UTILCELL

LOAD CELLS - *WÄGEZELLEN*

LIFT-OFF PREVENTION SYSTEMS
Acc. 74907
Acc. 74908
Acc. 74909
Acc. 74910

MOUNTING INSTRUCTIONS

(Rev. 5 – 02/08)

TABLE OF CONTENTS

SAFETY INSTRUCTIONS

Read these mounting instructions completely before carrying out any operation.

These accessories should only be used following the instructions contained in this handbook. It is also completely necessary to follow any regulation regarding the use of the weighing application as a whole, and also regarding its parts or modules.

The accessories 74907, 74908, 74909 and 74910 are weighing modules to be used in weighing applications. Any other use may be considered not to be in conformity with the regulations.

These accessories are not safety elements by themselves. Proper transportation, storage, assembly, operation and maintenance are needed. If not properly installed or operated they can lead to danger. Also all people involved with the installation, maintenance and/or that have any other responsibility on it, if not properly trained, can lead to danger to themselves and/or others.

When the application involved with the use of these accessories could lead to cause wounds or injuries to people or damage the equipment, all necessary safety measures have to be taken by the user (for example: protection against having a fall, protection against overloads, etc). It is very important to carry out all the necessary regulations regarding with risk prevention.

These accessories are modules to be used in applications that involve other areas of weighing technology, so the designers, installers and operators of these applications have to implement all the safety considerations with the aim to minimise danger. Any regulations regarding the application have to be fulfilled always.

	When the environmental conditions of use of these accessories are known to be harsh or are unknown but will probably be harsh, then it is highly recommended to add an adequate coating to the accessories after mounting, and also to properly protect the cable and other parts.

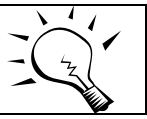
It is not allowed to make any kind of modifications or conversions in these accessories that may affect the design under the safety point of view without our formal consent. Any modification shall exclude all responsibility from our part for any resulting harm.

These accessories should only be installed by qualified personnel following strictly all applicable technical data, safety rules and regulations. This is also valid for the whole application itself and for the accessories.

MOUNTING INSTRUCTIONS

The accessories 74907, 74908, 74909 and 74910 are designed to be used as weighing modules with a lift-off prevention system for silos. Accessory 74907 is to be used with a load cell model 740 of capacity 15 to 40 t. Accessory 74908 is to be used with a load cell model 740 of 60 t, 74909 is to be used with a load cell model 740 of 100 or 200 t and 74910 is to be used with load cell model 740 of 400 t.

These accessories are mainly formed by a lower plate that has to be mounted on the foundation, an upper plate that receives the load from the silo, a transverse retention arm and a lift-off prevention system. These accessories are provided assembled and with transport protection.



These accessories may not be modified under any circumstance.

The surfaces where the accessories shall be mounted have to be level, flat and clean. If these surfaces have a level error it has to be corrected by means of adding compensating plates and wedges, and welding them, or by polishing the surface.

The foundations have to be rigid enough so that the deformations produced on loading are low and within acceptable limits.

The loading on the support points has to be uniform where possible. Make sure that the height of the support points is correct and adjust it if necessary by means of compensating shims.

To avoid straining forces as far as possible the alignments among the fastening holes on the foundation and the silo have to be accurate enough. The same is valid for the lift-off drill holes.

It is completely necessary to assure that the accessory receives no shock load while the silo is being let down onto it. If so, it can produce an irreparable damage to the load cell.

The lower accessory plate has to be strongly fastened to the foundation. The same is valid for to the upper plate and the silo.

It has to be ensured that the accessory, once mounted, is free of any transverse force. To achieve it the load cell has to be mounted as perpendicular as possible, the upper and lower plates have to be horizontal and the mounting holes in the foundation and the silo have to be aligned enough.

