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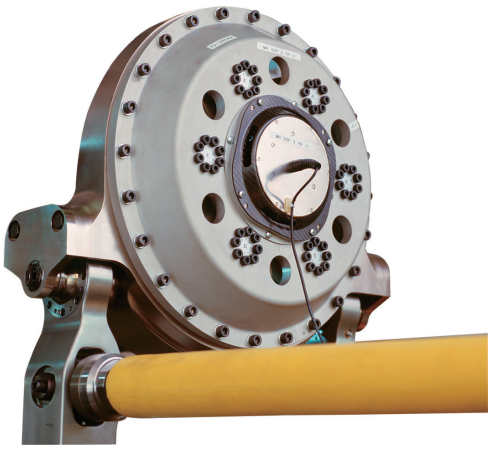
RoaDyn S650 nsp

Type 9268A

for test bench measurement with light trucks

Wheel force sensor for measuring three forces and three moments on the non-spinning wheel for operation on vehicle test benches.

- Modular arrangement with interchangeable load cells and system components
- Used in conjunction with CAD/FEM aided design to minimize stress concentrations
- Standard version manufactured from aluminum alloy can be used during fatigue test monitoring
- Precise signal acquisition with individual calibrated strain gage load cells
- Independent identification of sensor components
- Capable of recognizing individual load cell calibration values



Description

The RoaDyn S650 nsp measuring hub Type 9268A is a modular wheel force measuring system consisting of six 3-component heavy duty strain gage load cells, the inner part for connecting sensors to the hub and the outer part for connection to the test bench. The strain gage signals are amplified in the load cell and passed on to hub electronics via short cables. Data are transmitted via cable to the control room electronics, which provides the calculated wheel forces and moments to analog and digital interfaces.

Application

The RoaDyn S650 nsp is used as a multiaxial force measuring unit in road simulators for physical simulation of loads in durability tests. They are used for iteration (determination of the transfer function) and for monitoring of axle test benches.

Technical data

Standard measuring range [1]

F_x	kN	±50
F_y	kN	±30
F_z	kN	±50
M_x	kN·m	±6
M_y	kN·m	±6
M_z	kN·m	±6

Maximum loads

Max. shock acceleration:	x, z	g	40
	y	g	20

Accuracy

Linearity	% FS	≤0,5
Typical [2]	% FS	≤0,15
Hysterese	% FS	≤0,5
Typical [2]	% FS	≤0,10
Crosstalk forces [3]	%	≤0,5
Typical [2]	%	≤0,10

[1] It is assumed that the maximum forces and torques do not act simultaneously. The torques are specified relative to the center of the wheel (Offset = 0)
[2] The typical accuracy corresponds to the median of the test results of end-of-line calibrations and recalibrations
[3] With crosstalk compensation

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Assembly and components of RoaDyn S650 nsp

