Material variant H: environmentally friendly KSB standard coating, primer dry film thickness 1 1/2 - 2 mils (35-50 µm), top coat: two-component epoxy coating dry film thickness 6 mils (150 µm), color RAL 5002 ³⁸⁾ Material variants C1, C2: without coating					
Maximum fluid and ambient temperature						
Version U, X	104 °F [40 °C]					
Versions W, Z	140 °F [60 °C]					
Tests/inspections						
Hydraulic system	KSB standard (ZN 56525) ³⁹⁾					
General	KSB standard (ZN 56525)					
Type of installation						
Stationary, with guide cable arrangement	Installation depth 15 ft [4.5 m] ⁴⁰⁾					
Transportable	Installation depth 15 ft [4.5 m] ⁴¹⁾					

Overview of power cables

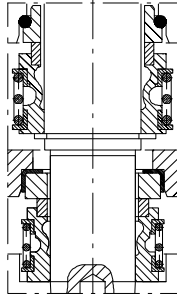
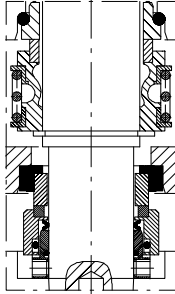
Feature	S1BN8-F rubber-sheathed cable	S07RC4N8-F rubber-sheathed cable	TEHSITE Tefzel cable
Design	Standard	Optional	Optional
Rated voltage	1000 V	750 V	750 V
EMC screening	-	✓	-
Insulation material	EPR ⁴²⁾	EPR ⁴²⁾	ETFE ⁴³⁾

- 37) Optional: internal vibration sensor
38) Optional: dry film thickness 12 mils (300 µm)
39) Optional: S, D, E, F impellers to Hydraulic Institute, Level B; K impellers to Hydraulic Institute, Level A
40) Optional: up to 98 ft [30 m], from size 200-500 up to 49 ft [15 m]
41) Up to size 300-401, except sizes 200-501, 200-631, 250-630
42) EPR = ethylene propylene rubber
43) ETFE = ethylene tetrafluoroethylene

Feature	S1BN8-F rubber-sheathed cable	S07RC4N8-F rubber-sheathed cable	TEHSITE Tefzel cable
Max. continuous temperature of insulation	194 °F [90 °C]	194 °F [90 °C]	275 °F [135 °C]
For permanent immersion in waste water to DIN VDE 0282-16/HD22.16	✓	✓	✓

Shaft seal

Available shaft seal types per bearing bracket

Standard design	Standard variant ⁴⁴⁾
Mechanical seal with elastomer bellows (NBR, optional Viton)⁴⁵⁾	Product-side mechanical seal with covered spring⁴⁶⁾⁴⁷⁾
	

⁴⁴⁾ A surcharge and longer delivery times apply to standard variants.

⁴⁵⁾ For all types of waste water

⁴⁶⁾ For very abrasive fluids or fluids containing metallic particles (e.g. shavings from drilling)

⁴⁷⁾ Standard for material variants H and C2 (optional for material variants G, G1, G2, GH and C1)

Technical data

Gray 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 ₄₈
		Number of impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	Max. operating pressure ⁴⁹⁾	Max. test pressure	
S 40-250	G	4	9 ₃₂	9 1/4	6 7/8	-	-	145,0	188,6	0,03
S 50-216	G	4	3/16	8 1/4	6 7/8	-	-	130,5	174,0	0,018
F 40-250	G, G1, G2, GH	-	1	8 1/4	5 7/8	-	-	110,0	142,1	0,03
F 50-215	G, G1, G2, GH	-	1 5/8	8 1/4	5 1/8	-	-	116,0	152,3	0,019
F 50-216	G, G1, G2, GH	-	1	8 1/4	4 11/16	-	-	94,3	123,3	0,025
F 65-215	G, G1, G2, GH	-	2 9/16	8 1/4	4 11/16	-	-	79,8	108,8	0,025
F 80-216	G, G1, G2, GH	-	3	8 1/4	4 11/16	-	-	72,5	94,3	0,025
F 80-250	G, G1, G2, GH	-	3	10 7/16	5 7/8	87,0	130,5	91,4	118,9	0,14
F 80-251	G	-	4	9 1/16	5 11/16	-	-	90,0	117,5	0,057
F100-215	G, G1, G2, GH	-	3 15/16	8 1/4	4 11/16	-	-	58,0	79,8	0,025
F 100-250	G, G1, G2, GH	-	4	10 7/16	7 7/8	87,0	130,5	49,3	65,2	0,056
F 100-316	G, G1, G2, GH	-	4	11 7/16	9 5/8	-	-	71,1	92,8	0,075
F 100-401	G, G1, G2, GH	-	4	15 3/8	12 13/16	145,0	217,5	110,2	142,1	0,248
F 150-315	G, G1, G2, GH	-	4 3/4	11 7/16	9 13/16	87,0	130,5	26,1	33,4	0,144
F 150-401	G, G1, G2, GH	-	5 5/16	15 3/8	10 5/8	145,0	217,5	61,0	79,8	0,248
E 80-251	G	1	3	10 5/8	8 7/8	87,0	130,5	59,5	78,3	0,17
E 100-251	G	1	3 1/8 - 3 3/4	9 15/16	7 1/4	87,0	130,5	49,3	65,3	0,18
E 150-315	G	1	4 1/2 - 4 3/4	12 5/8	10	87,0	130,5	45,0	59,5	0,31
E 150-401	G	1	4 1/2 - 5 1/2	16	13 11/16	145,0	217,5	91,4	118,9	0,68
E 200-401	G	1	4 3/4 - 5 1/2	15 3/4	12 9/16	145,0	217,5	82,7	107,3	0,86
D 80-315	G, G1	1	2 1/2	10 1/4	9 1/16	145,0	217,5	150,8	197,3	0,124
D 100-251	G, G1	1	3	10 7/16	9 3/16	87,0	130,5	50,8	66,7	0,115
D 100-315	G, G1	1	3	8 3/4	7 11/16	-	-	98,6	127,6	0,065
D 100-316	G, G1	1	3 3/8	12 1/16	10 5/8	-	-	52,2	68,2	0,233
D 150-251	G, G1	1	4	10	8 7/8	87,0	130,5	27,5	34,8	0,115
D 150-315	G, G1	1	4	12 1/2	11	87,0	130,5	47,9	62,4	0,289
D 150-400	G, G1	1	4	14 15/16	12 13/16	-	-	75,4	98,6	0,573
D 150-401	G, G1	1	4 3/8	15 1/8	14 9/16	-	-	76,9	100,1	0,999
D 200-315	G, G1	1	4	12 3/8	11	87,0	130,5	39,2	49,3	0,261
D 200-400	G, G1	1	4	14 3/4	14	-	-	60,9	79,8	0,825
D 250-400	G, G1	1	4 3/4	14 9/16	12 9/16	-	-	50,8	66,7	0,653
D 300-400	G, G1	1	6	16 1/16	14 3/4	-	-	24,7	31,9	0,925
K 40-250	G, G1, GH	3	5/8	10 1/4	5 7/8	-	-	145,0	188,5	0,047
K 80-251	G, G1, GH	2	1 1/8	8 11/16	5 1/2	-	-	95,7	124,7	0,15
K 100-251	G, G1, GH	2	3	9 13/16	6 7/8	87,0	130,5	52,2	68,2	0,07
K 100-316	G, G1, GH	2	3	11 5/8	9 1/4	-	-	71,1	92,8	0,13
K 100-400	G, G1	2	3	16 1/16	14	-	-	133,4	174,1	1,1
K 100-401	G, G1, GH	2	2	15 7/8	12 3/16	145,0	217,5	134,9	175,5	0,504
K 150-315	G, G1, GH	2	3	12 3/16	9 1/4	87,0	130,5	50,8	66,7	0,18
K 150-400	G	3	3	15 7/8	11 13/16	-	-	130,5	169,6	0,83
K 150-401	G, G1, GH	2	3	15 7/8	12 3/16	145,0	217,5	129,1	168,2	0,916