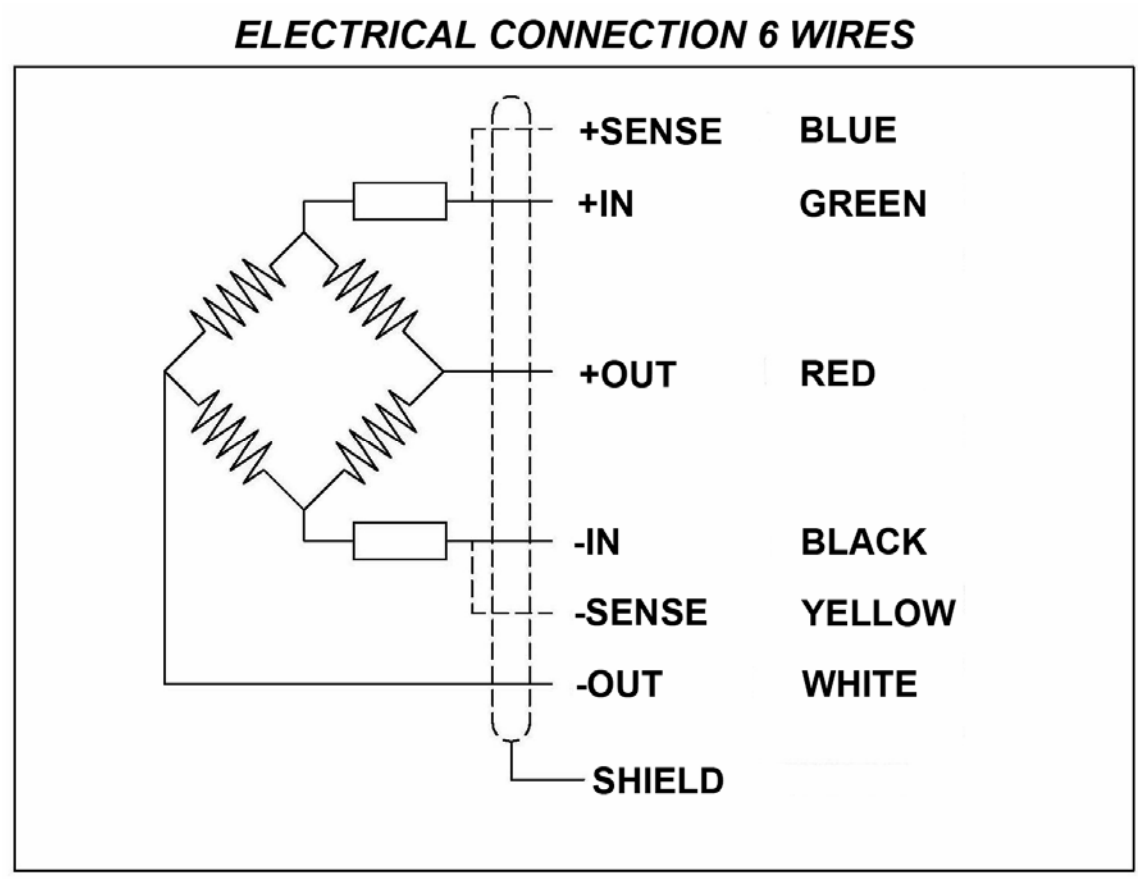
The lift-off securing device is set up by positioning the base of the silo to a distance of *A* mm of the washer in the rod (see drawings and tables of characteristics).

It is convenient to check the load cell output individually to prevent overloading. In case of overloading, compensate the height of the less loaded load cell by means of adding shims under it.

To prevent damages to the load cell caused by welding currents it is necessary to use the earthing cable that is provided with the accessory.

