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# ПРИБОРЫ ДЛЯ ОПРЕДЕЛЕНИЯ ВЕСА

Alfa Laval Weighing Systems UltraPure with compression load cells

Hygienic and reliable weighing solutions for your process

## Application

The hygienic UltraPure load cells offer high precision and reliable weight measurement, ideal for mixing, dosing, batching or gravimetric level measurement for process tanks and vessels.

## Main features:

- Robust load cells which can tolerate up to 300% overload or sideload
- High accuracy up to 0.025% of full scale and high resolution
- Load cells are produced in stainless steel and hermetically sealed to IP68
- EHEDG compliant hygienic design for sanitary installation
- Simple and easy mechanical installation without complicated and expensive mounting kits
- Load cells are pre-calibrated
- Load cell calibration is independent of the load cell cable length
- Simple plug-and-play electrical installation
- Integrated diagnostic feature for detailed diagnostic and surveillance of weighing system
- Load cell cable lengths up to 50 meters

## Standard range

The Alfa Laval weighing system is a complete solution offered for process weighing installation where level measurement, mixing, filling, dosing or batching is required.

The weighing solution is as standard delivered in four different accuracy ranges: 2%, 0.10%, 0.05% and 0.025% with a total measuring range from 0 to 100000 kg.

Each weighing system consists of 1 to 4 load cells and a weighing module. The weighing modules are available with both analog 4-20 mA output, and fieldbus interface (PROFINET, Profibus DP or EtherNet IP). For high hygienic demands, the Alfa Laval load cells are supplied electropolished and hermetically sealed to IP68 (laser welded).

Alfa Laval offers an additional range of tank legs that fits to the load cells ensuring a robust and reliable connection between the tank and the load cells.



## Capacitive measurement principle (patented)

The Alfa Laval robust digital load cells are based on a patented capacitive measurement principle where a non-contacting capacitive sensor is mounted inside the load cell body. As the capacitive sensor is not in contact with the load cell body, the load cells are to a very high degree unaffected by overloads, sideloads, torsion and welding voltages. Therefore, a straightforward and hygienic mechanical installation of the load cells can be done without expensive complicated mounting kits and overload protection devices.

The electrical installation of the digital load cells is pure plug-and-play as the signal from the non-contacting capacitive sensor is directly converted, compensated and calibrated by a patented ASIC. The digital signal is transmitted as RS485 data on a reliable RG-58 single wire coaxial cable which may be up to 50 meters long. The factory calibration of the digital load cells is independent of the load cell cable length.

**Technical Data**

Measuring range: . . . . . from 0 to 100000 kg  
 depending on system  
 selection.  
 Accuracy: . . . . . 2%, 0.10%, 0.05%, 0.025%  
 Compensated temperature range: . . . -10 to 50 °C

**Overload and sideload :**

300% at 300 kg capacity systems and 100 % at 32000t capacity  
 systems

**Power:**

Power supply: . . . . . 24 VDC ±10%, min. 2A

**Mechanical data****Weight:****Load cell:**

CL type . . . . . 1.8 kg  
 CM type . . . . . 3.6 kg  
 Weighing modules: . . . . . approx. 0.5 kg

**Materials:**

Load cells: . . . . . AISI 316 and 17-4 PH

**Operating temperature range:**

Load cells: . . . . . -50 to 70 °C (100 °C with  
 teflon cable)  
 Weighing modules: . . . . . -10 to 50 °C

**Protection class:**

Load cells: . . . . . IP68  
 Weighing modules: . . . . . IP20

**Certificates**

CE marked  
 3.1B certificate  
 Calibration certificate (Option)

**Specifications**

Parameter	Unit	0.1%	0.05%	0.025%*
Rated capacity (E <sub>max</sub> ) per load cell	kg	CL: 50, 100, 150, 250, 500, 1000, 1500, 2000, 3000, 4000, 5000 CM: 6000, 8000, 10000, 15000, 20000, 25000		
Safe overload limit	% of E <sub>max</sub>	200 to 500		
Safe sideload limit	% of E <sub>max</sub>	300 to 1000		
Minimum dead load	% of E <sub>max</sub>	0		
Accuracy	% of E <sub>max</sub>	0.100	0.050	0.025
Repeatability	% of E <sub>max</sub>	0.030	0.020	0.012
Hysteresis	% of E <sub>max</sub>	0.055	0.040	0.020
Creep 30 min.	% of E <sub>max</sub>	0.060	0.040	0.025
Temperature effect on zero	%/10 °C	0.060	0.045	0.030
Temperature effect on sensitivity	%/10 °C	0.060	0.045	0.030
Deflection at E <sub>max</sub>	mm	max. 0.2		
Mesuring rate	Hz	500		
Supply	Vdc	24 Vdc ±10%		
Internal resolution	Bit	24		
Maximum cable length	m	100		
Output options		PROFINET, Profibus DP, DeviceNet, EtherNet/IP, RS485, 4-20 mA		

2% accuracy system includes active and dummy load cells

\* 0.025% accuracy is available up to 5000 kg.

