

Why look for Details In Weights & Measures Approvals

Complying with local and federal weights and measure regulations has been a requirement for automatic dimensioning systems for many years. OIML, NTEP and MID approvals ensure the accuracy of your measuring systems and suitability for the purpose intended. When selecting a system, it is important to make sure that the measuring system you are considering does not have any limitations for use as this can be a costly mistake.

Approvals can have limitations

It is critical that the type of automatic dimensioning system you are considering has a weights and measures approval valid for measuring the type of goods that you handle. A typical pitfall is measuring irregular shaped parcels and pallets as if they were perfect cubes.

Many automatic systems on the market are only approved to measure regular, solid shapes, while in reality most shipments are not a basic square.



Before purchasing a dimensioning system, begin by evaluating the shapes, sizes and type of wrapping of the objects that you normally handle. Taking the time to rigorously analyze the offerings on the market and how well each system matches your needs, can be time well spent.

Details to look for

The most important factors that can cause difficulties concern the shipment's shape and the type of material it is wrapped in. Some of the more basic technologies, although approved for irregular shapes, cannot measure these shapes as accurately as required in legal for trade applications. This is normally due to the fact that the measuring sensors cannot see a 360 degree view of the parcel or pallet. This is illustrated under the section "Pallet with protrusions" on page 3.

Another challenge for some technologies is the ability to measure items wrapped in black plastic, or which have transparent surfaces - wrapping typically found on pallets.

Here are examples from actual approvals illustrating these limitations:

- "The instrument is used to calculate the dimensions of an opaque hexahedron object"
- "Garment bags, sacks and other soft, flexible objects with non-cuboidal shapes are not suited for measurement by the instrument"
- "Transparent objects and objects packed in transparent wrapping (e.g. bubble wrap plastic) are not suited for this type of measuring"

The fewer W&M limitations to the system, the easier it will be for you to automate your processes and experience the benefits of automatic dimensioning.

There are 3 main reasons why details are so important:

Reason 1:

Accurate data is bottom line revenue

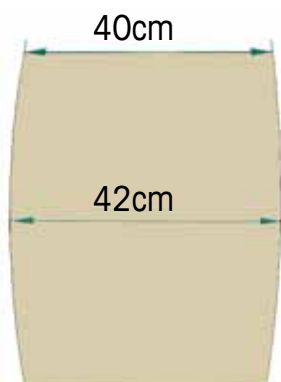
Automatic dimensioning systems correctly matched to your shipment profile will protect you from losing money caused by inaccurate invoicing. To illustrate this point, let's look at how much money can be lost if you measure an irregular shaped object as a cube?

An overfilled cardboard box

A typical example is a normal box that is slightly overfilled and therefore bulging out approximately 1 cm on all sides. Most people would categorize it as regular shaped parcel, and consider it to be safe to measure with a scanner for regular shapes. However this decision can cost you money.



The table below illustrates the results that different dimensioning systems will deliver:



	Dimensioner Regular shapes	Dimensioner Irregular shapes
Length (cm)	40 cm	42 cm
Width (cm)	40 cm	42 cm
Height (cm)	40 cm	40 cm
Dimensions (cm ³)	64 000 cm ³	70 560 cm ³
Deviation in %		9.3 %

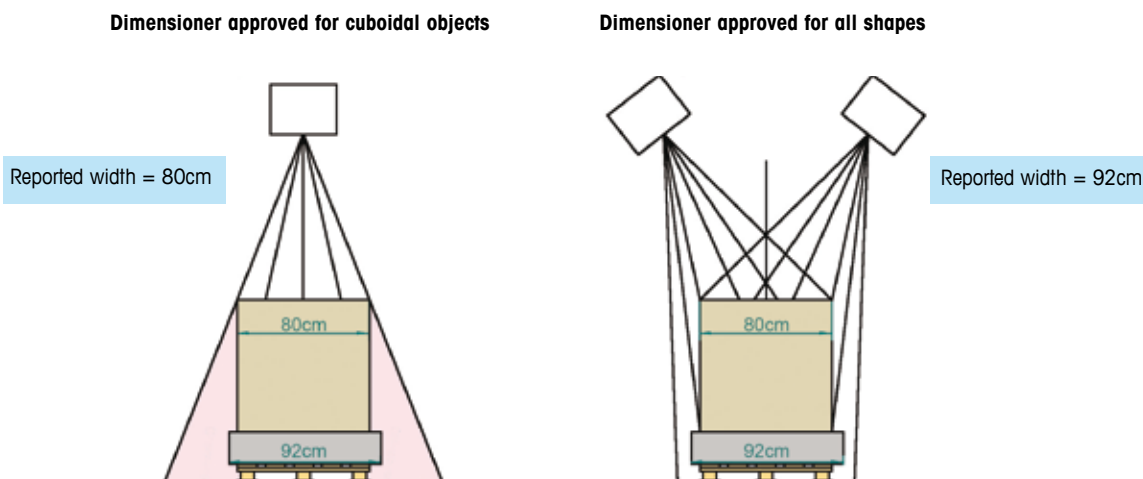
In this case, you could underestimate the size of the box by 9.3% if you were to use a dimensioning system approved for regular shapes only. The return on investment is evident when multiplying the number of boxes you process in this manner. Other similar examples of items you might consider as regular shapes include suitcases with round edges. Dimensioning systems that are limited to regularly shaped objects may be fooled by the round edges and therefore underestimate the width of the object.

A pallet with protrusions

Another typical example of an irregular object with unique characteristics is a pallet with some portion of the load sticking outside the boundaries of the pallet. In this case it is a suitcase which has been placed on the pallet and hangs over the sides. A dimensioner approved for regular shapes only will see the top surface of the pallet, while the protruding object at the bottom will pass undetected.