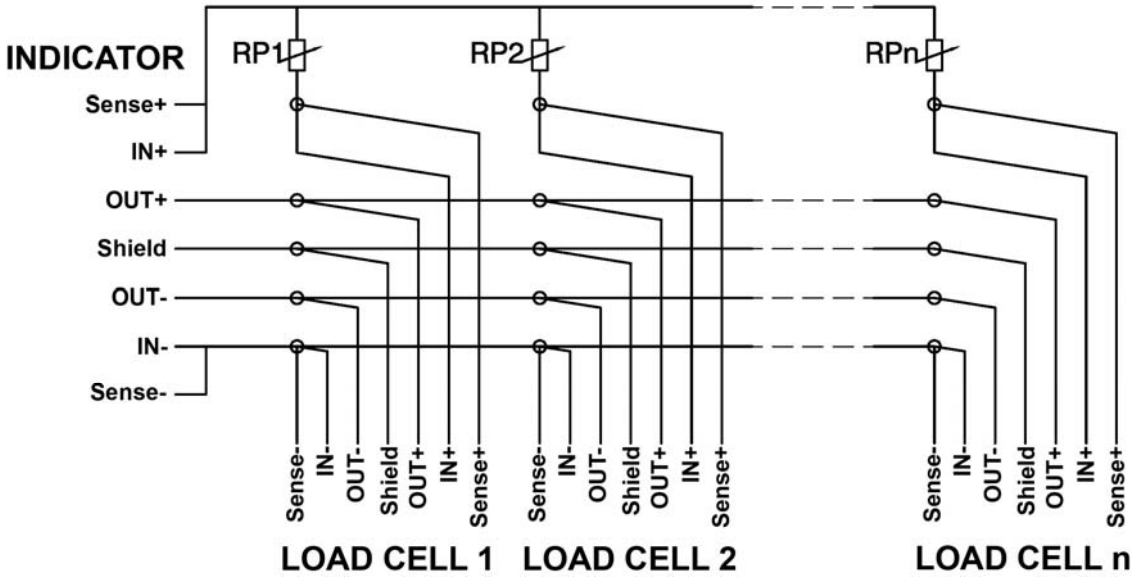
ELECTRICAL CONNECTION

The load cell mod. 740 corresponding to this accessory is manufactured with a six-wire cable, so the connection is made according to the figure below:



PARALLEL CONNECTION OF LOAD CELLS

To get a correct average of the signal of all the load cells used in the installation you need a junction box (89XXX). The parallel connection is as follows:



⚠	Once all load cells are connected together the overloading on an individual load cell cannot be seen anymore.

All cables used in the installation have to be screened low-capacitance ones. It is very important to avoid routing cables next to any kind of source that can generate electromagnetic fields. If this is not possible, it is absolutely necessary to use a metallic protection that shields the cable.

CONNECTION USING THE 4 WIRE SYSTEM

If the 4 wire system has to be used then the blue and green wires and the yellow and black wires have to be connected together.

OPERATION

Avoid transverse forces not in the direction of the retention arm.

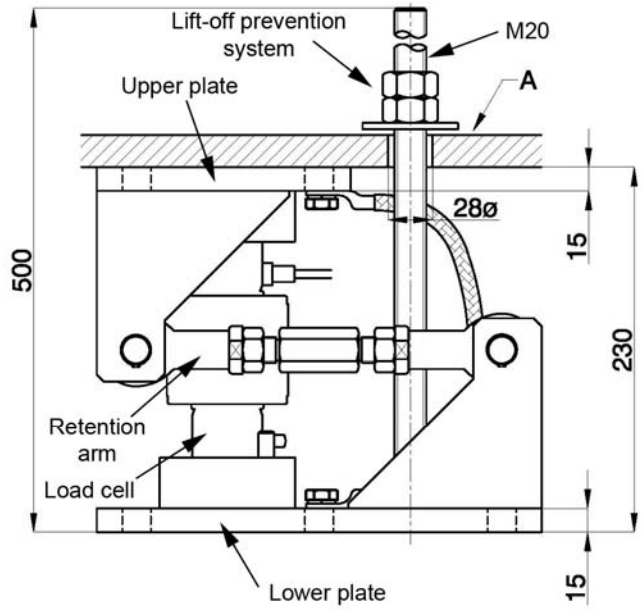
The maximum permissible side offset transverse to the retention arm has to be periodically checked and adjusted if necessary (see tables for its adjusting values).