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

49) 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 ⁴⁸⁾
		Number of impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	Max. operating pressure ⁴⁹⁾	Max. test pressure	
K 151-401	G, G1, GH	3	3 1/8	16 1/16	11 13/16	145,0	217,5	124,7	162,4	0,52
K 200-315	G, G1, GH	3	2 3/4	11 5/8	9 5/8	87,0	130,5	27,6	34,8	0,22
K 200-316	G, G1, GH	2	4	12	10 7/16	87,0	130,5	24,7	31,9	0,22
K 200-330	G, G1, GH	3	2 3/4	12 13/16	11 5/16	145,0	217,5	75,4	100,1	0,35
K 200-400	G, G1	3	3	16 1/16	11 13/16	-	-	98,6	127,6	0,52
K 200-401	G, G1, GH	3	3 1/8	15 7/8	13	145,0	217,5	103,0	133,4	0,52
K 200-501	G, G1	2	4 1/8	19 3/4	17 11/16	145,0	217,5	92,8	120,4	1,68
K 200-631	G, G1	2	4 1/8	24 1/2	21 1/4	145,0	217,5	142,1	185,6	4,41
K 250-400	G, G1, GH	3	3 3/8	14 9/16	11 13/16	145,0	217,5	95,7	123,3	0,5
K 250-401	G, G1, GH	2	4 1/8	15 3/4	12 3/16	145,0	217,5	87,0	113,1	0,55
K 250-630	G, G1	4	3 1/2	24 13/16	19 11/16	145,0	217,5	150,8	195,8	2,76
K 250-900	G, G1	3	4 5/16	22 1/16	28 1/4	232,0	348,0	169,7	220,5	19,03
K 300-400	G, G1	3	4	16 1/16	13 1/16	145,0	217,5	50,8	66,7	0,75
K 300-401	G, G1, GH	2	5 5/16	16 1/16	14 7/16	145,0	217,5	33,4	42,1	0,75
K 300-420	G, G1	3	4	16 1/16	14 9/16	87,0	130,5	50,8	105,9	0,95
K 300-500	G, G1	3	3 1/2	19 13/16	16 15/16	145,0	217,5	90,0	116,0	1,48
K 300-503	G, G1	5	2	18 7/8	15 15/16	145,0	217,5	129,1	168,2	2,5
K 350-420	G, G1	3	4	17 11/16	15 1/4	87,0	130,5	50,8	66,7	1,22
K 350-500	G, G1	3	4 5/16	20	16 3/4	87,0	130,5	82,7	107,3	3,12
K 350-501	G, G1	2	6 5/8	20 1/16	19 1/2	87,0	130,5	40,6	53,6	3
K 350-630	G, G1	3	5 5/16	24 13/16	19 11/16	145,0	217,5	105,9	136,3	5,22
K 350-636	G, G1	5	3	23 7/16	20 1/16	145,0	217,5	92,8	120,4	5,42
K 350-710	G, G1	3	4 1/4	28 3/4	22 13/16	145,0	217,5	136,3	176,9	10,6
K 400-500	G, G1	3	5 1/8	20	17 7/16	87,0	130,5	49,3	65,2	3,37
K 400-630	G, G1	3	5 1/4	24 7/16	21 1/2	87,0	130,5	89,9	116,0	8,21
K 400-710	G, G1	3	6 1/2	29 1/8	23 1/8	145,0	217,5	127,6	166,8	14
K 400-900	G, G1	3	5 1/8	32 11/16	25 15/16	232,0	348,0	163,9	213,2	17,79
K 500-630	G, G1	3	5 1/4	22 15/16	20 7/16	58,0	87,0	60,9	79,8	6,11
K 500-710	G, G1	3	6	29 1/8	23 1/8	916	174,1	100,1	130,5	13,0
K 500-900	G, G1	3	7 15/16	35 3/4	28 3/8	145,0	217,5	116,0	149,4	45
K 600-520	G, G1	3	5 11/16	20 15/16	18	58,0	87,0	34,8	46,4	7,02
K 600-710	G, G1	3	6 1/2	29	26 15/16	58,0	87,0	60,9	79,8	16,96
K 700-900	G, G1	3	7 1/2	33 7/16	29 1/16	43,5	65,0	47,9	62,4	40
K 700-901	G, G1	3	7 1/16	35 3/4	29 15/16	130,5	195,8	104,4	134,9	50

⁴⁸⁾ Data applies to maximum impeller diameter and impeller with water fill

⁴⁹⁾ Permissible operating pressure = inlet pressure + pressure at Q = 0

Gray 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 ⁵⁰⁾
		Number of impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	Max. operating pressure ⁴⁹⁾	Max. test pressure	
			[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 100-250	G, G1, G2, GH	-	100	265	200	6	9	3,4	4,5	0,056
F 100-316	G, G1, G2, GH	-	100	290	236	-	-	4,9	6,4	0,075
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 80-251	G	1	76	270	225	6	9	4,1	5,4	0,17
E 100-251	G	1	80-95	252	184	6	9	3,4	4,5	0,18
E 150-315	G	1	110-120	320	254	6	9	3,1	4,1	0,31
E 150-401	G	1	115-140	407	348	10	15	6,3	8,2	0,68
E 200-401	G	1	121-143	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	0,115
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 100-251	G, G1, GH	2	76	250	175	6	9	3,6	4,7	0,07
K 100-316	G, G1, GH	2	76	295	235	-	-	4,9	6,4	0,13
K 100-400	G, G1	2	76	408	355	-	-	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	-	-	9,0	11,7	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 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, G1	3	76	408	300	-	-	6,8	8,8	0,52
K 200-401	G, G1, GH	3	80	404	330	10	15	7,1	9,2	0,52
K 200-501	G, G1	2	105	502	450	10	15	6,4	8,3	1,68

⁵⁰⁾ Data applies to maximum impeller diameter and impeller with water fill

Size	Material variant	Impeller				Dry installation (installation types D, H)		Wet installation (installation types S, P, K)		Mass moment of inertia j ⁵⁰⁾
		Number of impeller channels	Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	Max. operating pressure ⁴⁹⁾	Max. test pressure	
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	16	24	11,7	15,2	19,03
K 300-400	G, G1	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, G1	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	14
K 400-900	G, G1	3	130	830	659	16	24	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	739	586	8	12	6,9	9,0	13,0
K 500-900	G, G1	3	202	908	721	10	15	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	Number of impeller channels	Impeller			Wet installation (installation type S, P)		Mass moment of inertia j ⁴⁸⁾
			Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	
F 40-250	H, C1, C2	-	1	8 1/4	5 7/8	114,6	142,1	0,03
F 50-215	H, C1, C2	-	1 5/8	8 1/4	5 1/8	116,0	152,3	0,019
F 50-216	H, C1, C2	-	1	8 1/4	4 11/16	94,3	123,3	0,025
F 65-215	H, C1, C2	-	2 9/16	8 1/4	4 11/16	79,8	108,8	0,025
F 80-216	H, C1, C2	-	3	8 1/4	4 11/16	72,5	94,3	0,025
F 100-250	H, C1, C2	-	4	10 7/16	7 7/8	49,3	65,3	0,056

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

Size	Material variant	Number of impeller channels	Impeller			Wet installation (installation type S, P)		Mass moment of inertia J ₄₈
			Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	
F 100-316	H, C1, C2	-	4	11 7/16	9 5/16	71,1	92,8	0,075
F 100-401	H, C1, C2	-	4	15 3/8	12 13/16	110,2	142,1	0,248
F 150-315	H, C1, C2	-	4 3/4	11 7/16	9 13/16	26,1	33,4	0,144
F 150-401	H, C1, C2	-	5 5/16	15 3/8	10 5/8	60,9	79,8	0,248
K 40-250	H, C1, C2	3	5/8	10 1/4	5 7/8	145,0	188,6	0,047
K 80-251	H, C1, C2	2	1 1/8	8 11/16	5 1/2	95,0	124,7	0,15
K 100-251	H, C1, C2	2	3	9 13/16	6 7/8	52,2	68,2	0,07
K 100-316	H, C1, C2	2	3	11 5/8	9 1/4	71,1	92,8	0,13
K 100-400	C1, C2	3	3	16 1/16	14	137,8	179,9	1,1
K 100-401	H, C1, C2	2	2	15 7/8	12 3/16	134,9	175,5	0,504
K 150-315	H, C1, C2	2	3	12 3/16	9 1/4	50,8	66,7	0,18
K 150-401	H, C1, C2	2	3	15 7/8	12 3/16	129,1	168,2	0,916
K 151-401	H, C1, C2	3	3 1/8	15 7/8	11 13/16	124,7	162,4	0,52
K 200-315	H, C1, C2	3	2 3/4	11 5/8	9 5/8	27,6	34,8	0,22
K 200-316	H, C1, C2	2	4	12	10 7/16	24,7	31,9	0,22
K 200-330	H, C1, C2	3	2 3/4	12 13/16	11 5/16	75,4	98,6	0,35
K 200-401	H, C1, C2	3	3 1/8	15 7/8	13	103,0	98,6	0,52
K 200-501	C1, C2	2	4 1/8	19 3/4	17 11/16	92,8	120,4	1,68
K 200-631	C1, C2	2	4 1/8	24 1/2	21 1/4	142,1	185,6	4,41
K 250-400	H, C1, C2	3	3 3/8	14 9/16	11 13/16	95,7	123,3	0,5
K 250-401	H, C1, C2	2	4 1/8	15 3/4	12 3/16	87,0	113,1	0,55
K 250-630	C1, C2	3	3 9/16	24 13/16	19 11/16	150,8	195,8	2,76
K 300-400	H, C1, C2	3	4	16 1/16	13 1/16	50,8	66,7	0,75
K 300-401	H, C1, C2	2	5 5/16	16 1/16	14 7/16	33,4	42,1	0,75
K 300-420	C1, C2	3	4	16 1/16	14 9/16	81,2	105,9	0,95
K 300-500	C1, C2	3	3 9/16	19 13/16	16 15/16	90,0	116,0	1,48
K 300-503	C1, C2	5	2	18 7/8	15 15/16	129,1	168,2	2,5
K 350-420	C1, C2	3	4	17 11/16	15 1/4	50,8	66,7	1,22
K 350-500	C1, C2	3	4 5/16	20	16 3/4	82,7	107,3	3,12
K 350-630	C1, C2	3	5 5/16	24 13/16	19 11/16	105,9	136,3	5,22
K 350-636	C1, C2	5	3	23 7/16	20 1/16	92,8	120,4	5,42
K 350-710	C1, C2	3	4 5/16	28 3/4	22 13/16	136,3	177,0	10,6
K 400-500	C1, C2	3	5 1/8	20	17 7/16	49,3	65,3	3,37
K 400-630	C1, C2	3	5 1/4	24 7/16	21 1/2	90,0	116,0	8,21
K 500-630	C1, C2	3	5 1/4	22 15/16	20 7/8	60,9	79,8	6,11
K 600-520	C1, C2	3	5 3/4	20 15/16	18	34,8	46,4	7,02
K 600-710	C1, C2	3	6 1/2	29	26 15/16	60,9	79,8	16,96
K 700-900	C1, C2	3	7 1/2	33 7/16	29 1/16	47,9	62,4	40
K 700-901	C1, C2	3	7 1/16	35 3/4	29 15/16	104,4	134,9	50

