Conference on load weighing systems for EOT cranes
at VDI Mainoffice in Dusseldorf, Germany

VDI 4448

The guideline for

Load sensing and weighing systems on cranes with trolleys

KST engineering and system integration, Weener Germany

VDI 4448 Load sensing and weighing systems on cranes with trolleys

The target:

This guideline is intended as an aid to the user in selecting the most suitable components for his application

The group:

Mr. Esswein	Schenck; Darmstadt
Mr. Dr. Hesse	Demag; Wetter
Mr. Müller	W.Müller GmbH; Friedeburg
Mr. Scholz	3B6 Germany; Duisburg
Mr. Stein	Siemens; Mühlheim
Mr. Vöpel	Thyssen-Krupp; Krefeld
Mr. Kerkow (chairman)	KST former Hirschmann/PAT/Krüger

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Contents

Clarification of important terms

e.g. Load sensing, weighing, gauging etc.

Force measuring sensors and their application on the crane

Further issues:

- Processing and transmission of weighing results
- Regulations and acceptance
- Maintanance, servicing and checking

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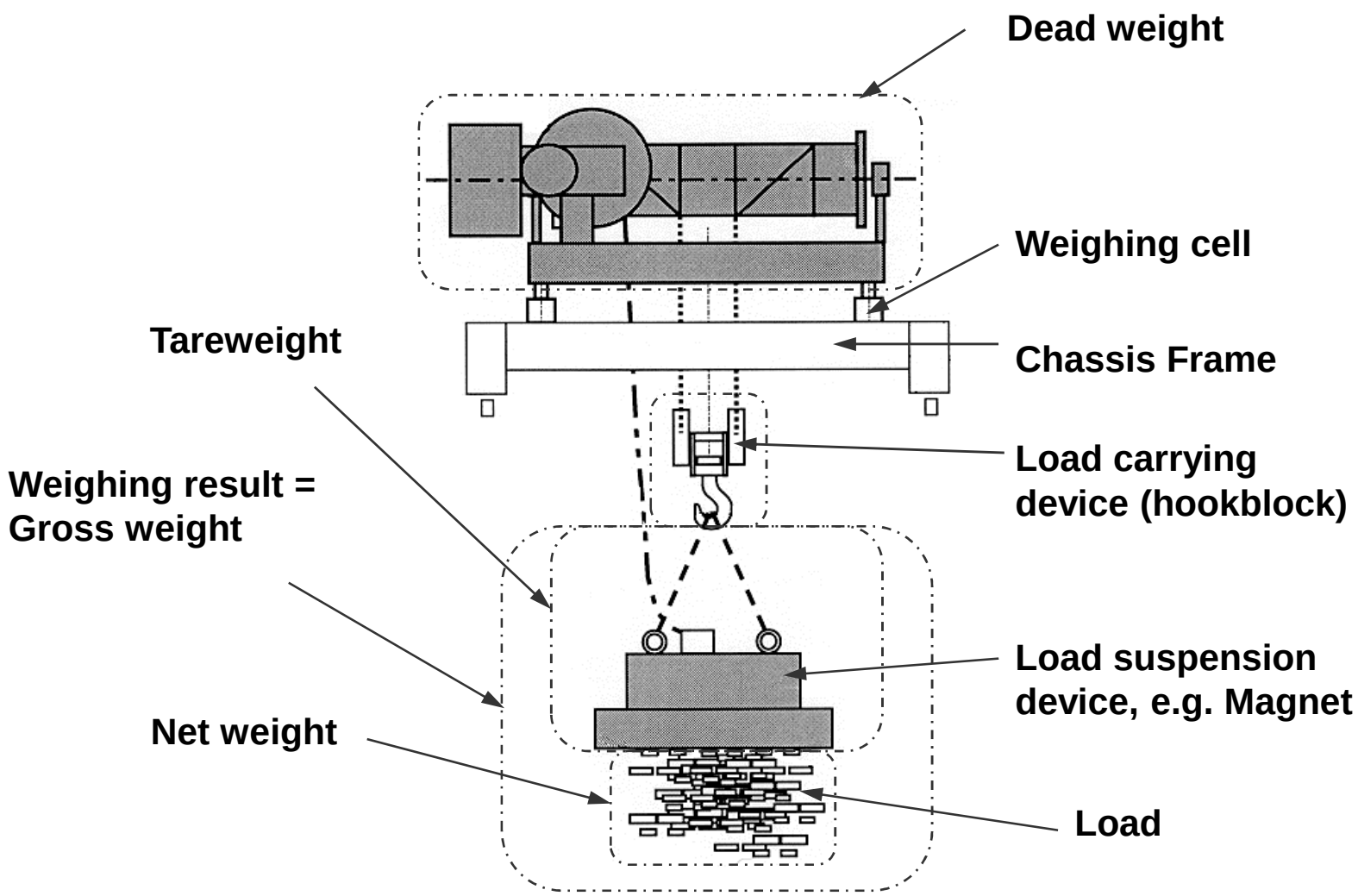
Definitions I