**Options**

**Output:**

- 4-20mA
- PROFINET
- EtherNet IP
- Profibus DP
- RS485

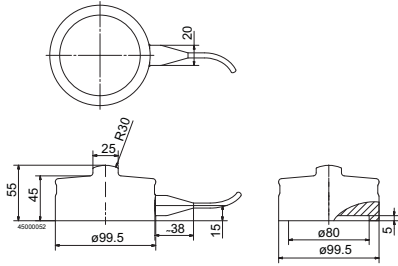
**Local weighing display:**

Alfa Laval weighing terminal

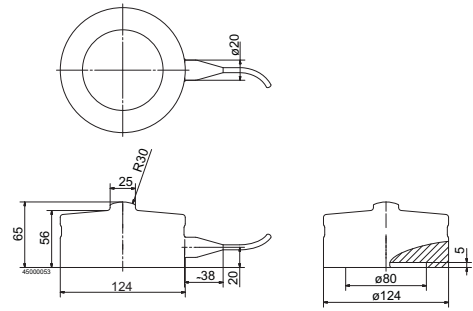
**Dimensional drawings**

**Load cell cable:**

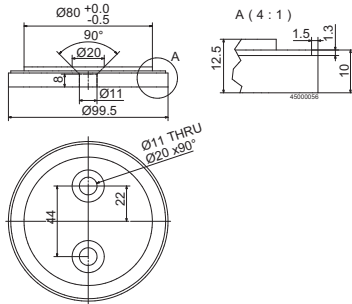
6m standard coaxial RG58 with BNC connector (option: 10, 20 or 50m)



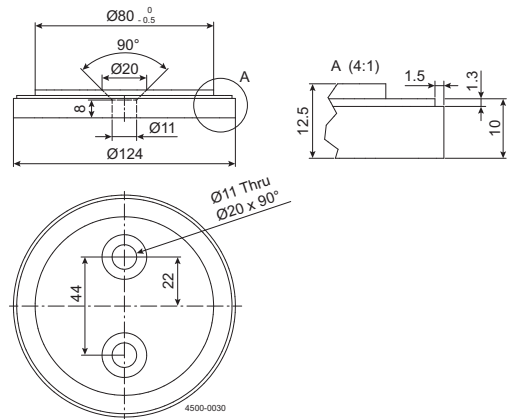
CL load cell (50-5000 kg)



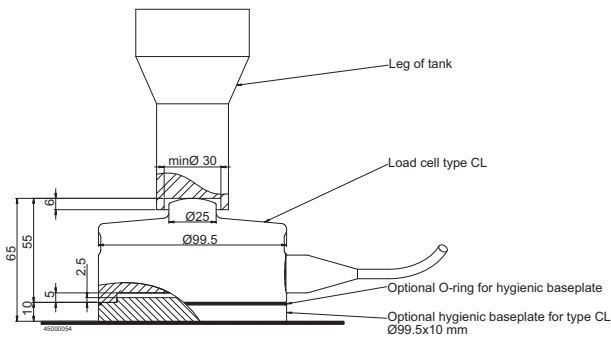
CM load cell (6000-25000kg)



