





## ABB MEASUREMENT SOLUTIONS FOR BREWERIES **ABB**

Quality and hygiene are the focus of beer production. Expertise and compliance with process parameters are the conditions for an excellent product. The demand for efficient and energy optimised production is another challenge for plant operation.

With our versatile sensor solutions we support you in your daily work. ABB measurement and analysis technology offers you products for effective monitoring and process control of beer production as well as necessary ancillary processes. For an easy product selection you will find assistance from the W H Good Automation instrumentation support team. Diverse services and training complete the offer over the entire life cycle.

### FEH610 / FEH630 - EM Hygienic Flowmeter

- Value error: 0.4% of rate, option for 0.3% or 0.2%
- ATEX, IECEx, cFM, 3A, FDA-approved materials
- Empty pipe, gas bubble, electrode impedance, conductivity and sensor temperature monitoring
- Flowmeter sensor and transmitter integrity check utilising fingerprint technology
- The clean choice for all hygienic applications



### FSM4000 - EM Hygienic Flowmeter

- High accuracy <math>\pm 0.5\%</math> of rate (> DN 2)
- Fluid temperature -40 to 130°C
- Hygienic certification: 3A
- Specially designed to measure liquids in the food & beverage industries
- Used to measure fast changing processes, two phase liquids, continuous and pulsating flows



### FCB100 / FCH100 - Coriolis Mass Flowmeter

- Full parameter access with up to 115 kBaud
- Aluminium housing or all stainless steel solution
- DTM based diagnostic and operability functions
- Superior accuracy & speed for filling applications
- Multivariable measurement of mass flow, density and temperature in one device
- Wide measurement span in a single meter



### FCB430 / FCH430 - Coriolis Mass Flowmeter

- High accuracy: Mass/volume: 0.15 %/0.1 %, Density: 2g/l or 1g/l, Temperature: -50 to 205°C
- DensiMass software for concentration measurement
- FillMass software for filling application control
- EHEDG, FDA compliant (*FCH model*)
- ATEX, IECEx, cFMus, NEPSI, SIL2
- MID / OIML approval for legal metrology



### FCB450 / FCH450 - Coriolis Mass Flowmeter

- High accuracy: Mass/volume: 0.15 %/0.1 %, Density: 2g/l or 1g/l, Temperature: -50 to 205°C
- DensiMass software for concentration measurement
- FillMass software for filling application control
- EHEDG, FDA compliant (*FCH model*)
- ATEX, IECEx, cFMus, NEPSI, SIL2
- MID / OIML approval for legal metrology



### FSV430 / FSV450 - Vortex Flowmeter

- High accuracy: Liquids  $\pm 0.65\%$  of rate, Gas/steam  $\pm 0.9\%$  of rate
- ATEX, IECEx, cFMus, NEPSI, SIL2-certified in accordance with IEC 61508
- Easy set-up function, meter configuration through the glass (TTG) with closed cover
- Available in flange-mount and wafer-type



### FSS430 / FSS450 - Swirl Flowmeter

- High accuracy:  $\pm 0.5\%$  of rate
- ATEX, IECEx, cFMus, NEPSI, SIL2-certified in accordance with IEC 61508
- Only the shortest possible straight pipe lengths are required
- Measures gases, liquids and steam over many temperatures in almost any application



### SensyFlow / SensyMaster - Thermal Gas Flowmeter

- High measuring accuracy of <math>< 1\%</math> of rate
- Wide measuring range up to 1:150
- Quick response time of <math>< 0.5\text{s}</math>
- ATEX/GOST for zone 0, 1 and 21, FM, CSA, DVGW
- Negligible pressure loss
- Defined and reproducible mounting position
- Factory calibration with optional DAkkS/ILAC cert.





