

Submersible Grinder Pumps Type ABS Piranha



Main Applications

Sulzer's range of submersible grinder pumps, type ABS Piranha, contain the most effective cutting system for use in pressure sewer systems. The Piranha pumps have proven themselves to be one of the market's best ongoing performers, having excellent total lifecycle costs from initial purchase through ongoing operation.

The Piranha pumps provide a means of effective and economical wastewater transport utilizing small-diameter discharge pipes as opposed to larger diameter pipes required for gravity systems. These pumps are ideally suited for:

- Private residences and community subdivisions
- Municipal wastewater transport
- Commercial wastewater handling of domestic sewage in business parks, restaurants, hospitals, industrial areas, etc.
- Industrial wastewater handling of industrial areas, slaughter houses, food processing plants, paper mills, agricultural applications, etc.
- Hazardous locations requiring certification in accordance with ATEX (EX II 2 G k Ex d IIB T4); FM and CSA available as an option

The Most Effective Cutting System

The Piranha cutter system features a completely different concept in grinder pump design. The design consists of a lobed rotor cutting element attached to a centrifugal impeller working in tandem with a stationary cutting element fastened to a spiral-grooved bottom plate. The lobed rotor turns inside the stationary cutter designed with wave-shaped castellations. The number of waves is one less than the number of lobes on the rotor. This causes an opening to be formed between the rotor and stationary cutter. The normal pumping action of the impeller causes water and solids to flow into the cutting elements and as the solids are sheared into small particles, they are pumped by the impeller into the discharge pipe. Should any of the finely cut particles try to wedge between the impeller and bottom plate, the outward threaded spiral grooves will move them to the discharge.



The Right Installation to Fit Any Need

The Piranha grinder pumps can be installed in several configurations to fulfill virtually any customer requirements, including:

- Fixed installations with pedestal (guide rail assembly)
- Freestanding, transportable applications
- Installation in areas where large fluctuations in terrain elevation are present

Features and Benefits

Piranha PE

Sulzer's premium range of submersible grinder pumps, type ABS Piranha PE, are equipped with Premium Efficiency IE3 Motors in accordance to IEC 60034-20.

Sulzer was the first company in the world to offer Premium Efficiency IE3 submersible motors to achieve the perfect balance of reliability and energy consumption. Utilizing Premium Efficiency IE3 motors and the most effective cutting system, the Piranha grinder pumps are one of the best pumps on the market resulting in zero blockages and low life cycle costs, providing reliability and energy savings.

1 Piranha cutting system

- A spiral-grooved bottom plate and stationary cutting element, combined with a lobed rotor cutting element prior to the impeller provide optimum, blockage-free operation

2 Seal leak detection system

- Advanced warning allows for repair of the pump seal prior to water entering the motor

3 Premium Efficiency Motor (IE3) in accordance to IEC 60034-30

- Low Life Cycle Costs through energy savings
- Significant CO₂ footprint reduction
- Increased lifetime due to low winding temperature rise

4 Double mechanical seals

- Silicon carbide/silicon carbide (SiC/SiC) provides maximum resistance from abrasives
- Seal protection system increases the longevity of the lower seal and reduces maintenance costs
- SiC/SiC is chemical resistant in wastewater and most other industrial applications

5 Small diameter discharges (DN32/1-1/4" threaded and DN50/2" flanged)

- Low installation costs
- Can be installed in areas where the laying of conventional sewer pipes would not be physically possible

6 Temperature monitoring

- Thermal sensors are embedded in the stator windings and can be used to shut the pump off in case of overheating and automatically switch back on once cooled

7 Bearings

- The stainless steel motor shaft is supported by lubricated-for-life, heavy-duty, ball bearings

