

**xylem**  
Let's Solve Water



# Flygt 4320 Geared Adaptive Mixer

ADVANCED SIMPLICITY FOR PROCESS CONTROL

**FLYGT**  
a xylem brand

With its ability to continuously adjust the output to the actual demand, Xylem's range of Flygt adaptive mixers represent a new level in mixing performance. The submersible geared Flygt 4320 adaptive mixer revolutionizes the wastewater treatment industry by bringing full automation into the mixing process. Along with the integrated power electronics, high-efficiency IE4 equivalent motor and optimized hydraulics, these enhanced capabilities bring a number of unmatched customer benefits:



**SPEND UP TO 50% LESS ON ENERGY**

Whether you operate the mixer with full automation or manage it from your control room, the Flygt 4320 provides significant energy savings. By continuously matching output to real demand, it saves costs and optimizes process efficiency.



**INCREASE MIXER UPTIME**

Diminish wear and tear by adjusting output and detecting overload conditions to protect the motor and minimize stress on the mixer. This prolongs mixer lifetime and reduces maintenance need.



**IMPROVE PROCESS RESILIENCY**

Experience full and immediate flexibility with Flygt 4320. With automated mixer control or SCADA-integrated management, you can be sure the mixer will adapt to handle both unexpected events and planned changes with maintained efficiency.



**REDUCE MIXER INVENTORY**

Flygt adaptive mixers can be deployed across different applications, reducing the need for inventory of back-up mixers and spares and lowering capital investment for re-build or replacements.

## Scalable Mixer System

Whether you choose a standard or a fully automated Flygt 4320 adaptive mixer you can be assured of its unparalleled performance to meet your shifting process demands of wastewater treatment.



	<b>FLYGT 4320 AD</b>	<b>FLYGT 4320 ADF</b>	<b>FLYGT 4320 ADC</b>
Gateway or controller		FPG 415 gateway	APP 412 controller
IE4 motor efficiency	✓	✓	✓
High efficiency propeller	✓	✓	✓
Soft start	✓	✓	✓
Power factor close to 1	✓	✓	✓
Always correct propeller rotation	✓	✓	✓
Automatic overload speed control	✓	✓	✓
Easily variable speed		✓	✓
Analog I/O and Modbus RTU/TCP		✓	✓
Full status and alarms information		✓	✓
FOP 315 push-button operator panel (optional)		✓	✓
FOP 402 touch-screen operator panel (optional)		✓	✓
Oxidation ditch mixer process control			✓
Multiple-mixer control			✓

**AD - STANDARD CONTROL**

Standard system with pre-set control incorporates many built-in valuable features providing energy savings, key autonomous protection features, and scalability for ADF or ADC functionality at a later stage.

**ADF - FLEXIBLE CONTROL**

Gear up your adaptive mixer for tank-side and remote operation by adding the Flygt FPG 415 gateway with analog input/output and fieldbuses. Easily connected operator panels or SCADA systems allow for fully integrated monitoring functions, so you can be assured of optimal mixer operation wherever you may be.

**ADC - AUTOMATED CONTROL**

Automated control and multiple mixer operation for aerated processes by adding the Flygt APP 412 pre-engineered controller. Available speed control functions:

- Setpoint control: Mixer speed based on whether the aeration system is on or off.
- Airflow meter control: Mixer speed adapted to data from an airflow meter.
- Oxidation ditch control: Mixer speed control based on internal sensing of the aeration system's output. Patented method measuring airflow via propeller torque. No external airflow meter needed.

# Gateways and Controllers

## GATEWAY - FPG 415

The FPG 415 gateway enables monitoring and control of mixer performance and status, including speed, power, alarms, running time and energy consumption, via operator panel or remote communications.

Communication	Modbus RTU / TCP, 4-20 mA
Standard Input/Output	4×DO, 4×DI, 1×AO, 1×AI
Ports	USB, RS485, Ethernet, operator panel, mixer
Environment class	IP 20, operation temperature -20°C to +65°C
Power supply	24 VDC
(W×L×H)	45×100×100 mm, DIN mount
Approvals	CE, UL, CSA, RCM



## CONTROLLER - APP 412

The APP 412 controller has the features of the FPG 415 gateway plus automatic mixer speed control functions for common wastewater treatment processes.

## JOG WHEEL OPERATOR PANEL - FOP 315

The FOP 315 jog wheel operator panel is a traditional push-button interface for operator's inspection and mixer control.

Screen	3.5" monochrome LCD
Environment class	Handheld: IP20 Door mount. Front: IP 54; Back: IP21 Operation temp: -20°C to +70°C (-4°F to 158°F)
Power supply	24 VDC
Size (W×L×H)	205×33×110 mm, DIN mount
Approvals	CE, UL



## TOUCH SCREEN OPERATOR PANEL - FOP 402

The FOP 402 touch screen operator panel is a full text and graphics interface for quick and easy operator's management of Flygt adaptive mixers.

Screen	7" color touch screen
Environment class	Front: IP65; Back: IP20 Operation temp: -20°C to +60°C (-4°F to 140°F)
Power supply	24 VDC
Size (W×L×H)	197×42×140 mm
Approvals	CE, UL



## TECHNICAL DATA

Rated Power 50/60 Hz, kW (hp)	1.1 (1.5)	2.2 (3.0)	4.0 (5.5)	5.5 (7.5)
Propeller speed, rpm	variable, up to 70			
Maximum thrust, N*				
1.4 m (55 in.) propeller	790	1,370	2,170	2,610
2.0 m (79 in.) propeller	1,230	2,020	3,160	3,830
2.5 m (98 in.) propeller	1,580	2,550	4,150	5,170
Maximum efficiency, N/kW*				
1.4 m (55 in.) propeller	over 600			
2.0 m (79 in.) propeller	over 1,100			
2.5 m (98 in.) propeller	over 1,700			

\*According to ISO 21630:2007 and depending on product configuration

# Flygt 4320 Adaptive Mixer

<b>Motor data</b>	Type Efficiency Frequency Voltage Speed, max Insulation class	Synchronous permanent magnet motor IE4 level according to IEC/TS 60034-30-2 Ed. 1 50-60 Hz 380-480 V 2,300 rpm H (180°C, 356°F)
<b>Materials</b>	Drive and gear housing, hub Wetted metal parts Lifting handle and guidebar bracket Propeller shaft Propeller blades O rings	Cast iron, ASTM 35B Stainless steel, ASTM 316L Stainless steel, ASTM 316L Stainless steel, ASTM/AISI 431 Reinforced polyurethane plastic Nitrile rubber
<b>Cable</b>	Screened Flygt SUBCAB® with integrated control leads	10 or 20 m (30 or 60 ft)
<b>Weight and dimensions</b>	Weight, max Length, excl. bracket Propeller diameter Guide bar bracket	300 kg (154 lb) 1,026 mm (26.0 in.) 1.4-2.5 m (55-98 in.) 100 x 100 (4 x 4 in.) 150 x 150 mm (6 x 6 in.)
<b>Application data</b>	Liquid temperature, max Liquid density, max Liquid viscosity, max ph-range of mixed liquid Depth of immersion, max	40°C (104°F) 1,100 kg/m <sup>3</sup> (9.2 lb per US gal) 5,000 cp 6-11 20 m (65 ft)
<b>Approvals</b>	CE, CSA, UL	