

3AR SERIES ROUND 3-AXIS LOAD CELLS (U.S. & METRIC)

SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Nonlinearity – %FS		± 0.2
Hysteresis – %FS		± 0.2
Nonrepeatability – %RO		± 0.2
Creep, in 20 min – %		± 0.1
TEMPERATURE		
Effect on Zero – %RO / deg	°C	± 0.01
Effect on Output – % / deg	°C	± 0.01
Compensated Range	°C	-10 to +70
	°F	+14 to +158
Operating Range	°C	-10 to +85
	°F	+14 to +185
ELECTRICAL		
Rated Output x and y axis - mV/V		1.5mV/V
Rated Output z axis - mV/V		0.8
Excitation - V MAX		10
Zero Balance - mV/V		<0.05
Input Resistance x and y axis – Ω		700
Input Resistance z axis – Ω		1400
Output Resistance x and y axis – Ω		700
Output Resistance z axis – Ω		1400
CROSSTALK		
x into y - %FS		2
y into x - %FS		2
z into x - %FS		1
z into y - %FS		1
x into z - %FS		1
y into z - %FS		1
MECHANICAL		
Safe Overload – %CAP		150
Ultimate Overload – %RO		300
Cable Length	m	5
	ft	16.4
Connector		M12, 12-pin

STANDARD CONFIGURATION



Model 3AR100 (Shown)

FEATURES & BENEFITS

- 3-Axis - Fx Fy Fz; independent bridges
- Capacities - 10KN to 500KN
- Compact size
- Low crosstalk
- Temperature compensated
- Optional BSC4A Amplifier can provide scaled analog outputs for all 3 channels simultaneously
- Optional BSC4D PC Interface Module can log, graph and display data for all 3 channels simultaneously

Interface's 3-axis load cell measures forces simultaneously in 3 mutually perpendicular axes: X, Y, and Z - tension and compression. Each axis provides a unique mV/V output and requires no mathematical manipulation. The 3-axis load cell is built to minimize eccentric loading effects and crosstalk between axes.

The 3A Series 3-axis load cell is ideally suited to many industrial and scientific applications, such as aerospace, robotics, automotive and medical research (orthopedics and bio-mechanical).

The load cell is provided in various capacity ranges and sizes with each of the three axes providing the same capacity.

We are happy to work with your design needs - providing a custom design if warranted for varying capacities (between X, Y, and Z), higher temperature capability, or OEM/private labeling if needed.

3AR SERIES ROUND 3-AXIS LOAD CELLS (U.S. & METRIC)

CHARACTERISTICS

See Drawing	MODEL					
	3AR100		3AR125		3AR155	
	A	B	A	B	A	B
F _x (N)	10K	25K	30K	30K	50K	100K
F _y (N)	10K	25K	30K	30K	50K	100K
F _z (N)	20K	60K	60K	120K	200K	250K
Diameter (mm)	100	100	125	125	155	155
Height (mm)	72	72	90	90	105	105
Weight (g)	2.5K	2.5K	4.5K	4.5K	10K	10K
Material	Tool Steel	Tool Steel	Tool Steel	Tool Steel	Tool Steel	Tool Steel
Protection (IP)	65	65	65	65	65	65
Max Bending Moment	0.5kNm	1kNm	2kNm	2kNm	4kNm	6kNm
Torque Limit	1.5kNm	4kNm	6kNm	6kNm	15kNm	20kNm

See Drawing	MODEL		
	3AR225		
	A	B	C
F _x (N)	100K	200K	250K
F _y (N)	100K	200K	250K
F _z (N)	200K	400K	500K
Diameter (mm)	225	225	225
Height (mm)	150	150	150
Weight (g)	30K	30K	30K
Material	Stainless Steel	Stainless Steel	Stainless Steel
Protection (IP)	65	65	65
Max Bending Moment	10kNm	20kNm	20kNm
Torque Limit	40kNm	60kNm	60kNm

3AR ROUND 3-AXIS LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 3AR100 (Shown)

APPLICATIONS

- Integration into wind tunnel models
- Integration into handles of medical tools
- Sports medicine
- Biomechanics
- Control of assembly and handling processes in micromechanics

