

# Submersible Motor Pumps KRT 40 to 700



# KRT Submersible motor pumps for Versatile Applications

## Fields of application:

KRT submersible motor pumps are highly efficient in the handling of:

- raw sewage containing solid and long fibrous mixtures
- contaminated liquids with a high gas and air content
- liquids containing sludge and solid substances
- concentrated sludge (KRT with agitator) for circulating and mixing the medium prior to pumping
- floating sludge and debris such as vegetable wastes, wood chips and similar waste (KRT as a vacuum suction pump on a pontoon)
- dirty water and storm water
- raw and activated sludge
- flume and wash water
- pulp
- slaughter house wastes
- water/product suspensions
- sand/cement/water mixtures
- plastic granules in liquid
- textile effluent
- industrial effluent and wash water as well as media in production plants, e.g. flume water, scale wastes, cutting oil and other media containing abrasive components.
- chemical and waste disposal effluent with pH-values 2 to 12
- effluent containing acid
- seawater and brackish water as well as other media with chlorine.

## Type of construction:

KRT submersible motor pumps are submerged, single stage close-coupled pump sets. Depending on the liquid to be pumped and the size of the pump different impeller shapes are used:

- K - Closed non-clogging 2 or 3 vane impeller
- E - Single vane impeller
- F - Vortex impeller
- S - Cutting or Grinding impeller
- D - Open single vane impeller



Three (3) 161 hp Dry-Pit Pumps with cooling jacket



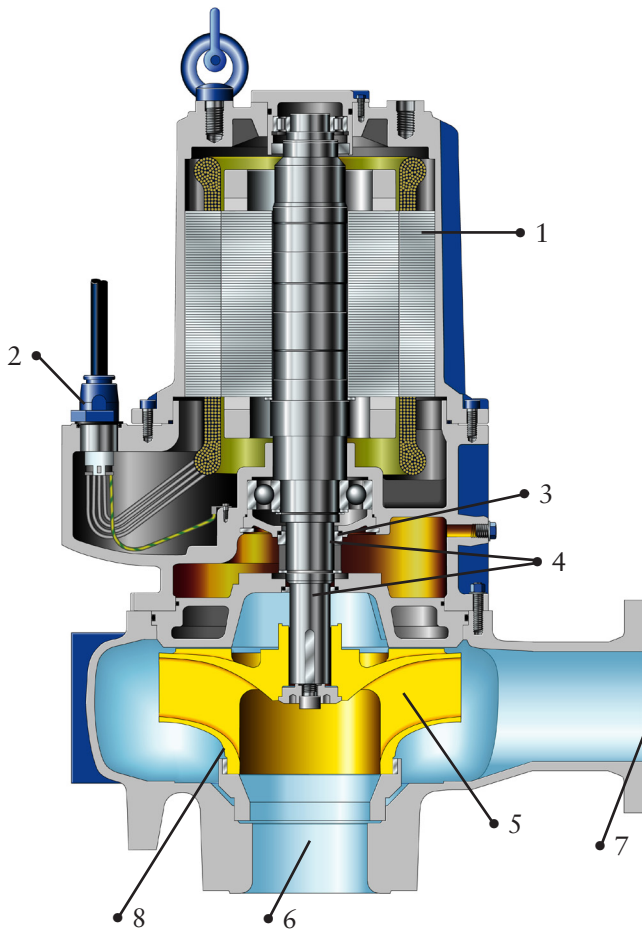
Two (2) 148 hp Submersible Pumps with cooling jacket.

## Advantages and technical features:

- economical installation
- wet installation submersible motor pumps operate submerged in the pump sump
- low building costs, eliminating intermediate shaft, drainage pump and superstructure
- pump stations below ground do not spoil the landscape, traffic areas remain unchanged when sumps are located under roads
- the compact pump/motor sets require less space and are easier to install
- with the double pump guides the pump can be installed at any installation depth and withdrawn without difficulties
- no need to enter the pump sump to carry out inspection and maintenance work
- smaller inspection opening on duplex pump sets
- small pump sump due to high permissible switching frequency
- stationary and portable applications possible, see types of installations
- permanent dry well installation possible where the pump is exposed to the danger of occasional flooding
- minimum assembly and maintenance work
- no coupling to be aligned since KRT pump and motor have a common shaft
- no sealing or flushing water required or leakage outlet
- motor cooled by the medium
- high operation safety (dry running possible)
- quiet operation

