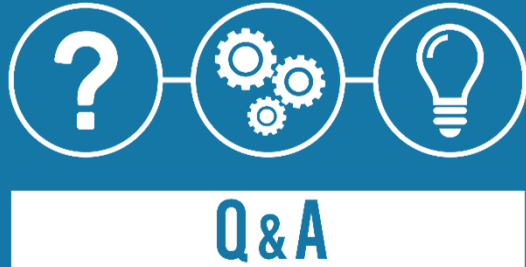


QUESTION TIME



A selection of the best Q&A.

LAUMAS[®]
Innovation in Weighing



WEIGHING APPLICATIONS

Webinar 2020



#LAUMASKNOWHOW



Q&A

The questions of the participants, our answers.

WEIGHING
APPLICATIONS

Webinar 2020

LAUMAS®

Q

Can LAUMAS **load cells replace** those of any brand/manufacturer?

A

Yes, of course. Most load cells have the **same shape** and **dimensions**. If your weighing system includes a specific load cell, you can send us the **model** and **data sheet** of the one you are using and we will provide you with a **similar** or **compatible** one.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26



Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

Q

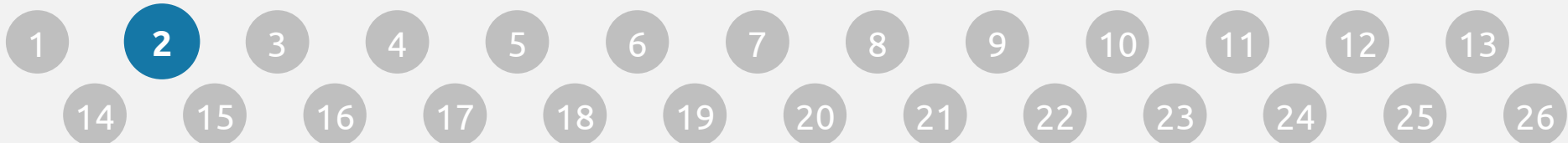
Can LAUMAS **load cells** and **weight indicators** also be used in **dynamic weighing** as, for example, in **checkweigher systems**?

A

All our **load cells** can also be used for **dynamic weighing**. When you are making the choice, we together with you will take into account the **specific needs** of the individual system (belt speed, dimensions of the section to be weighed, etc.).

As regards the **weight indicators**, we rely on a **partner company** that, using the standard **LAUMAS electronics**, develops the **software** and all the elements necessary for this type of weighing.

For all your needs in this specific sector and to contact the company we work with, please write to us at sales@laumas.it





Q&A

The questions of the participants, our answers.

WEIGHING
APPLICATIONS

Webinar 2020

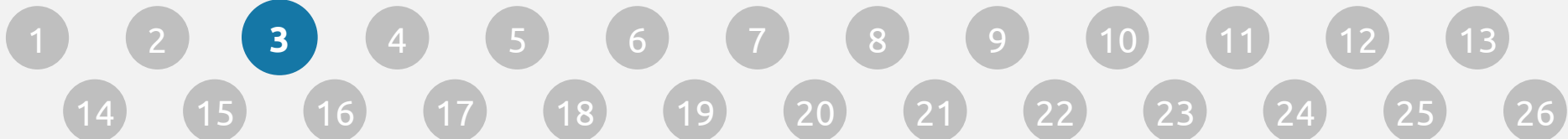
LAUMAS®

Q

Do LAUMAS **weight indicators** support the printer for **custom labels**?

A

Yes, but only the indicators for **weighbridges**. All the other indicators can be connected to a printer (STAVP, STAVTII and Custom Cube 2) but do not allow custom printing.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

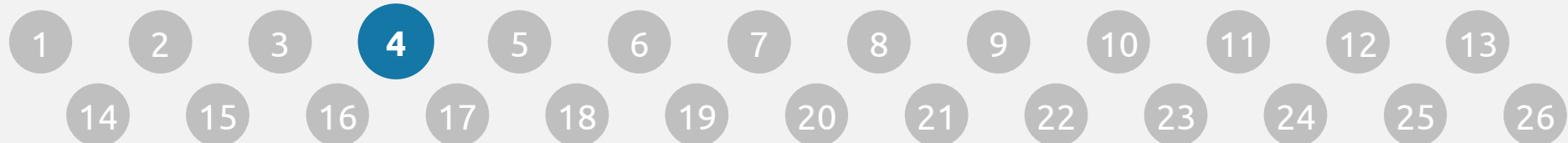
LAUMAS®

Q How is the **capacity** of a **load cell** selected based on the gross weight (net weight + tare) of the **system**?