8 Cable plug

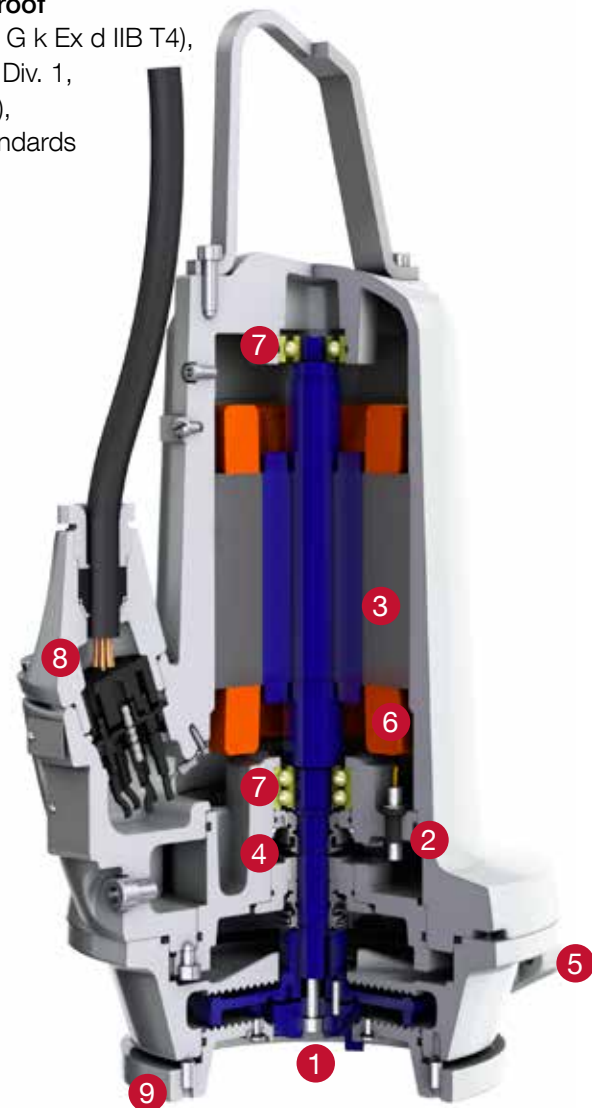
- To facilitate the quick and easy changing or repair of the power cable, the connection between the cable and motor is by means of an integrated 10-pole, quick disconnect, terminal block

9 Adjustable bottom plate

- To counter the effects of wearing and to maintain efficiency, the optimum clearance between the bottom plate and the impeller can easily be restored

Explosion proof

- ATEX (EX II 2 G k Ex d IIB T4), FM (Class 1, Div. 1, Groups C&D), and CSA standards available



S Series

Sulzer's standard range of submersible grinder pumps, type ABS Piranha S, are equipped with water-tight, fully encapsulated, flood-proof motors. The pump and motor section form a compact unit, providing an economical, yet robust solution without compromising on the reliable design.

1 Piranha cutting system

- A spiral-grooved bottom plate and hardened stainless steel stationary cutting element, combined with a hardened stainless steel lobed rotor cutting element prior to the impeller provide optimum, blockage-free operation

2 Seal leak detection system*

- Advanced warning allows for repair of the pump seal prior to water entering the motor

3 Shaft sealing

- High quality silicon carbide (SiC/SiC) mechanical seal
- Motor-side sealing provided by an oil lubricated lip seal arrangement

4 Small diameter discharge

- Low installation costs
- Can be installed in areas where the laying of conventional sewer pipes would not be physically possible

5 Explosion proof (optional)

- In accordance with FM (Class 1, Div. 1, Groups C&D) and CSA

6 Bearings

- The stainless steel motor shaft is supported by lubricated-for-life, heavy-duty, ball bearings

7 Temperature monitoring

- Thermal sensors are embedded in the stator windings and can be used to shut the pump off in case of overheating and automatically switch back on once cooled

8 Adjustable bottom plate

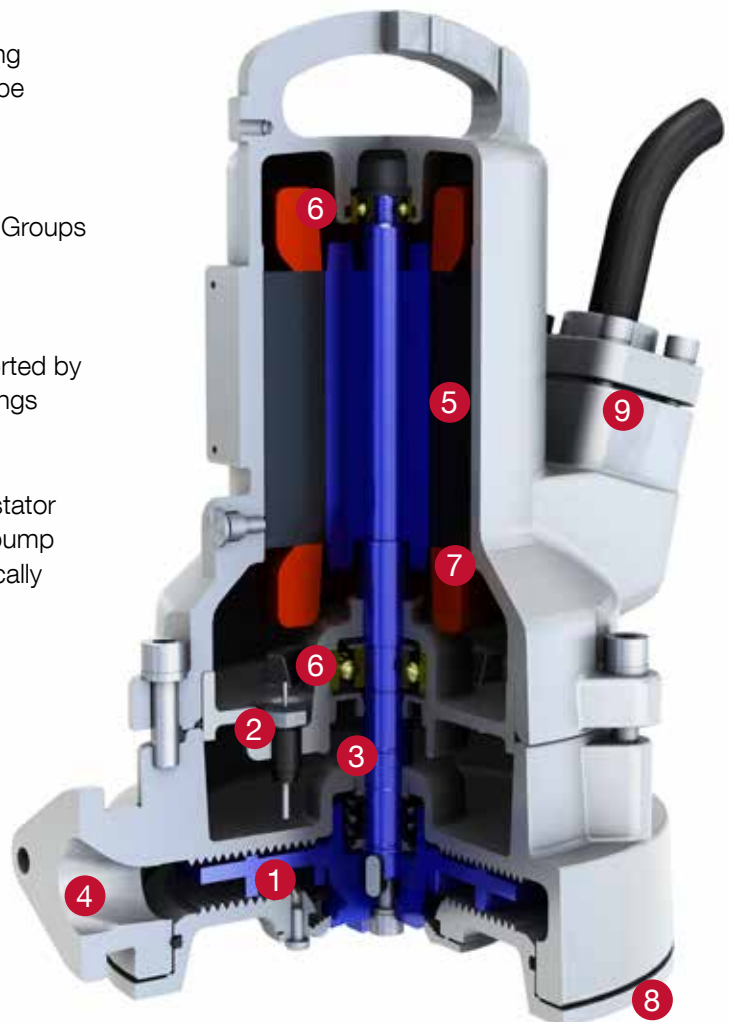
- To counter the effects of wearing and to maintain efficiency, the optimum clearance between the bottom plate and the impeller can easily be restored

