RC3D (new generation) compression load cell

product description

The digital RC3D compression load cell features embedded electronics that improve system accuracy and load cell handling and allows the user to communicate with each load cell independently. It's designed so that multiple cells can be wired together in a daisy chain to the indicator, greatly simplifying installations by avoiding the need for a junction box.

The RC3D is compact and robust, built from high-grade stainless steel and fully hermetically sealed; its performance can be relied upon in even the harshest of conditions. A rocker column design helps ensure optimum weighing accuracy when subjected to off-centre forces from scale deck movements.

applications

Weighbridges, hoppers, tanks and silos.

approvals

- OIML C3 and C4 approval (Y = 15,000)
- NTEP class III approval to 5,000

accessories + options

- Range of hardware and electronics
- Variety of cable and connector options

key features

- Stainless steel construction
- Capacities of 30, 40 and 50t are available
- Hermetically sealed to IP68/IP69K
- Eliminates need for a junction box
- Extensive diagnostic capabilities to monitor load cell condition
- Easy communication (RS485) and fast system setup
- Improved handling of corner adjustment and system calibration
- Integrated surge protectors tested in accordance with EN 61000-4-5
- Daisy-chain connection with proven M12 connector cable

RoHS compliant

IP69K

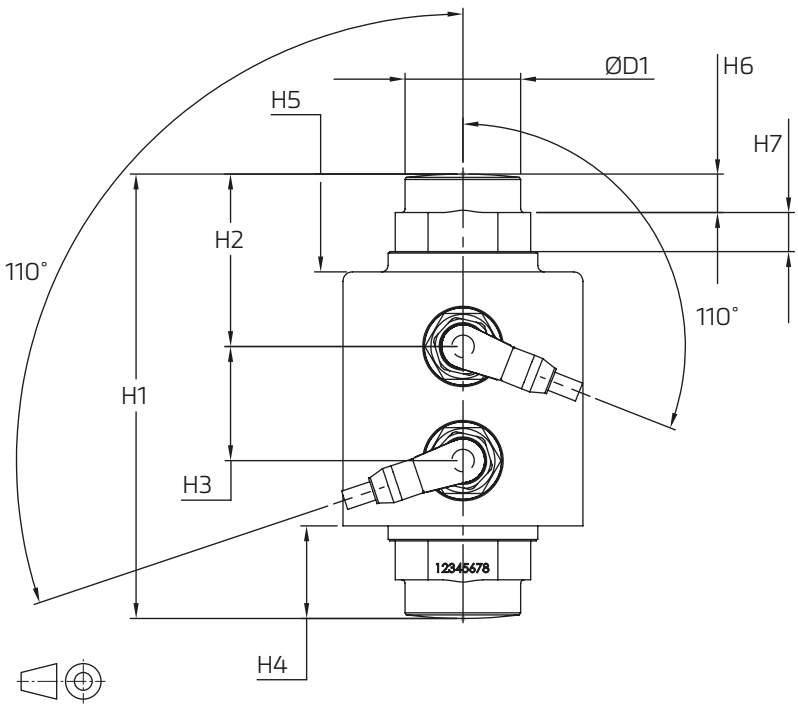
flintec quality + precision

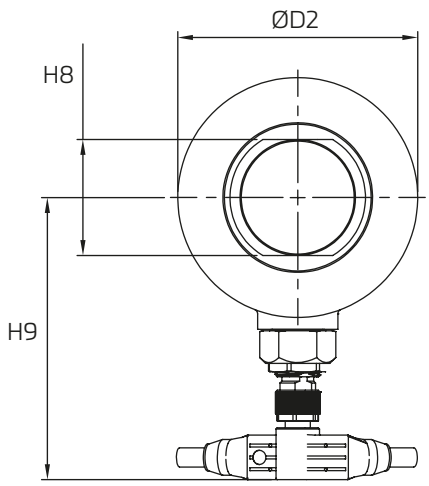
specifications

Maximum Capacity (E_{max})	t	30/40/50			
Accuracy class according to OIML R60		(GP)	C1	C3	C4
Maximum number of verification intervals (n_{LC})		n.a.	1,000	3,000	4,000
Minimum load cell verification interval (v_{min})		n.a.	E_{max} /5,000	E_{max} /15,000	
Temperature effect on minimum dead load output (TC_0)	%*RO/10°C	± 0.0400	± 0.0280	± 0.0093	
Temperature effect on sensitivity (TC_{RO})	%*RO/10°C	± 0.0200	± 0.0160	± 0.0100	± 0.0080