VDI 4448 Load sensing and weighing systems on cranes with trolleys Definitions II

Load sensing:

- Accuracy 1….5%
- Used for safety purpose
- Weighing for other purpose than selling and billing

Weighing:

- Accuracy 0,05…. 1%
- Admissible for veryfication for trading

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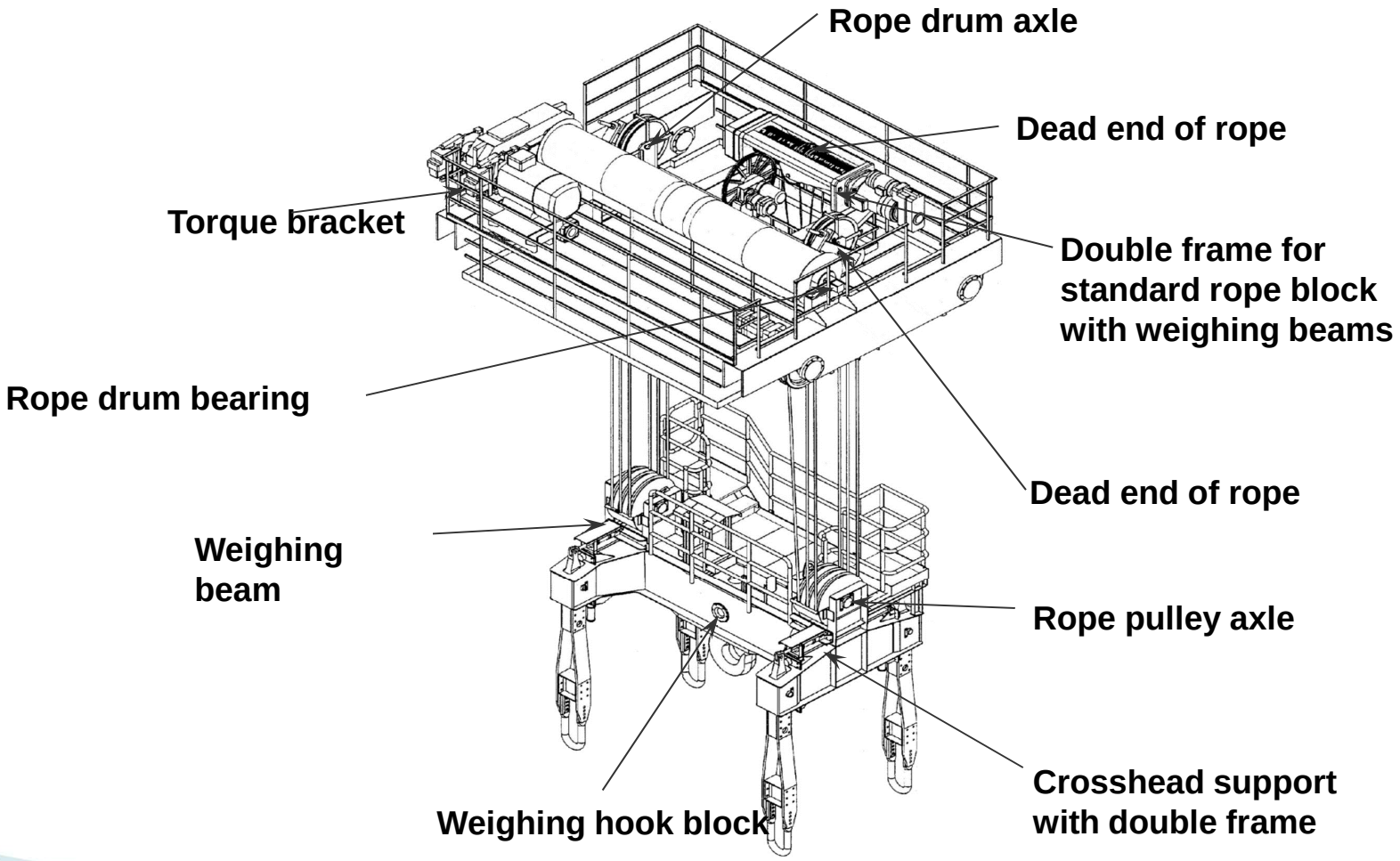
Overview possible installations