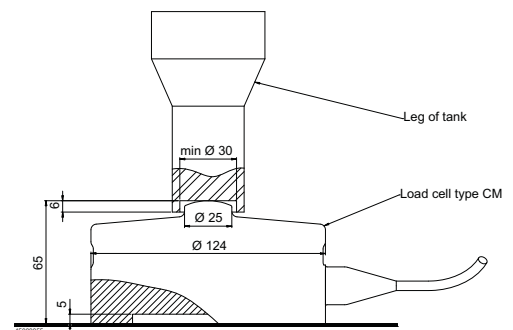
Hygienic Baseplate for CL load cell



Hygienic baseplate for CM load cell



CL load cell installation with tank leg



CM load cell installation with tank leg

## Accessories

Tank legs to compression load cells

9614460901 tank feet M 30 for load cells below 11000 kg with short spindle

9614460905 tank feet M36 for load cells below 16000 kg with short spindle

9614460902 tank feet M42 for load cells below 21500 kg with short spindle

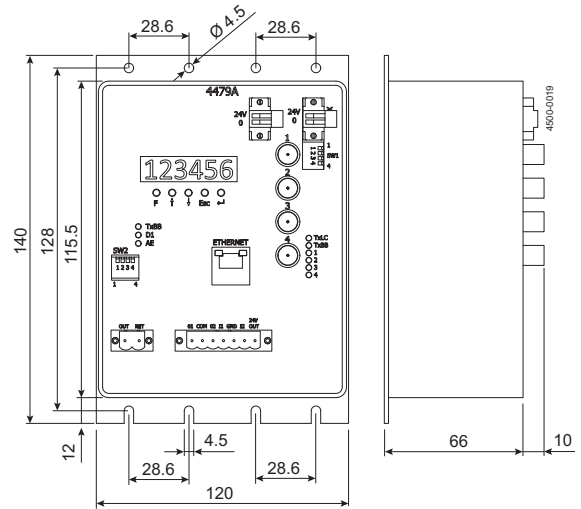
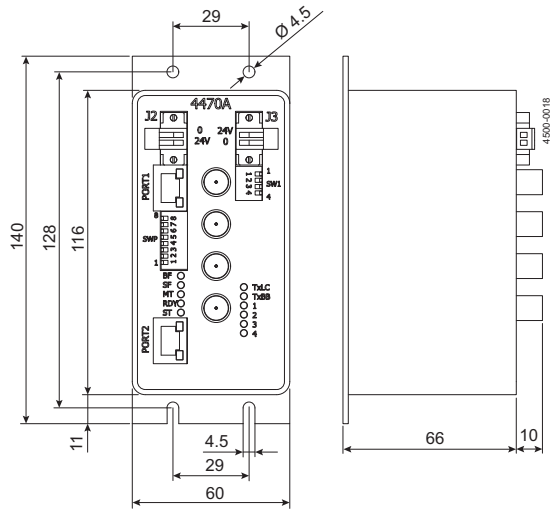
9614460903 tank feet M56 for load cells below 37000 kg with short spindle

## Layout and electrical connection schematic of weighing modules:

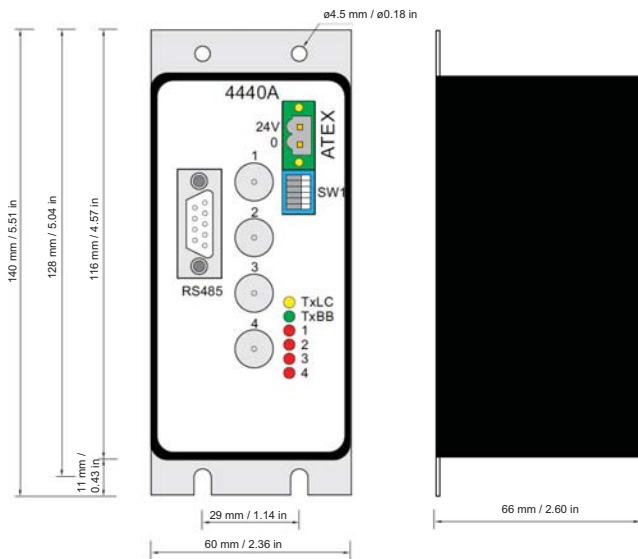
### Profinet weighing module for 4 load cells

(external dimensions is the same for Profibus DP and Ethernet IP)