Industrial materials (H, C1, C2)

Size	Material variant	Number of impeller channels	Impeller			Wet installation (installation types S, P)		Mass moment of inertia J ⁽⁴⁶⁾ [kgm ²]
			Free passage	Max. impeller diameter	Min. impeller diameter	Max. operating pressure ⁴⁹⁾	Max. test pressure	
			[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 100-250	H, C1, C2	-	100	265	200	3,4	4,5	0,056
F 100-316	H, C1, C2	-	100	290	236	4,9	6,4	0,075
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 100-251	H, C1, C2	2	76	250	175	3,6	4,7	0,07
K 100-316	H, C1, C2	2	76	295	235	4,9	6,4	0,13
K 100-400	C1, C2	3	76	408	355	9,5	12,4	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 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 200-501	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-pole

Motor	Mass moment of inertia J [kgm ²]
3 2	0,002
4 2	0,002
5 2	0,01
6 2	0,01
7 2	0,01

Motor	Mass moment of inertia J [kgm ²]
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-pole

Motor	Mass moment of inertia J
	[kgm ²]
2 4	0,002
3 4	0,002
4 4	0,01
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
200 4.N	3,78
250 4.N	4,13
300 4.N	4,82
350 4.N	5,51

6-pole

Motor	Mass moment of inertia J
	[kgm ²]
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

Motor	Mass moment of inertia J
	[kgm ²]
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-pole

Motor	Mass moment of inertia J
	[kgm ²]
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
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-pole

Motor	Mass moment of inertia J
	[kgm ²]
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-pole

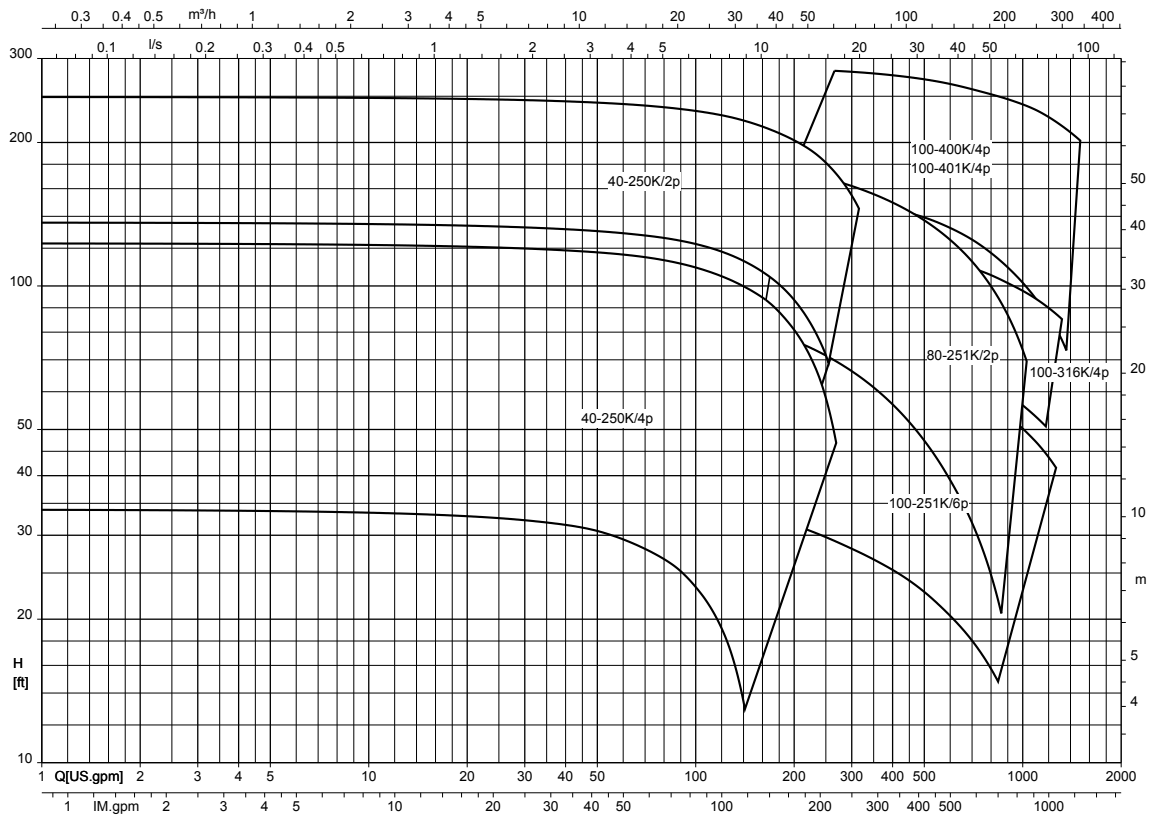
Motor	Mass moment of inertia J
	[kgm ²]
105 12.N	7,96
135 12.N	9,66
165 12.N	11,8
195 12.N	17,7

Motor	Mass moment of inertia J
	[kgm ²]
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

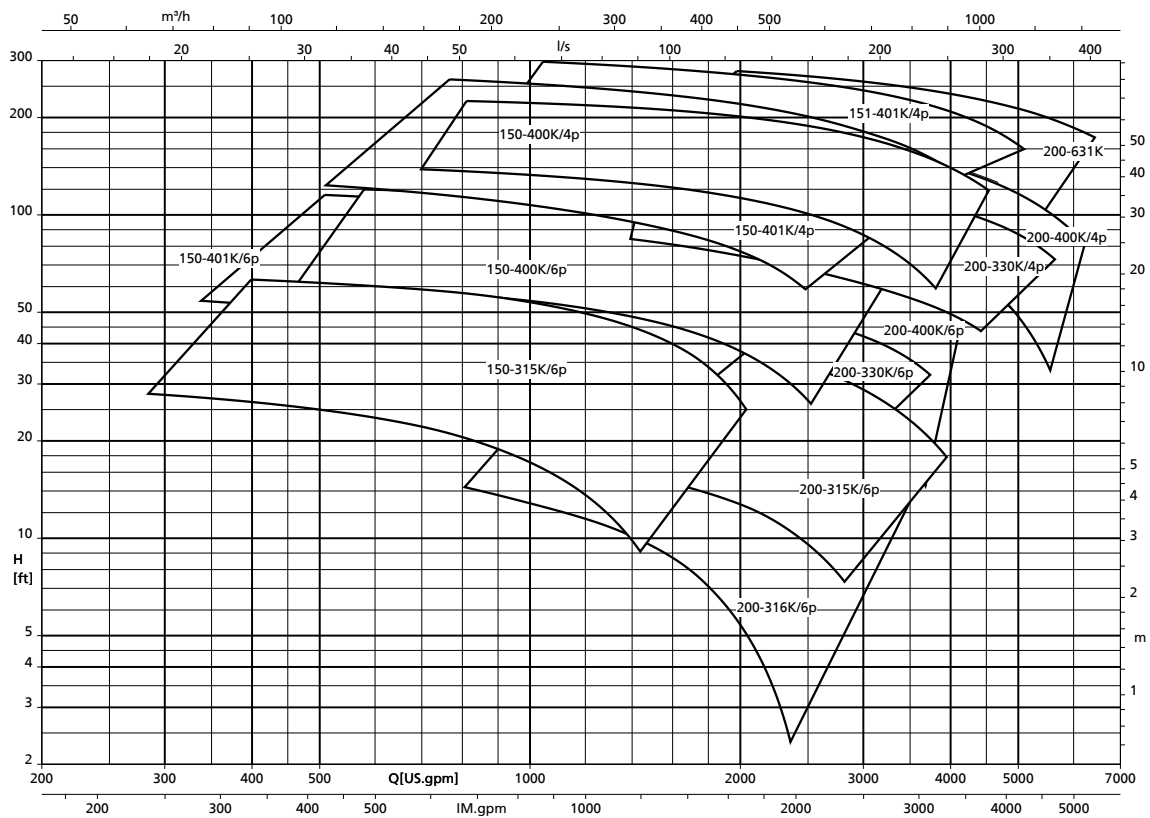
Motor	Mass moment of inertia J
	[kgm ²]
380 12.N	47,2
450 12.N	52,7
490 12.N	58,2
560 12.N	63,7