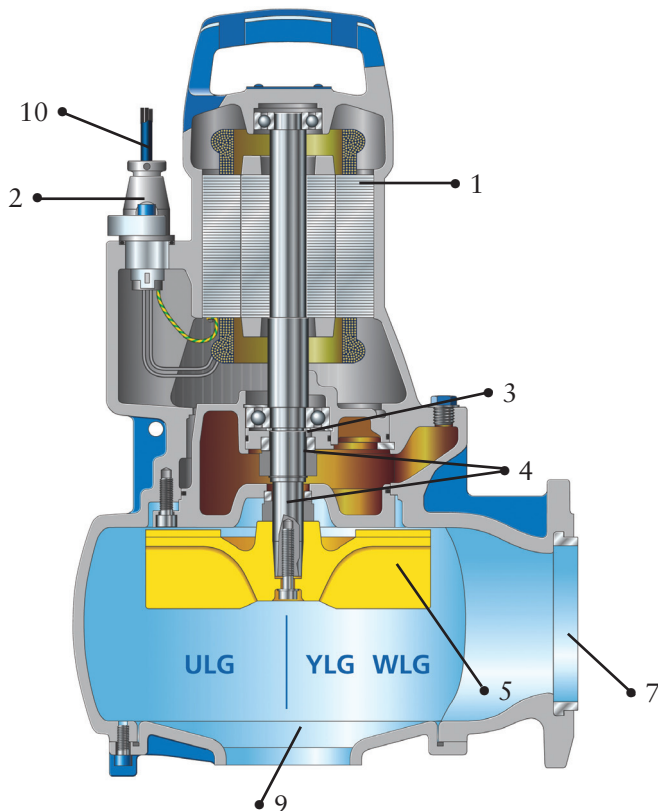
# The Safe and Reliable Solution

## Motors smaller than ~80 hp :



- 1 - Reliable Motor - specifically designed for submersible pumps with air filled housings, explosion proof ratings, continuous duty cycles and automatic monitoring of winding temperature and moisture.
- 2 - Water Tight Cable Entry - power cables with grommet and washer. Cable entry further epoxy sealed to insure no liquid gets inside the motor even if the cables are severed below water level.
- 3 - Non-proprietary silicon carbide faced mechanical seals mounted in tandem in an oil bath.
- 4 - Pump and motor shafts of stainless steel or Gr 1045 carbon steel protected and isolated by stainless steel shaft sleeves.
- 5 - Flexible Hydraulic System - enclosed 1, 2 and 3 vane, recessed, grinder or open single vane impellers available to allow a hydraulic selection ideally suited for a particular application.
- 6 - Major castings of ASTM A 48 Class 35 B cast iron, duplex stainless steel and wear resistant chromium white iron to Brinell 1000 available.
- 7 - Automatic discharge connections with a positive seal between pump and elbow insures zero leakage.
- 8 - Hard metal wear rings maintain hydraulic efficiency.

## Motors 5 hp and below :



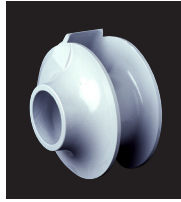
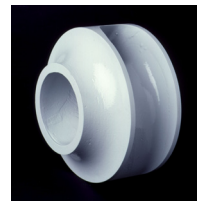



- 9 - Major castings of ASTM A 48 Class 40 B cast iron, duplex stainless steel and wear resistant chromium white iron to Brinell 1000 available.
- 10 - Plug in cable entry for a simple, polarized connection, fast pump installation and removal.
- 11 - All-in-one bearing, seal, and gasket kits that are interchangeable for all pump sizes, reducing spare parts costs.

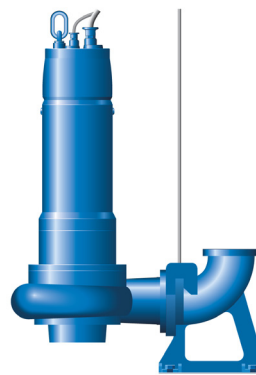


## The right impeller design for cost effective and reliable operation

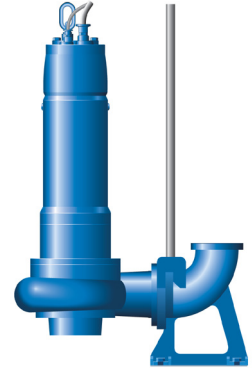
Since no one type of impeller is equally suitable for all applications, KSB offers the KRT series of submersible motor pump with various types of impellers according to specific requirements. Our range of vortex, single vane and non-clogging impellers allows the best impeller to be selected for the product with due consideration of operating parameters such as flow rate, head, efficiency, solid size, wear behavior and gas content.