CONNECTOR OPTIONS

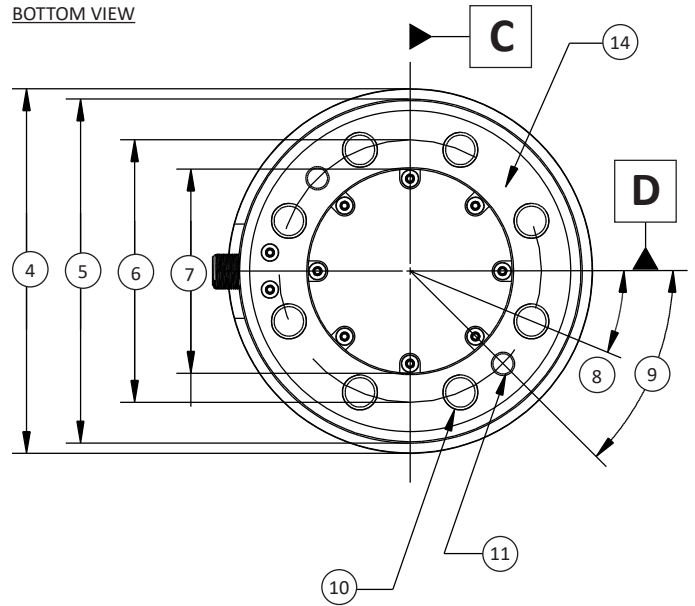
Connection Cable Options (included with purchase)

- M12 to 37-Pin D-Sub
- M12 to M16 24-pin
- M12 to 44-pin High Density D-Sub

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	35	1.38
(2)	68	2.68
(3)	72	2.83
(4)	∅100 - 0.2	∅3.94 - 0.008
(5)	∅90	∅3.54
(6)	∅75 ± 0.1	∅2.95 ± 0.004
(7)	∅55 H8 ↓ 4	∅2.17 H8 ↓ 4
(8)	22.5°	22.5°
(9)	45°	45°
(10)	8 x M10 x 1.5 ↓ 12 √ 118°	8 x M10 x 0.06 ↓ 0.47 √ 118°
(11)	6 x ∅6E7 ↓ 10 √ 118° 0.02/C/D	6 x ∅6E7 ↓ 0.39 √ 118° 0.0008/C/D
(12)	6 x ∅6E7 ↓ 10 √ 118° 0.02/A/B	6 x ∅6E7 ↓ 0.39 √ 118° 0.0008/A/B
(13)	Live End / Measuring Surface	
(14)	Dead End	

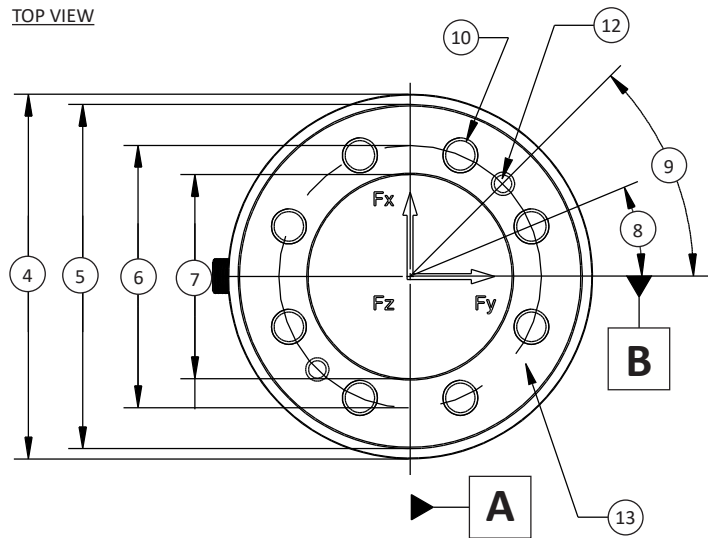
BOTTOM VIEW



SIDE VIEW



TOP VIEW



Datasheet 3AR v1.1.07-14-2021

U.S. dimensions and capacities are provided for conversion only. Standard products have International System of Units (SI) capacities and dimensions.

3AR125 ROUND 3-AXIS LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 3AR125 (Shown)

APPLICATIONS

- Integration into wind tunnel models
- Integration into handles of medical tools
- Sports medicine
- Biomechanics
- Control of assembly and handling processes in micromechanics