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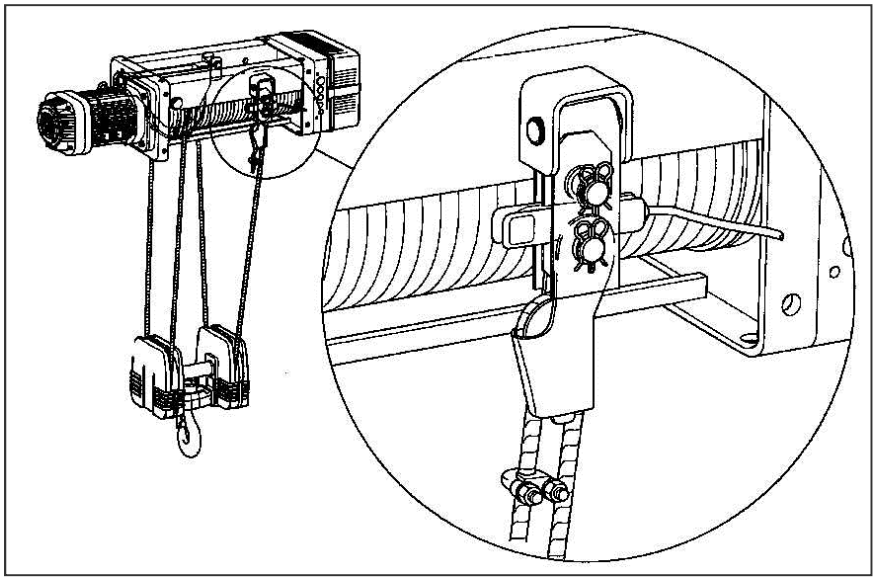
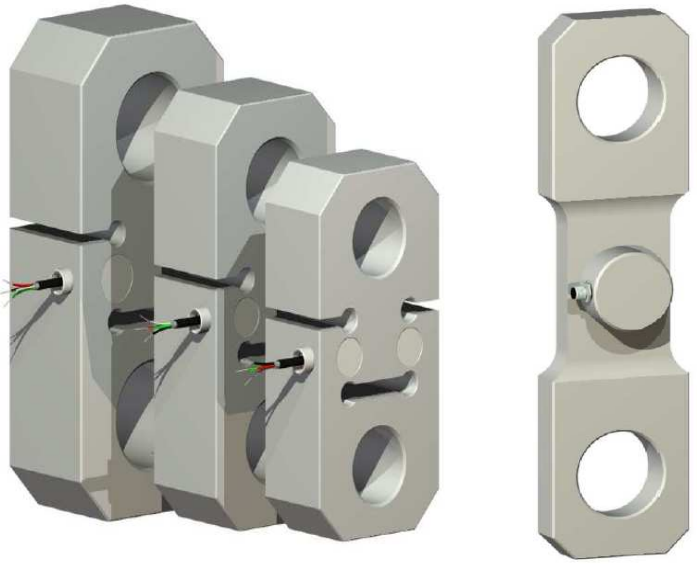
Measurement in the dead end of the rope