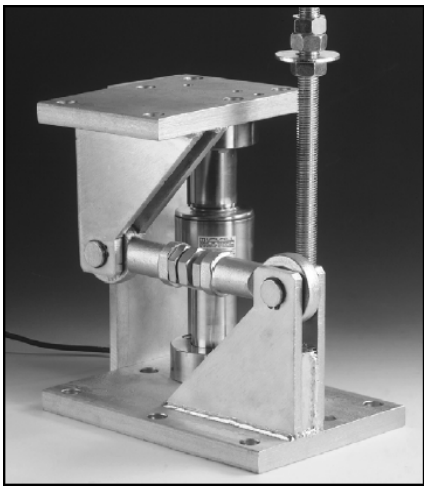
The maximum permissible lifting movement has to be adjusted to *A* mm (see drawings and tables).

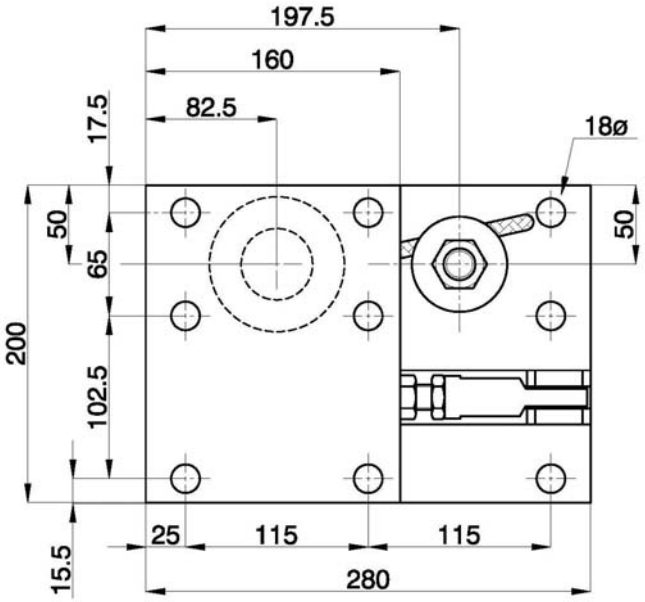
Do not completely relief the load if there is not an adjusted lift-off prevention system.