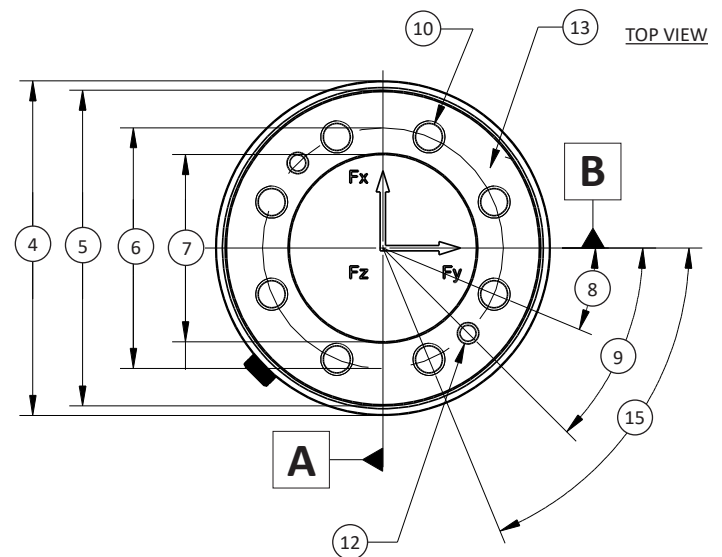
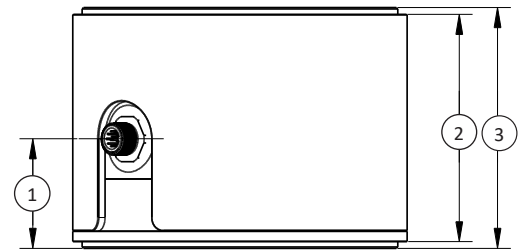
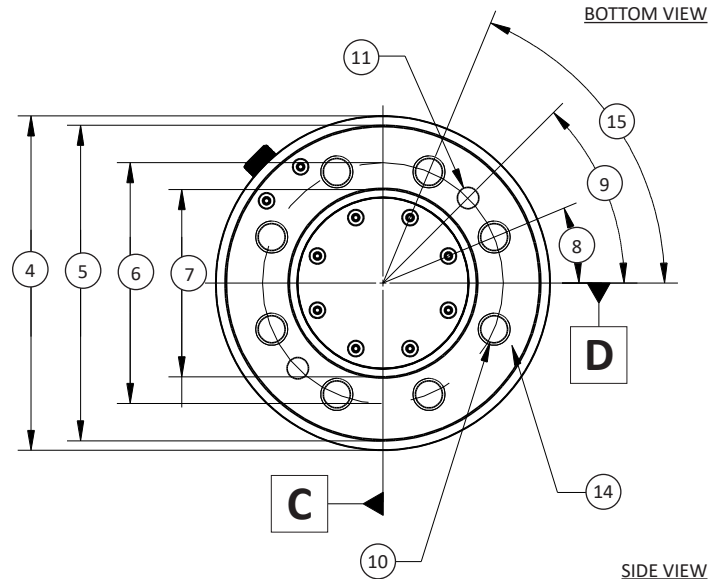
CONNECTOR OPTIONS

Connection Cable Options (included with purchase)

- M12 to 37-Pin D-Sub
- M12 to M16 24-pin
- M12 to 44-pin High Density D-Sub

DIMENSIONS

See Drawing	Metric mm	U.S. in
(1)	41	1.61
(2)	85	3.35
(3)	90	3.54
(4)	Ø125	Ø4.92
(5)	Ø118	Ø4.65
(6)	Ø90 ± 0.1	Ø3.54 ± 0.004
(7)	Ø70 H8 ↓ 4	Ø2.75 H8 ↓ 0.16
(8)	22.5°	22.5°
(9)	45°	45°
(10)	8 x M12 x 1.75 ↓ 16.5 ∨ 118°	8 x M12 x 0.06 ↓ 0.65 ∨ 118°
(11)	2 x Ø8E7 ↓ 15 ∨ 118° ± 0.02/C/D	2 x Ø8E7 ↓ 0.6 ∨ 118° ± 0.0008/C/D
(12)	2 x Ø8E7 ↓ 15 ∨ 118° ± 0.02/A/B	2 x Ø8E7 ↓ 0.6 ∨ 118° ± 0.0008/A/B
(13)	Live End / Measuring Surface	
(14)	Dead End	
(15)	67.5°	67.5°



3AR155 ROUND 3-AXIS LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 3AR155 (Shown)

APPLICATIONS

- Integration into wind tunnel models
- Integration into handles of medical tools
- Sports medicine
- Biomechanics
- Control of assembly and handling processes in micromechanics