- Accuracy 1…. 3 %
- Low cost
- Simple construktion

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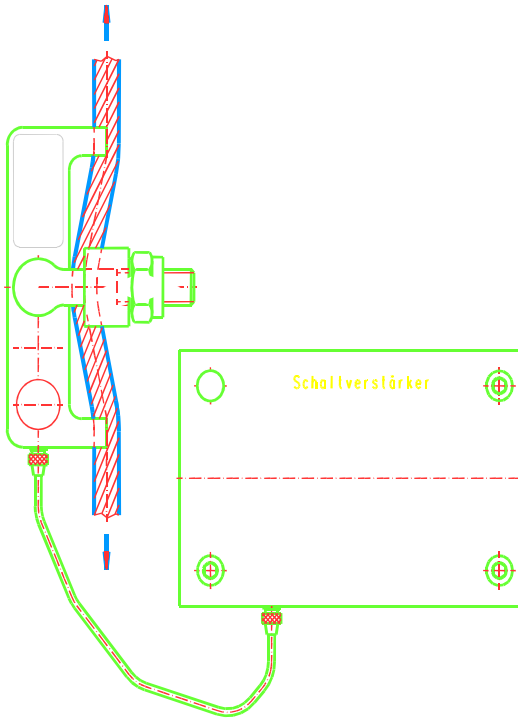
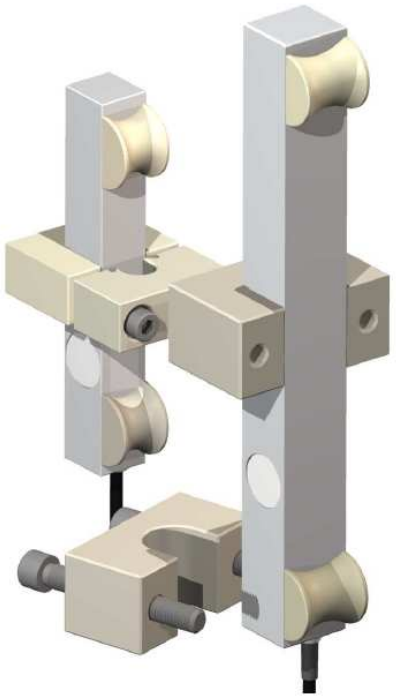
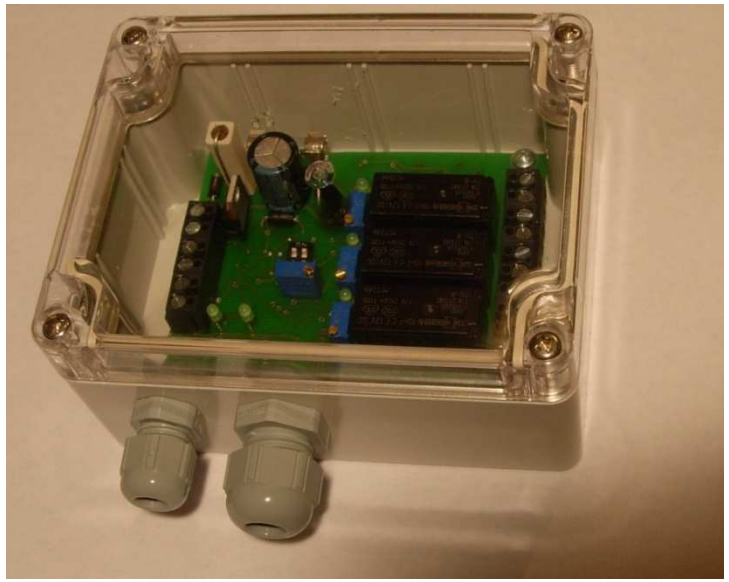
Measurement in the hoisting rope







- Accuracy 2….4 % in the range of nominal capacity
- Low cost
- No change of the crane construction

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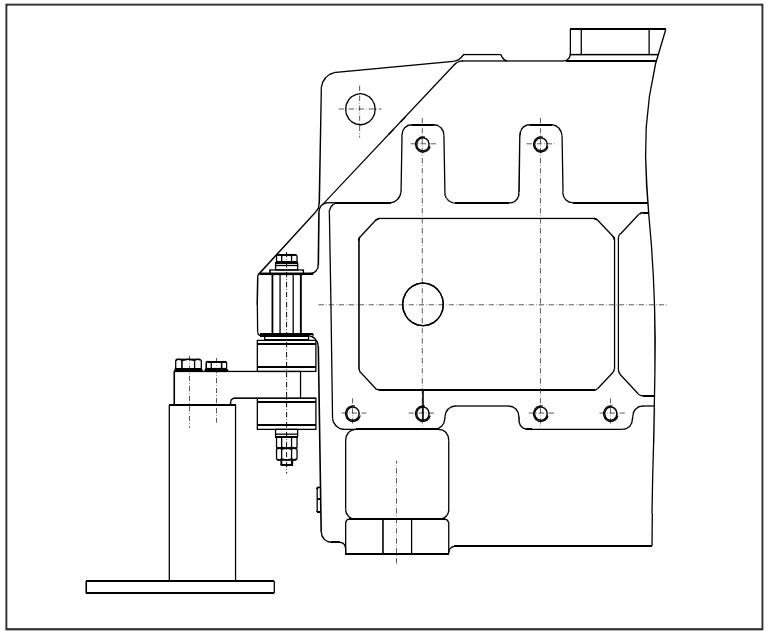
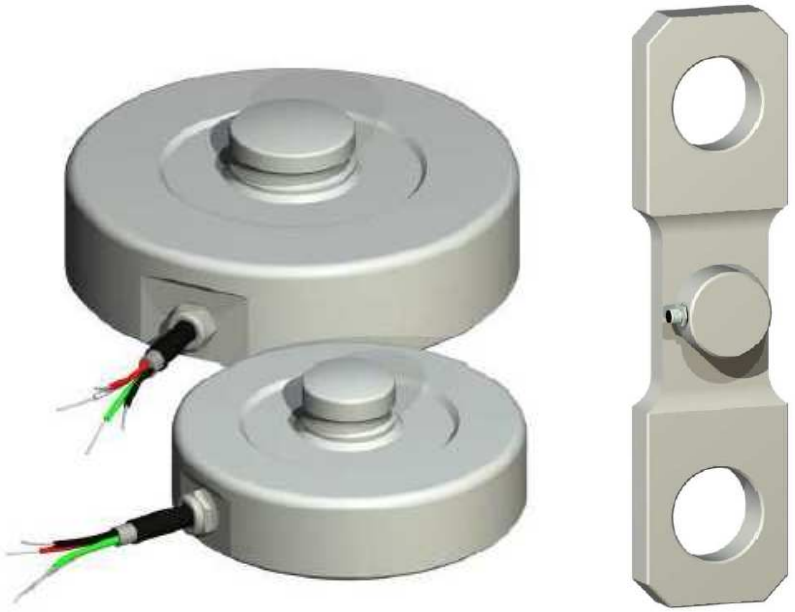
Measurement in torque bracket