DIMENSIONS

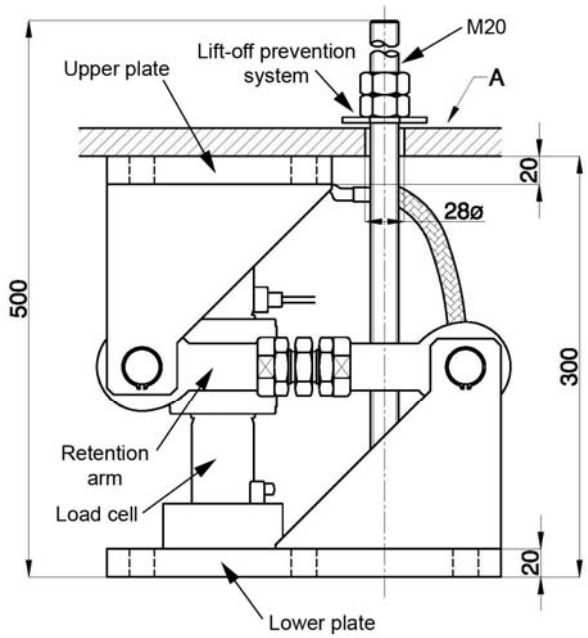
Acc. 74907

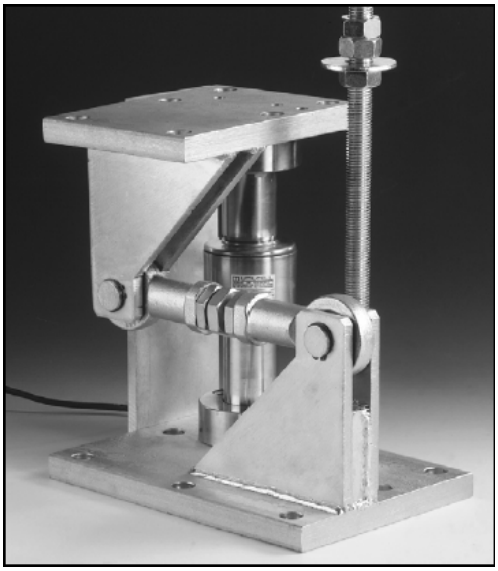


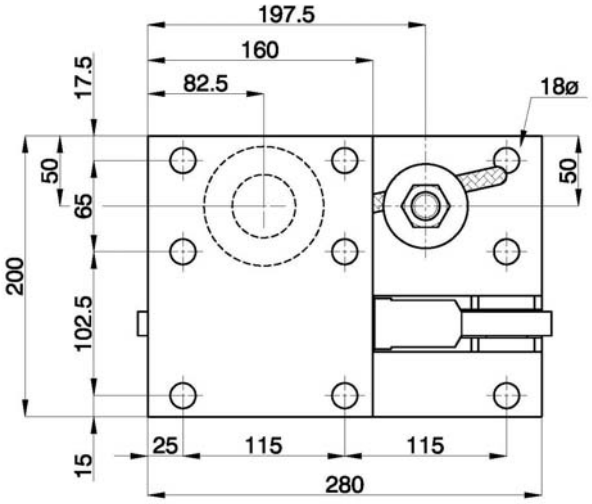




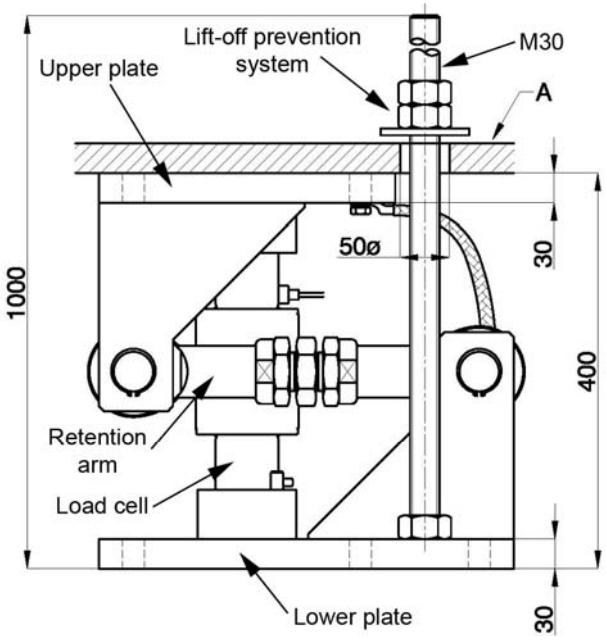
Acc. 74908

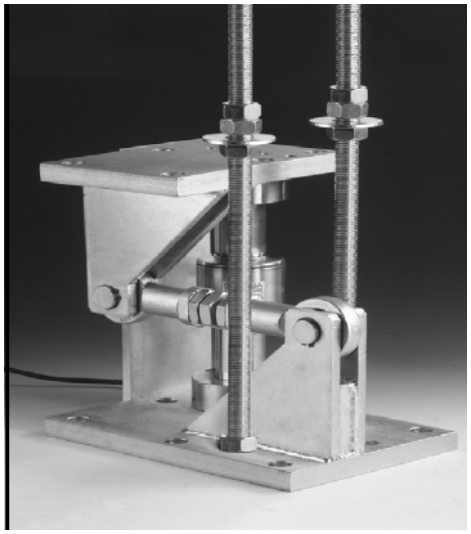

M20
Lift-off prevention system
A
Upper plate
20
28ø
500
300
Retention arm
Load cell
20
Lower plate