9 Cable plug (non-EX/FM models)*

- To facilitate the quick and easy changing or repair of the power cable, the connection between the cable and motor is by means of an integrated pin-style, Easy-Fit terminal block

Built-in capacitor**

- Does not require a control box



*not available for Piranha 09

** Piranha 09 only

Technical data

Piranha W = 1-phase D = 3-phase	Discharge		Motor power** (kW)		Rated current (A)	Rated voltage (V)	Speed (r/min)	Cable size***	Weight**** (kg)
	Flange DN	Internal thread *	P ₁	P ₂					
08W	32	G 1¼"	1.41	1.00	6.41	220-240 1~	2900	3G1.0	18
08D	32	G 1¼"	1.34	1.00	2.71	400 3~	2900	4G1.0	18
09W	32	G 1¼"	2.56	1.84	11.60	220-240 1~	2900	3G1.0	23
09D	32	G 1¼"	2.56	2.00	4.64	400 3~	2900	4G1.0	23
S10/4W ^(†)	32	G 1¼"	1.69	1.00	7.49	220-240 1~	1450	4G1.5	32
S12/2W ^(†)	32	G 1¼"	1.77	1.20	8.22	220-240 1~	2900	4G1.5	32
S12/2D	32	G 1¼"	1.69	1.20	3.29	400 3~	2900	4G1.5	32
S13/4D	32	G 1¼"	1.93	1.30	3.60	400 3~	1450	4G1.5	32
S17/2W ^(†)	32	G 1¼"	2.36	1.65	10.60	220-240 1~	2900	4G1.5	32
S17/2D	32	G 1¼"	2.31	1.70	3.97	400 3~	2900	4G1.5	32
S21/2D	32	G 1¼"	2.79	2.10	4.75	400 3~	2900	4G1.5	37
S26/2D	32	G 1¼"	3.43	2.60	5.64	400 3~	2900	4G1.5	40
PE30/2D-C	32	G 1¼"	3.42	3.00	5.58	400 3~	2900	7G1.5	90
PE55/2D-E	50 DIN	-	6.08	5.50	10.30	400 3~	2900	10G1.5	130
PE70/2D-E	50 DIN	-	7.74	7.00	13.50	400 3~	2900	10G1.5	130
PE90/2D-E	50 DIN	-	9.84	9.00	17.00	400 3~	2900	10G1.5	160
PE110/2D-E	50 DIN	-	12.10	11.00	20.10	400 3~	2900	10G1.5	160

* Piranha 08 and 09 flange has internal thread. Piranha S10/4 - S26/4 and Piranha PE30/2D-C has threaded flange adaptor as optional accessory.