# ABB MEASUREMENT SOLUTIONS FOR BREWERIES



## FAM540 - Variable Area Flowmeter

- Ideal for food and beverage industry
- Operating temperature: up to 400°C
- Operating pressure: up to 100 bar (1450lbf/in 2g)
- Flow ranges: water flows 0.028 to 120m<sup>3</sup>/h
- Flow turndown typically 10:1
- Alarms: slot sensors, up to 2-off
- Short, straight-through design for easy installation



## TSHY - Temperature Sensor

- Short response time
- Mounting suitable for CIP
- Temperature range: -50 to 250°C
- Output signal: Sensorsignal, 4 to 20mA, HART
- For inline or surface measuring
- In accordance with Directive 85/357/EEC or the German Milk Executive Order (MVO)



## TSP - Temperature Sensor

- Exchangeable measuring inset
- Optional with local digital display
- Extremely robust connection head
- Solid drilled bar thermowells
- 4 to 20mA, HART, PROFIBUS PA 3.01, Foundation Fieldbus ITK 5.2
- SIL2, IECEX, ATEX EExi, EExd, EACEx



## 261 - Pressure Transmitter

- Separating diaphragm with optimised design
- Accurate and reliable sensor technology
- In-house production of the food & beverage process connection with special shape
- Temperature balancing of the complete transmitter with process connection
- Continuous filling without internal separating diaphragm



## LLT100 - Laser Level Transmitter

- Suitable for high pressure and high temperature applications
- Available in aluminium or stainless steel body
- No calibration necessary
- Dust and fog penetration capabilities
- Explosion-proof class 1, division 1 (zone 1)
- Precise measurement of any solid or liquid surface



## 23 / 26 - Hygienic Control Valve

- Size DN 25 to DN 125 with pneumatic actuator
- 1.4404 stainless steel housing, suitable for CIP threaded process connection to DIN 11851 or welded ends (other connections upon request)
- Seat ring with metallic or soft seal
- No external tubing required due to internal air channels



## 23 / 24 - Control Valve

- Size DN 15 to DN 100 with pneumatic actuator
- Cast steel or stainless steel
- Maintenance-free PTFE lip rings, pure graphite rings or hermetic bellows seal
- Seat ring with metallic or soft seal
- No external tubing required due to internal air channels



## ControlMaster Range

- Crystal-clear, full-colour TFT display
- 2 universal inputs, 1 analogue output and 1 relay fitted
- Ethernet and MODBUS® comms
- IP 66 and NEMA 4X environmental protection
- Flexible functionality including maths, logic and totalisation providing power to solve complex application requirements



## SM500 - Paperless Recorder

- Wall, pipe or panel-mount, ultra-slim design, <90mm (3.5in.) deep
- GAMP validation - 21 CFR part 11 compliant
- IP 66 and NEMA 4X environmental protection
- Batch recording - easy tracking of batch processes
- 12 software recording channels - up to 7 analogue/digital inputs, maths function results, MODBUS® signals



## RVG200 - Paperless Recorder

- Scalable high spec I/O - high accuracy and stability compliant to AMS 2750, recording of up to 24 channels, optional relays, mA outputs and Tx PSU
- Automatic data collection via Ethernet combined with powerful data analysis using DataManager Pro software
- Maths and logic, batch recording, flow totalisation