Selection charts

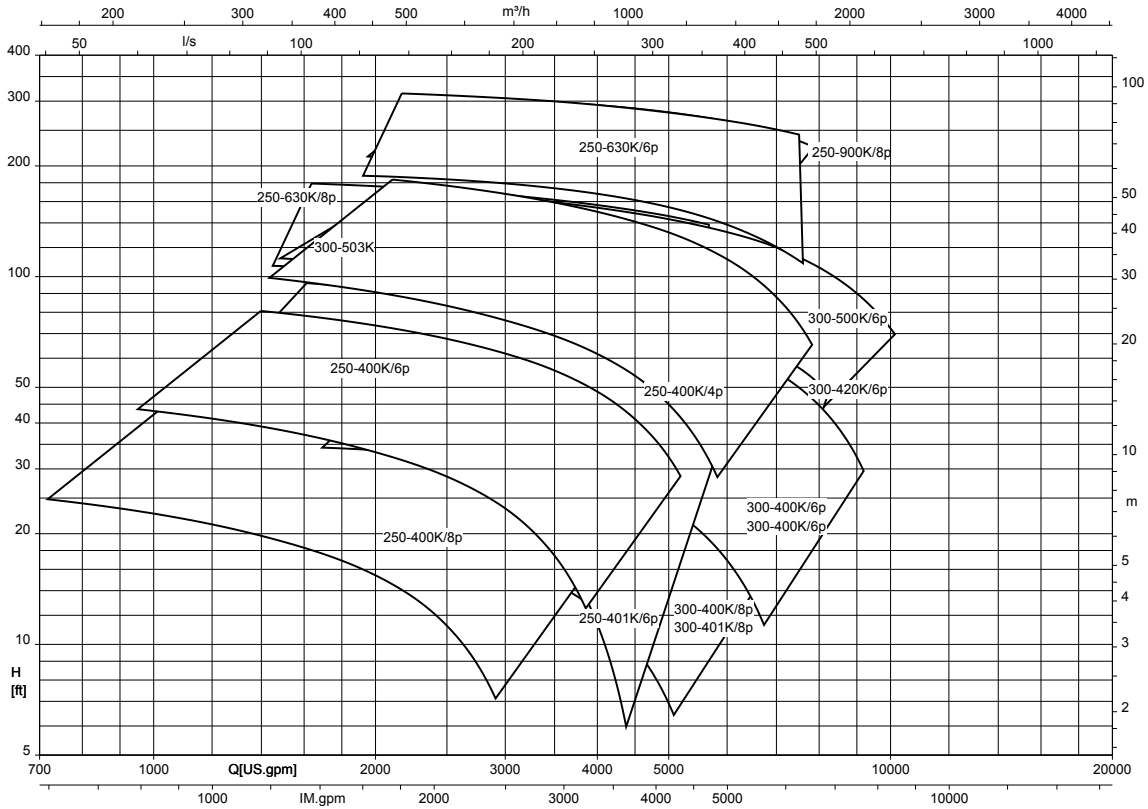
Amarex KRT 40-.../80-.../100-..., n = 3500/1750/1160 rpm, K impeller



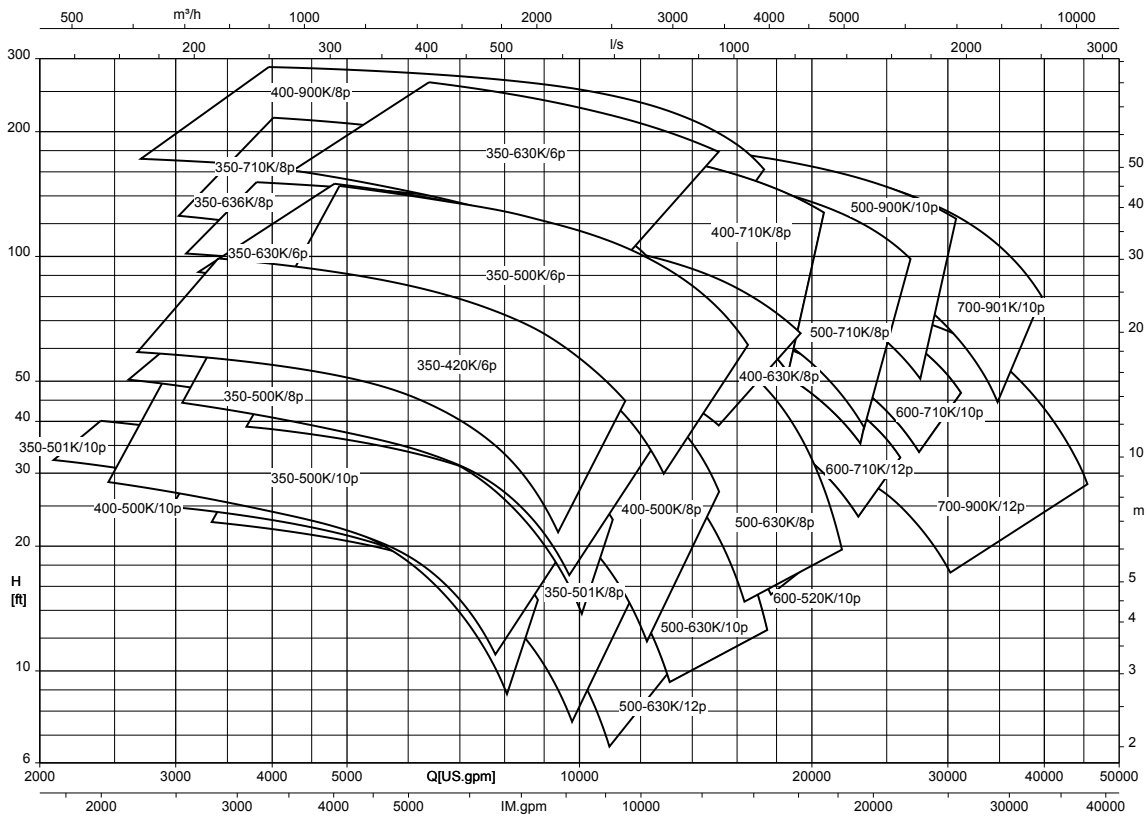
Amarex KRT 150-.../151-.../200-..., n = 1750/1160/875 rpm, K impeller



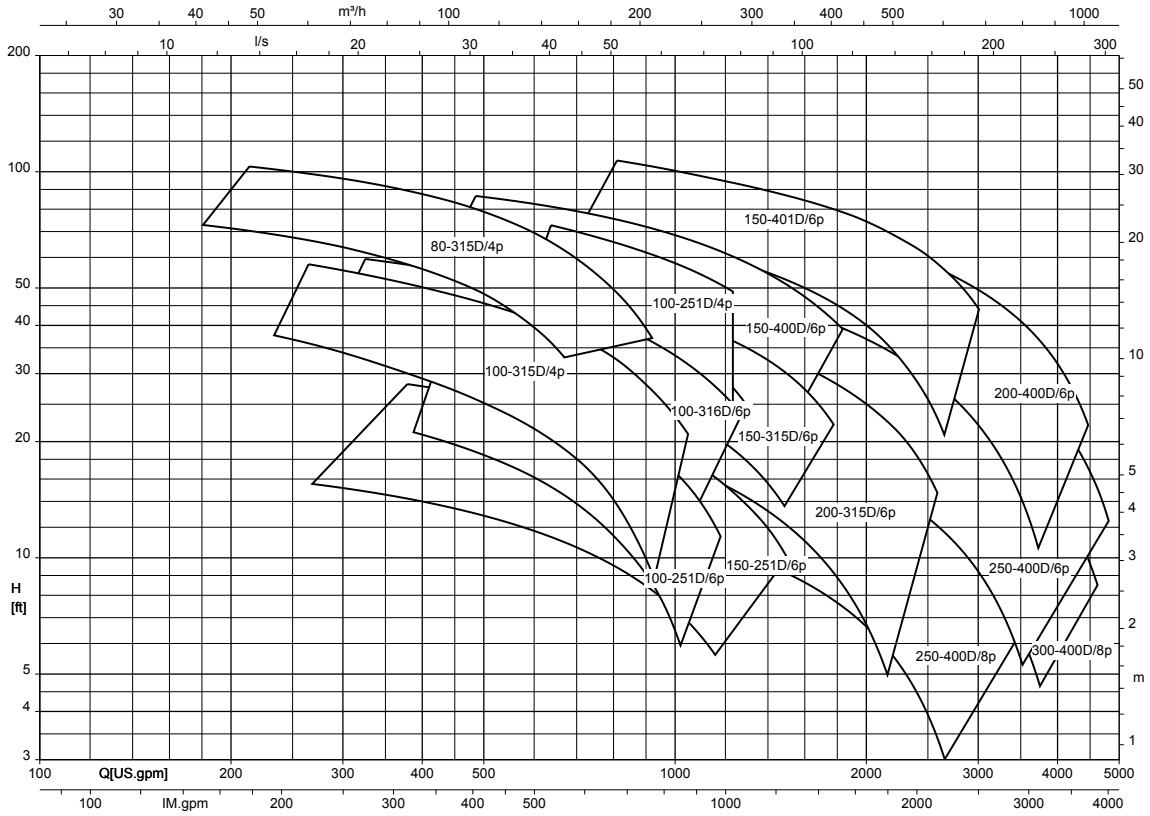
Amarex KRT 250-.../300-..., n = 1750/1160/875 rpm, K impeller