A Our advice is always to **oversize** the **load cells** in relation to the maximum load to be applied on the weighing system and **not to load** more than **70/80%** of the **rated capacity** of the load cell.

For example, in a system with 4 load cells and a total capacity of 3000kg, 3 load cells will bear more weight than the fourth. To select the **correct capacity** for each individual load cell, you will therefore need to consider the weight supported by only 3 load cells. At this point, by using 4 load cells all with a capacity of 1000kg, with 3 load cells you will be able to cover the total capacity of 3000 kg.

It is always necessary to consider also the **type of product** to be weighed: if this is small but heavy, it is possible that all the weight falls on one or two load cells. In this case, it would be ideal to consider a higher capacity for each individual load cell.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

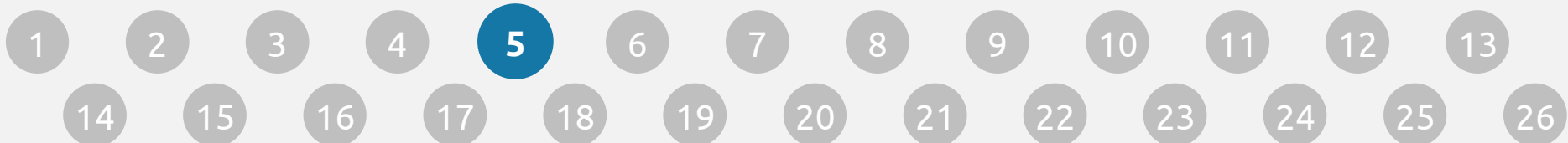
Webinar 2020

LAUMAS®

Q How is the **load cell capacity** selected on the **bridge crane**? When making the choice, is it important to consider also the reeving factor?

A **Yes**, of course. To select the load cell capacity, it is essential to consider the reeving factor as well.

For example, if the rope is wound only once, the **capacity** of the load cell must be at least **half** of the **load** to be **lifted**. The more **reevings** there are, the **lower** the capacity of the load cell.





Q&A

The questions of the participants, our answers.

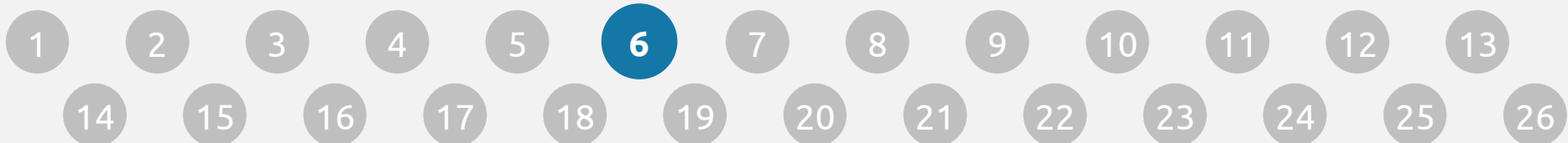
WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

Q When multiple **load cells** are used in the same system, how is the **total weight** calculated? Is it only an **average** of the **signals**?

A **Yes**, it is an average. The **value** of the **full scale** must be set during the programming phase of the weight indicator, and is given by the **sum** of the **capacity** of the individual load cells. In this way the **display**, working on the full scale, will show the **total weight** exerted on the load cells, regardless of how it will be distributed.





Q&A

The questions of the participants, our answers.

WEIGHING
APPLICATIONS

Webinar 2020

LAUMAS®

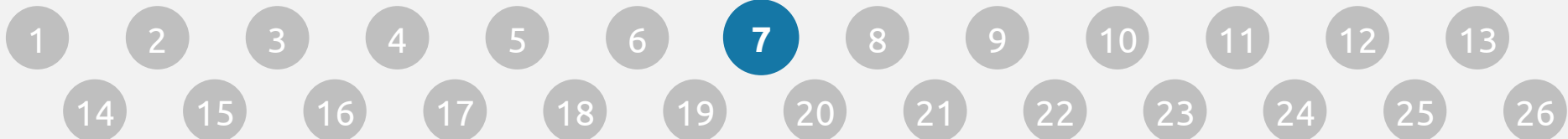
Q

Is the **accuracy** of the **full scale** of the load cells generally **0.02%**?

