measure. analyze. innovate.

Measuring Hub RoaDyn® S260

Type 9289A113

to Measure Tire Rolling Resistance of Commercial Vehicle Tires on Tire Test Machines

The 2 component measuring hub RoaDyn S260 is the ideal instrument to measure rolling resistance on commercial vehicle tire test machines. The measuring hub measures the longitudinal and vertical forces F_x and F_z , acting at the tire contact area respectively tire footprint.

- High precision rolling resistance measurements for commercial vehicle tires by using force method
- Based on the rolling resistance regulations ISO 28580, SAE J1269 and ETRTO 117
- Strain gage load cell technology for static measurements, combined with high sensitivity in longitudinal (F_x) direction
- Static measurement of vertical force F_z can be used for tire test machine controlling (no additional force sensors necessary)
- Modular design
- · High rigidity
- · Compatible with analog and digital measuring chains
- Factory calibrated
- · Prepared for oil lubrication



RoaDyn measuring hub S260 is a rigid and high precision measuring tool, instrumented with four strain gage load cells which are mounted between a base and top plate. The instrumentation itself is stationary, i.e. top plate, base plate and load cells are mounted non rotating. The tire/rim combination will be mounted to the rotating spindle (shaft). This build up guarantees an optimization of flux respectively application of force. The measurement of rolling resistance basically takes place by using the force method, described in corresponding ISO and SAE regulations. In that case the reaction force is measured as close as possible at the tire contact area/footprint. The force method increases measuring accuracy and reduces parasitic losses compared with the common approach based on "torque, deceleration or power method"!

Furthermore the force method allows to check two tires simultaneously, which is compared with the other methods a significant increase in efficiency.



Based on rolling resistance regulations ISO 28580, SAE J1269, ETRTO 117 for commercial vehicles respectively up to tire load index 170

Measuring range	F _x	N	-1 200 1 200
	F_z	N	±60 000
Instrumentation accuracy	F _x		±1 N or ±0,5 % 1)
	Fz		± 30 N or $\pm 0.5~\%^{1)}$

¹⁾ whichever value is the greater

Technical Data

Max. Load	F _x	N	±4 500
	Fy	N	±1 500
	Fz	N	±60 000
Calibrated range	F _x	N	0 1 200
	Fz	N	0 60 000
Natural frequency	f _n (x)	Hz	≈530
	f _n (y)	Hz	≈1 670
	f _n (z)	Hz	≈960

Page 1/4

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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Technical Data (Continuation)

n	min ⁻¹	≤2 000
	°C	5 80
10050		IP65
	mm	440
	mm	396,5
	kg	117
		°C 10050 mm mm

Requirements for Oil Lubrication

Pump type			non-pulsating
Oil type		ISO VG	100
Kinematical viscosity (@40°)	ν	mm²/s	95 105
Inlet pipes		number	3
	di/da	mm	8/10
Oil pressure	р	bar	≤0,5
Flow rate	Ÿ	l/min	1 2
Outlet pipes		number	2
	di/da	mm	8/10
Oil pressure	р	bar	pressureless

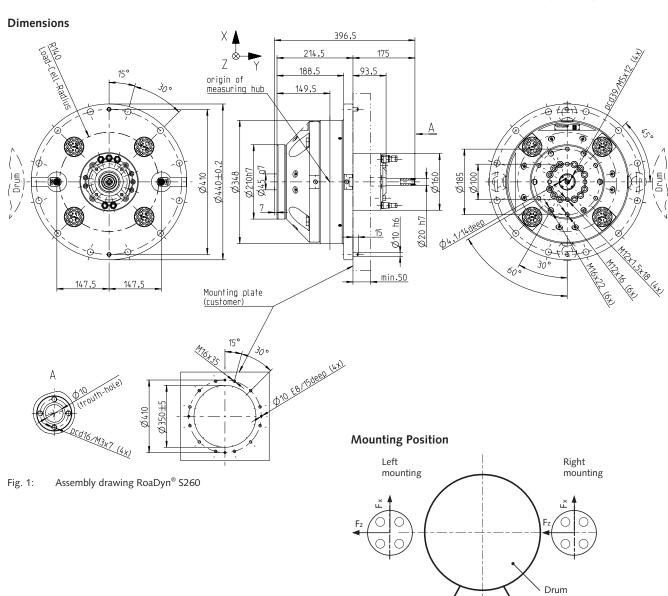


Fig. 2: Scheme of load cell positioning at tire test machine

Page 2/4

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Measuring Hub

Cable

DAQ

Cable L = 4 m

Analog

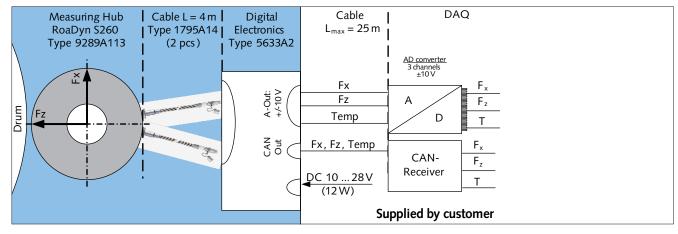


Fig. 4: Digital measuring chain RoaDyn® S260

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 Measuring hub RoaDyn S260 to measure tire rolling resistance of commercial vehicle tires on tire test machines Type 9289A113

Type/Art. No.

Analog version Connecting cable low impedance, length = 4 m, straight connector

- Connectinc cable low impedance 1795A24 length = 4 m, angle connector
- Analog electronics box, 24 channels 5633A1

Digital version

- Connecting cable low impedance, 1795A14 length = 4 m, straight connector
- Connectinc cable low impedance 1795A24 length = 4 m, angle connector
- Digital electronics box, 16 channels 5633A2 Calibration equipment
- Set of deadweights (11 pieces, 20 kg each) 9907A2

Supplied by Customer

- Hydraulic oil pump lubrication system (non-pulsating)
- DAQ

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Other Kistler Products in this Application

- Measuring hub RoaDyn S220 to measure tire rolling resistance of passenger car tires on tire test machines
- RoaDyn P530 measuring hub to measure tire characteristics on tire test machines (passenger car)
- RoaDyn S5ST (60 kN) measuring hub for durability and tire characteristics measurement on tire test machines (truck and bus)
- RoaDyn S5MT (100 kN) measuring hub for durability and tire characteristics measurement on tire test machines (truck and bus)

9289A263

9289A253

9289A103

Page 4/4