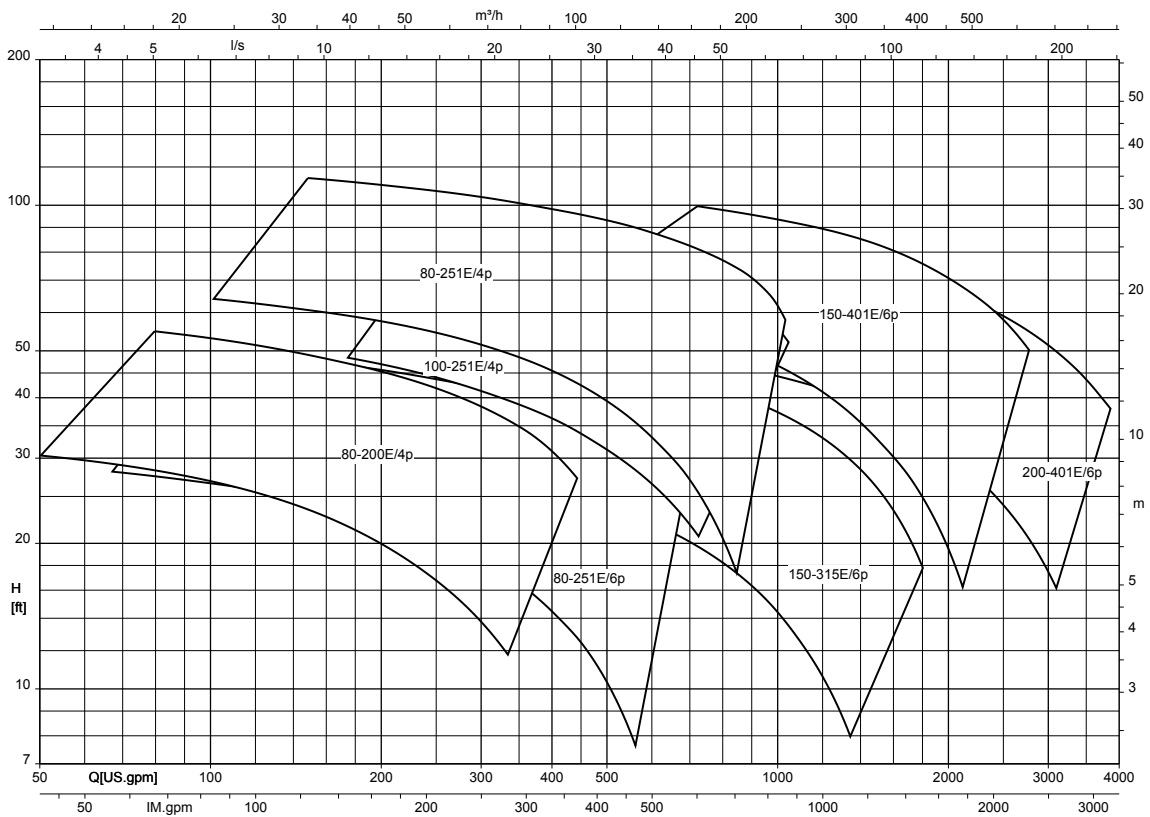
Amarex KRT 350-.../400-.../500-.../600-.../700-.../900-..., n = 1160/875/700/585 rpm, K impeller



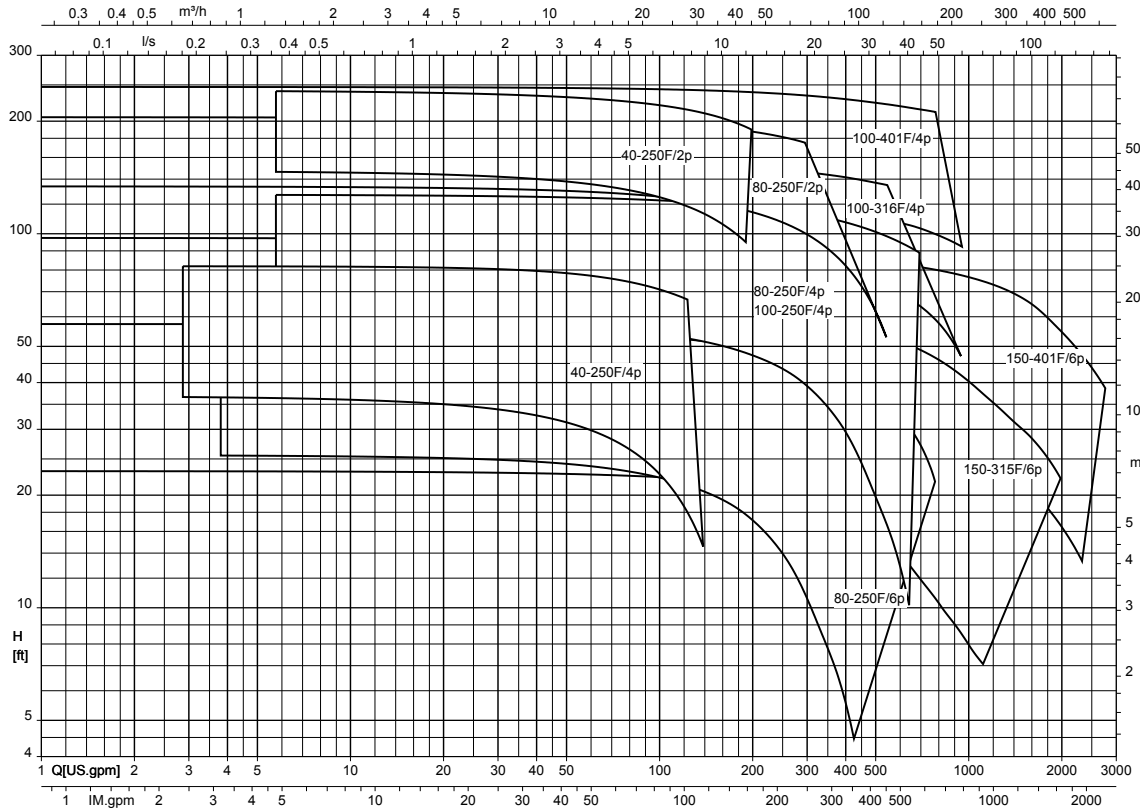
Amarex KRT, n = 1750/1160/875 rpm, D impeller



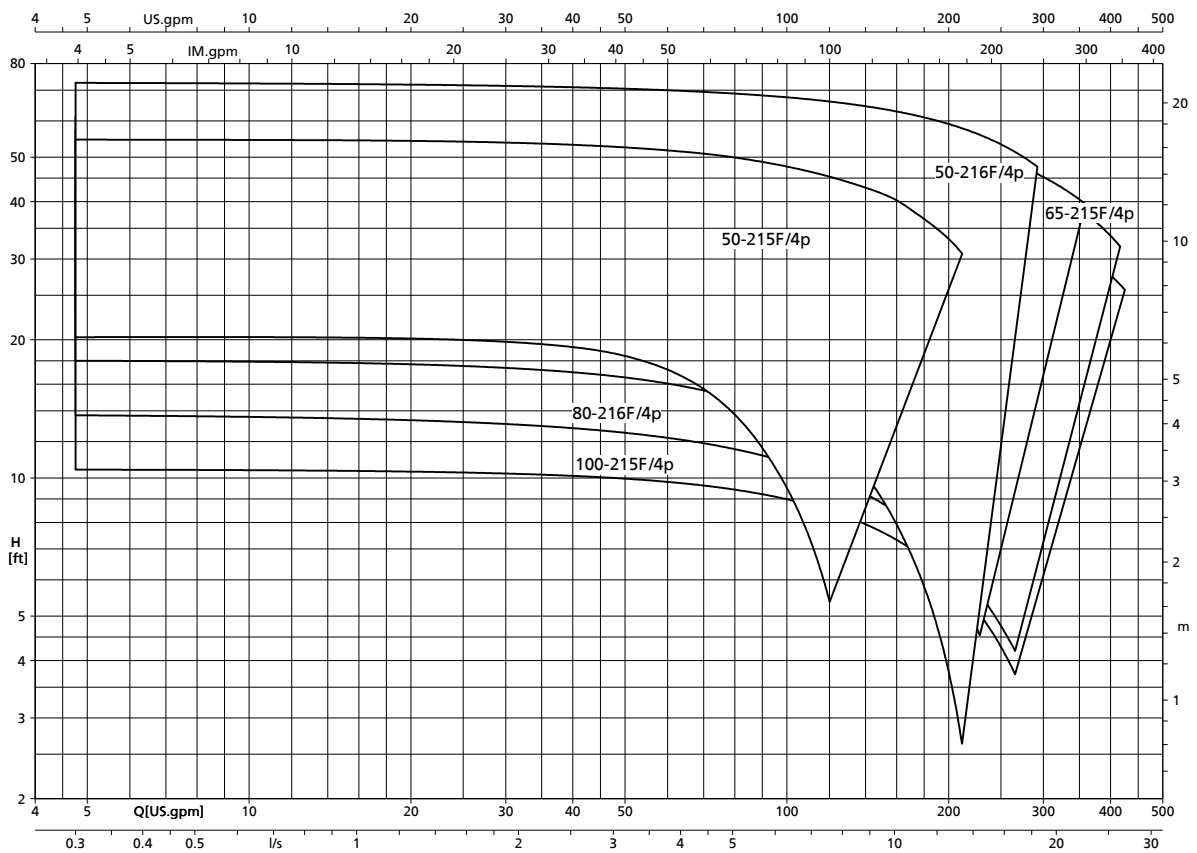
Amarex KRT, n = 1750/1160 rpm, E impeller