A

Yes. Accuracy means the **error** of the load cells which, for the **most common** ones (those approved in class **C3**), is around $\pm 0.02\%$ of the full scale.

It then depends on the different load cells, but on the **data sheets** and **test reports** that accompany them, the error is always **declared**.





Q&A

The questions of the participants, our answers.

WEIGHING
APPLICATIONS

Webinar 2020

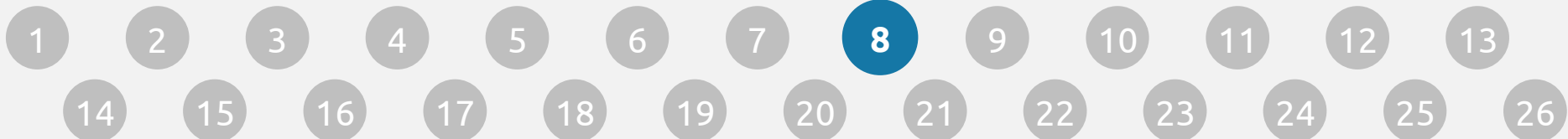
LAUMAS®

Q

FUN load cells: what is the **approximate accuracy** of the system?

A

The accuracy of the FUN load cell for measuring the rope tension is around **2%**, so it would be ideal to use it as a **load limiter** and not for measuring weight.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

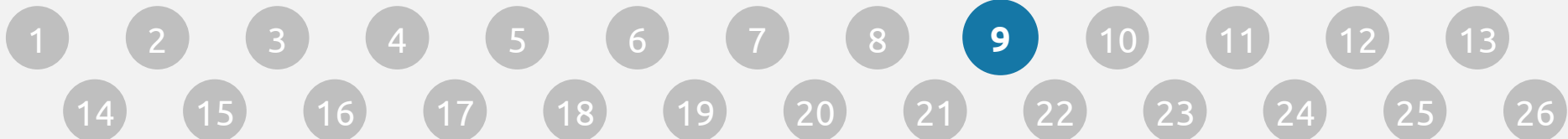
Q

In **single-point** load cells, what is meant by “**overhang**”?

A

“Overhang” means the **distance** between the **axis** of the **load cell** in the middle of the platform and the **edge** of the **loading plate**.

Single-point load cells are indeed mainly used in **platforms** or in classic supermarket scales and their data sheet always declares a platform area: 400x400, 600x600, 800x800 etc. If the weight is placed within the **area** drawn over the load cell, the load cell always returns a correct weight. Whereas, when the weight is placed outside this area, the load cell returns an incorrect weight. For a load cell [model APL](#), which has for example a platform area of 600x600 mm, the overhang will be 300 mm.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

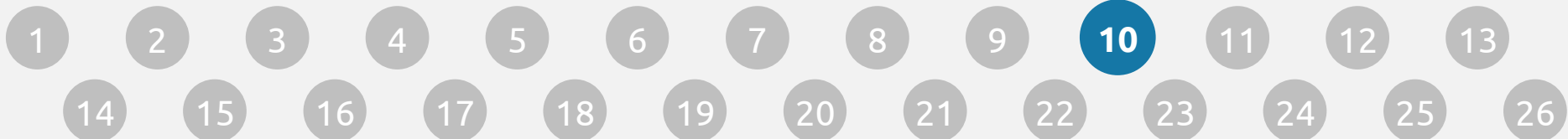
Q

Is the **hemispherical head** an **accessory** of the compression load cells?

A

No. The hemispherical head is an **integral part** of the body of the compression load cell and is the point at which the load is to be applied (see, for example, [load cell CBL](#)).

The load cell is used in combination with its flat-base **mounting accessory** that allows the weight to rest on a single point and ensures there are no weighing errors (see, for example, [mounting kit V10000](#)).





