

SULZER

Pumps and pumping systems

Submersible propeller pump type **ABS VUPX**



Main industries and applications

The submersible propeller pump type ABS VUPX, equipped with a Premium Efficiency IE3 motor and engineered propellers is the most efficient axial-flow vertical column pump on the market.

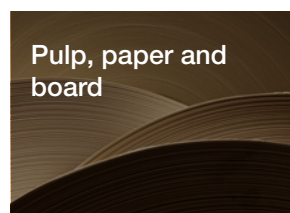
The VUPX is designed for applications where larger water volumes without fibrous materials must be pumped up to relatively low heads (up to approx. 10 m).

Suitable for:

- Storm water protection, irrigation and aquaculture
- Industrial raw water and process water
- Combined sewage and surface water
- Recirculation sludge or return activated sludge (RAS)

Hazardous locations:

- Certification for ATEX (Ex II 2G Ex h db IIB T4 Gb), FM and CSA available as an option



Key customer benefits

Premium Efficiency

The VUPX pump, equipped with a Premium Efficiency IE3 motor, benefits from significant efficiency in both motor and hydraulics, resulting in substantial savings.

Great savings means a healthier environment, reducing your carbon footprint and the risk of harmful overflows. The VUPX pump makes your operation more competitive while contributing to a greener future.

Easy installation into rising main

The submersible VUPX pump can be installed according to the following, to fulfill virtually any customer requirements:

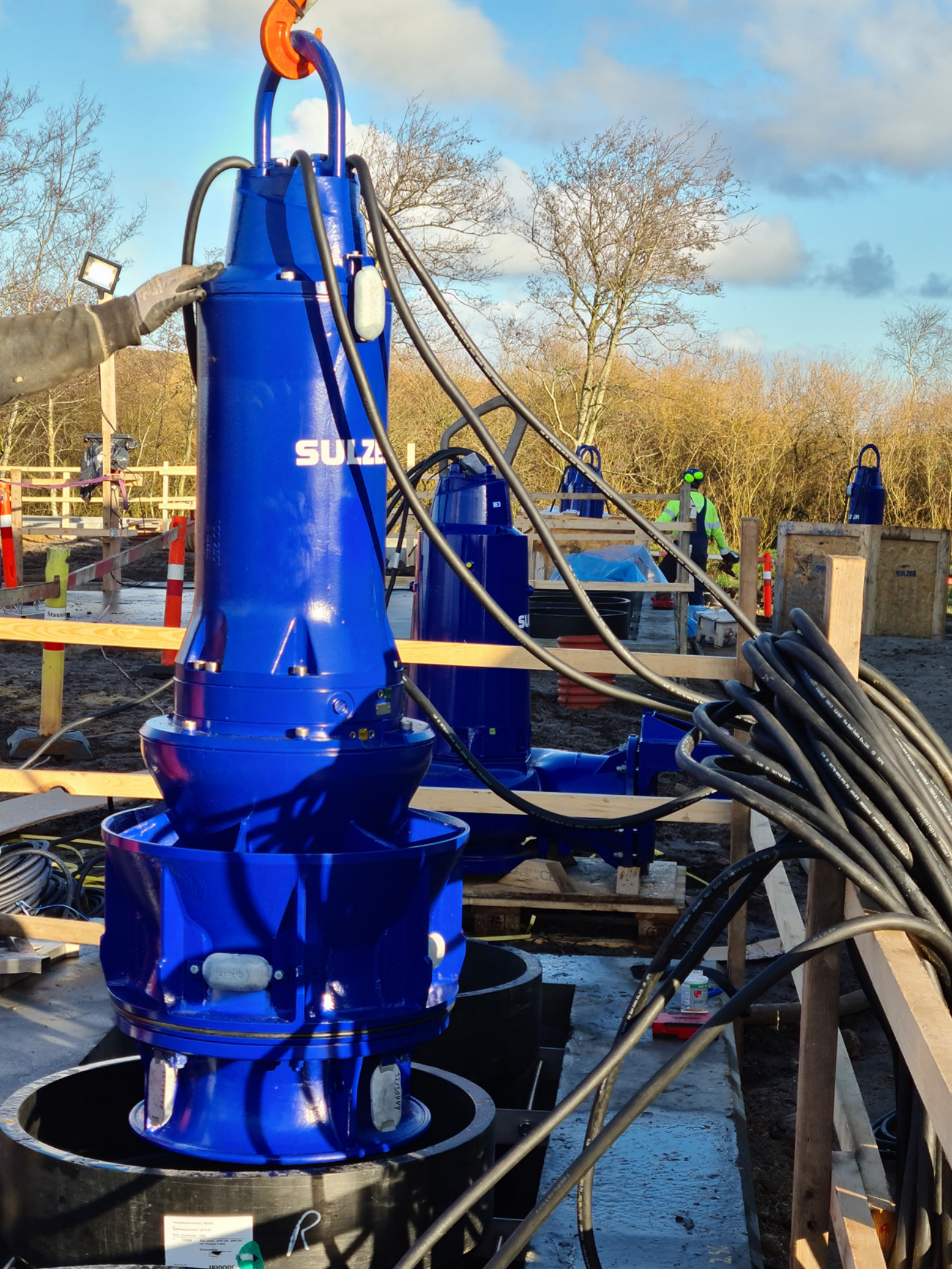
- Steel column pipe installation
- Concrete rising main installation

Automatic self-centering of the pump and column pipe by means of a conical coupling ring. No screw or bolt fixing needed.