This is illustrated in the figure below:



The table below shows how this affects the dimensions.



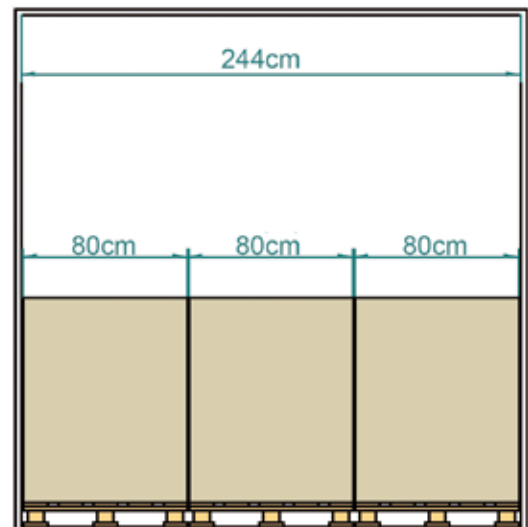
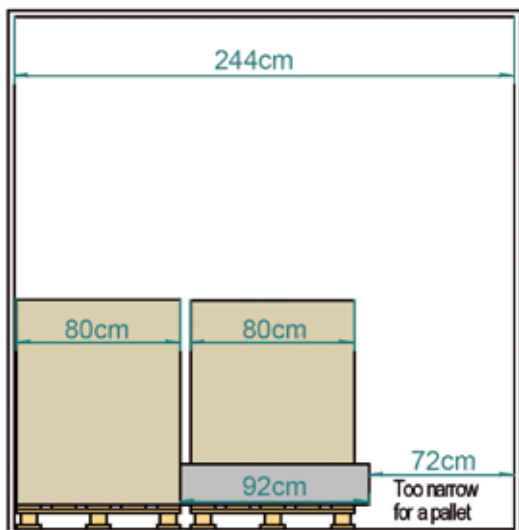
	Dimensioner Regular shapes	Dimensioner Irregular shapes
Length (cm)	80 cm	92 cm
Width (cm)	80 cm	92 cm
Height (cm)	173 cm	173 cm
Dimensions (cm ³)	1 107 200 cm ³	1 464 272 cm ³
Deviation in %		24 %

In this case you under measured by 24% on the size. A quick glimpse at an average freight operation will confirm that pallets are stacked in various ways, and the potential for losing money can be dramatic.

Charge for the space

Every millimetre counts when it comes to shipping costs; and you want to be sure that each shipment is charged appropriately for the space that it occupies. This is especially important for pallets, as the space in trucks is typically 244cm wide in order to accommodate 2 or 3 pallets sideways (120cm x 80cm). The pallet example on page 3 will take up the space of two properly stacked pallets, and therefore cost the transport company more than the 24% calculated above. In addition, the empty space in a poorly loaded truck must be properly secured so that it does not cause damage to other cargo or to the truck itself.

The illustrations below show how protrusions affect your cargo room in a truck:



Minor protrusions

As seen in the illustrations, the ability to detect and include in the volumetric calculations the protruding parts on both parcels and pallets are important in recovering revenue. Since protrusions determine how densely items can be stacked in the cargo area they should be included in volumetric calculations. Carriers can also implement a penalty charge to compensate for the inconvenience. Information about how protrusions are handled is usually not described in detail in the approval documentation of a dimensioning system so the technical specifications from the manufacturer should always be studied.

Reflective wrapping

Certain wrapping surfaces such as black plastic are not capable of being read by many dimensioning technologies. A system with limitations on measuring parcels and pallets with these surfaces can also cost you money. The standard accuracy level required by regulatory bodies is 5 mm for parcels and 20 mm for pallets.

If your system is not approved to handle pallets at this level, you have four options:

- Use the dimensions provided by your customer
- Use the dimensions provided by your system anyway (and run the risk of being outside W&M compliance)
- Measure manually
- Charge by weight only



Reason 2:**Protect your customers trust**

Over-charging your customers can be just as damaging to your business as under-charging. Even though you can take precautions and only measure shipments that are approved for your dimensioning device, there is still a risk of error. Legal for trade approvals will help you in customer disputes and claims; however, you can only rely on this if the system is used in accordance with its approval.

Creating awareness about the risk of losing money through under-charging goes hand in hand with taking over-charging seriously as well. You create a win-win situation when your invoicing processes reflect this.

We have many examples of positive reactions from companies who have implemented automation and a new pricing structure based on dimensional weight.

Reason 3:**Consider the legal consequences**

In most countries, weighing and measuring instruments need to be calibrated and certified once a year by a recognized organization of legal metrology. This is done to ensure that the system consistently delivers accurate results and to protect the consumer. It is the manufacturer's responsibility to acquire the initial Weights and Measures approvals; however, it is the equipment owner's responsibility to maintain the equipment and secure the annual certification. Twenty nine countries now follow the European Measuring Instruments Directive (MID) which came into force in 2006. This was designed to harmonize the requirements for new measuring instruments by eliminating the regulatory differences at a national level which hinder trade. In North America; NTEP and Measurement Canada set the standard. You secure your investment by implementing a system with existing international recognized approvals.

To sum up

The fewer limitations of the automatic dimensioning system that you select, the less you need to worry about and the more you can benefit from automation. Capturing accurate volume data on 100% of the goods that you ship will ensure your pricing integrity, optimize vehicle loading and give your customers confidence that they are being treated fairly. These benefits will also guarantee a rapid return on your initial investment.

METTLER TOLEDO seeks to provide the highest degree of equipment certification which forms the foundation for every customer invoice. Our vast experience with both national and international metrology has provided us with the widest range of weights and measures approvals in the industry.

METTLER TOLEDO can help you with metrology requirements. Contact us for a free consultation!