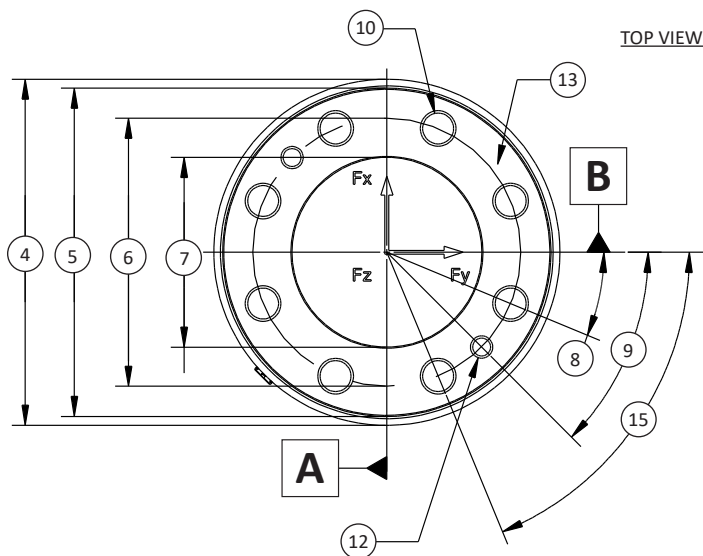
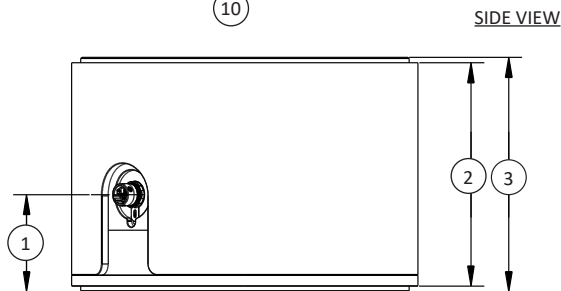
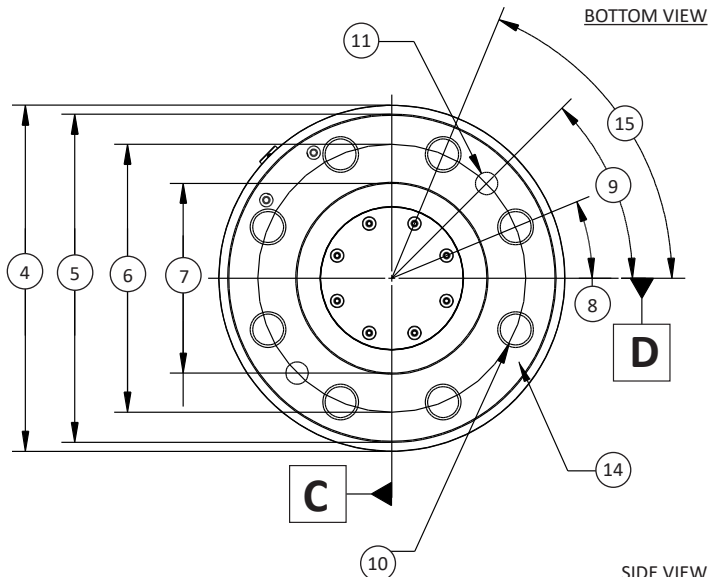
CONNECTOR OPTIONS

Connection Cable Options (included with purchase)

- M12 to 37-Pin D-Sub
- M12 to M16 24-pin
- M12 to 44-pin High Density D-Sub

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	43.5	1.71
(2)	100	3.94
(3)	105	4.13
(4)	Ø155	Ø6.10
(5)	Ø147	Ø5.79
(6)	Ø120 ± 0.1	Ø4.72 ± 0.004
(7)	Ø85 H8 ↓ 4	Ø3.35 H8 ↓ 0.16
(8)	22.5°	22.5°
(9)	45°	45°
(10)	8 x M16 x 2 ↓ 20 √ 118°	8 x M16 x 0.08 ↓ 0.79 √ 118°
(11)	2 x Ø10E7 ↓ 20 √ 118° Φ0.02/C/D	2 x Ø10E7 ↓ 0.79 √ 118° Φ0.0008/C/D
(12)	2 x Ø10E7 ↓ 20 √ 118° Φ0.02/A/B	2 x Ø10E7 ↓ 0.79 √ 118° Φ0.0008/A/B
(13)	Live End / Measuring Surface	
(14)	Dead End	
(15)	67.5°	67.5°



3AR225 ROUND 3-AXIS LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 3AR225 (Shown)

APPLICATIONS

- Integration into wind tunnel models
- Integration into handles of medical tools
- Sports medicine
- Biomechanics
- Control of assembly and handling processes in micromechanics