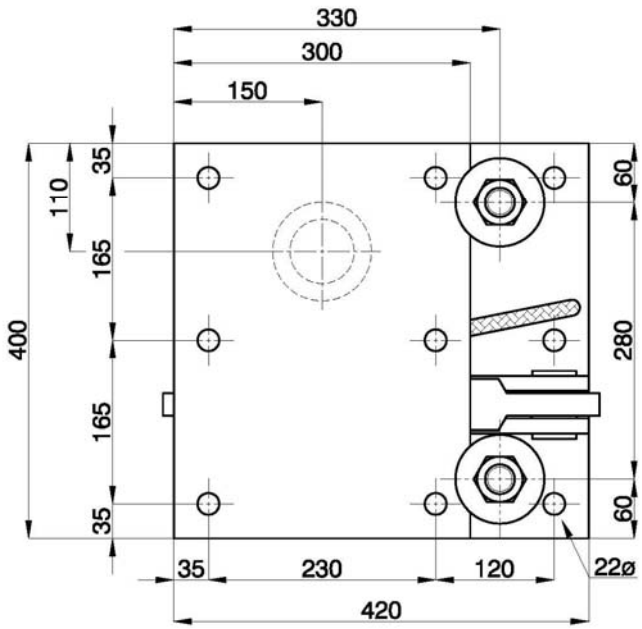



197.5
160
82.5
17.5
18ø
50
65
50
200
102.5
15
25
115
115
280

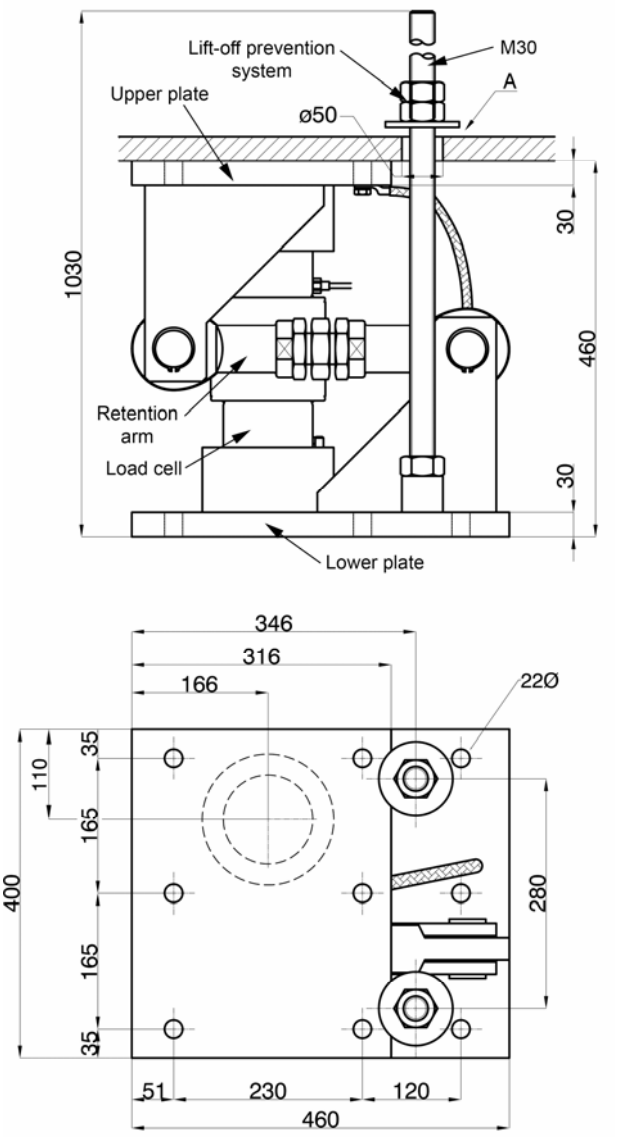
Acc. 74909

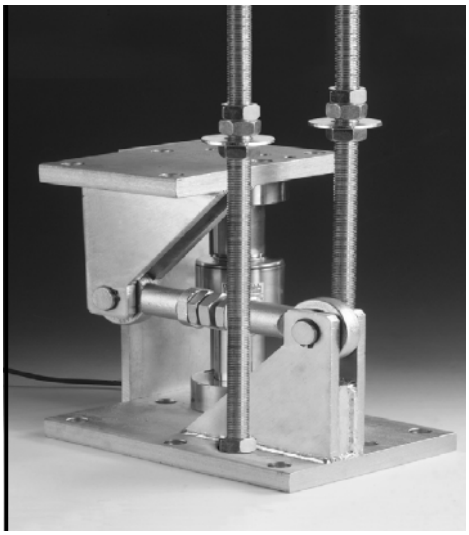

Lift-off prevention system
M30
Upper plate
A
50ø
30
1000
400
Retention arm
Load cell
Lower plate
30



