

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.

The RC3D can be provided with either the standard connectors or cabled connectors. The cabled variant is detailed at the end of this datasheet.

applications

Weighbridges, hoppers, tanks and silos.

approvals

OIML C3 and C4 approval
(Y = 15,000)

NTEP class III approval to 5,000

accessories + options

Standard connectors or cabled
connectors available

Range of hardware and electronics

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



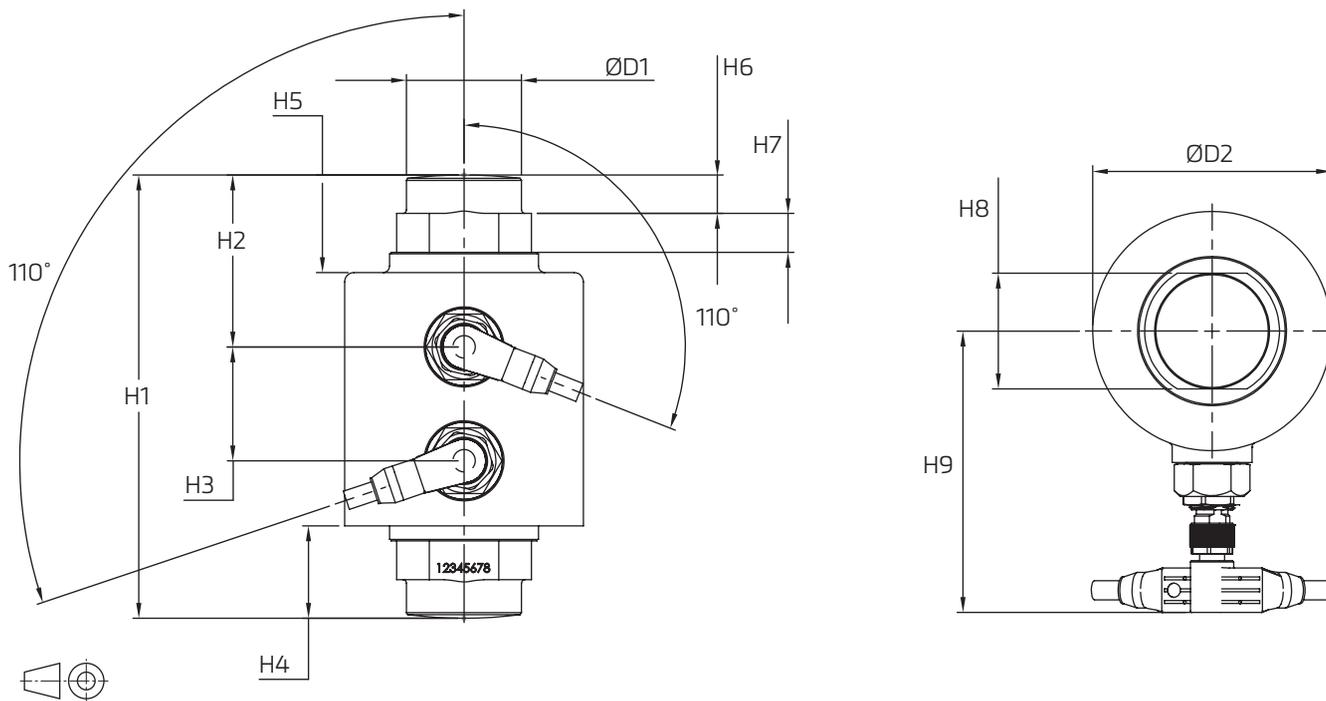
specifications

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	-	Standard: 10m - supplied with 2x M12 right-angle, female connectors Cabled var: 2x 1m with M12 male, attached via cable glands			
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)



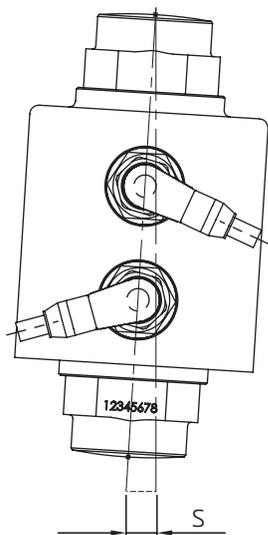
Notes

S_{max} = Maximum lateral displacement of load introduction. Recommended gap 3...5mm.

