FLYGT
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**Technical Specification**
90060501_1.0

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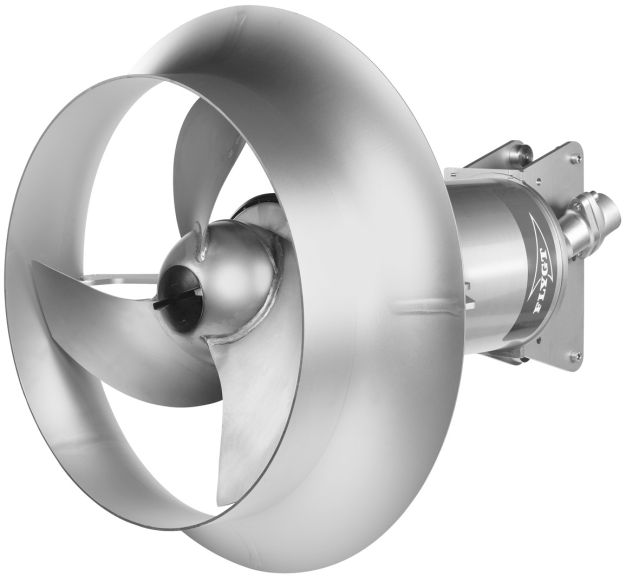

# Flygt SR 4630-4680

50 Hz

xylem

# 1 Technical specification

## 1.1 Product description

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Usage

| Versions 310/390 | Versions 412/492/512/592 |
|---|---|
| Submersible mixer with open-design propeller intended for mixing liquids containing grass, chips, and other substances frequently occurring in liquid manure and biogas digesters.<br>Designed for high mixing thrust in relation to consumed power. Also recommended for industrial applications which do not involve long fibers. | Submersible mixer with shielded propeller intended for liquids containing long-string fibers and solids such as frequently occurring in wastewater and sludge.<br>Designed for high mixing thrust in relation to consumed power. |

Denomination

| Standard version | Explosion-proof version |
|---|---|
| 4630.412 | 4630.492 |
| 4640.412 | 4640.492 |
| 4650.310, 4650.412 | 4650.390, 4650.492 |
| 4660.310, 4660.412 | 4660.390, 4660.492 |
| 4670.310, 4670.412 | 4670.390, 4670.492 |
| 4680.310, 4680.412 | 4680.390, 4680.492 |

Hydraulic unit

Three-blade high efficiency clog-free propeller, stainless steel ASTM 316L.

| | |
|---|---|
| Propeller diameter | • 4630–4640: 368 mm (14.5 in)<br>• 4650–4660: 580 mm (22.8 in)<br>• 4670–4680: 766 mm (30.2 in) |
| Optional version: Jet ring | All |
| Optional version: Abrasion resistant Hard-Iron | All |
| Optional version: Duplex steel | 4660–4680 |
| Optional version: Extended jet ring | 4660 |
| Optional version: Vortex protection shield | All |

Installation

| Mixer | Installation |
|---|---|
| 4630, 4640 | • Guide bar system, 50×50 mm (2×2 in)<br>• 50×100 mm (2×4 in) square bars, optional |
| 4650–4680 | • Guide bar system, 100×100 mm (4×4 in)<br>• 100×150 mm (4×6 in) square bars, optional |

Monitoring equipment

- Thermal contacts opening temperature 140°C (284°F)
- Leakage sensor in the stator housing (FLS), optional

Cables

- SUBCAB heavy-duty submersible cable
- SUBCAB screened heavy-duty submersible cable
- HCR, heavy-duty heat, and chemical resistant submersible cable

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Materials

| Item | Material |
|---|---|
| Motor casing | Stainless steel, ASTM 316L |
| Stator housing | Cast iron, ASTM 35B |
| Shaft | Stainless steel, ASTM/AISI 431 |
| Oil housing | Vinyl ester based SMC |
| Lifting device | Stainless steel, ASTM 316L |
| Jet ring | Stainless steel, ASTM 304, optional: ASTM 316L |
| Fixing plate | Stainless steel, ASTM 304, optional: ASTM 316L |
| Oil | Paraffin oil ISO VG32 |
| O-rings | Nitrile rubber as standard, fluorinated rubber for warm liquid versions |

Surface treatment

Stainless steel parts are blasted to a dull gray surface.

Mechanical face seals

The inner seal uses the patented Active Seal technology, which is a zero leakage seal, allowing no liquid to penetrate from the buffer fluid compartment to the stator housing.

| | Inner seal | Outer seal |
|---|---|---|
| Standard, 4630–4640 | Corrosion resistant cemented carbide (WCCR) / Aluminum oxide ($Al_2O_3$) | WCCR / WCCR |
| Standard, 4650–4680 | Corrosion resistant cemented carbide (WCCR) / WCCR | WCCR / WCCR |
| Optional, 4630–4640 | WCCR / $Al_2O_3$ | Silicon carbide (RSiC) / RSiC |
| Optional, 4650–4680 | WCCR / WCCR | RSiC / RSiC |

Options and accessories

- Installation systems
- Lifting equipment
- Special cables
- Zinc anodes
- Electrical equipment such as control panels, monitoring equipment, variable frequency drives

# 1.2 Dimensions and weight

See the dimensional drawing.