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

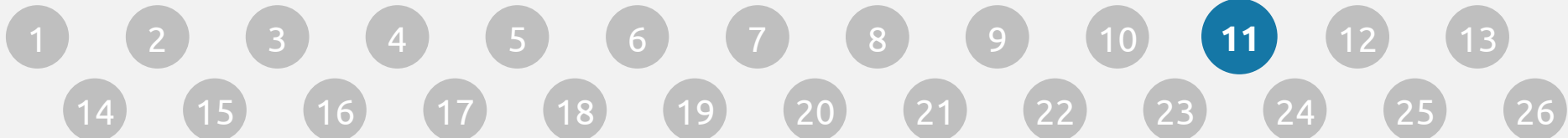


In **compression load cells**, what is the **angular error** of the load in relation to the axis of the load cell?



There can be no **tilting** on the load of the compression load cells, as this would cause a weighing error.

On compression load cells, the **load** must always be perfectly **perpendicular** to the load cell. For this reason the loading **head** of the compression load cells is **hemispherical** and the **upper bases** of all the mounting accessories are **flat**. In this way, the only point of support is always perpendicular to the loading head.





Q&A

The questions of the participants, our answers.

WEIGHING
APPLICATIONS

Webinar 2020

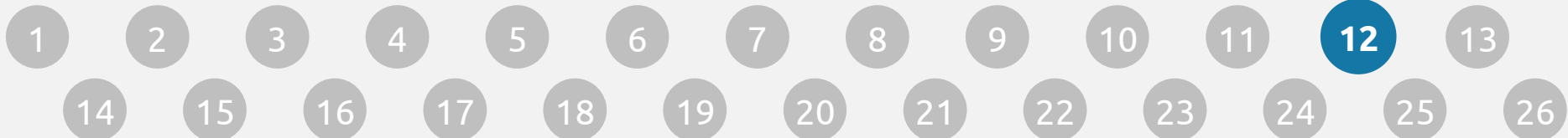
LAUMAS®

Q

In the crane application, at what **temperature** do the **load cells** operate?

A

Our standard load cells can operate at up to **60/70°C**. However, we also produce [custom load cells](#) that can operate at higher or lower temperatures.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

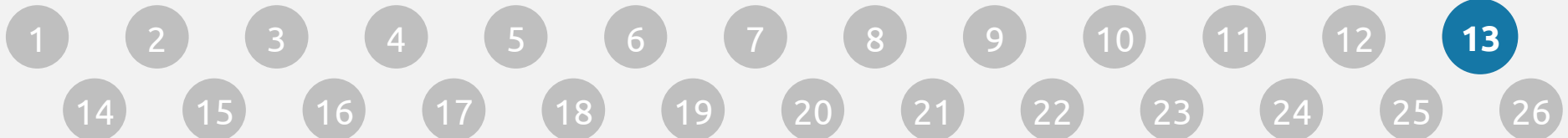
Q Do multiple **load cells** have to be used across multiple **channels** or can they be wired in parallel?

A LAUMAS offers two **solutions**, it is then up to the customer to choose the one that best suits his needs:

- Use a **single channel instrument**. By connecting multiple load cells in parallel on a standard junction box, you can have one cable come out that is then connected to the transmitter or indicator.
- Use a **multichannel instrument**. The different load cells can be connected directly to the multichannel transmitter, so you will have a separate channel for each load cell.

The **benefits** of the multichannel transmitter:

- **signal security**. The transmitter is positioned close to the load cells and connects to the PLC with a stable signal, while the mV/V signal is easily disturbed;
- **diagnostics** of the load cells. This allows immediately understanding which load cell has an issue;
- displaying the **weight distribution**
- **digital equalization**. At the time of calibration, it avoids using trimmers





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

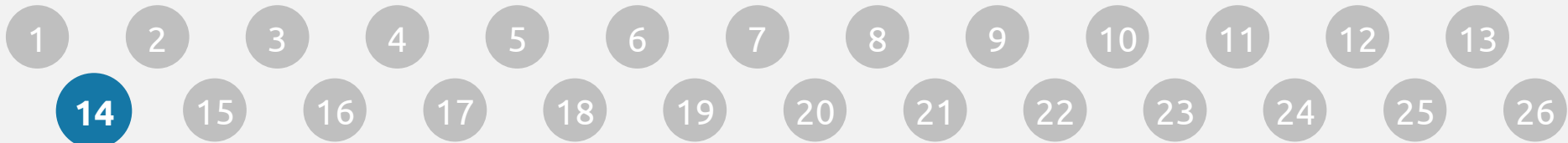
LAUMAS®



When building a **weighing system**, what is the maximum **distance** to be observed for the **weight indicator** and **PLC** to communicate correctly?



