

Lower Neck Load Cell

Type M557A6A...

Six-axial

Type M557A6A... is designed to measure forces and moments in the lower neck of the crash test dummies H3 and HM.

- Six-axial (F_x , F_y , F_z , M_x , M_y , M_z)
- ID module available
- Low linearity and hysteresis
- Kistler system cabling
- Polarities according to SAE J211/1



Description

The load cell is made of elements on which forces are transmitted. The mechanical deformation element, applied with strain gage, serves for mechanical electrical deformation.

The forces to be measured create mechanical stretches and buckling in the gaging member. In order to avoid linearity errors, the deformation paths are constructively held small (high stiffness). Thus a proportional behavior is realized. The force and moment proportional resistance variations are measured by a Wheatstone-type bridge circuit.

Line-up of equivalent load cells:

	Type
Kistler	M557A6A...
FTSS	IF-210
Denton	1794

The load cell is available with ID modules, either a UPS module (Universal Parameter Memory) or a Dallas module can be chosen for this functionality. These modules are integrated in an external housing in the wiring or in the connector. Customized cable lengths and connectors with specific pin assignments are optionally available.

Technical Data

Axial Data		F_x	F_y	F_z	M_x	M_y	M_z
Measuring range	kN	14,2	14,2	14,2			
	N·m				450	450	450
Bridge output voltage (typ.)	mV/V	1,9	1,9	1,0	2,0	2,0	3,9
Sensitivity (typ.)	$\mu V/V/kN$	133	133	70			
	$\mu V/V/N\cdot m$				4,4	4,4	8,6
Bridge resistance	Ω	350	350	700	350	350	700
Ultimate load, static	%	150	150	150	150	150	150

General Data

Supply voltage		
without ID modules	VDC	5 ... 15
with ID modules	VDC	9 ... 12
Insulation resistance ¹⁾	M Ω	>90
Operating temperature range	$^{\circ}C$	-20 ... 80
Storage temperature range	$^{\circ}C$	-30 ... 90
Amplitude non-linearity (typ.)	%	<1
Hysteresis (typ.)	%	<1
Channel cross talk	%	<5
Bridge zero output (typ./max.)	mV/V	0,01/0,03
Weight, with cable and plug	grams	826

All specifications are typical at 25 $^{\circ}C$ and rated at 10 V sensor supply voltage, unless otherwise specified.

¹⁾ All wires to screen (GND), measured with 10 VDC

Application

Type M557A6A... is designed to measure forces and moments in the lower neck of the crash test dummies H3 and HM.

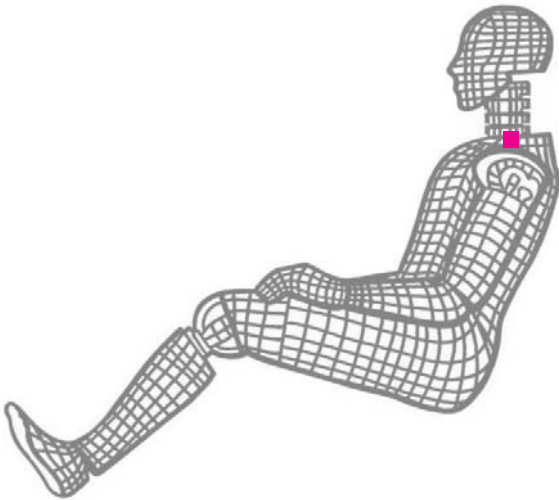


Fig. 1: Dummy application, location lower neck

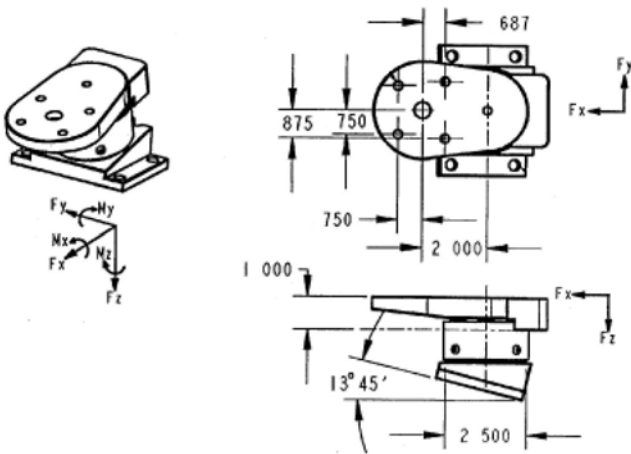


Fig. 2: Dimensions and direction of action

Included Accessories

- None

Optional Accessories

- Add. label with serial number, plug side
- ID module
- Add. label with ID number at sensor
- Add. shunt

Type No.

M015KABID
on request
M015KABID
on request

Ordering Key

Type M557A6A

Design

Standard	GM
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Cable Length before Electronics

0 cm	00
<10 cm (digit x 1 cm)	C#
10 cm ... 9,9 m (digit x 10 cm)	##
10 m ... 90 m (digit x 10 m)	D#

Additional Electronics

Sensor detail, as per type declaration force-moment TP-650-2	#
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Cable Length after Electronics

0 cm	00
<10 cm (digit x 1 cm)	C#
10 cm ... 9,9 m (digit x 10 cm)	##
10 m ... 90 m (digit x 10 m)	D#

Connector

Conn. type, as per TP-600	#-
Conn. assignment, as per TP-600	-#

M557A6A_000-779e-12.11