# 1.3 Application limits

| Data | Description |
|---|---|
| Liquid temperature | Maximum 40°C (104°F)<br>Warm liquid version: 60°C (140°F) or 90°C (195°F) |
| Liquid density | 1100 kg/m³ (9.2 lb for each US gal) maximum |
| pH of the mixed liquid | 1–12 |
| Depth of immersion | Maximum 20 m (65 ft) |

# 1.4 Motor data

| Feature | Description |
|---|---|
| Motor type | Squirrel-cage induction motor |
| Frequency | 50 Hz |
| Supply | 3-phase |
| Starting method | • Direct on-line<br>• Variable frequency drive (VFD) |
| Maximum starts for each hour | 30 evenly spaced starts for each hour |
| Voltage variation | • Continuously running: Maximum ±5%<br>• Intermittently running: Maximum ±10% |
| Voltage imbalance between the phases | Maximum of 2% |
| Stator insulation class | H (180°C [356°F]) |

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Motor encapsulation

Motor encapsulation is in accordance with IP68.

# 1.5 Motor rating

Table 1: 400V, 50 Hz, 3-phase

| Product | Rotations per minute, rpm | Poles | Rated Power, kW | Rated hp | Rated Current, A | Starting Current, A | Power factor cosφ |
|---|---|---|---|---|---|---|---|
| 4630 | 710 | 8 | 1.5 | 2.0 | 4.2 | 14 | 0.7 |
| 4640 | 705 | 8 | 2.5 | 3.4 | 7.0 | 22 | 0.7 |
| 4650 | 485 | 12 | 3.7 | 5.0 | 15 | 49 | 0.50 |
| 4650 | 475 | 12 | 5.5 | 7.4 | 18 | 49 | 0.62 |
| 4660 | 480 | 12 | 7.5 | 10.1 | 25 | 84 | 0.55 |
| 4660 | 475 | 12 | 10 | 13.4 | 30 | 84 | 0.63 |
| 4670 | 365 | 16 | 13 | 17.4 | 44 | 117 | 0.55 |
| 4680 | 365 | 16 | 18.5 | 24.8 | 69 | 225 | 0.48 |
| 4680 | 365 | 16 | 25 | 34 | 80 | 225 | 0.56 |

# 1.6 Thrust data

Detailed thrust data is available in Mixer Performance Data.

Performance according to ISO 21630:2007.

| Product | Propeller material | Rated shaft power, kW | $F_{thrust}$, N | Input power, kW |
|---|---|---|---|---|
| 4630 | ASTM 316L | 1.5 | 250–380 | 1.2–1.5 |
| 4630 | Hard-Iron | 1.5 | 270 | 1.3 |
| 4640 | ASTM 316L | 2.5 | 250–750 | 1.3–2.9 |
| 4640 | Hard-Iron | 2.5 | 210–600 | 1.1–2.4 |
| 4650 | ASTM 316L | 3.7 | 830–1360 | 3.3–4.6 |
| 4650 | Hard-Iron | 3.7 | 600–1010 | 3.4–4.4 |
| 4650 | ASTM 316L | 5.5 | 830–1940 | 3.3–6.6 |
| 4650 | Hard-Iron | 5.5 | 600–1390 | 3.4–5.7 |
| 4660 | ASTM 316L | 7.5 | 830–2240 | 3.7–7.6 |
| 4660 | Hard-Iron | 7.5 | 610–1430 | 3.5–5.7 |
| 4660 | ASTM 316L | 10.0 | 830–2940 | 3.7–10.8 |
| 4660 | Hard-Iron | 10.0 | 610–1950 | 3.5–8.7 |
| 4670 | ASTM 316L | 13.0 | 1860–4010 | 7.7–15.6 |

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| Product | Propeller material | Rated shaft power, kW | $F_{thrust}$, N | Input power, kW |
|---|---|---|---|---|
| 4670 | Hard-Iron | 13.0 | 1620–2620 | 6.8–10.4 |
| 4680 | ASTM 316L | 18.5 | 1890–5200 | 9.3–21.2 |
| 4680 | Hard-Iron | 18.5 | 1630–2650 | 7.8–11.2 |
| 4680 | ASTM 316L | 25.0 | 1890–5950 | 9.3–24.8 |
| 4680 | Hard-Iron | 25.0 | 1630–2650 | 7.8–11.2 |

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Visit our website for the latest version of this document and more information.
The original instruction is in English. All non-English instructions are translations of the original instruction.


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