The maximum distance varies depending on the **communication protocol** being used. For **serial outputs** it goes from the few metres of RS232 to about 1000 of RS485, whereas for **Ethernet** based communication it can reach a maximum of 90/100 m.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®



How is the reading **resolution** of an instrument determined? Is it related to **accuracy**?



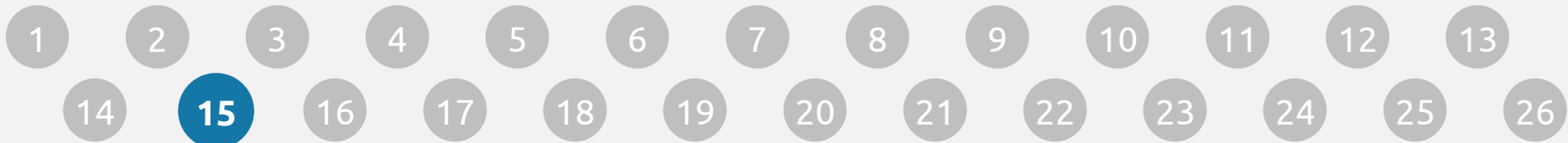
It is very common to confuse accuracy and resolution, although they are not the same.

The **actual accuracy** is the result of the sum:

- of the load cell errors
- of the instrument errors
- of the temperature changes
- of all the mechanical errors (friction, vibration, piping, etc.)

The **resolution** instead indicates the value of the number change on the weight indicator display and is calculated from the total system capacity: if this changes, for example, in steps of 2kg, the resolution will be 2kg.

[next](#) →





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

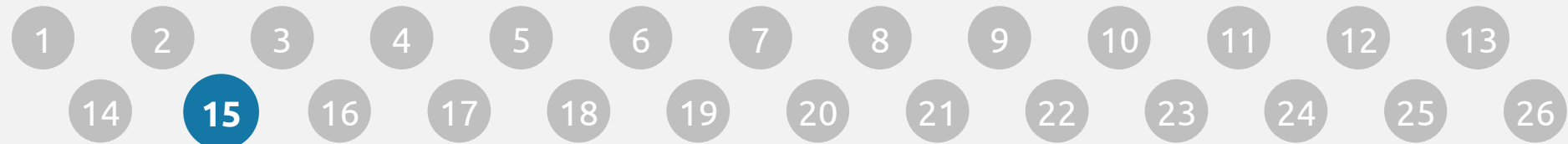
LAUMAS®

A

Taking as an **example** a warehouse platform with 4 x 1000kg load cells:

- In a **system that is not approved** for internal factory use, we can realistically think of dividing the maximum capacity of the system into 20,000 divisions. Dividing the sum of the capacities of the 4 load cells (4,000kg) by the number of divisions (20,000) gives the resolution of the system, that is 200g.
- In a **system approved** for legal for trade use, the accuracy class of the components used must be taken into account. For example, if the load cells are in class C3 (3000 divisions), the maximum capacity of the scales can be divided by 3000 at most. Going back to the example, if you have 4 x 1000kg load cells and you decide to build a scales with a maximum capacity of 3000 kg, the resolution of the system will be 1 kg. In **scales approved** for legal for trade use, the resolution and accuracy must be the same.

← previous





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

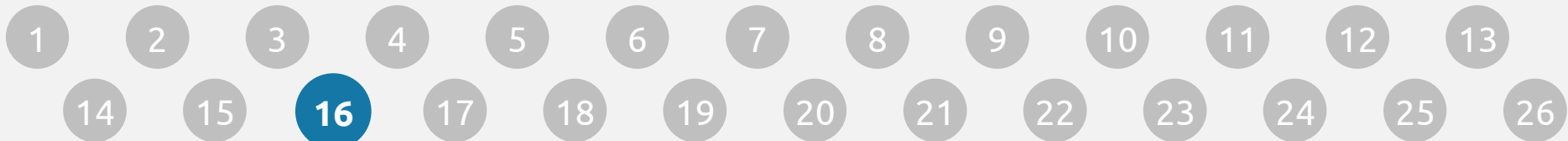
Webinar 2020

LAUMAS®

Q Are the **load cells**, **weight indicators** and **junction boxes** for **weighbridges** **ATEX** certified? If so, for which areas?