### 4-20 mA output weighing module for 4 load cells

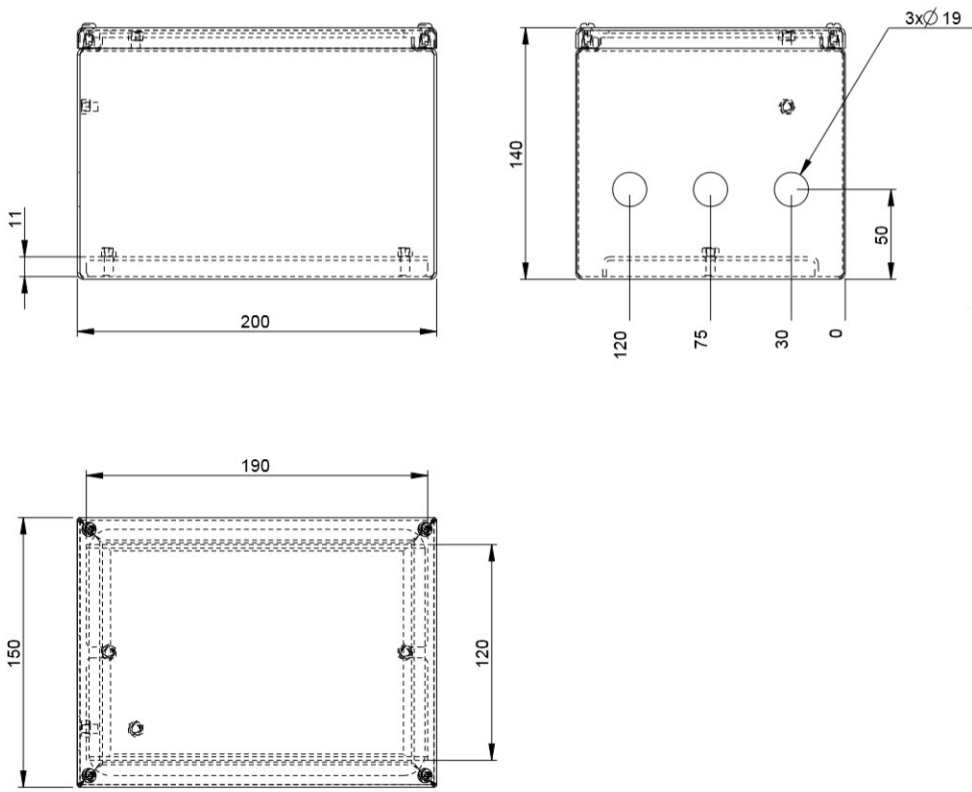


### RS485 interface module (when ordered with display)

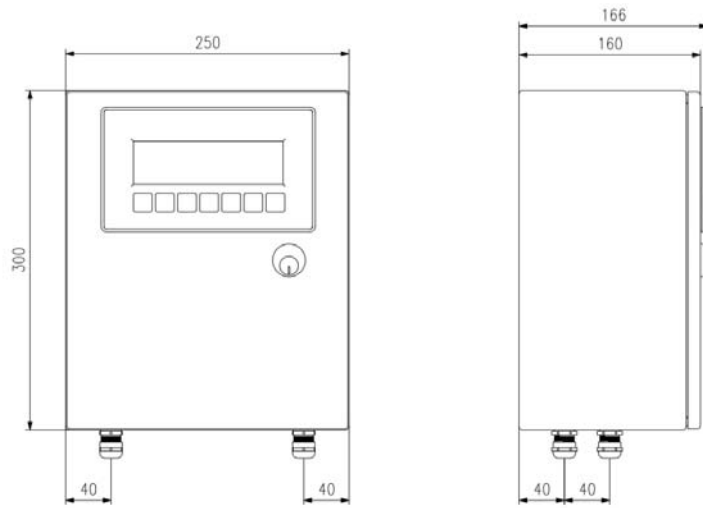


### Stainless steel enclosure

Enclosure when ordered without display.



### Enclosure with display



## Selection guide

When configuring a weighing system, you need the following information:

- Number of tank legs or supporting points
- Total weight of tank incl. product in kg
- Required output and/or local display
- Required accuracy for the application (e.g. dosing, mixing, level measurement etc.)

With this information, you are able to find the configuration you need in the ordering leaflet or in the online configuration tool.

### Step 1:

Calculate the total weight of the tank including the product in kg and round up to the nearest standard load cell system.

### Step 2:

Decide on accuracy required by the application

- 2% accuracy systems are suitable for level measurement applications
- 0.10% accuracy systems are suitable for mixing applications
- 0.05% accuracy systems are suitable for dosing applications
- 0.025% accuracy systems are suitable for very precise dosing and batching applications

### Step 3:

Decide on the output signal type and/or a local weighing display:

- 4-20mA
- PROFINET
- EtherNet IP
- Profibus DP

### Step 4:

Decide if you want the display and/or weighing modules supplied mounted in a stainless steel enclosure

You have the following options:

- Without stainless steel enclosure
- Weighing module mounted in stainless steel enclosure (without display)
- Display mounted in stainless steel enclosure

### Step 5:

Decide on the length of the load cell cables (the length of the cable is can be shortened without the need for recalibration)