** P₁ = Power at mains; P₂ = Power at motor shaft.

*** Piranha S10/4 Ex and Piranha S10 /4- S26/2 with Di and Klixon: 7G1.5

**** Weight with 10 m cable

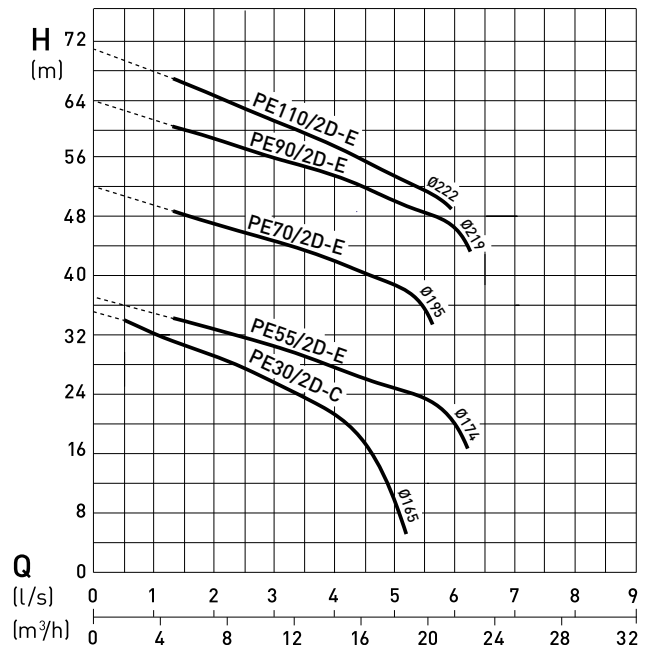
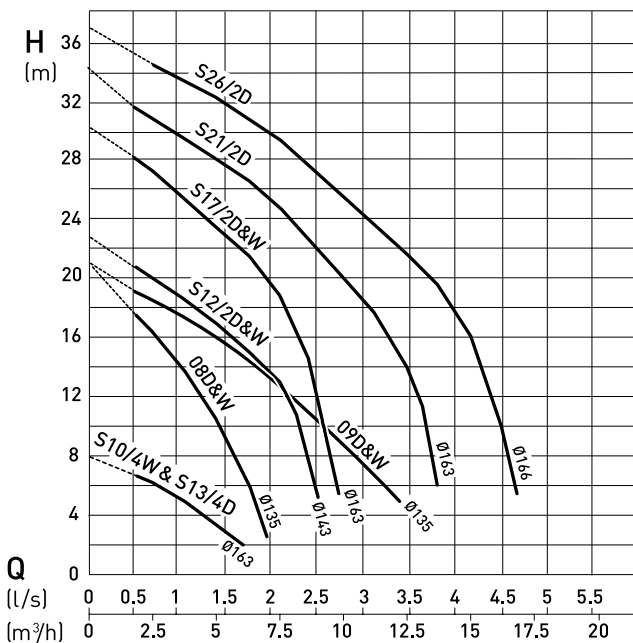
^(†) Start and Run capacitor to the following specification required in control panel:

Start: 125-160µF.

Run: 40µF (2x20µF) for S10/4W, 30µF for S12/2W and S17/2W.

The recommended start time for the motors is two seconds.

Performance curves



H = Total Head; Q = Discharge Volume.

Curves to ISO 9906 (60 Hz available on request)

N.B. please use the ABSEL program to validate pump selection.

Materials

Description	Material
Upper lid *	Stainless steel 1.4301 (AISI 304)
Motor housing	Cast iron EN-GJL-250
Rotor shaft	Stainless steel 1.4021 (AISI 420)
Volute	Cast iron EN-GJL-250
Impeller **	Cast iron EN-GJL-250
Fasteners	Stainless steel 1.4401 (AISI 316)

* Piranha 08 and 09. ** Polyamide for Piranha 08

Accessories

	Description	Size	Part no.	Piranha
Fixed installation with pedestal	Pedestal (cast iron EN-GJL-250) 90° cast bend	G 1¼"	62325007	08 & 09
		G 1¼"	62320674	S10/4-S26/2
		G 1¼"	62320676	PE30/2C
	90° cast bend with built-in non-return valve without bend	G 1¼"	62320536	S10/4-S26/2
		G 1¼"	62320538	PE30/2C
		DN 50/G2"	62320660	PE55/2E-110/2E
	Threaded Adaptor hexagon double nipple	G 1¼"	13770011	08 & 09
	Guide Rail (galvanized steel)	1¼" x 1 m	31380007	08-S26/2, PE30/2C
		1¼" x 2 m	31380008	
		1¼" x 3 m	31380009	
		1¼" x 4 m	31380010	
		1¼" x 5 m	31380011	
Chain Kit (galvanized steel) including shackle	3 m	61265065	08-PE110/2E	
	4 m	61265093		
	6 m	61265069		
	7 m	61265096		
Chain Kit (stainless steel) including shackle	3 m	61265081	08-PE110/2E	
	4 m	61265099		
	6 m	61265085		
	7 m	61265102		
Transportable applications	Threaded Flange Kit (EN-GJL-250) including discharge piece, gasket and bolts	G 1¼"	61180512	S10/4-PE30/2C
	Ground Support Stand (St. 37) with fixing bolts		61900013 61900007	S10/4-S26/2 PE30/2C-110/2E
	Fixed Coupling (brass) GEKA with external thread	G 1¼"	15020003	S10/4-PE30/2C
	Hose Coupling with nozzle, outer dia. 34 mm	G 1¼"	15020018	S10/4-PE30/2C
Horizontal (tank connection)	Pump with built-in flange on suction side	DN 150/PN 16 to DIN 2633	On request	S10/4-S26/2
	Head Support (EN-GJL-250) with vibration damping		62665103	S10/4-S26/2
General	Non-return Valve (EN-GJL-250) ball valve with internal thread	G1¼"	61400525	08-PE110/2E
		G1½"	61400526	
		G2"	61400527	
Shut-off Valve (brass) with internal thread	G1¼"	14040005	08-PE110/2E	
	G1½"	14040006		
	G2"	14040007		

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