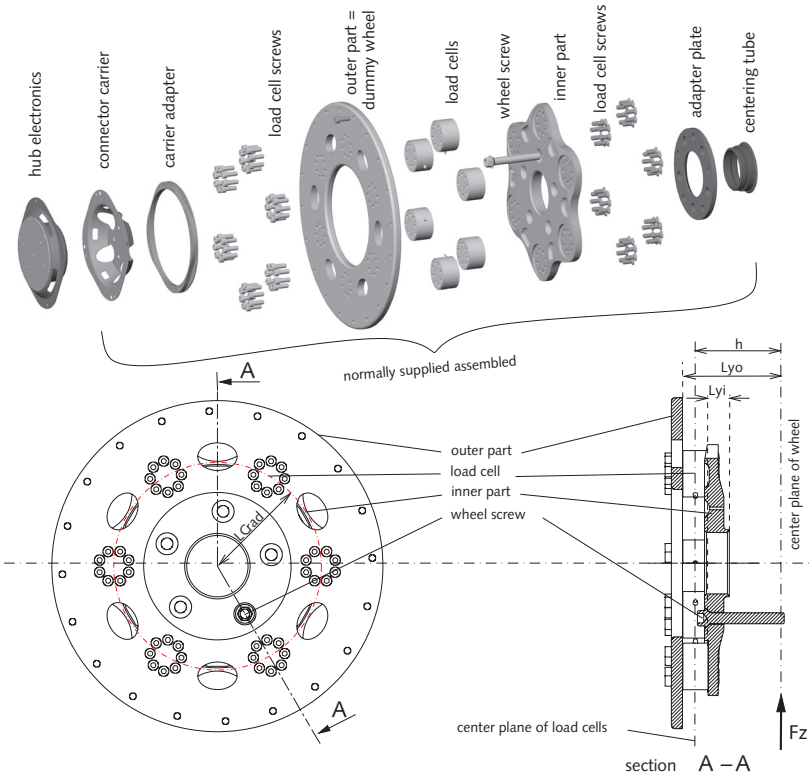
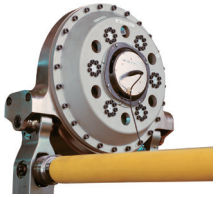
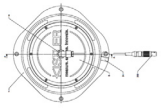
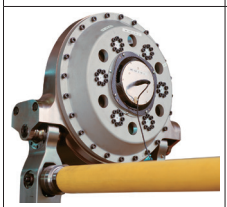
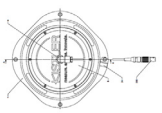


Fig 1: Assembly and components of RoaDyn S650 nsp

Measuring chains

Analog communication with test rig controller				
Measuring hub Type 9268A	**Wheel electronics** 5243A1800... (5-pin)	**Connecting cable** 1700A88xx00 (5-pin)	**Adapter cable** 55151640 (5-pin)	**Control room electronics** Type 9817A12, 9817A13, 9817A22, 9817A23, 9817A42, 9817A43
				

Digital communication with test rig controller (EtherCAT with distributed clocks)				
Measuring hub Type 9268A	**Wheel electronics** 5243A1801... (6-pin)	**Connecting cable** 1700A88xx10 (6-pin)	**Adapter cable** 55151641 (6-pin)	**Control room electronics** Type 9817A12, ... (see above)
				

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Mounting
Special adapters must be individually designed for mounting the sensors in a test bench. This requires the corresponding dimensions of the test bench force application system and the hub of the tested vehicle in order to prepare a quotation.

Adaptation to suit hub
Today's vehicles encompass a considerable variety of hub geometries. They are described by the following parameters:

- Number of stay bolts or tapped holes
- Dimensions of the wheel bolts or stay bolts and nuts (thread diameter, pitch, length and threaded length)
- Wheel bolt connection pitch diameter
- Axle centering as a fitting dimension
- Wheel offset
- Brake contours
- Parts protruding from hub
- Miscellaneous

It is therefore necessary to obtain precise details in order to prepare for fabrication of the adapter. The relevant Kistler Instruction manual (002-280) contains a checklist, which can be completely filled in to considerably speed up the process of clarification.

Typical configuration of the RoaDyn S650 nsp wheel force hub	**Type /Art. No.**
• Precision load cells (strain gage), fully encapsulated, 6 pieces per wheel sensor	9190A4C7
• Outer part for RoaDyn S660 1 piece per wheel sensor	9707A...
• Inner part for RoaDyn S660 adapts to one particular bolt pattern, 1 piece per wheel sensor	9729A6
• Electronics connector carrier for wheel electronics, 1 piece per wheel sensor	Z39904
• Hub electronics, 1 piece per wheel sensor	5243A18
• Connection cable for tire test machine digital or analog, 1 piece per wheel sensor	1700A88…
• KiRoad Performance control room electronics	
- for 1 wheel	9817A12, 9817A13
- for 1 axle	9817A22, 9817A23
- for 2 axles	9817A42, 9817A43

Optional accessories	**Type/Art. No.**
• External hub electronics	5277A2124
• Adapter ring for offset compensation 1 piece per wheel sensor	9713A...

Ordering code

• **RoaDyn S650 nsp** for test bench measurement with light trucks	**Type 9268A**

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