

**Submersible Propeller
Pump Type ABS VUPX**



Main Applications

The submersible propeller pump type ABS VUPX equipped with an IE3 motor is designed for use 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
- Return sludge or return activated sludge (RAS)
- Hazardous locations:
 - Certification for ATEX (EX II 2G Ex 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.



Hydraulic Features and Benefits

1 a) 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 return sludge or return activated sludge (RAS) at wastewater treatment plants

1 b) 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

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

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

2 b) 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

3 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

4 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

5 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

6 Heavy-duty bearings

- Minimum lifetime of 100,000 h
- 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

7 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

8 Premium Efficiency IE3 motor in accordance with IEC 60034-30

Hydraulics / propeller type	
VUPX 0403	3 blades (skew design)
VUPX 0503	3 blades (skew design)
VUPX 0402	4 blades
VUPX 0501/2	3 blades / 4 blades
VUPX 0601/2	3 blades / 4 blades
VUPX 0801/2	3 blades / 4 blades
VUPX 1001/2	3 blades / 4 blades
VUPX 1201/2	3 blades / 4 blades

Premium Efficiency Submersible Motors (IE3)

Sulzer was the first company in the world to offer Premium Efficiency IE3 submersible motors, in order to achieve the perfect balance of reliability and energy consumption. Using Premium Efficiency IE3 motors and engineered propellers, the VUPX pump is the most efficient axial-flow vertical column pump on the market.

Motor power and speed overview

No. of poles		Power P2 (kW)			
		PE4	PE5	PE6	PE7
4	50 Hz	22-54	55-110	132-250	300-650
	60 Hz	25-65	63-125	150-300	335-750
6	50 Hz	9-37	45-90	110-225	250-550
	60 Hz	21-43	52-104	125-220	290-620
8	50 Hz	7.5-30	37-75	90-132	160-450
	60 Hz	17-35	43-86	104-170	185-500
10	50 Hz		30-55	75-132	160-350
	60 Hz		35-63	86-170	185-415
12	50 Hz			75-132	160-300
	60 Hz			86-150	185-350

Motor features and benefits

- 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 and bearing 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



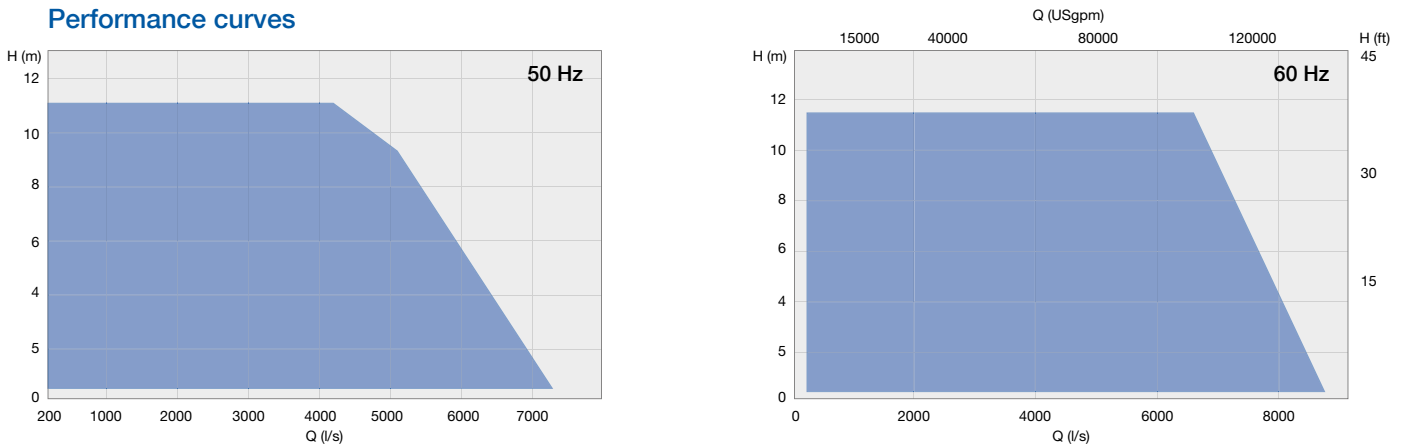
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Operating data

50 Hz		60 Hz
600 to 1,400 mm	Pipe diameters	600 to 1,400 mm 23 to 55 in
up to 7,000 l/s	Capacities	up to 8,500 l/s 134.700 USgpm
up to 10 m	Heads	up to 10 m 33 ft
7.5 to 650 kW	Motor power	9 to 750 kW 12 to 1,005 hp

Performance curves



Materials

Pump part	Material
Motor housing / connection chamber	EN-GJL-250
Cooling / oil chamber	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, 1.4470, 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 (PE4 and PE5)	EN-GJS-400-18, 1.4470
Lifting hoop (PE6 and PE7)	1.0060, 1.4462

We Do What We Say

Customer partnership

- We are **reliable partners**
- We provide a **high level of service**
- We **make our customers more competitive**



Committed people

- We drive **accountability**
- We are **open and transparent**
- We are **team players**



Operational excellence

- We **focus on results**
- We take **initiative** and work within **established processes**
- We **act safely**



A Global Specialist at Your Doorstep

Sulzer serves clients worldwide through a network of over 150 production and service sites and has a strong footprint in emerging markets.



● Sulzer headquarters,
Winterthur, Switzerland