A **Yes**, all our **load cells** and **junction boxes** made of stainless steel are ATEX certified and can be installed in all classified areas.

With regard to the **weight indicators**, we have several models certified for Zone 2/22 applications and an ADPE box model for Zone 1/21 available.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

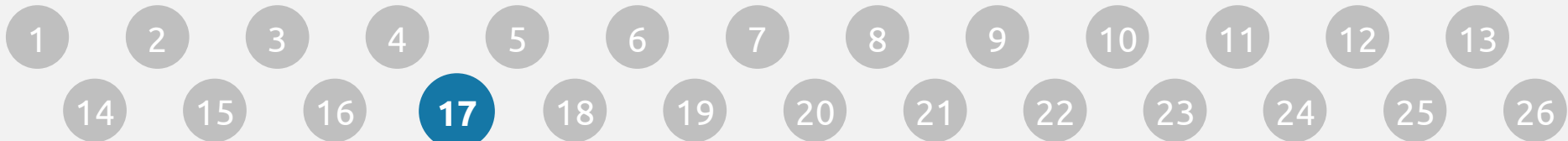
LAUMAS®

Q What components do you have to make **weighing systems** for installation in potentially **explosive atmospheres**?

A We have many **ATEX** and **IECEX** certified products suited for different types of applications. Our standard and **custom load cells** can be installed in all areas: [read the News](#)

Whereas, the **electronic instrumentation** is available in versions suited for installation in both Zone 2-22 and Zone 1-21.

By using the appropriate search filters within the product pages of our website, you can browse through all the **ATEX, IECEX, EAC Ex certified products**. We select the most appropriate components for you after defining the **classification** of the **area** with an explosion hazard and the **type of system** to be made





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

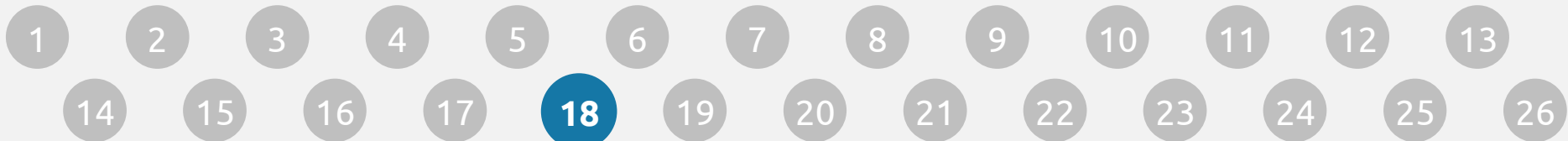
Webinar 2020

LAUMAS®

Q In a **tank** or **silo** weighing system, can I install 2 load cells and 2 **load cell simulators** at the 4 support points?

A **Yes**, you can. This application is generally called a **level measurement** and is used in weighing liquids. Being a liquid, the material is distributed **uniformly** inside the weighed structure.

If there is no need for high accuracy, you can then use 2 load cells and 2 load cell simulators for a 4-support system and 1 load cell with 2 load cell simulators in a 3-support system





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

Q

When weighing a **tank** with **multiple supports**, how is the measurement compensated if the **distribution** of the **load** in the container is not uniform?

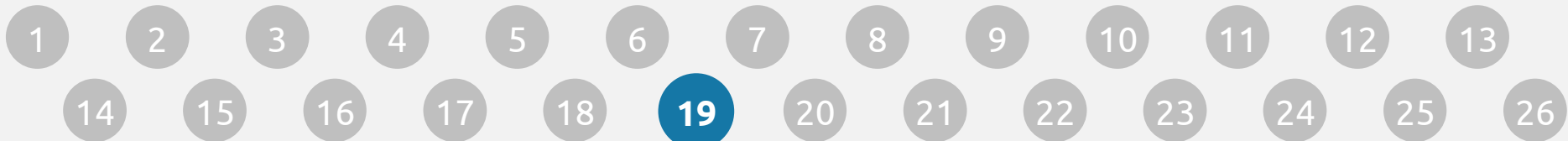
A

A **non-homogeneous distribution** of the **load** is not a problem, rather it is normal when weighing solid materials.

