Introduction
At sometime within the life of a flowmeter, all customers will question the device’s accuracy, if it affects the quality or economics of a process or product.

For many customers where flowmeters are used for chargeable services eg municipal water, annual or more frequent preventative maintenance and accuracy verification is often demanded.

Calibration services
ABB’s Measurement and Analytics Service offers various products that enable customers to check their flowmeter accuracy:
• A Verification test provides an accuracy check against the instruments internal reference
• A Calibration RESETS an instruments accuracy against an accredited external reference standard
• Instruments can degrade (electronics) when subjected to certain conditions
• High temperatures
• Cyclic temperatures
• Abrasive or corrosive processes
• Organic / inorganic coating of internal surfaces
• Customers require performances close to technology limits

Calibration is the definitive test of product accuracy
• Laboratory conditions
• Fully independent test
• Traceable to national/international standards

Alternatives to off-site calibration
• On-site electronic Verification of product
• In-situ check of accuracy using a reference flow meter
• On-site calibration of flow meter
• All options listed have their place in ensuring accuracy is maintained

Why consider an ABB calibration facility
• ABB’s flow calibration facilities are certified by various national independent accredited bodies / laboratories, a number of which are ISO/IEC 17025 certified
• ABB has one of the largest calibration facilities in the world, enabling larger meters to be calibrated at high flowrates
• ABB’s high turndown flowmeters (those with a high R number) can be calibrated over an extended flow range, guaranteeing accurate flowmeter performance over its full operating range.
• With 6 global locations you are sure to find a facility nearby to most customers

Whatever your need our Service team will keep your measurement and plant performing.

Measurement made easy
What industry segments are most interested in calibration?

**Water utilities**
- Many water utilities require annual calibration and or verification
- Anywhere where utilities are charging for delivered water
- This is the largest sector where we sell calibration services today
- District flow meters, typically 5 years every calibration
- Main product in this sector is EMF
- Legislation defines calibration interval
- Custody transfer, small error has major impact on what is charged
- Focus on input and output meters - River water, environmental side, taking within license allowance = compliance, same in what is put back effluent outflow (under legislation)

**Food & beverage**
- F&B production processes - any error can adversely affect the quality and safety of food products, resulting in the costs and loss or brand reputation associated with such failures
- Pressure & temperature has bigger issue in F&B (Mcerts discharge, have to monitor in certain regions what can be returned, standards require calibration every 5 years)

**Crude oil & natural gas**
- In a custody-transfer application involving crude oil or natural gas, even the smallest error can cost a customer millions of dollars a year

**Mining**
- Degradation of lining due to aggressive media

**Process industry e.g. Paper**
- Reduction of bore diameter

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**Flow calibration services**

**ABB’s Calibration facilities**

- Warminster, US
- Stonehouse, UK
- Minden, DE
- Bangalore, IN
- Shanghai, CN
- Sydney, AU

**Flow calibration services**

**Supported flow devices**

- Electromagnetic
- Mechanical
- Turbine
- Differential
- Ultrasonic
- Vortex & Swirl
- Coriolis
- Valves
- Variable area
- Thermal mass
What facility is best suited to your calibration requirements?
Find the right calibration facility

<table>
<thead>
<tr>
<th>Region</th>
<th>DN3-10 (1/10”–3/8”)</th>
<th>DN15-600 (1/2”–24”)</th>
<th>DN700-DN750 (28”–30”)</th>
<th>DN800-2400 (32”–96”)</th>
<th>Air</th>
<th>Gas mixture specified by customer</th>
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</thead>
<tbody>
<tr>
<td>EU</td>
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* Excluding India  ** Excluding China

How to select the correct part number when ordering your calibration service?

