Next generation digital load cells

Alfa Laval UltraPure weighing systems
Capacitive digital load cells

Patented technology with unique advantages
The Alfa Laval load cells are based on a patented digital capacitive technology that features a number of advantages compared to other technologies used in transducers for measuring force and weight.

The Alfa Laval load cells are produced in stainless steel and hermetically sealed to IP68 by laser welding. Furthermore, the load cells feature high accuracy, outstanding reliability, simple mechanical and electrical installation, and minimal maintenance for use in tough and demanding industrial applications.

The Alfa Laval weighing systems are available in capacities up to 100 tons with a broad range of instrumentation including weighing terminals and weighing modules featuring EtherNet IP, Modbus TCP/IP, PROFINET, Profibus DP, DeviceNet, RS485, 4–20 mA and 0–10 VDC interfaces. The Alfa Laval load cells and weighing solutions can be supplied in OIML and ATEX certified versions.

The Alfa Laval weighing systems are individually calibrated and tested, for the highest quality on the market.

The Alfa Laval load cells are trusted worldwide
Our customers include leading companies in more than 85 countries worldwide, and the continuous investment in technology, development, quality, and customer support has led to a very high level of customer loyalty.

Next generation digital load cells
- Patented capacitive technology
- Robust digital load cells
- Tolerate up to 1,000% overload
- Easy installation
- Stainless steel (IP68)
- ATEX certified zone 1, 2, 21, 22
- Trusted in over 85 countries worldwide
Hygienic load cells – high accuracy and reliability
Digital capacitive technology

The choice for any hygienic application

The Alfa Laval digital capacitive technology is based on a non-contacting ceramic sensor mounted inside the load cell body. As the load cell contains no moving parts and the ceramic sensor is not in contact with the load cell body, the load cell tolerates very high overloads, sideloads, torsion and welding voltages.

**Simple and hygienic installation**
This robust technology allows for a very simple and hygienic mechanical installation of the Alfa Laval load cells without expensive and complicated mounting kits, stay rods or overload protection devices. The simple installation eliminates the need for maintenance and reduces the total cost of ownership.

**The true digital weighing solution**
The electrical installation of the Alfa Laval digital load cells is pure plug-and-play as the output from the non-contacting sensor is directly converted, compensated and calibrated to RS485 signal by a proprietary ASIC in the load cell. This RS485 signal contains the measuring data and status codes for diagnostics, which is transmitted through the single wire coaxial cable to the weighing instrumentation.

The patented digital technology eliminates drift and inaccuracy found in analog circuits as the complete measurement chain is digital.

**Individually calibrated for high accuracy**
Every Alfa Laval load cell is individually factory calibrated and compensated to ensure the highest accuracy and quality on the market.

**Flexible connectivity**
The Alfa Laval proprietary design results in unsurpassed flexibility, high data rates and allows for connection to a wide range of equipment, fieldbus interfaces and outputs (PLCs, PCs, SCADA systems, Weighing Terminals, PROFINET, Proibus DP, EtherNet/IP, Modbus TCP/IP, RS485, 4–20 mA, 0–10 VDC etc.).

**Easy commissioning and service**
The pre-calibration of the Alfa Laval load cells and the possibility to monitor the load and status of each individual digital load cell, provides visibility, easy troubleshooting and saves time during commissioning.

Furthermore, the load cell cables can be mounted on the load cells on-site, if convenient, and the cable length (up to 100 meters) has no influence on the calibration of the Alfa Laval load cells.

**Patented and trusted worldwide**
The capacitive technology and mechanical design of the Alfa Laval load cells is patented and trusted by customers in more than 85 countries worldwide.
The Alfa Laval digital capacitive technology is based on an accurate and stable ceramic sensor, which is non-contacting and therefore unaffected by overloads, sideloads, torsion and welding voltages.
Robust and reliable load cells
All Alfa Laval load cells tolerate very high overloads, sideloads and torsion. The load cells are produced in stainless steel and hermetically sealed to IP68 to ensure superb IP protection.

Simple mechanical installation
Mechanical protection devices are not necessary when installing Alfa Laval digital load cells. This is not only an important cost and maintenance saver, but also allows for a hygienic installation.

Simple electrical installation
The Alfa Laval digital load cells feature true plug-and-play installation as the load cells are pre-calibrated, which eliminates the need for on-site calibration in many applications.