If you use **single-channel electronics**, the signal you receive will be the average of the four signals, so even if one support were more unloaded than the others, it would in any case be compensated for.

Whereas, if you install a **multi-channel instrument**, you will also have the **benefits** associated with diagnostics:

- **display** of the **distribution** of the **load** as a percentage on the single supports, useful for determining if a load cell is overloaded;
- immediate **measurement** of the support with the issue, in the event of **damage** to a load cell





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

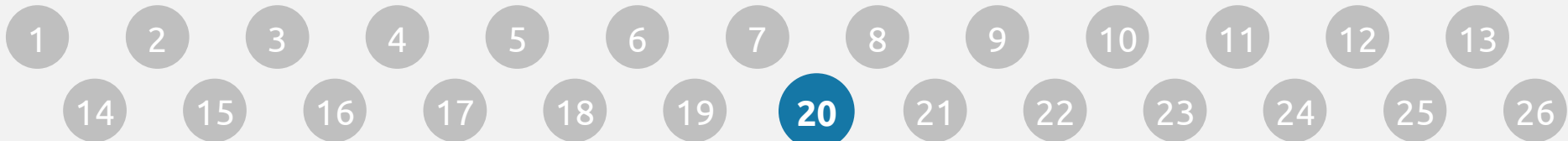
Webinar 2020

LAUMAS®

Q Installation of weighing components on a **truck**: if it is a system approved for legal for trade use, in addition to component type-approval, is there a need for further **certification**?

A In the European Union, all weighing **components** (weight indicators or transmitters and load cells) must be **type-approved** in the same way as any other scales.

The **electronic instrumentation** used must, however, have a further certification for this specific application that requires **battery power**.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

Q

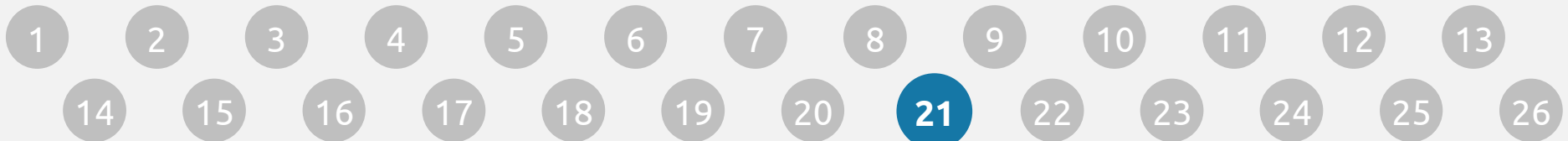
Do you have **digital load cells** with integrated control electronics in the catalog?

A

Currently **no**, but we are developing some **specific models**.

In the meantime the solution is [LCB](#), that is a universal digitizer that can be installed directly on the body of the load cell and that converts the signal from analog to digital, compatible with the most widely used communication protocols on the market. It is a very versatile solution due to the type of load cells and output protocols it supports.

To learn more about our digitizer, watch the recording of our dedicated [webinar](#).





Q&A

The questions of the participants, our answers.

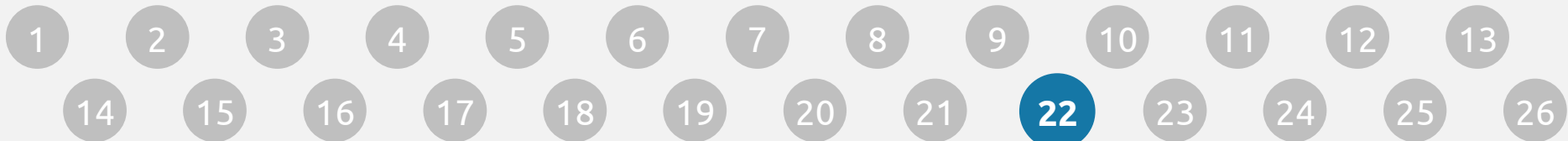
WEIGHING
APPLICATIONS

Webinar 2020

LAUMAS®

Q In applications with multiple load cells, if I use **LCB** do I not need the classic **junction box**?