# ABB MEASUREMENT SOLUTIONS FOR BREWERIES



Recommended ●  
Possible ○

ABB Device

Electromagnetic  
hygienic flowmeter  
**FEH610 / FEH630**

**FEH630** with  
presetting counter

Hygienic flowmeter  
**FSM4000**

Coriolis mass flowmeter  
**FCB100 / FCH100**

Coriolis mass flowmeter  
**FCB430 / FCH430**

Coriolis mass flowmeter  
**FCB450 / FCH450**

Vortex flowmeter  
**FSV430 / FSV450**

Swirl flowmeter  
**FSS430 / FSS450**



Process step

Process step	FEH610 / FEH630	FEH630 with presetting counter	FSM4000	FCB100 / FCH100	FCB430 / FCH430	FCB450 / FCH450	FSV430 / FSV450	FSS430 / FSS450
<b>Grinding</b>								
Flow water for conditioning	●	●	○					
Steam water for conditioning							●	●
Temperature water for conditioning								
<b>Mashing</b>								
Dosing mash water	●	○	○					
Flow extraction mash			●					
Temperature mash								
Hydrostatic level mash tub								
Flow heating steam					○	○	●	○
<b>Lautering / Filtering</b>								
Hydrostatic level lauter vad								
Temperature sparging water								
Flow sparging water	●	○	○					
Flow extraction first wort	●	○	○		○	○		
Density first wort						●		
Differential pressure filter								
Fill level hop bin								
<b>Cooking</b>								
Temperature content wort kettle								
Hydrostatic level wort kettle								
Flow recirculation external cooking	●	○	○	○				
Dosing hope extract					●			
Density original wort				●		●		
Flow heating steam					○	○	●	○
Temperature heating steam								
Pressure heating steam								
Flow to whirlpool	●	○	○		○	○		
<b>Wortcooling</b>								
Temperature cold wort								
Pressure wort cooler								
Controlling ice water								
Fill level flotation tank								
Overview aeration								
<b>Fermentation</b>								
Fill level fermentation tank								
Pressure overview fermentation tank								
Temperature fermentation tank								
Control cooling medium								
Flow CO <sub>2</sub>								



# ABB MEASUREMENT SOLUTIONS FOR BREWERIES



Thermal gas mass flowmeter  
**Sensyflow/ SensyMaster**

Variable area flowmeter  
**FAM540**

Temperature sensor  
**TSHY**

Temperature sensor  
**TSP**

Pressure transmitter with hygienic process conn.  
**261**

Pressure transmitter  
**261**

Laser level transmitter  
**LLT100**

Hygienic control valve  
**23/26**

Control valve  
**23/24**

**ControlMaster** range of controllers and indicators

Paperless recorder  
**SM500 or RVG200**



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		○	○	●						
		●	○	●						
				●						
		●					●			
				●						
			●	●						
		●		●					●	
	○			●						
		●		●						
●				●					●	



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Recommended ●  
Possible ○

ABB Device

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Coriolis mass flowmeter  
**FCB430 / FCH430**

Coriolis mass flowmeter  
**FCB450 / FCH450**

Vortex flowmeter  
**FSV430 / FSV450**

Swirl flowmeter  
**FSS430 / FSS450**



Process step

Process step	FEH610 / FEH630	FEH630 with presetting counter	FSM4000	FCB100 / FCH100	FCB430 / FCH430	FCB450 / FCH450	FSV430 / FSV450	FSS430 / FSS450
<b>Filtering</b>								
Flow beer to separator/filter	●	○	○		○	○		
Control beer flow								
Flow kieselguhr suspension			●					
Differential pressure filter								
Flow CO <sub>2</sub> for carbonisation					○	○	○	○
Control CO <sub>2</sub> flow								
<b>Pasteurisation</b>								
Heating temperature pasteuriser								
Flowrate beer	●	○	○		○	○		
Calculation and recording PU-value								
Control heating/cooling medium								
Monitoring pressure flash pasteuriser								
<b>CIP/SIP</b>								
Flow CIP medium	●	○	○		○	○	○	○
Temperature CIP medium								
Flow dishwater	●	○			○	○		
Control steam								
Supervise differential pressure								
<b>Frequent general measurements</b>								
Flow of medium with low conductivity			●		○	○		
Flow of medium with solid content			●		●			
Flow of steam					○	○	●	●
Flow of hot water	●	○			○	○	○	○
Flow of cooling brine	●	○	○		○	○	○	○
Presetting counter functionality		●				●		
Filling > 5s fill time		●						
Overburden pressure								
Steam pressure								
Temperature steam								
Temperature hot water								
Temperature cooling brine								
Control flow/pressure product								
Control flow/pressure steam								



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Thermal gas mass flowmeter <b>Sensyflow/ SensyMaster</b>	Variable area flowmeter <b>FAM540</b>	Temperature sensor <b>TSHY</b>	Temperature sensor <b>TSP</b>	Pressure transmitter with hygienic process conn. <b>261</b>	Pressure transmitter <b>261</b>	Laser level transmitter <b>LLT100</b>	Hygienic control valve <b>23/26</b>	Control valve <b>23/24</b>	<b>ControlMaster</b> range of controllers and indicators	Paperless recorder <b>SM500 or RVG200</b>
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