Slimline design (optional 4-pole motor with gearbox) results in a smaller rising main design and compact pump station construction. Reduces capital investment.

Superior reliability

The VUPX pump, equipped with high standard components in hydraulic and motor, leads to outstanding reliability.



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Features and benefits

Versatile range of axial-flow propellers (VUPX 0403 and 0503)

- Highly efficient three-blade axial-flow propellers
- Optimal propeller designs based on extensive Computational Fluid Dynamics (CFD) research and testing
- Non-clogging and self-cleaning propeller blades
- Low-vibration design
- Low-NPSH design
- Blockage-free pumping of liquids containing fibrous materials in combination with screens. For detailed information please contact your local Sulzer representative
- Applicable for delivering recirculation sludge or return activated sludge (RAS) at wastewater treatment plants

Versatile range of axial-flow propellers with adjustable blades (VUPX 0402 to 1201/2)

- Highly efficient three- and four-blade axial-flow propellers
- Spherical propeller and wear ring design for adjustable propeller blade pitch without re-machining of the propeller circumference
- Hydraulically optimized propeller designs based on extensive research and testing
- Low-vibration design
- Low-NPSH design

Inlet bellmouth and slotted wear ring (VUPX 0403 and 0503)

- Slotted wear ring principle adapted from the ContraBlock series to ensure blockage-free operation
- Efficient handling of fibrous material throughout the hydraulic lifetime

- ① Axial-flow propeller
- ② Double mechanical seals
- ③ Heavy-duty bearings
- ④ Stainless steel shaft
- ⑤ Premium Efficiency motor



Inlet bellmouth and axially adjustable wear ring (VUPX 0402 to 1201/2)

- Axial adjustment of the propeller to restore pump efficiency after wear
- Significant energy savings throughout the hydraulic lifetime

Slim motor design

- Opportunities for compact rising main and pumping station design
- Gearbox available from 132 kW for VUPX 1001/2 and VUPX 1201/2
- Wide range of gearbox ratios to meet the duty point with the best efficiency
- Better adaptation compared to a direct high-pole motor drive
- Higher efficiency and lower current due to the better power factor of 4-pole motors compared to high-pole motors
- Lower weight

Double mechanical seals

- Silicon carbide/silicon carbide (SiC/SiC) for maximum resistance against abrasives
- Chemical resistance in wastewater and most other industrial applications
- Seal blockage prevention that reduces operational costs

Heavy-duty stainless steel shaft

- Deflection at the mechanical seal minimized to <0.05 mm / 0.002 inches
- Increased safety against fatigue fractures
- Extended seal and bearing life

Heavy-duty bearings

- Minimum lifetime of 100'000 hours
- Electrically insulated upper bearing as standard for PE6 and PE7, optional for PE5, which protects against stray electrical currents and avoids micro-cratering in the raceway of the inner and outer rings

Installation into rising main

- Automatic self-centering of the pump and column pipe by means of a conical coupling ring
- No screw or bolt fixing needed

Premium Efficiency IE3 motor in accordance with IEC 60034-30

Hydraulics

VUPX 0403

VUPX 0503

VUPX 0402

VUPX 0501/2

VUPX 0601/2

VUPX 0801/2

VUPX 1001/2

VUPX 1201/2

Propeller type

3 blades (skew design)

3 blades (skew design)

4 blades

3 blades / 4 blades

3 blades / 4 blades

3 blades / 4 blades

3 blades / 4 blades

3 blades / 4 blades



Premium Efficiency submersible motors (IE3)

1 Class H (140°C / 284°F) insulation, temperature rise according to IEC / NEMA Class A up to 110 kW / 168 hp and Class B above

- Unprecedented motor reliability due to low winding temperature
- Extremely long motor lifetime

2 Service Factor up to 1.3

- A multiplier which indicates a permissible occasional power overloading, due to:
- Voltage variations, especially on long power supply lines
- Frequency deviation from the power line's frequency, (e.g. Generator-Set; very long or overloaded power lines)
- In accordance to NEMA MG1

3 Versatile cable types

- Country-specific cables with European, FM or CSA approval for use in sewage water