- Accuracy 2…. 4 %
- Simple, well protected place
- Inexpensive

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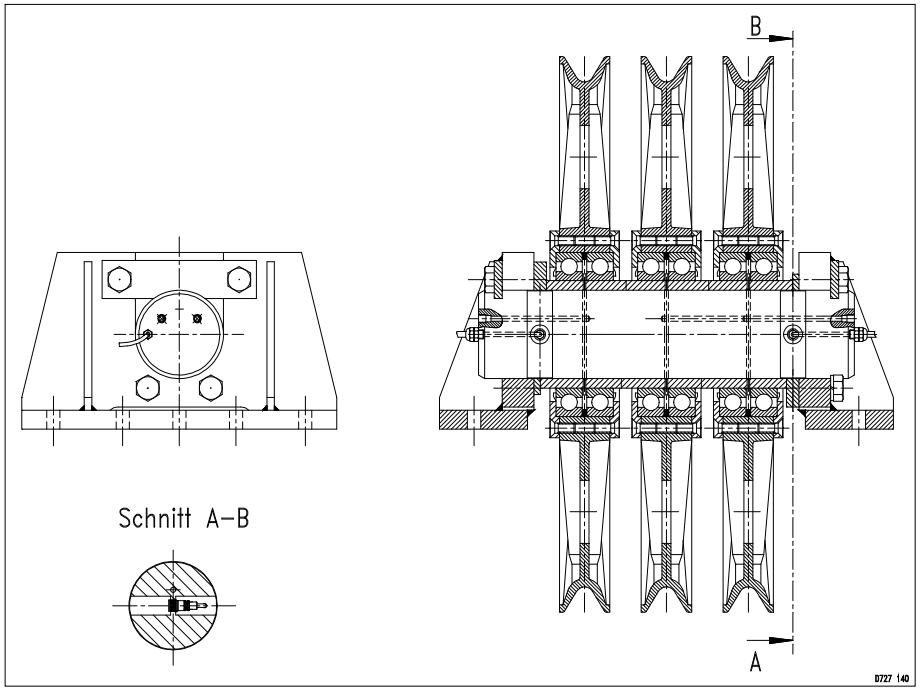
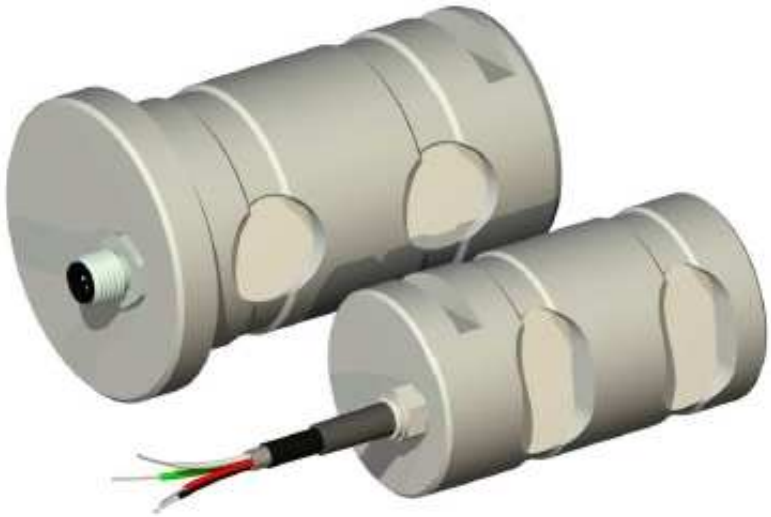
Measurement in axle of pulleys