The Alfa Laval digital load cells are equipped with up to 100 meters coaxial cable and the cable length has no influence on the load cell calibration.

Certified quality
The Alfa Laval digital load cells can be supplied in OIML and ATEX certified (zone 1, 2, 21, 22) versions while still offering a very high overload tolerance.

Flexible solutions
A range of Alfa Laval weighing modules are available with a host of fieldbus interfaces (Profibus DP, PROFINET, Ethernet IP, Modbus TCP/IP, 4–20 mA, 0–10 VDC etc.). Also the load cells are available in capacities up to 25 tons.

Fast commissioning
The Alfa Laval load cells are precalibrated, which saves time during commissioning.

Minimizes on-site installation costs for OEM customers
The very high overload tolerance of Alfa Laval load cells allows for in-factory installation of the load cells in OEM equipment, which eliminates the need for expensive and inconvenient transportation protection for the load cells.

Easy diagnostics and service
It is possible to monitor the load and status of each individual Alfa Laval load cell with the integrated load cell diagnostics feature.

The Alfa Laval digital load cells do not require regular maintenance but if maintenance is required, the integrated system will alert users, providing fast and easy troubleshooting.

High quality standards
All Alfa Laval load cells are developed, manufactured and individually calibrated in Denmark to ensure that the load cells meet the highest quality standards on the market.

Patented and trusted worldwide
The capacitive technology and mechanical design of the Alfa Laval load cells has been patented and is trusted by customers in more than 85 countries worldwide.
Product overview

Next generation digital load cells

SPSX
SPSX-Ex
BL
BL-Ex
CL
CL-Ex
CM
CM-Ex

Digital weighing terminal

Terminal LCD
5024G

RS485
EtherNet IP
Profibus DP
PROFINET
4-20 mA

4X35A
Profibus DP module for 1-4 load cells

4X50A
EtherNet module for 1-4 load cells

4X70A
PROFINET module for 1-4 load cells

4X79A
Analog module for 1-4 load cells

4051A
ATEX power supply

24VDC

Profibus DP
RS485
EtherNet IP Modbus TCP
PROFINET
4-20 mA
0-10 VDC EtherNet
## Load cell overview

### Digital capacitive load cells

<table>
<thead>
<tr>
<th>Non-atex</th>
<th>BL</th>
<th>SPSX</th>
<th>CL</th>
<th>CM</th>
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<tr>
<td>Atex</td>
<td>BL-Ex</td>
<td>SPSX-Ex</td>
<td>CL-Ex</td>
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### Load cell type
- Compression
- Beam
- Single point

### Load cell features
- Digital capacitive technology
- Stainless steel
- EHEDG compliant design
- IP68
- Robust

### Specifications
- **Maximum capacity**
  - 1,000 kg
  - 150 kg
  - 5,000 kg
  - 25,000 kg
- **Overload tolerance** > 300% of rated capacity
- **Interface options**
  - EtherNet IP, Modbus TCP/IP, PROFINET, Profinbus DP, RS485, 4–20 mA, 0–10 VDC

### Applications
- **Process weighing**
- **Tank, vessel and silo**
- **Filling and dosing**
- **Level measurement**
- **Dynamic weighing**
- **Scales**
- **Conveyor belts**
Alfa Laval tank equipment and instrumentation offering

**Rotary Jet Heads**
- TJ SaniMidget
- TJ SaniMidget SB UltraPure
- TJ SaniMidget retractor
- GJ AB
- TJ SaniJet 20
- TJ 20G
- TJ 40G
- TJ SaniJet 25

**Static Spray Balls**
- LKRK Static Spray Ball

**Agitators and Mixers**
- Hybrid Power Mixer M15
- Rotary Jet Mixer
- Magnetic Mixer UltraPure

**Tank Accessories**
- Sight Glasses
- Tank Feet
- ALS
- ALB
- ALTB
Instrumentation

Flow Transmitter  Rotacheck  Temperature Transmitter  Conductivity Transmitter  Pressure Gauge  Electric Pressure Transmitter

Level Switch  Weighing Systems UltraPure  Flow Meter  Pressure Transmitter  Thermometer  Potentiometric Level Transmitter  In-line Instrumentation Housing

Tank Covers

LKDC-LP  Type R  LKD  LKDC  HLSD
Alfa Laval in brief

Alfa Laval is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuff, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com