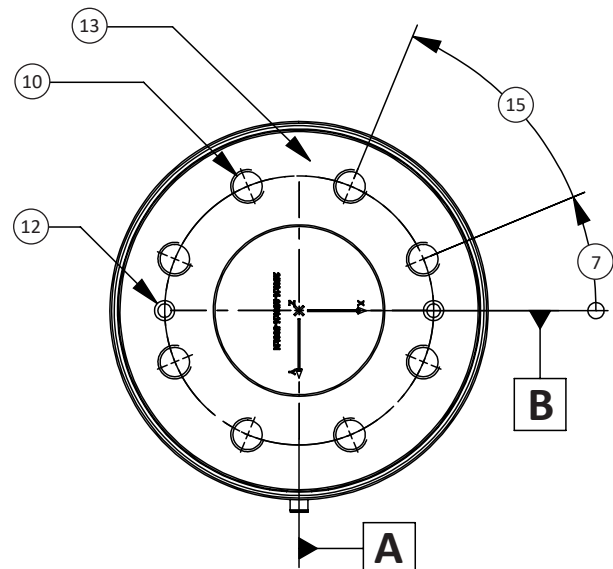
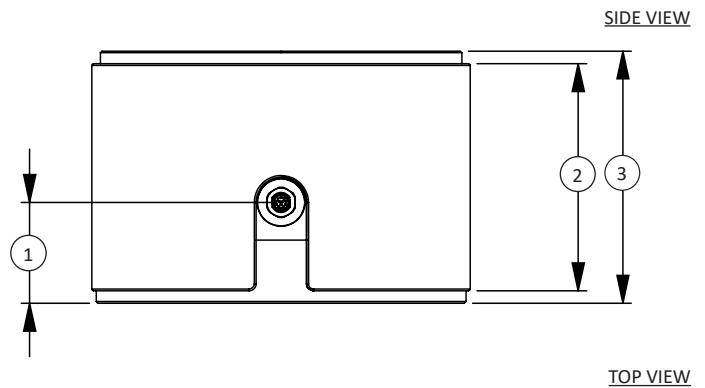
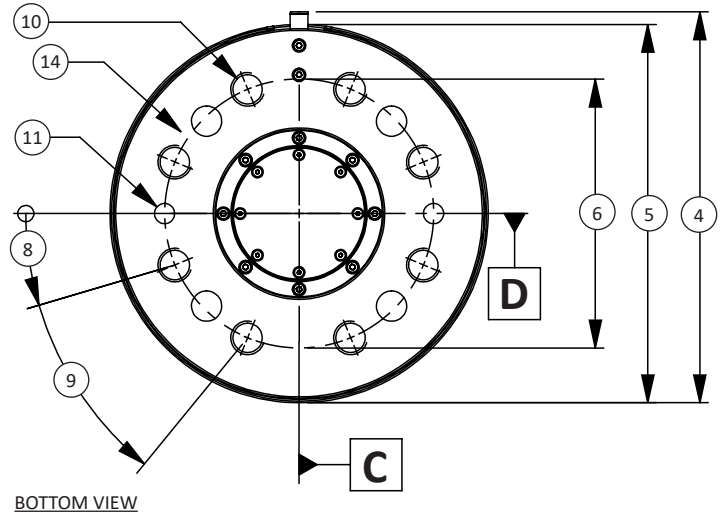
CONNECTOR OPTIONS

Connection Cable Options (included with purchase)

- M12 to 37-Pin D-Sub
- M12 to M16 24-pin
- M12 to 44-pin High Density D-Sub

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	60	2.36
(2)	135	5.31
(3)	150	5.90
(4)	ca. 232.50	ca. 9.15
(5)	∅225	∅8.86
(6)	∅160	∅6.30
(7)	22.5°	22.5°
(8)	16.45°	16.45°
(9)	50.76°	50.76°
(10)	8 x ∅17.50 ↓ 32.50 M20 - 6H ↓ 25	8 x ∅0.69 ↓ 1.28 M20 - 6H ↓ 0.98
(11)	2 x ∅12 E7 ↓ 20 \pm 0.02/C/D	2 x ∅0.47 E7 ↓ 0.79 \pm 0.0008/C/D
(12)	2 x ∅8 ↓ 75 \sqcup ∅12 E7 ↓ 20 \pm 0.02/A/B	2 x ∅0.31 ↓ 2.95 \sqcup ∅0.47 E7 ↓ 0.79 \pm 0.0008/A/B
(13)	Live End / Measuring Surface	
(14)	Dead End	
(15)	67.5°	67.5°



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