- Accuracy 1…. 3 %
- Heavy impact on crane construction; needs maintanance

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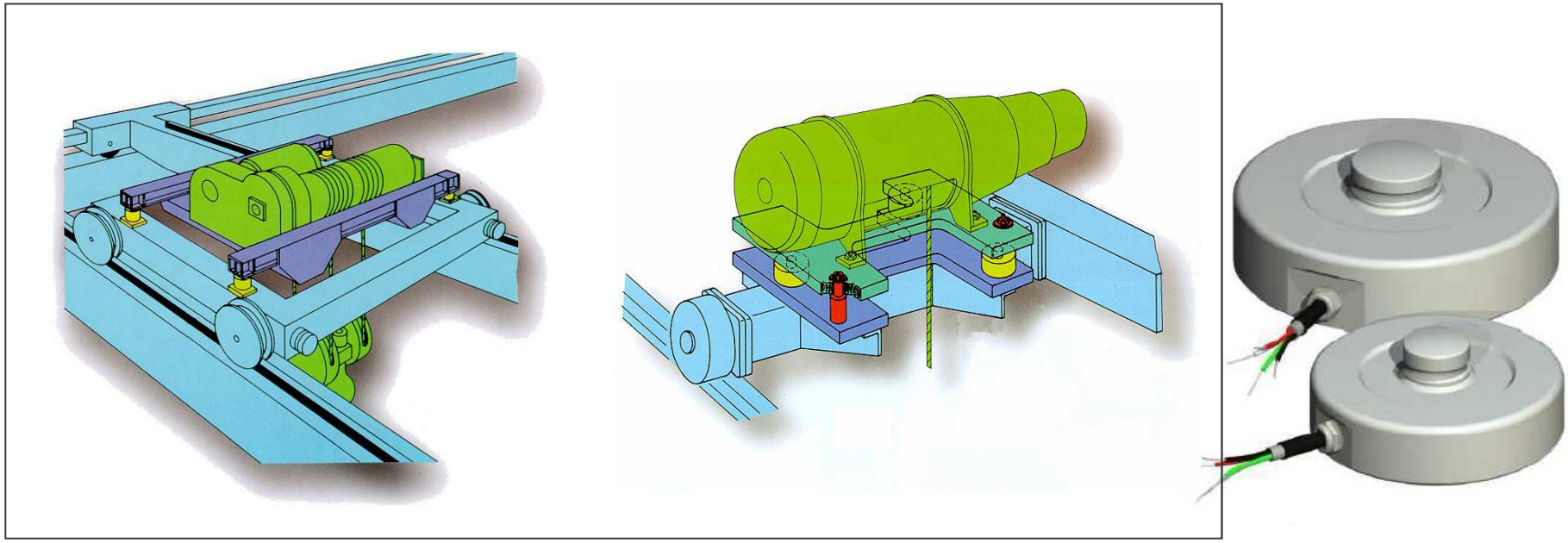
Measurement with double frame trolley



- Accuracy 0,1 …. 1 % (admissable for veryfication)
- Heavy impact on crane construction
- take precaution for weighing cell bearings and avoid force shunts

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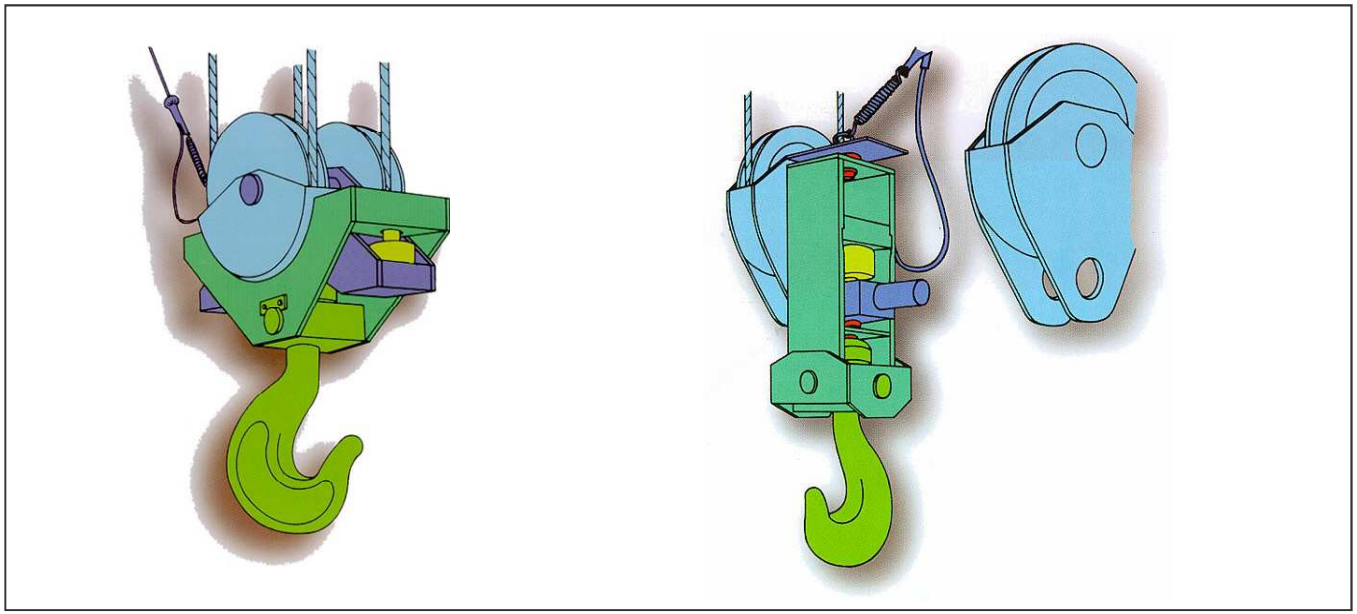
Measurement in the hook block