4 Optional shielded cable (EMC)

- For operation with frequency-controlled AC drives
- Installation according to EMC directives

5 Moisture DI probe in inspection chamber in standard execution

- Early indication of mechanical seal failure
- Additional moisture DI probe (separate for cable connection chamber and motor compartment) to provide early indication of moisture ingress, standard for PE6 and PE7 and optional for PE4 and PE5

6 Thermal protection switch in stator as standard

- Motor protection in the event of a power supply failure, e.g. low line voltage or single-phase operation
- Additional separate thermal protection (bimetallic, PTC or PT100) in the upper and lower bearing as an early warning of bearing malfunction, standard for PE6 and PE7 and optional for PE4 and PE5
- Vibration sensor for indication of vibration and warning when the set limit is exceeded, optional for PE4 to PE7



No. of poles		Power P2 (kW)				
		PE3	PE4	PE5	PE6	PE7
4	50 Hz	22-30	22-54	-	132-300	350-650
	60 Hz	25-35	25-65	-	150-335	400-750
6	50 Hz	9.5-22	9-37	45-109	110-200	-
	60 Hz	14-25	21-43	52-104	-	-
8	50 Hz	9-18.5	15-30	37-89	90-132	160-250
	60 Hz	-	17-35	43-86	104-150	-
10	50 Hz	-	-	30-55	75-132	160-350
	60 Hz	-	-	35-63	86-150	185-220
12	50 Hz	-	-	-	75-132	160-300
	60 Hz	-	-	-	86-150	185-350

Specifications

Materials

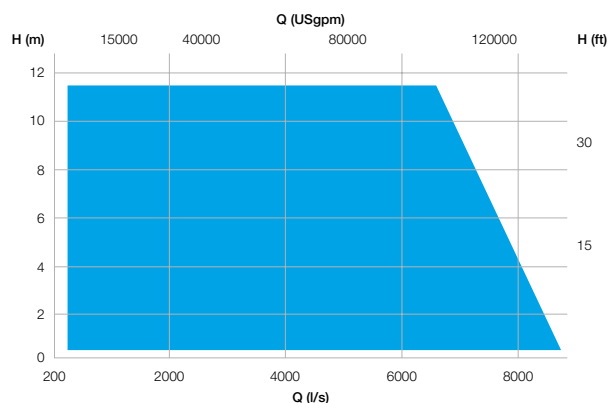
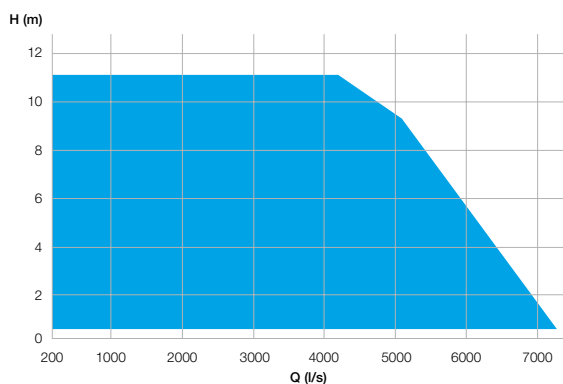
Pump part	Material
Motor housing / connection chamber	EN-GJL-250
Oil chamber / bearing flange	EN-GJL-250
Motor shaft	1.4021, 1.4462
Outlet diffuser	EN-GJL-250
Inlet bellmouth	EN-GJL-250, 1.4470
Propeller (VUPX 0403 and 0503)	1.4340, 1.4581
Propeller hub (VUPX 0402 to 1201/2)	EN-GJS-400-18, 1.4581
Propeller blades (VUPX 0402 to 1201/2)	1.4340, 1.4581
Wear ring	1.4008, 1.4470
Lifting hoop (PE3)	1.4401
Lifting hoop (PE4 and PE5)	EN-GJS-400-18, 1.4470
Lifting hoop (PE6 and PE7)	1.0060, 1.4462



Operating data

	50 Hz	60 Hz
Pipe diameters	600 to 1'400 mm	600 to 1'400 mm / 23 to 55 in.
Capacities	up to 7'000 l/s	up to 8'500 l/s / 134'700 USgpm
Heads	up to 10 m	up to 10 m / 33 ft.
Motor power	9 to 650 kW	17 to 750 kW / 23 to 1'005 hp

Performance range



The Sulzer Flow division keeps your processes flowing. Wherever fluids are treated, pumped, or mixed, we deliver highly innovative and reliable solutions for the most demanding applications.

The Flow division specializes in pumping solutions specifically engineered for the processes of our customers. We provide pumps, agitators, compressors, grinders, screens and filters developed through intensive research and development in fluid dynamics and advanced materials. We are a market leader in pumping solutions for water, oil and gas, power, chemicals and most industrial segments.

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