Combined error	%*RO	± 0.0500	± 0.0300	± 0.0200	± 0.0180
Non-linearity	%*RO	± 0.0400	± 0.0300	± 0.0166	± 0.0125
Hysteresis	%*RO	± 0.0400	± 0.0300	± 0.0166	± 0.0125
Creep error (30 minutes) / DR	%*RO	± 0.0600	± 0.0490	± 0.0166	± 0.0125
Rated Output (RO)	counts	200,000 ± 200 (± 0.1%*RO)			
Zero balance	counts	± 2,000 (± 1%*RO)			
Internal resolution	counts	500,000			
Excitation voltage	V	10...12			
Current consumption	mA	< 40			
Converter type		Sigma-Delta ratiometric			
Conversion rate		10 Hz (4.7 to 80 Hertz, factory configuration only)			
Digital filter		Rolling Average (4, 9, 16, 25 samples)			
Asynchronous interface		RS485A half duplex, multidrop with network address, 2,400...38,400 baud. Baudrate, data bits, parity and data output are programmable			
Number of bus addresses	n	52			
Safe load limit (E_{lim})	%*E_{max}	200			
Ultimate load	%*E_{max}	300			
Compensated temperature range	°C	–10...+40			
Operating temperature range	°C	–40...+60			
Load cell material		stainless steel 17-4 PH (1.4548)			
Sealing		complete hermetic sealing; cable entry sealed by glass to metal header			
Protection according EN 60 529		IP68 (up to 2m water depth) / IP69K			
Packet weight	kg	3.3 (30t), 3.6 (40t), 4.5 (50t)			
Load cell cable length	m	10 - supplied with 2x M12 right-angle, female connectors			
Load cell connectors		2x M12, 4-pin, male			

The limits for Non-Linearity, Hysteresis, and TC_{RO} are typical values.
The sum of Non-linearity, Hysteresis and TC_{RO} meets the requirements according to OIML R60 with p_{LC}=0.8.

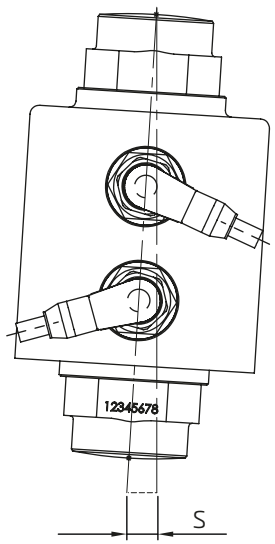
product dimensions (mm)



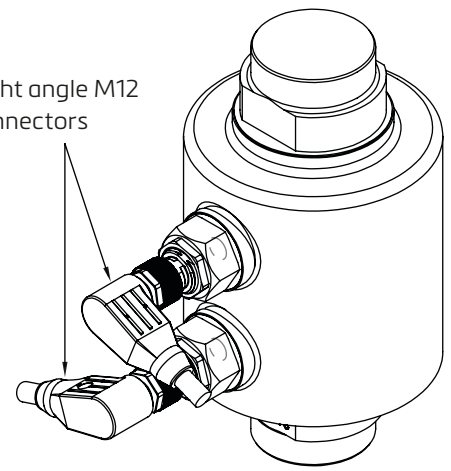


Notes
S_{max} = Maximum lateral displacement of load introduction. Recommended gap 3...5mm.
**RF = Restoring force at S_{max} and E_{max}
Unless otherwise specified: dimensions are in millimetres with tolerances to ISO 2768-m.

Type	H1	H2	H3	H4	H5	H6	H7	H8	H9	D1	D2	Smax*	RF**
RC3D-30t/40t	150	58	38.5	31	33	13	13	39	95	39	81	12	27kN
RC3D-50t	178	69.5	38.5	32	34	17	25.2	44	104	44	99	9	51kN