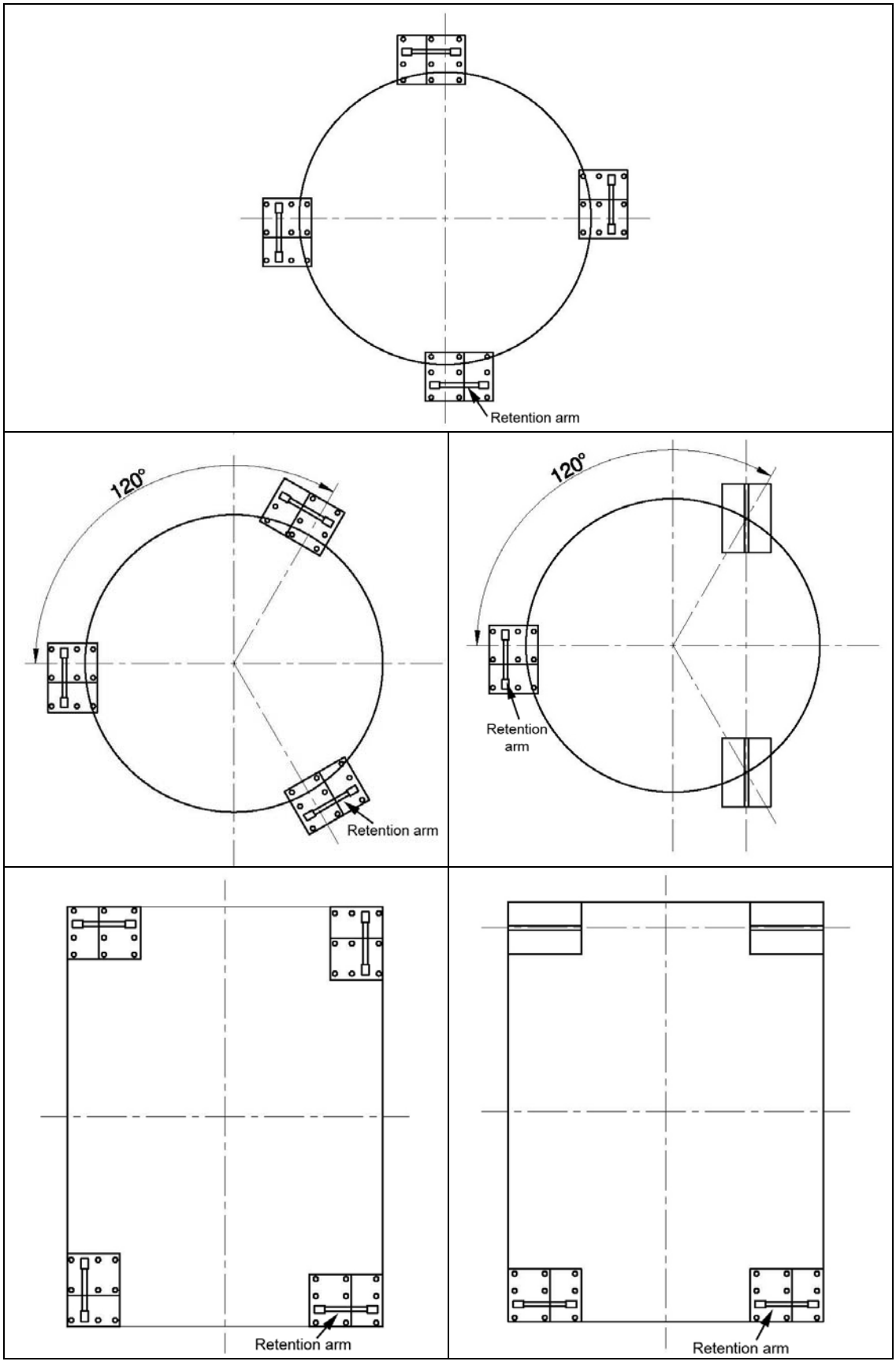

330
300
150
35
110
165
400
165
35
60
280
60
35
230
120
22ø
420

Acc. 74910


Lift-off prevention system
M30
A
Upper plate
ø50
1030
30
460
30
Retention arm
Load cell
Lower plate
346
316
166
22Ø
110
35
165
165
35
400
280
51
230
120
460



MOUNTING EXAMPLES



SPECIFICATIONS OF ACCESSORIES 74907, 74908, 74909 and 74910

	Acc. 74907	Acc. 74908	Acc. 74909	Acc. 74910
Nominal load	15…40 t	60 t	100…200 t	400 t
Maximum permissible side offset transverse to retention arm	± 4 mm	± 4 mm	± 5 mm	± 5 mm
Permissible horizontal force in direction of the retention arm	47 kN	95 kN	180 kN	240 kN
Maximum permissible lifting force	76 kN	114 kN	228 kN	330 kN
Maximum permissible lifting movement, must be adjusted (A)	3 mm	3 mm	3 mm	3 mm
Material	Steel alloy zinc-plated	Steel alloy zinc-plated	Steel alloy zinc-plated	Steel alloy zinc-plated
Transport weight	19 kg	27 kg	98 kg	142 kg

SPECIFICATIONS OF LOAD CELLS M.740

	M.740 15…60t		M.740 100…400t	
Nominal capacities (Ln)	15 – 20 – 25 – 30 – 40 – 60	t	100 – 200 – 400	t
