

APACHE conveyor

Eagle-eye beware. Measure and weigh on the move.

Car drivers know the feeling when there is a “measurement device” lurking at the roadside surreptitiously measuring speeds or the distances from the vehicle in front as you drive by. If on top of that a photo is taken, it can get really expensive. It’s precisely this effect that the freight in modern logistics centres also has to get used to when it is transported on materials handling equipment through transshipment buildings and warehouses because nothing escapes the sharp eyes of the APACHE conveyor systems installed there.

Instead of speed and distance, APACHE measures the dimensions, the volume and the appearance of loads. In addition, the weight of the load is recorded with scales as it moves through, that is without the materials handling process having to stop. It goes without saying that APACHE also takes a photo at the same time. After all, it’s only then that the measurement results become truly transparent.

APACHE conveyor has been measuring loads in materials handling facilities since as early as 1996. Here the movement of the object to be measured is exploited in order to capture a continuous 3D image of the flow of loads. With the aid of this image the systems software then determines important features of the load such as the length, width and height of the object measured and its actual volume. By means of learned criteria and with direct communication to the higher-level IT system, the equipment decides on what basis volume and weight must be calculated.

APACHE conveyor can be built into conventional pallet transporters and also into underfloor continuous conveyor systems, in which low-lift platform trucks are used as the means of conveyance. A flexible modular concept with the usual APACHE flexibility permits problem-free integration into new and existing installations. For underfloor conveyor systems a newly developed weighing machine that can be driven over by a forklift truck has been available since the start of 2004.

Identification of the load to be measured is performed with manual or automatic barcode reading, with transponders (RFID) or with a direct connection to the material flow control system. Once they are measured and recorded, APACHE makes the data obtained available to other systems for further processing via interfaces tailored to those systems, these being recorded and with remarks added in one seamless process, as one would expect from a “modern Hawkeye”.



Technical Data:

Dimensions Length Width Height	The dimensions of an APACHE conveyor system depend on the mount of choice (ceiling, wall, free-standing).
Measuring Area	350 cm x 250 cm (maximum) The maximum measuring area is determined by the travel length of the measuring beam.
Measuring Height	Maximum 280 cm
Speed of Movement	10 to 30 m/min
Method of Measurement	Two infrared scanners (fan scanners) are mounted above the conveyor line. Movement is tracked with an incremental encoder. Over the run, the heads perform gapless scanning.
Measurement Uncertainty (MPE)	Length, width of the smallest enclosing cuboid (covering box) 2 cm (@ v=20m/min)
	Height of the smallest enclosing cuboid 1 cm (@ v=20m/min)
Division	Length = 2 cm, Width = 2 cm, Height = 1 cm
Weighing	<i>The technical data of the weighing station must be taken from the weighing station manufacturer's technical documentation.</i>
Limitations/Exclusions	Measurement of non-transparent, i.e. opaque, objects only. Measurement of dimensionally stable / form-stable objects only.
Protrusion	Protrusions on the object smaller than 4 cm in length and width, or 1 cm in height are ignored when measuring the smallest enclosing cuboid.
Connectability of Weighing Station	In-motion or static weighing device. Display unit with serial data interface (RS232, RS422, RS485).
Computer Platform (IPC)	Analytical computer APACHE conveyor with Windows XP embedded®
Operating panel	Touch panel as user input interface for secondary data. Visualization of measurement results and images.
Power connection	230VAC, 16A in terminal compartment; access through switch cabinet socket <u>Standard:</u> Not over protective circuit interrupter

IT Connection	<p>Ethernet 10/100 Mbit/s <u>Standard:</u> 2 x RJ45 sockets on computer <u>Alternative:</u> Patch socket in switch cabinet <u>Alternative:</u> RJ45 socket (CAT.5) in the side wall</p>	
IPC	<p>Intel CoreDuo with 1.66 GHz 1024 MB DDR2 SO-DIMM 80 GB 2.5" hard disk 24 V_{DC} power supply 2 x 10/100 Mbit/s Ethernet 2 x USB 2.0 1 x PS/2 for KB and Mouse 2 x RS232</p>	
Operating Conditions	Operating Temperature:	0° C to +40° C (+32° F to +104° F)
	Humidity:	maximum 85% non-condensing
MTBF	<p>Mean time between failures of the laser probes is 40,000 h according to the manufacturer's specifications. The service life of the laser diode has been taken into account in this value</p>	
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