- Accuracy 0,1 …. 1 % (admissable for veryfication)
- Well suited for retrofitting

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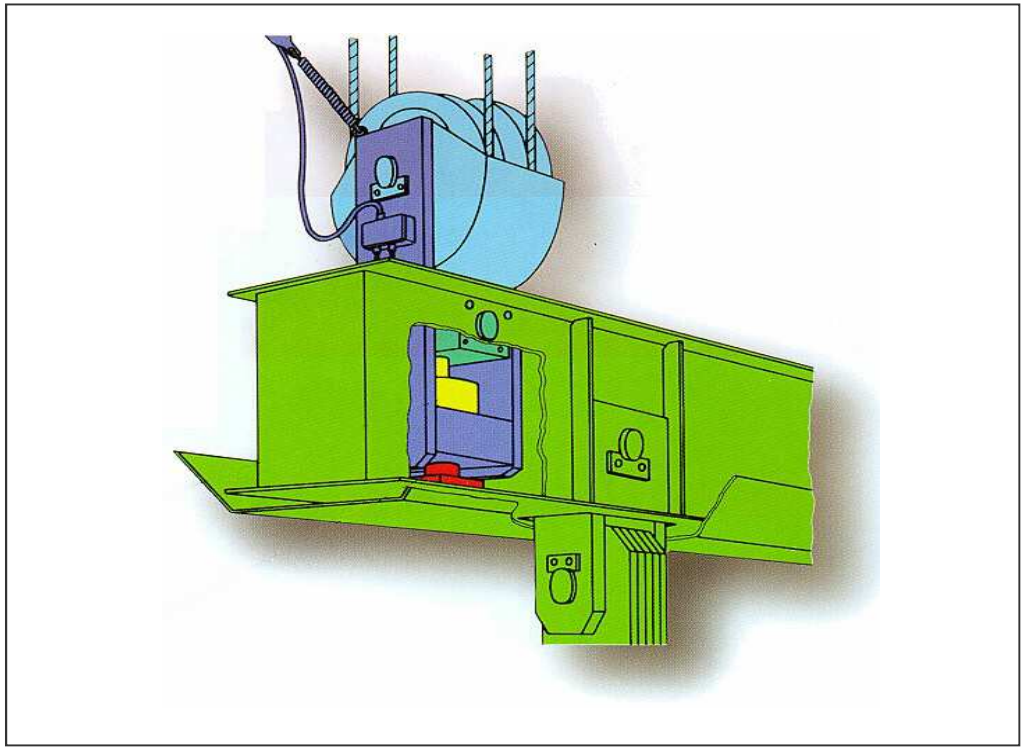
Weighing beam



- Accuracy 0,1 …. 1 % (admissable for veryfication)
- Well suited for large cranes > 100t