Impeller Type	Description
	<p><b>S</b> - Grinder impeller for high pressure domestic sewage systems containing long fibrous admixtures</p> <ul style="list-style-type: none"> <li>- effluents</li> <li>- domestic sewage</li> </ul>
	<p><b>F</b> - Vortex impeller for liquids with coarse solids and media containing air and gas</p> <ul style="list-style-type: none"> <li>- raw sewage</li> <li>- raw and digested sludge</li> </ul>
	<p><b>E</b> - Single vane impeller for media with solid and long fibrous materials</p> <ul style="list-style-type: none"> <li>- raw sewage</li> <li>- raw sludge</li> <li>- recirculation and heating sludge</li> </ul>
	<p><b>K</b> - Closed non-clogging 2 or 3 vane impeller for contaminated solids-laden liquids</p> <ul style="list-style-type: none"> <li>- raw sewage</li> <li>- effluent</li> <li>- activated sludge</li> </ul>
	<p><b>D</b> - Open single vane impeller for handling fibrous solids and heavy sludge (up to 13% solids by weight)</p> <ul style="list-style-type: none"> <li>- raw sewage</li> <li>- raw and digested sludge</li> <li>- activated sludge</li> <li>- recirculation and heating sludge</li> </ul>

## Flexible installations



Stationary guide wire installation



Stationary guide rail installation



Transportable installation



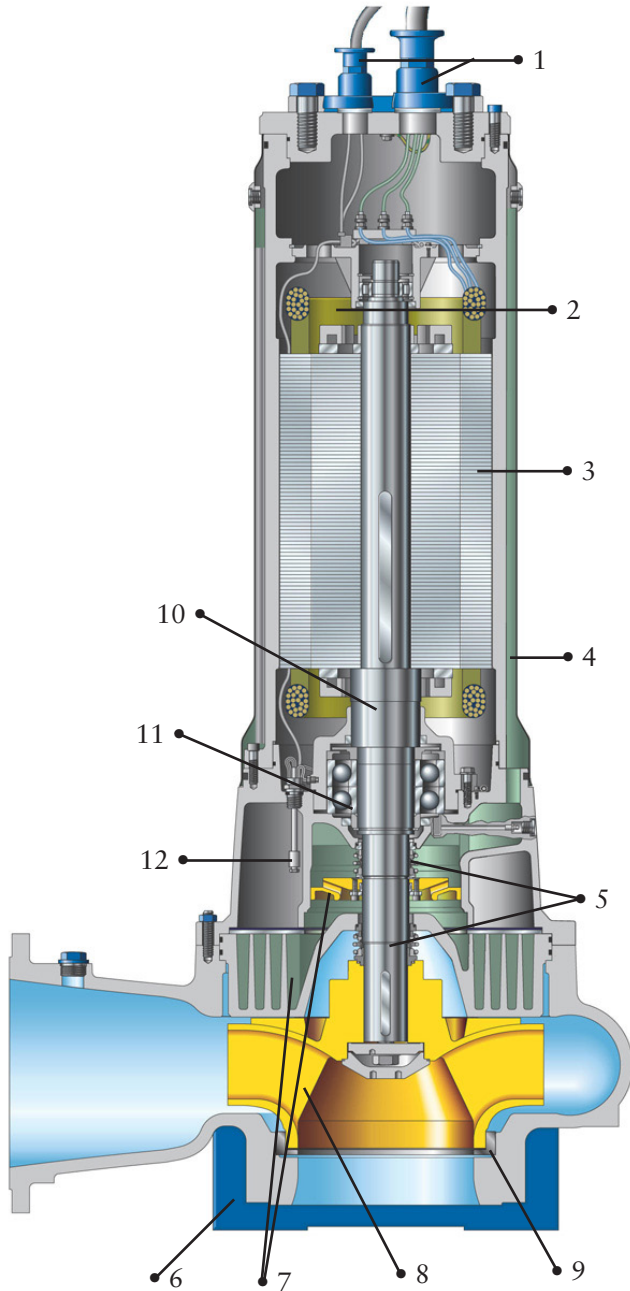
Dry installation

**Stationary guide wire or guide rail installation** - for installation in the pump sump with suspension device ensuring automatic pressure-tight coupling of the pump.