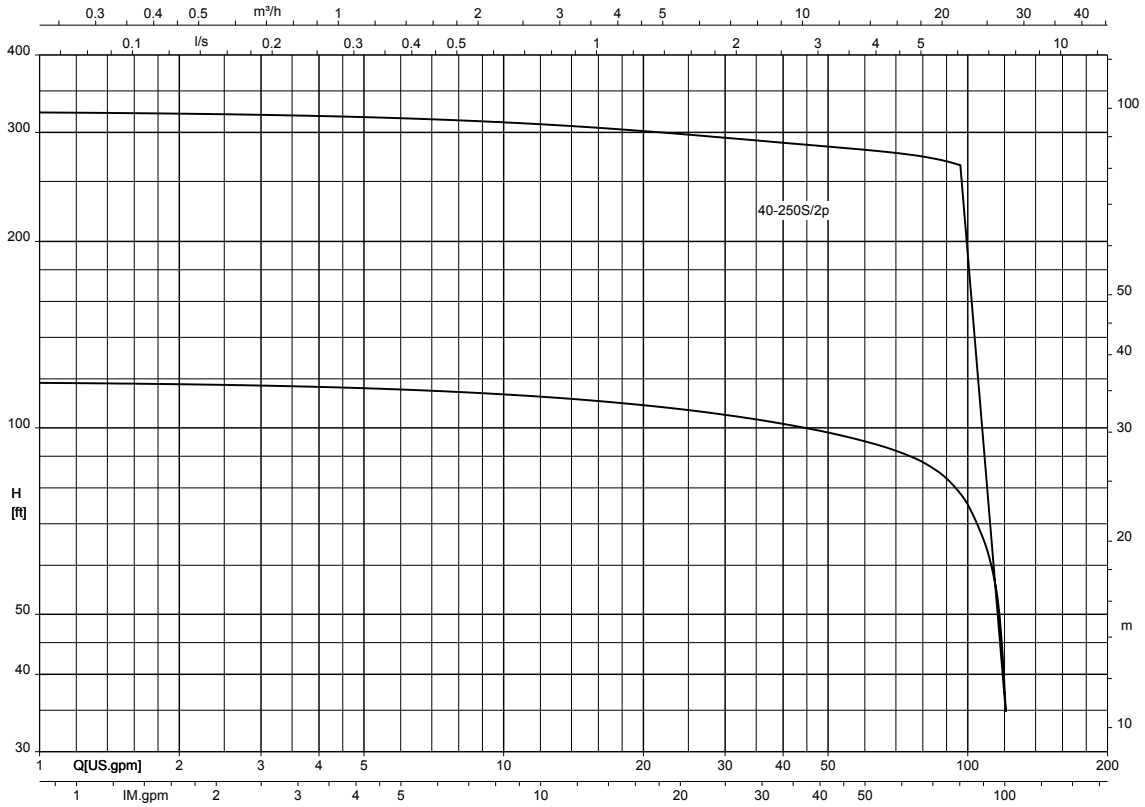
Amarex KRT, n = 3500/1750/1160 rpm, F impeller



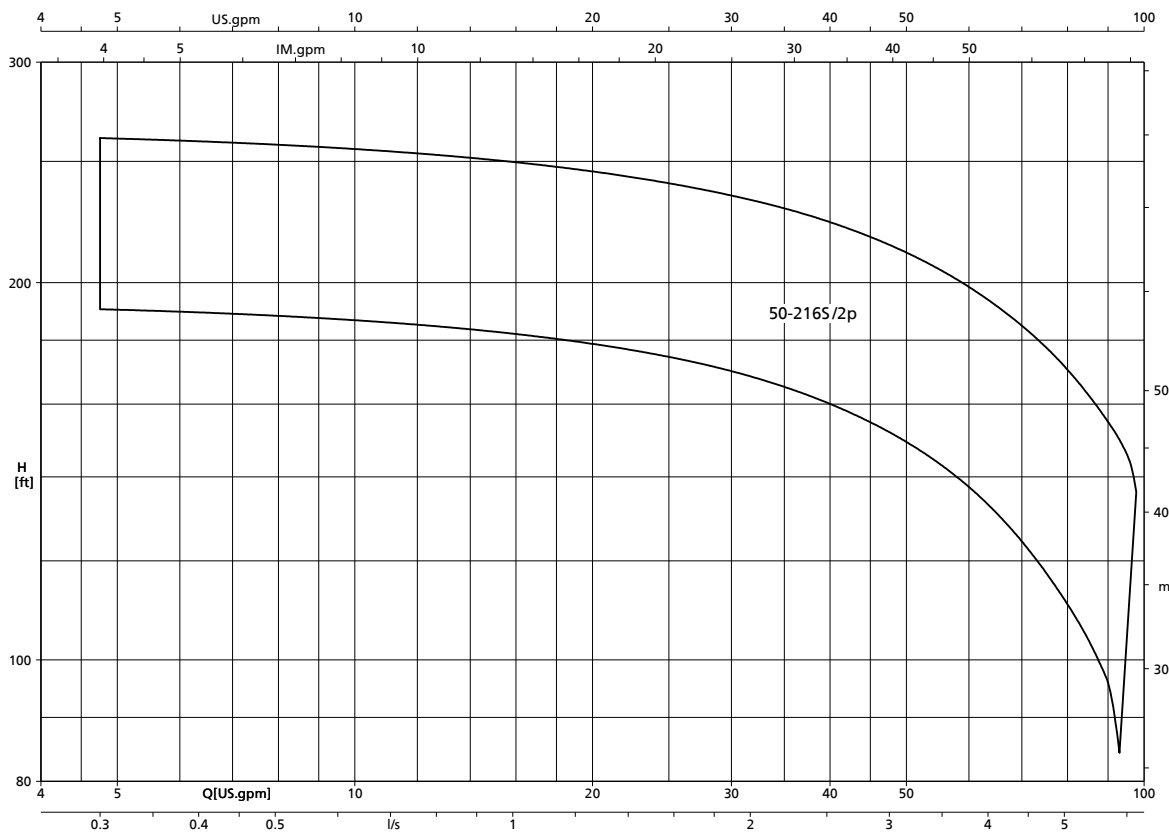
Amarex KRT, n = 1750 rpm, F-max impeller



Amarex KRT, n = 3500 rpm, S impeller



Amarex KRT, n = 3500 rpm, S-max impeller

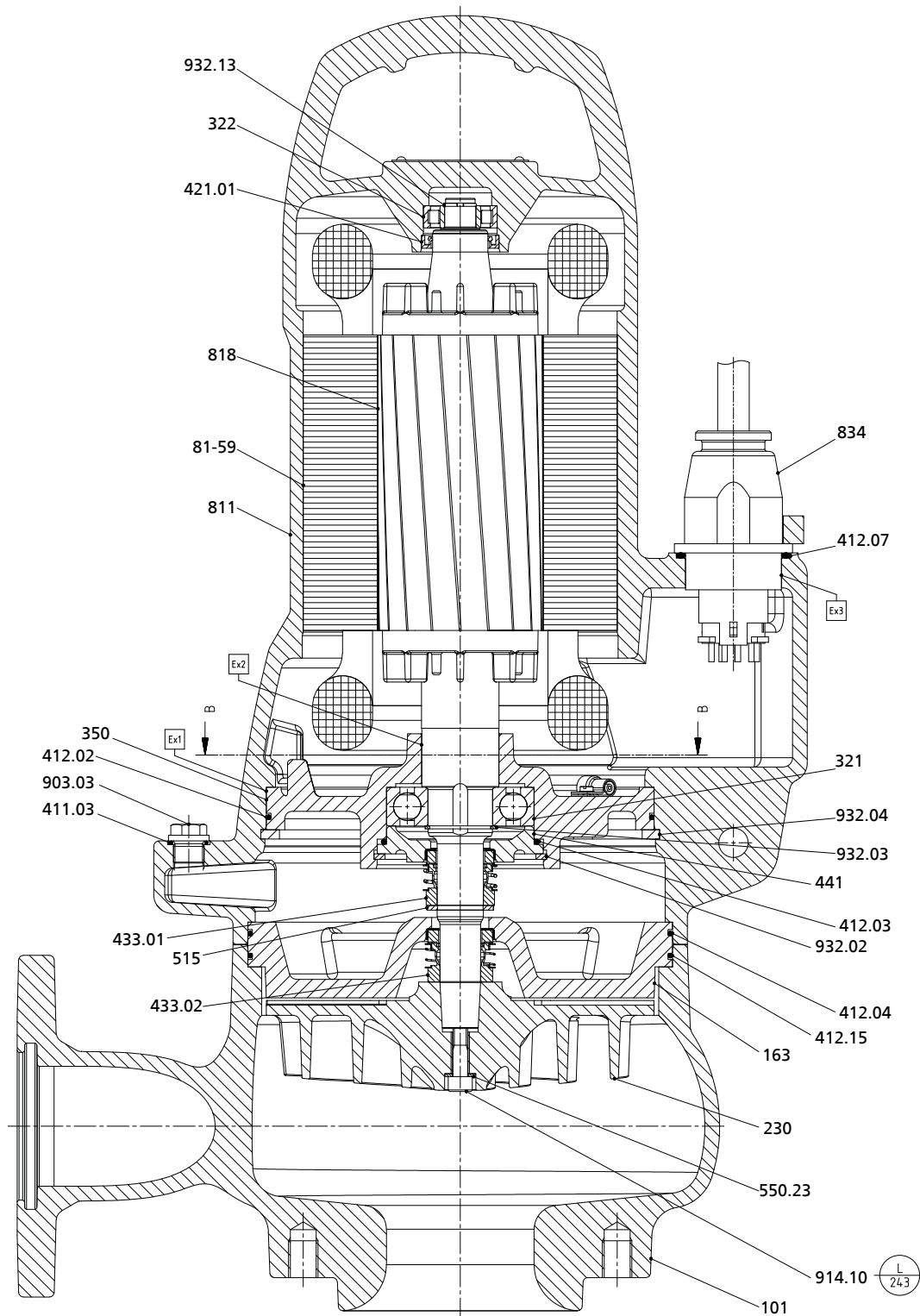


Installation types

- Installation type S: stationary wet installation (S1 operation with submerged motor)
- Installation type D: stationary dry installation, vertical (S1 operation)
- Installation type P: transportable wet installation (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)