<table>
<thead>
<tr>
<th>Item no</th>
<th>Service product</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>3KXS310121L1100</td>
<td>DN 1 … DN 10</td>
<td>BASIC CALIBRATION SMD121 Category Basic AS-Found Calibration Certificate</td>
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<tr>
<td>3KXS310121L1200</td>
<td>DN 15 … DN 150</td>
<td>・Quick technical inspection (without documentation) Cleaned flowmeter calibration without adjustment Current calibration certificate creation</td>
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<tr>
<td>3KXS310121L1300</td>
<td>DN 200 … DN 400</td>
<td>・Normal  calibration  Preliminary check with findings report Execution of necessary audit work Cleaned flowmeter calibration with adjustment Calibration certificate Final acceptance 6 months warranty on necessary audit work 1-3 Points preliminary check</td>
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<td>3KXS310121L1400</td>
<td>DN 500 … DN 800</td>
<td>・Normal  calibration  Preliminary check with findings report  Cleaned flowmeter calibration with adjustment  Calibration certificate  Final acceptance 12 month warranty on necessary audit work 1-3 Points preliminary check</td>
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<td>DN 900 ... DN 1000</td>
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</table>

**STANDARD CALIBRATION**
- Official re-verification preliminary check
- Preliminary check with findings report
- Execution of necessary audit work
- Technical order data maintenance
- Cleaned flowmeter pre-calibration including associated transmitter
- Official verification forward flow item no with suffix (..10) = + reverse flow
- Official verification certificate
- Final acceptance
- 12 month warranty on electronics (only ABB)

**STANDARD AS-FOUND**
- Preliminary check with findings report
- Cleaned flowmeter AS-Found calibration
- Calibration certificate creation
- Execution of necessary audit work
- Flowmeter calibration/ adjustment
- Current Calibration certificate
- Final acceptance
- 12 month warranty on electronics (only ABB)
- Preliminary check

**STANDARD INCREASED ACCURACY**
- Preliminary check with findings report
- Execution of necessary audit work
- Technical order data maintenance
- Cleaned flowmeter calibration including associated transmitter
- Calibration approval by TÜV / DEKRA
- Authenticated calibration certificate
- Final acceptance
- 12 month warranty on electronics (only ABB)
- High accuracy up to 5 Points
- Preliminary check

**ADVANCED CERTIFIED CALIBRATION (only applicable for German market)**
- Certifies Calibration up to 5 Points
- TÜV / DEKRA
- Preliminary check with findings report
- Execution of necessary audit work
- Technical order data maintenance
- Cleaned flowmeter calibration including associated transmitter
- Calibration approval by TÜV / DEKRA
- Authenticated calibration certificate
- Final acceptance
- 12 month warranty on electronics (only ABB)
- Preliminary check
### Item no | Service product | Description
--- | --- | ---
3KXS310123L7100 | DN1 ... DN 10 | SMD123 Category Advanced | • Factory calibration
• Gravimetric calibration
• Preliminary check with findings report
• Execution of necessary audit work
• Factory calibration using a balance
• If necessary, adjusting of measuring system
• Calibration certificate
• Final acceptance
• 12 month warranty on electronics (only ABB)
• Preliminary check
• Comparison / gravimetric terminology rather than balance should be used.

3KXS310123L7200 | DN 15 ... DN 150 | SMD123 Category Advanced

3KXS310123L7300 | DN 200 ... DN 400 | SMD123 Category Advanced

3KXS310123L7400 | DN 500 ... DN 800 | SMD123 Category Advanced

### ADVANCED CERTIFICATION

3KXS310123L81XX | DN 3 ... DN 40 | SMD123 Category Advanced | • DAkkS & UKAS calibration up to 5 Points
• Preliminary check with findings report
• Execution of necessary audit work (only ABB)
• DAkkS calibration using a comparison
• If necessary, adjusting of measuring system (only ABB)
• DAkkS calibration certificate
• Final acceptance
• Preliminary check
• 12 month warranty on electronics (only ABB)

3KXS310123L8100 | DN 50 ... DN 150 | SMD123 Category Advanced

3KXS310123L8200 | DN 200 ... DN 350 | SMD123 Category Advanced

3KXS310123L8300 | DN 400 ... DN 800 | SMD123 Category Advanced

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