Accuracy class	4000	n. OIML	1000	n. OIML
Minimum division (v_{min})	Ln/10000		15 – 30 – 60	kg
Minimum dead load	0	%Ln	0	%Ln
Service load	120	%Ln	120	%Ln
Safe load limit	150	%Ln	150	%Ln
Breaking load	> 350	%Ln	350–450–1200	t
Total error	< ±0.013	%Sn	0.05	%Sn
Repeatability error	< ±0.015	%Sn	0.015	%Sn
Temperature effect				
On zero	< ±0.01	%Sn/5ºK	0.01	%Sn/5ºK
On sensitivity	< ±0.006	%Sn/5ºK	0.018	%Sn/5ºK
Creep error (30 min.)	< ±0.012	%Sn	0.048	%Sn
Temp. compensation	-10…+40	ºC	-10…+40	ºC
Temperature limits	-30…+70	ºC	-30…+70	ºC
Nominal sensitivity (Sn)	2	mV/V (1)	2 ±0.5%	mV/V
Nominal input voltage	10	V	10	V
Maximum input voltage	15	V	15	V
Input impedance	800 ±5	Ω	800 ±5	Ω
Output impedance	700 ±5	Ω	700 ±5	Ω
No load output	±2	%Sn	±2	%Sn
Insulation resistance	>5000	MΩ	>5000	MΩ
Max. deflection (at Ln)	0.6-1	mm	1.2-2.6	mm
Protection class (EN 60529)	IP68		IP68	
Transport weight	2-2.1-2.2-2.3-2.9-3.7	kg	8 – 8 – 19	kg

(1) Pre-corner adjustment optimized at ±0.05% by output current calibration