General assembly drawings with list of components

Amarex KRT, 2.0 hp to 10.0 hp

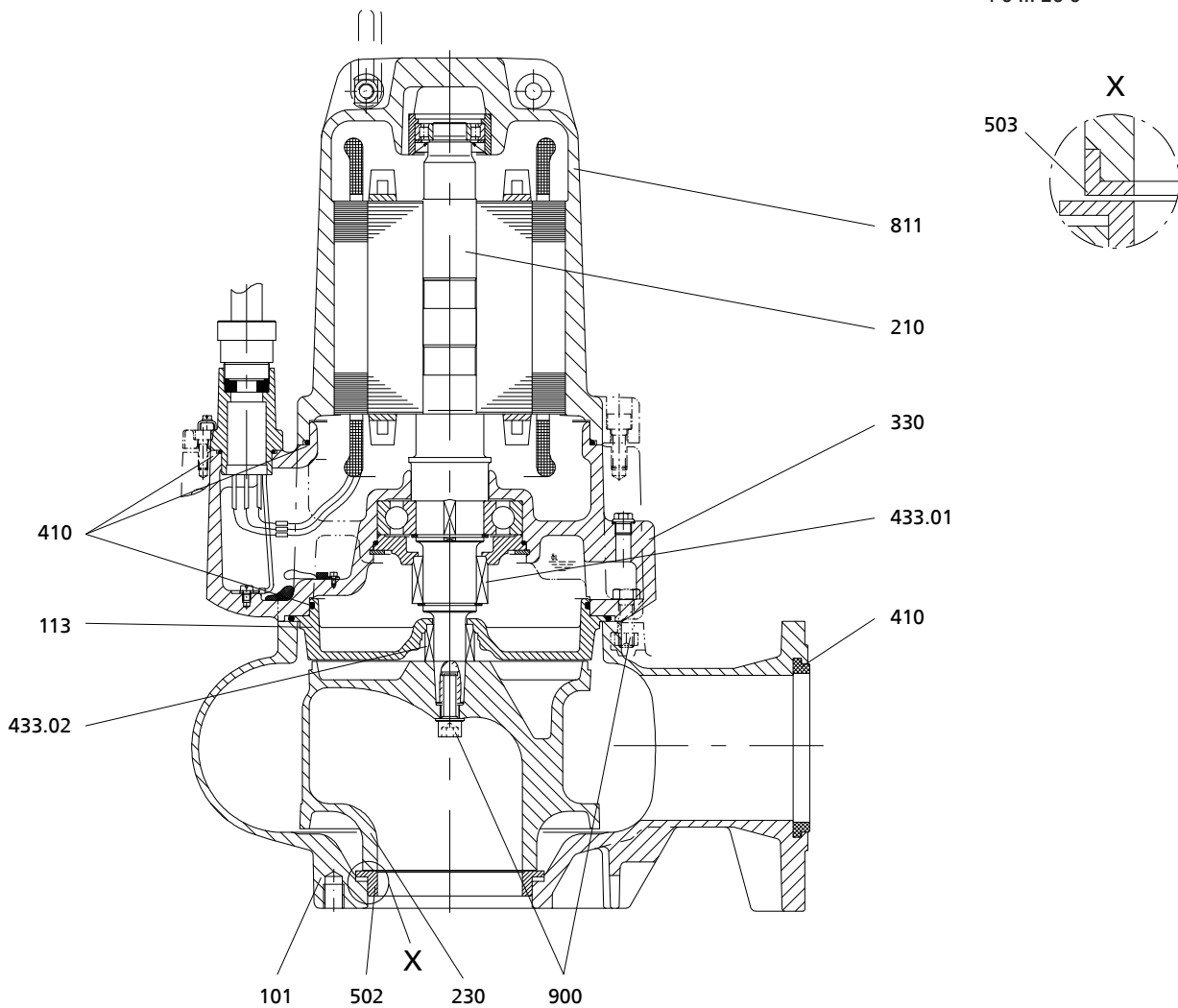


Part No.	Description	Part No.	Description
101	Pump casing	561.03	Grooved pin
162	Suction cover	596	Wire
23-7	Impeller body	69-14.02	Leakage sensor
230	Impeller	81-51	Clamping element
321	Radial ball bearing	81-59	Stator
322	Cylindrical roller bearing	811	Motor housing
350	Bearing housing	818	Rotor
411.03	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, 5.5 hp to 40.0 hp