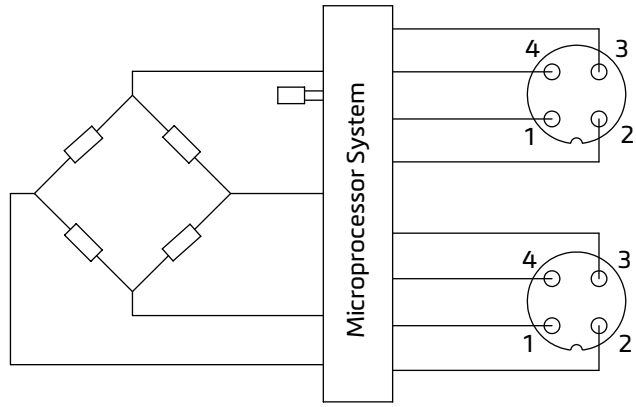


Mandatory main rocking direction



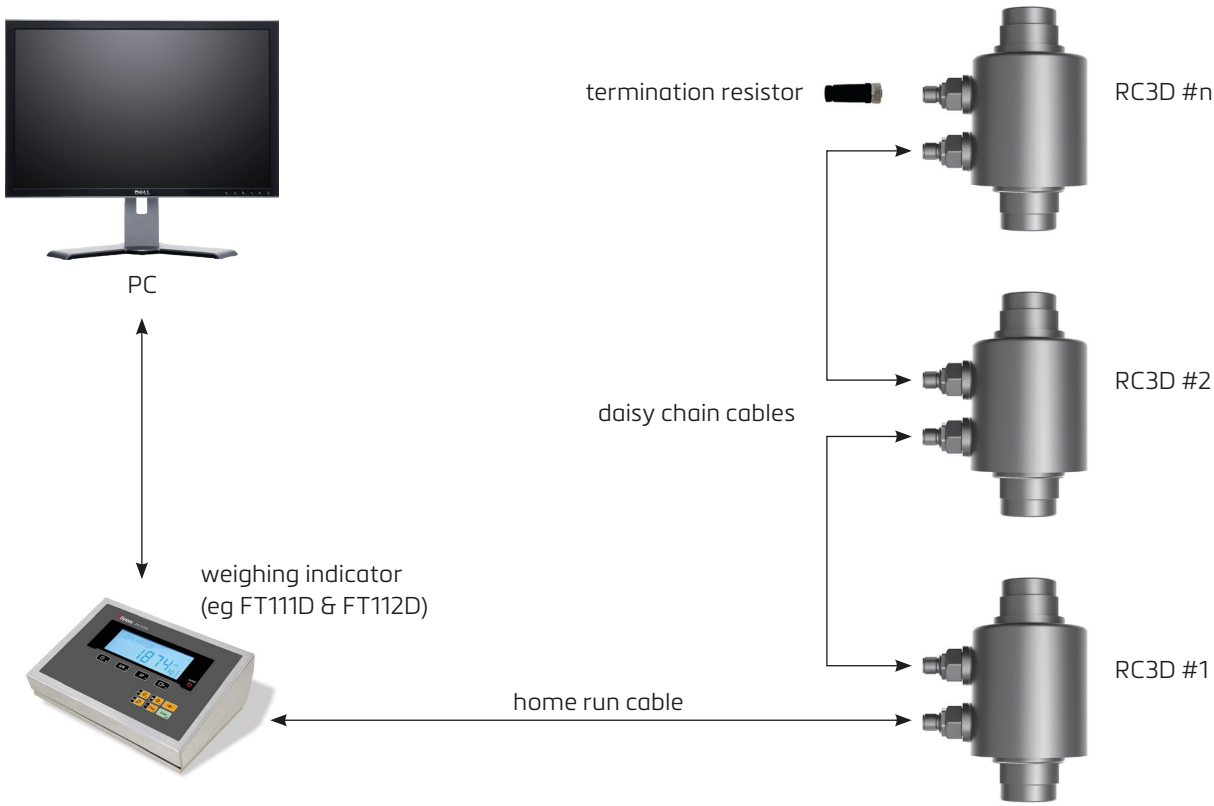
wiring

M12 connector pin configuration	
Pin no.	Description
1	Exc+
2	Exc-
3	Data-(A)
4	Data+(B)



*If 'A' and 'B' are different on the indicator, swap the 'A' and 'B' of the home-run cable.

typical configuration



important notes

Termination resistor	The termination resistor needs to be affixed to the last load cell in the chain. Termination resistors must be ordered separately.
Daisy chain cable	Daisy chain cables to be ordered separately. The standard length is 10m; for other lengths please consult a sales office.
Home-run cable	Home run cable to be ordered separately. Standard length is 20m - Supplied with 1x M12, 4-pin, female connector (load cell end) and flying leads (weighing indicator end).
Separate power supply	Separate power supply available for systems with 12 or more load cells, please contact a sales office.

*Wire colours for home-run cable are: Red (Exc+), Black (Exc-), Blue (Data- 'A'), White (Data+ 'B')

Specifications and dimensions are subject to change without notice.