**Transportable installation** - with base stand and flange connection for pipework or hose connection (e.g. with rigid coupling)

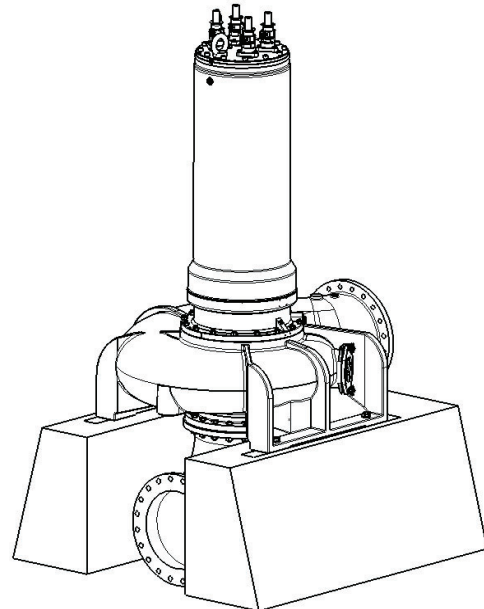
**Dry installation** - for installation in a separate dry well.

# The Pump That Keeps Cool



## \* Motors larger than ~80 hp:

- 1 - Cable Entry - absolutely water tight even in the event of damage to the cable sheath and core insulation there is no possibility of moisture entering the motor chamber along the strands due to capillary action.
- 2 - Thermal Motor Protection - extensive sensor technology for permanent monitoring to ensure trouble-free operation.
- 3 - High Efficiency Motor - all motors FM approved for Class I, Division 1 Group C & D hazardous locations.
- 4 - OPTIONAL Closed-loop Cooling System - optimal cooling in all operating conditions with no external cooling required, perfect for dry-well installations .
- 5 - Non-proprietary silicon carbide faced mechanical seals mounted in tandem in an oil bath.
- 6 - Major Casting of ASTM A 48 Class 35 B Cast iron, Duplex Stainless steel and wear resistant Chromium White Iron.
- 7 - Heat exchanger and separate coolant circulating impeller for optional cooling jacket.
- 8 - Enclosed 1, 2 and 3 vane or recessed impellers available to allow a hydraulic selection ideally suited for a particular application.
- 9 - Wear rings in hard metal to insure continued high efficiencies and long impeller life.
- 10 - Pump and motor shafts of stainless steel or Gr 1045 carbon steel protected and isolated by stainless steel shaft sleeves.
- 11 - Temperature monitoring available for lower bearing
- 12 - Float sensor in separate leakage collection chamber. Prevents leakage from reaching motor or lower bearing.



\* For certain models, 30, 40, 50, 56, and 74 HP motors with cooling jacket are also available.

## Wet Well Installations



Two (2) large 24" discharge, 148 hp Submersible Pumps with stainless steel cooling jacket on KSB guide rail system for an effluent waste water treatment pumping station.



Two (2) large 24" discharge, 251 hp Submersible Pumps and one (1) 12" discharge, 80 hp on KSB guide cable system for a stormwater station.