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

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



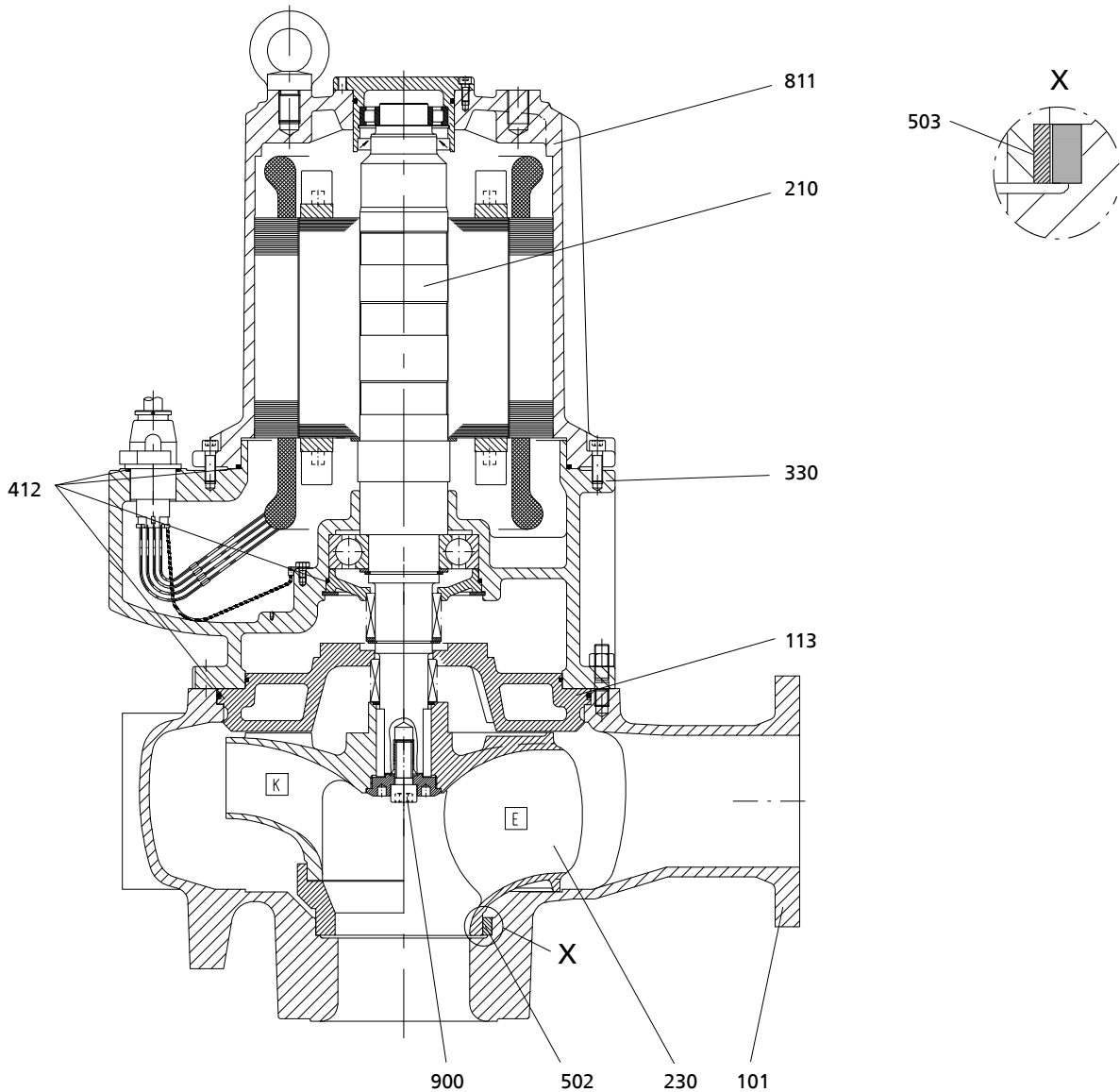
List of components

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	Screw
410	Profile joint		

Amarex KRT, 36.0 hp to 80.0 hp

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

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



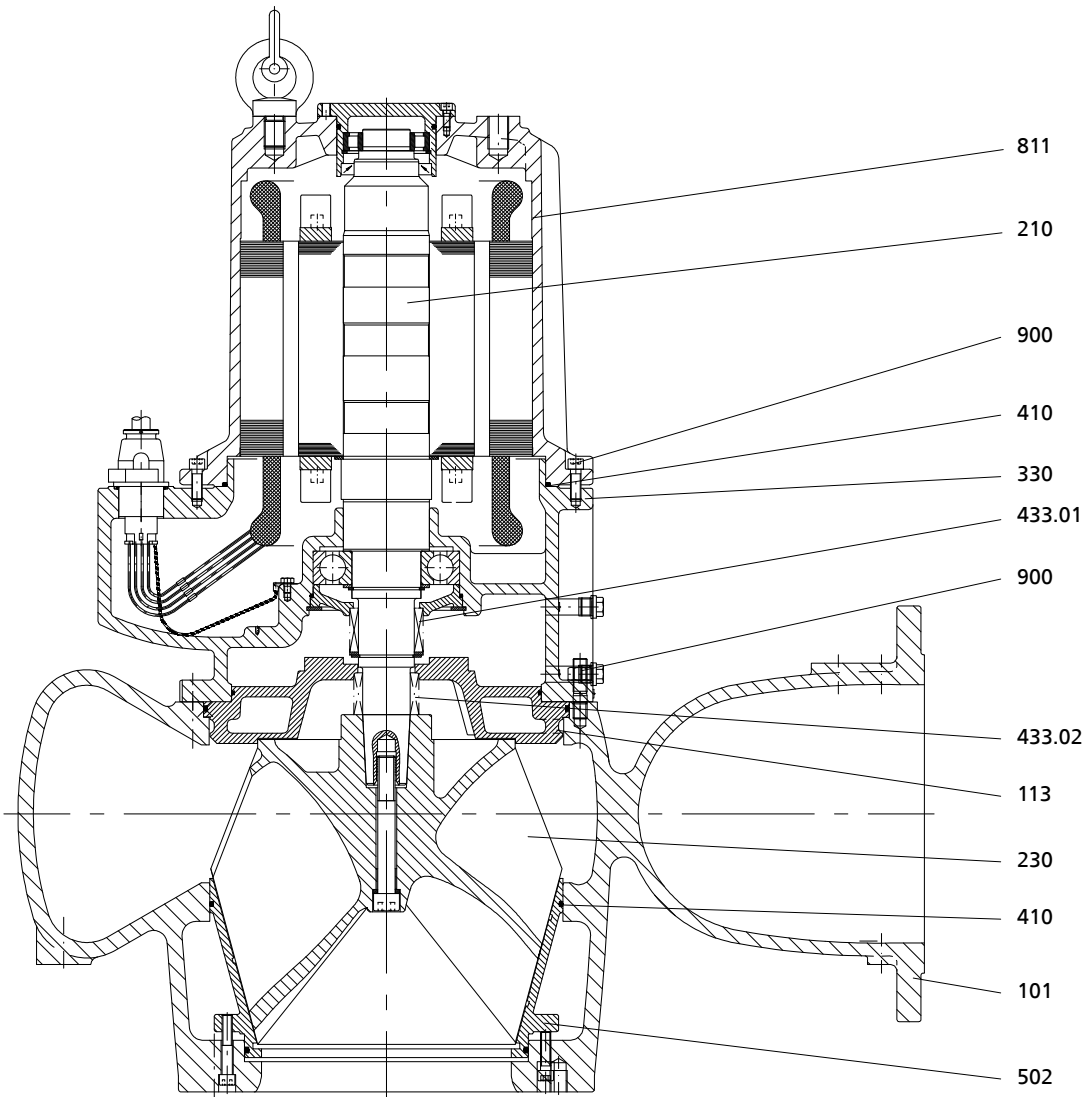
List of components

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	Screw

Amarex KRT, 6.5 hp to 50.0 hp

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

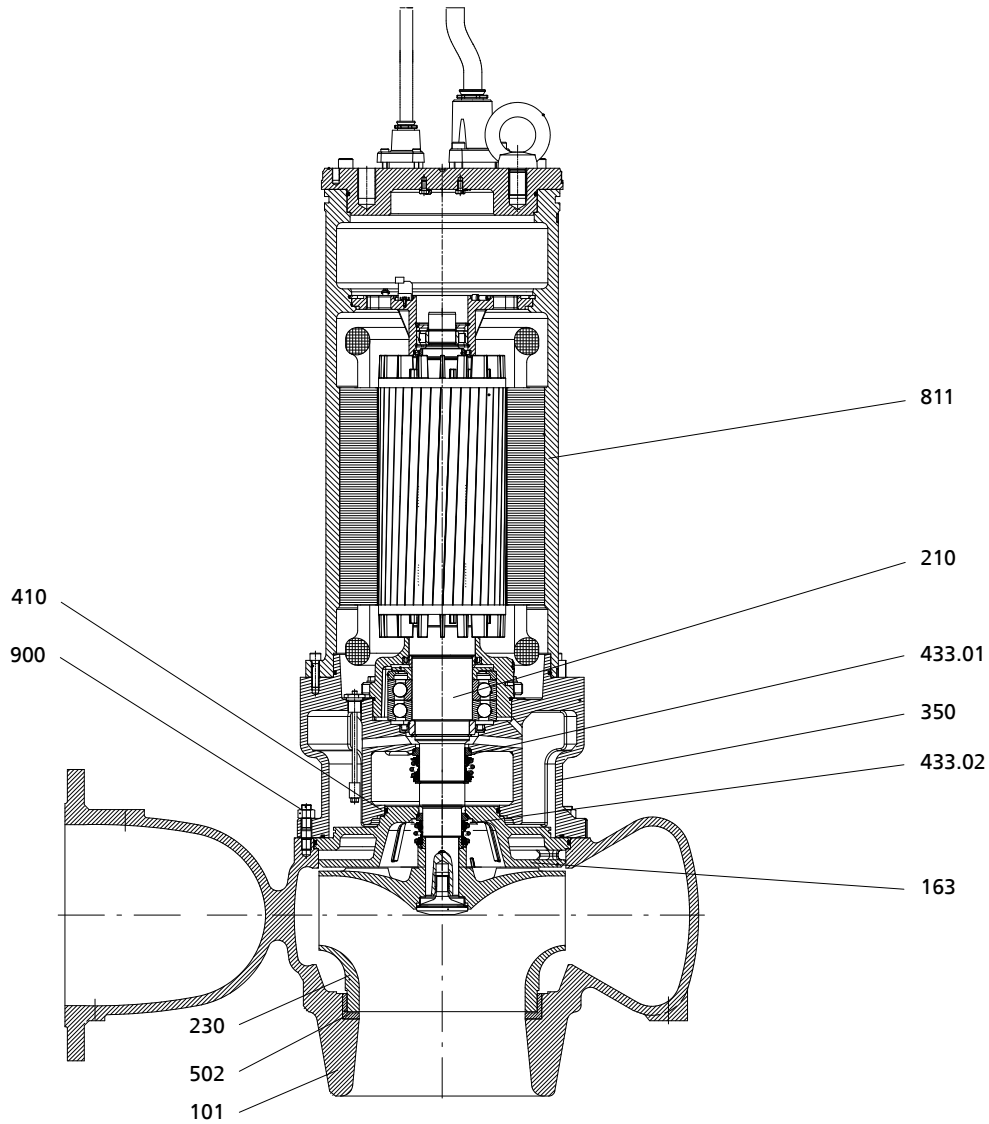
Part No.	Description	Part No.	Description
101	Pump casing	410	Profile joint
113	Intermediate casing	433.01/02	Mechanical seal
210	Shaft	502	Casing wear ring
230	Impeller	811	Motor housing
330	Bearing bracket	900	Screw

Amarex KRT, 47.0 hp to 640.0 hp, 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

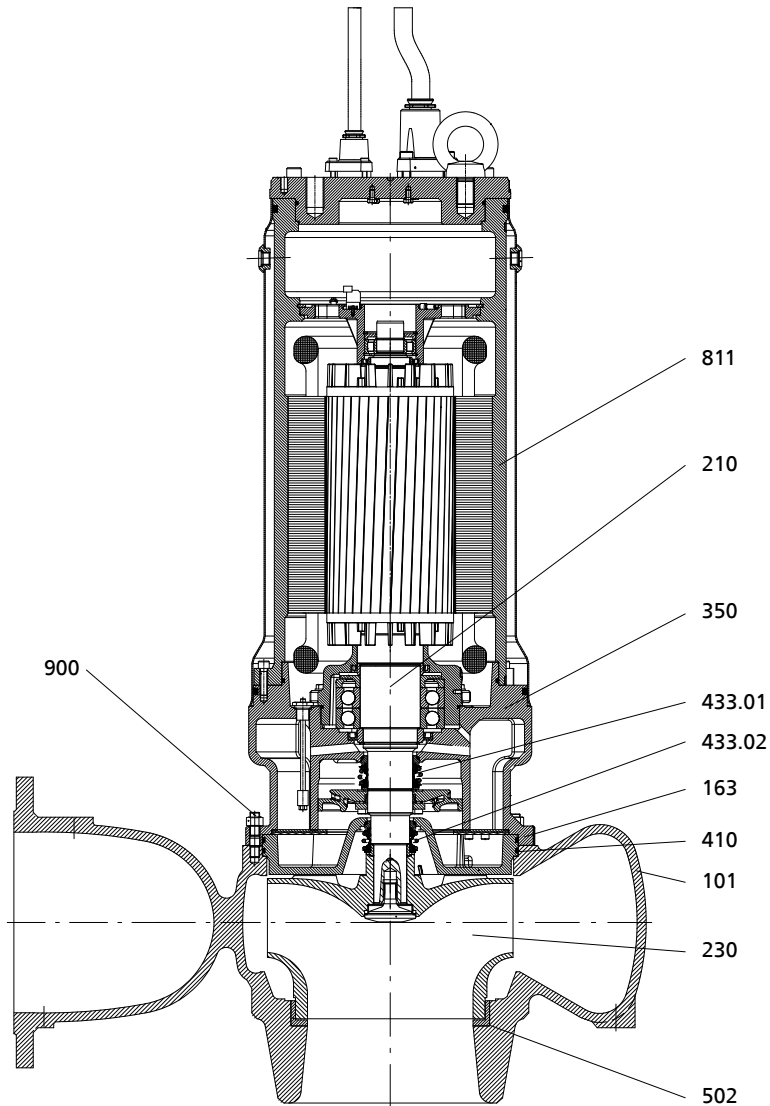
Part No.	Description	Part No.	Description
101	Pump casing	410	Profile joint
163	Discharge cover	433.01/02	Mechanical seal
210	Shaft	502	Casing wear ring
230	Impeller	811	Motor housing
350	Bearing housing	900	Screw

Amarex KRT, 47.0 hp to 640.0 hp, 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 joint
163	Discharge cover	433.01/02	Mechanical seal
210	Shaft	502	Casing wear ring
230	Impeller	811	Motor housing
350	Bearing housing	900	Screw



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