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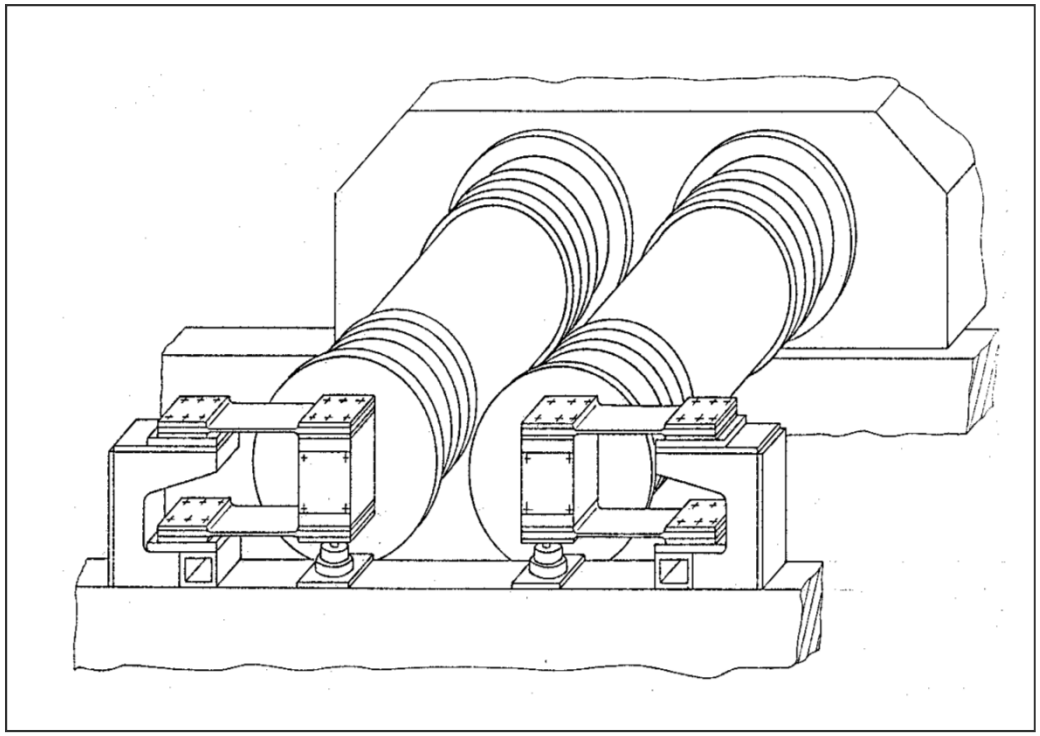
Measuring in the rope drum



- Accuracy 1…. 3 %
- Heavy impact on crane construction
- Avoid eccentric loading

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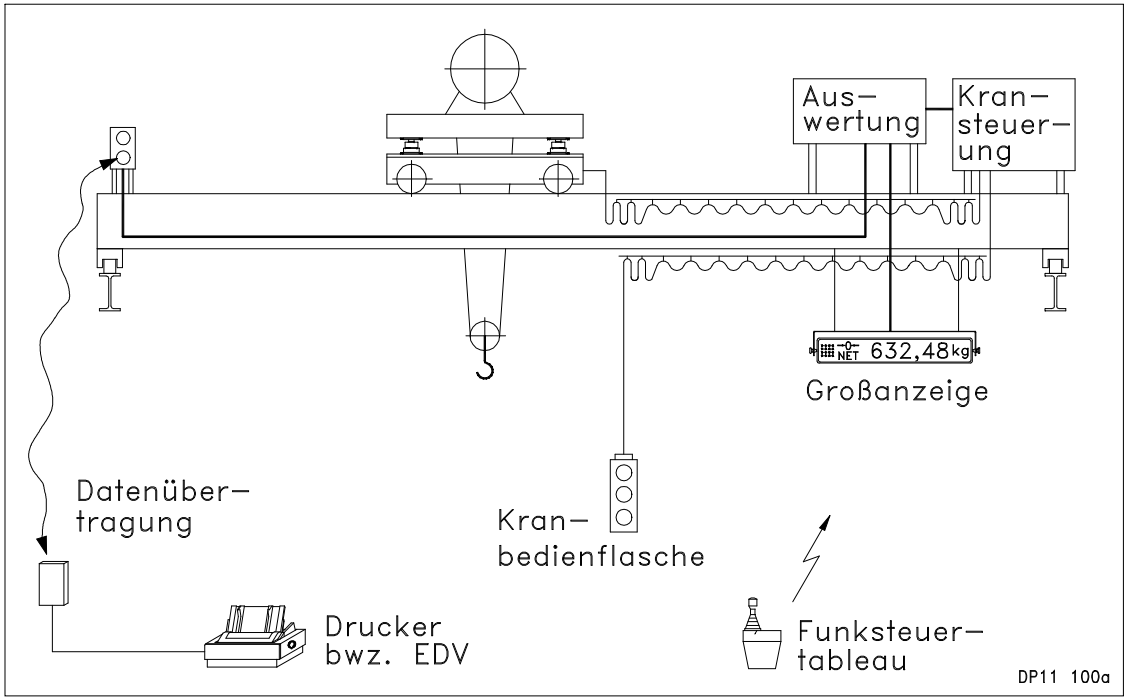
Processing and transmission



7“ Display ifm CR 1081

SIL-2 control
ifm CR7506

Basic control
ifm CR0401

Basic Display and Control
In one compact housing

Basic Display
ifm CR0451

VDI 4448 Load sensing and weighing systems on cranes with trolleys
End

Thank you for your attention