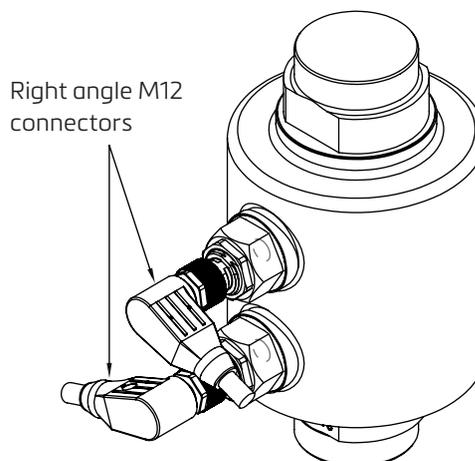
**RF = Restoring force at S_{max} and E_{max}

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	S_{max}^*	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



Right angle M12 connectors

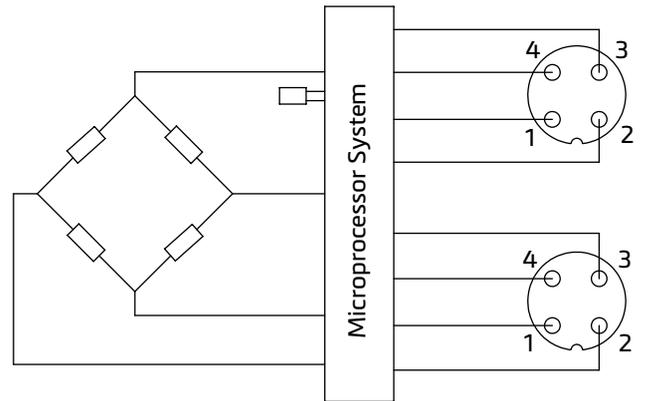
wiring

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

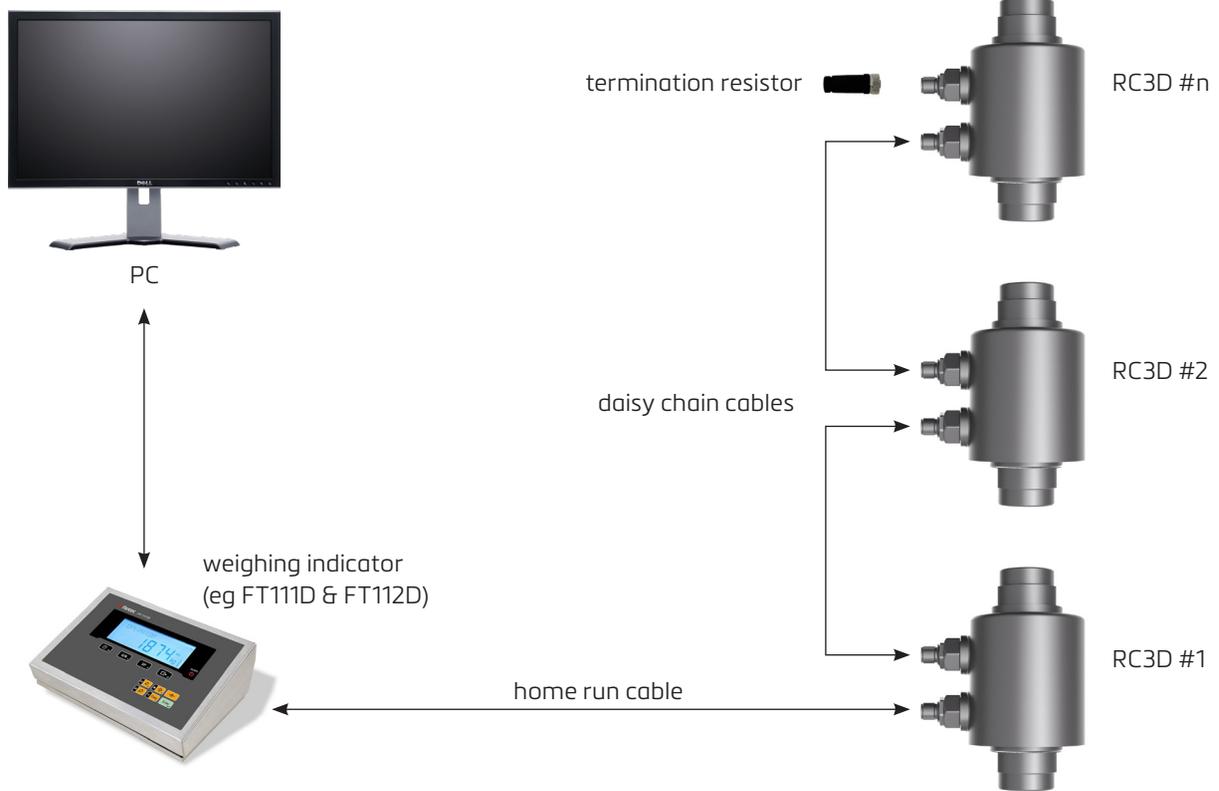
Note

For use with an FT-11xD indicator, connect Data-(A) on the home-run cable to 'B' on the indicator.

For other indicators, this connection may need to be reversed.



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.

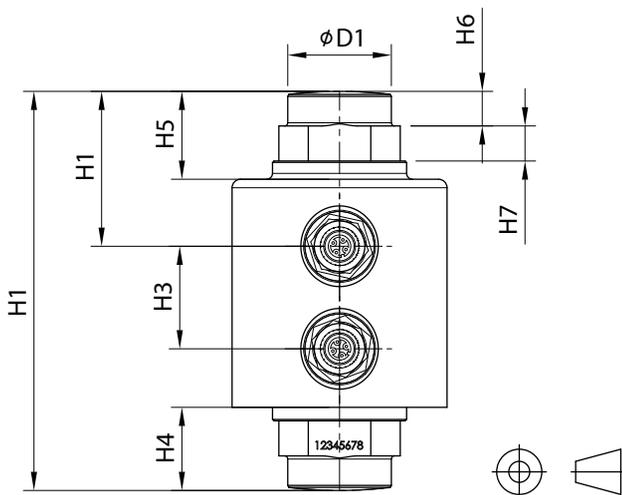
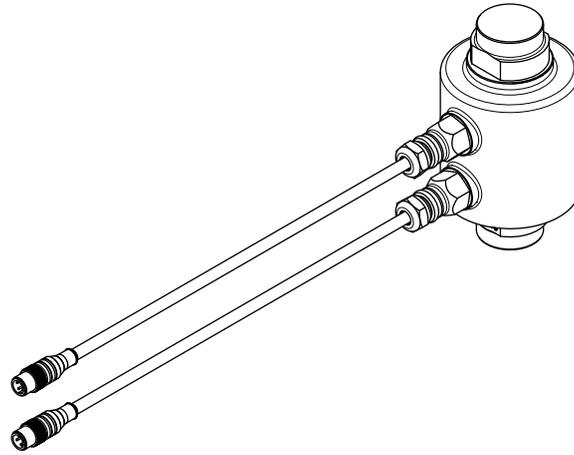
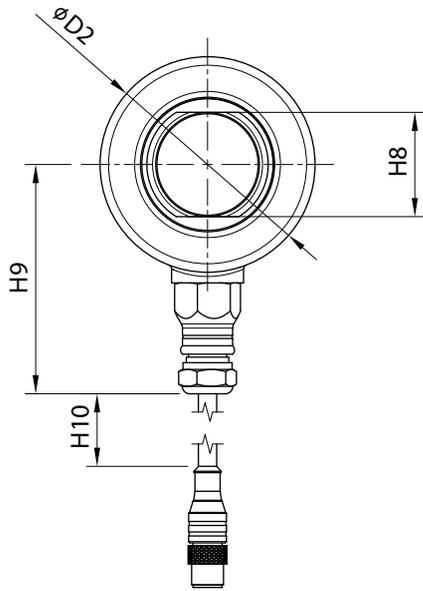
Daisy chain cable Daisy chain cables to be ordered separately. The standard length is 10m; for other lengths please consult a sales office.

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-), White (Data- 'A'), Blue (Data+ 'B')

product dimensions (mm) - cabled variant



note

The RC3D cabled variant consists of two 1m long cables attached to the load cell via cable glands. At the end of each cable is a male M12 connector. This design minimises water ingress by having the connectors further from the load cell body.

The product designation for this variant is RC3D-C.

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RC3D-30t/40t	150	58	38.5	31	33	13	13	39	86	1000	39	81
RC3D-50t	178	69.5	38.5	32	34	17	25.2	44	95	1000	44	99

Specifications and dimensions are subject to change without notice.