A **Yes**, exactly. LCB is a universal digitizer for load cells. The system consists of one or more load cells, each of which is connected to its LCB which transforms the **analog signal** of the sensor into a **digital signal** and transmits it to the **PLC**. This is why it will not be necessary to use a junction box.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

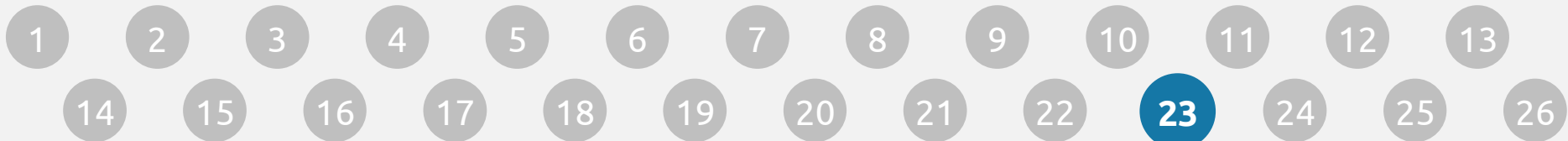
LAUMAS®

Q Does the **LCB** universal digitizer support the **diagnostics** function for each single connected load cell? Can the diagnostics then be transmitted to the PLC via **Ethernet TCP/IP** communication?

A LCB is designed to be connected to a single load cell, thus receiving the signal of the single load cell and transmitting the data to the PLC via the desired communication.

To **diagnose** multiple load cells, depending on the system, you can:

- use only one instrument and opt for a **multichannel weight transmitter**
- use **multiple single channel instruments**, such as LCB, each one connected to a single load cell and then connect all the instruments to the PLC.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

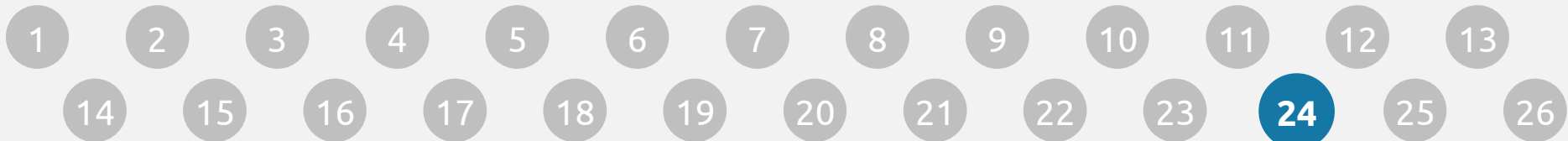
LAUMAS®



Does the **LCB** digitizer already come with all the available **communication protocols** on board, or do you have to request a specific one when ordering?



In the **purchase phase** you need to specify the type of communication you want to use, since each LCB has its own communication protocol and does not support them all at the same time.





Q&A

The questions of the participants, our answers.

WEIGHING APPLICATIONS

Webinar 2020

LAUMAS®

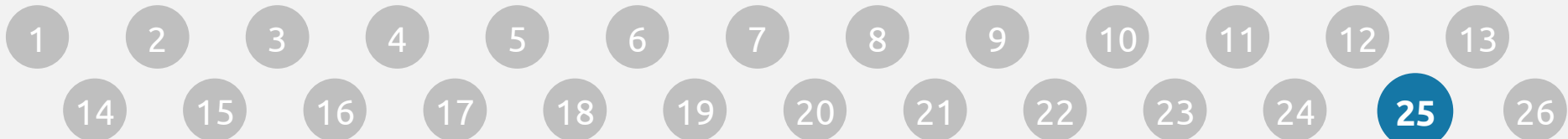
Q

Can the **LCB** digitizer to which the load cell is connected handle **settings** on the **digital filter** for weight reading?

A

Absolutely yes. The universal digitizer LCB for load cells is a **weight transmitter** for all intents and purposes.

Like the other LAUMAS instruments, LCB allows setting a digital filter **level** (from 1 to 9) on the load cell signal to determine the **speed** and **stability** of the transmission of the weight value.





Q&A

The questions of the participants, our answers.

WEIGHING
APPLICATIONS

Webinar 2020

LAUMAS®

Q

Does a **multi-head scales** with 8 load cells need 8 LCBs?

A

Yes. An LCB must be used for each head, which in this way will function as if it were a stand-alone scales.

One of the **advantages** of LCB is that it can be mounted both completely **integral** with the body of the load cell, and **far away** should there be a lack of space.

