

Hydraulics selection

Use the following tables to identify the most suitable pump hydraulics type.

Liquid description	Recommended material grade	Open S-tube® hydraulics without guide vane (standard)	Open S-tube® hydraulics with guide vane (optional)	Closed S-tube® hydraulics	Supervortex hydraulics	Recommendations
Surface water						
Drainage water	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
River water	Grey cast iron	x		x	x	Observe operating conditions when selecting optimal hydraulic variant.
	Stainless steel (Q variant)	x		x	x	Observe content of abrasives in the pumped liquid.
	White cast iron (W variant)		x			Observe free passage through pump or consider pre-screening of water.
Storm water	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			

Liquid description	Recommended material grade	Open S-tube® hydraulics without guide vane (standard)	Open S-tube® hydraulics with guide vane (optional)	Closed S-tube® hydraulics	Supervortex hydraulics	Recommendations
Wastewater						
Domestic wastewater from buildings	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Untreated municipal wastewater	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			Observe and consider:
High head/low flow wastewater handling	Grey cast iron	x		x	x	Local legislation and free passage through pump e.g. EN 12050.
	Stainless steel (Q variant)	x		x	x	Local legislation and free passage through pump e.g. EN 16932:2018.
	White cast iron (W variant)		x			Open S-tube® hydraulics available with guide vane to swipe fibers away (optional solution).
Wastewater with long fibrous material	Grey cast iron	x		x	x	Content of abrasives in the pumped liquid.
	Stainless steel (Q variant)	x		x	x	Operational time and hydraulic efficiency.
	White cast iron (W variant)		x			The need for ceramic-coated pumps (optional).
Wastewater with abrasive/unsuspended solids (dry matter content up to 3%)	Grey cast iron	x		x	x	
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Wastewater with abrasive/unsuspended solids (dry matter content up to 5%)	Grey cast iron	x		-	x	
	Stainless steel (Q variant)	(x)		-	x	
	White cast iron (W variant)		x			

Liquid description	Recommended material grade	Open S-tube® hydraulics without guide vane (standard)	Open S-tube® hydraulics with guide vane (optional)	Closed S-tube® hydraulics	Supervortex hydraulics	Recommendations
Sludge						
Raw sludge with dry matter content up to 4% (un-screened)	Grey cast iron	x		x	x	Observe and consider: Local legislation and free passage through pump e.g. EN 12050. Local legislation and free passage through pump e.g. EN 16932:2018.
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Digested sludge with dry matter content up to 4-5% depending on screening	Grey cast iron	x		x	x	Open S-tube® hydraulics available with guide vane to swipe fibers away (optional solution). Content of abrasives in the pumped liquid.
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Activated sludge with dry matter content up to 4-5% depending on screening	Grey cast iron	x		x	x	Operational time and hydraulic efficiency. The need for ceramic-coated pumps (optional).
	Stainless steel (Q variant)	x		x	x	
	White cast iron (W variant)		x			
Industrial wastewater containing:						
Suspensions like paint, lacquer and varnish	Grey cast iron			x	x	Observe and consider: Operating conditions when selecting optimal hydraulic variant. Open S-tube® hydraulics available with guide vane to swipe fibers away (optional solution).
	Stainless steel (Q variant)			x	x	
	White cast iron (W variant)				x	
Acidic wastewater (down to pH 6.5)	Grey cast iron			x	x	Operational time and hydraulic efficiency. Content of abrasives in the pumped liquid
	Stainless steel (Q variant)			x	x	
	White cast iron (W variant)				x	
Basic wastewater (up to pH 14)	Grey cast iron			x	x	The need for ceramic-coated pumps (optional). The need for alternative seal face materials in shaft seals, contact Grundfos.
	Stainless steel (Q variant)			x	x	
	White cast iron (W variant)				x	
Highly abrasive industrial effluent, causing wear						
Lime water	Grey cast iron			(x)	(x)	x
	Stainless steel (Q variant)			(x)	(x)	
	White cast iron (W variant)			(x)		
Lime milk containing quartz and pigment suspensions	Grey cast iron			(x)	(x)	x Consider operational time and hydraulic efficiency. Observe the need for ceramic-coated pumps in cast iron execution (optional).
	Stainless steel (Q variant)			(x)	(x)	
	White cast iron (W variant)			(x)		
Effluent industrial wastewater containing solids	Grey cast iron			(x)	(x)	x Observe the need for alternative seal face materials in shaft seals, contact Grundfos.
	Stainless steel (Q variant)			(x)	(x)	
	White cast iron (W variant)			(x)		
Effluent industrial wastewater containing high content of dust and ashes	Grey cast iron			(x)	(x)	x
	Stainless steel (Q variant)			(x)	(x)	
	White cast iron (W variant)			(x)		

Additional water types					
Brackish water	Grey cast iron	x	x	x	Material variants depend on both temperature and chloride content of brackish water, see brochure titled "GRUNDFOS SL, SE, S PUMP VARIANTS, 1.1 - 520 kW (Product brochure)" (publication no. 97745765) available in Grundfos Product Center.
	Stainless steel (Q variant)	x	x	x	
	White cast iron (W variant)		x		
Sea water	Grey cast iron	x	x	x	Observe the need for cathodic protection and coating of the pump.
	Stainless steel (Q variant)	x	x	x	
	White cast iron (W variant)		x		

Legend

x	Recommended choice
(x)	Optional, contact Grundfos.

5.2 Basic pump configuration

- See Type key to identify the pump specification.

Example: Product name	
Pump type: Sewage pump with cooling jacket	SE
Impeller type: 1-channel, closed S-tube®	1.
Pump free passage: 85 mm	85.
Pump outlet: DN 100	100.
Power: 13 kW	130.
Sensor version: Standard pump or standard Ex pump	
Number of poles: 4-pole motor	4

Features of a standard pump:

- 10 m cable
- paint: NCS 9000N, RAL 9005 (black), average thickness 150 µm
- three thermal switches, one in each phase, or three thermal sensors (PTC)
- one moisture switch below the motor top cover
- one leakage switch in the leakage chamber (standard pump) or in the bottom of the stator housing (standard Ex pump)
- tested according to ISO 9906:2012, grade 3B.

Note: For further information on technical data, visit the Grundfos Product Center.