- 6m (standard)
- 10m
- 20m
- 50m

### Step 6:

Decide on if you need calibration certificate

Theoretical statistical weighing system accuracy

Item nr	System range	System range	Number of	System type	System type	System type
	3 legs	4 legs	loadcells and lc-type in system	0.10%	0.05%	0.025%
TE67WC0xxxxxxx	0- 300 kg.	.	(3*100 kg lc)	± 0.17 kg.	± 0.09 kg.	± 0.04 kg.
TE67WC1xxxxxxx		0- 400 kg.	(4*100 kg lc)	± 0.20 kg.	± 0.10 kg.	± 0.05 kg.
TE67WC4xxxxxxx	0- 750 kg.		(3*250 kg lc)	± 0.43 kg.	± 0.22 kg.	± 0.11 kg.
TE67WC5xxxxxxx		0- 1000 kg.	(4*250 kg lc)	± 0.50 kg.	± 0.25 kg.	± 0.13 kg.
TE67WC6xxxxxxx	0- 1500 kg.		(3*500 kg lc)	± 0.87 kg.	± 0.43 kg.	± 0.22 kg.
TE67WC7xxxxxxx		0- 2000 kg.	(4*500 kg lc)	± 1.00 kg.	± 0.50 kg.	± 0.25 kg.
TE67WC8xxxxxxx	0- 3000 kg.		(3*1 000 kg lc)	± 1.73 kg.	± 0.87 kg.	± 0.43 kg.
TE67WC9xxxxxxx		0- 4000 kg.	(4*1 000 kg lc)	± 2.00 kg.	± 1.00 kg.	± 0.50 kg.
TE67WCBxxxxxxx	0- 6000 kg.		(3*2000 kg lc)	± 3.46 kg.	± 1.73 kg.	± 0.87 kg.
TE67WCCxxxxxxx		0- 8000 kg.	(4*2000 kg lc)	± 4.00 kg.	± 2.00 kg.	± 1.00 kg.
TE67WCDxxxxxxx	0- 9000 kg.		(3*3000 kg lc)	± 5.20 kg.	± 2.60 kg.	± 1.30 kg.
TE67WCExxxxxxx		0- 12000 kg.	(4*3000 kg lc)	± 6.00 kg.	± 3.00 kg.	± 1.50 kg.
TE67WCExxxxxxx	0- 12000 kg.		(3*4000 kg lc)	± 6.93 kg.	± 3.46 kg.	± 1.73 kg.
TE67WCGxxxxxxx		0- 16000 kg.	(4*4000 kg lc)	± 8.00 kg.	± 4.00 kg.	± 2.00 kg.
TE67WCFxxxxxxx	0- 15000 kg.		(3*5000 kg lc)	± 8.66 kg.	± 4.33 kg.	± 2.17 kg.
TE67WCIxxxxxxx		0- 20000 kg.	(4*5000 kg lc)	± 10.00 kg.	± 5.00 kg.	± 2.50 kg.
TE67WCHxxxxxxx	0- 18000 kg.		(3*6000 kg lc)	± 10.39 kg.	± 5.20 kg.	N/A
TE67WCJxxxxxxx		0- 24000 kg.	(4*5000 kg lc)	± 12.00 kg.	± 6.00 kg.	N/A
TE67WCJxxxxxxx	0- 24000 kg.		(3*8000 kg lc)	± 13.86 kg.	± 6.93 kg.	N/A
TE67WCKxxxxxxx		0- 32000 kg.	(4*8000 kg lc)	± 16.00 kg.	± 8.00 kg.	N/A
TE67WCNxxxxxxx	0- 30000 kg.		(3*10000 kg lc)	± 17.32 kg.	± 8.66 kg.	N/A
TE67WCOxxxxxxx		0- 40000 kg.	(4*10000 kg lc)	± 20.00 kg.	± 10.00 kg.	N/A
TE67WCPxxxxxxx	0- 45000 kg.		(3*15000 kg lc)	± 25.98 kg.	± 12.99 kg.	N/A
TE67WCIxxxxxxx		0- 60000 kg.	(4*15000 kg lc)	± 30.00 kg.	± 15.00 kg.	N/A
TE67WCIxxxxxxx	0- 60000 kg.		(3*20000 kg lc)	± 34.64 kg.	± 17.32 kg.	N/A
TE67WCSxxxxxxx		0- 80000 kg.	(4*20000 kg lc)	± 40.00 kg.	± 20.00 kg.	N/A
TE67WCTxxxxxxx	0- 75000 kg.		(3*25000 kg lc)	± 43.30 kg.	± 21 .65 kg.	N/A
TE67WCUxxxxxxx		0- 100000 kg.	(4*25000 kg lc)	± 50.00 kg.	± 25.00 kg.	N/A

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