## Dry Well Installations

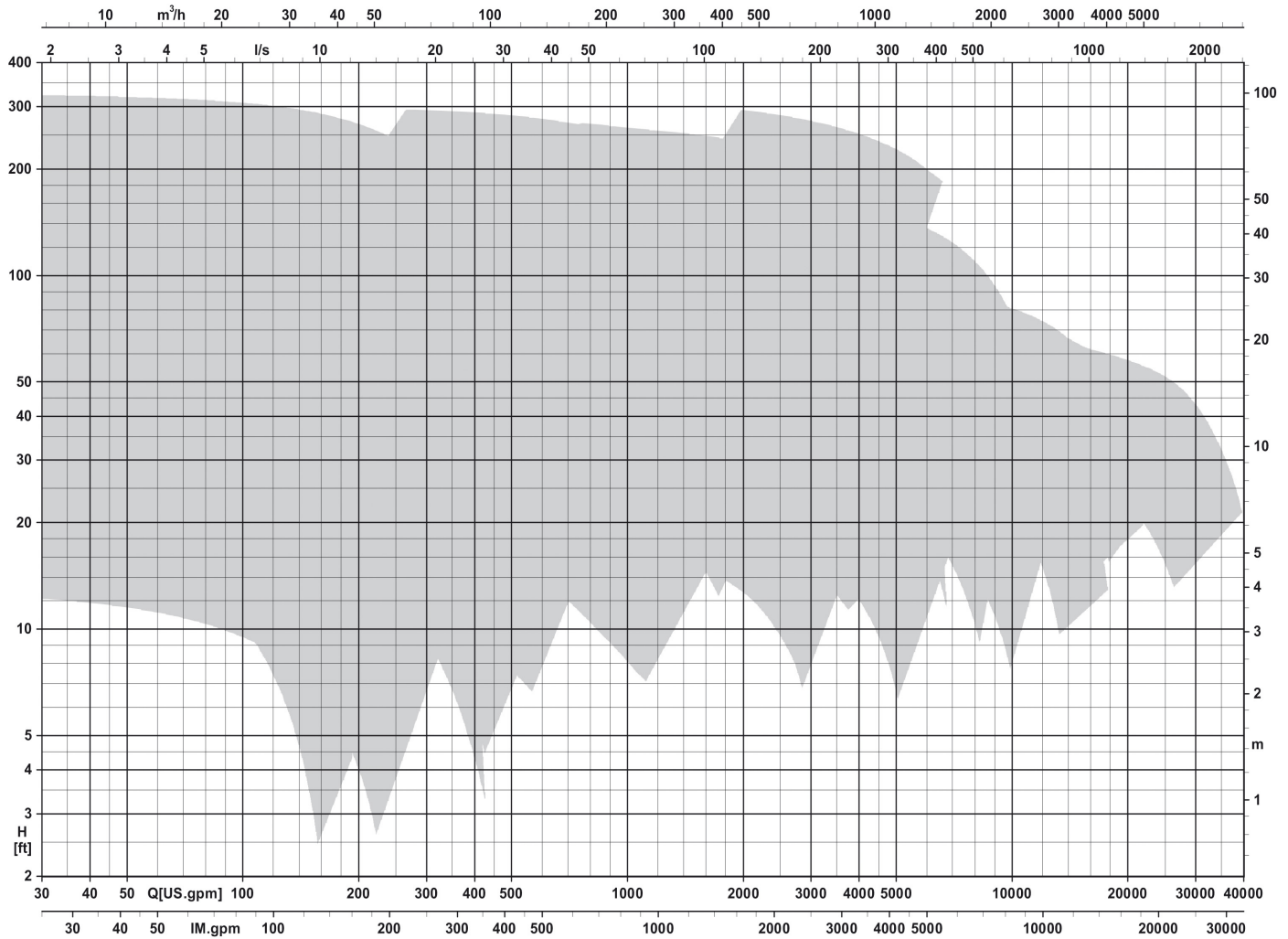


Three (3) 12" discharge, 161 hp closed-loop cooling dry-pit pumps with stainless steel Jacket in existing pumping station.



Three (3) 10" discharge, 194 hp closed-loop cooling dry-pit pumps with stainless steel Jacket in existing pumping station.

# Technical Data



## Operating Data

Pump Size - DN	2" - 30"
Capacity - Q (gpm)	up to 45,000
Head - H (ft)	up to 330
Liquid Temperature - t (°F)	up to 140
Motor Rating - P (hp)	up to 1,080

Material Options	Cast Iron A 48 Class 35 B				Wear Resistant Chromium White Iron A 532 II C 15% CrMo-Hc	Duplex Stainless Steel A 743 CD 4 MCU	
Part Designation	G	G1	G2	GH	H	C1	C2
Pump Casing	A 48 Class 35 B				A532 II C 15% CrMo-Hc	A 743 CD 4 MCU	
Intermediate Casing	A 48 Class 35 B				A 532 II C 15% CrMo-Hc	A 743 CD 4 MCU	
Shaft	A 276 Type 420; A 576 Gr. 1045 w/shaft protection sleeve					A 276 S 31803/A 576 Gr. 1045	
Impeller	A 48 class 35 B	A 743 CD 4 MCU	A 532 II C 15% CrMo-Hc			A 276 S 31803/A 576 Gr. 1045	
Motor Casing	A 48 Class 35 B					A 743 CD 4 MCU	
Discharge Elbow	A 48 Class 35 B				A 532 II C 15% CrMo-Hc	A 743 CD 4 MCU	
Power/Control Cable	Neoprene						

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