

6A SERIES 6-AXIS STANDARD CAPACITY LOAD CELLS - Fx Fy Fz Mx My Mz (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A27 (Shown)



Model 6A175 (Shown)

FEATURES & BENEFITS

- 6-Axis – force and torque in all six axes
- Capacities: Force N(lbf) / Torque Nm(lbf-in) – 50(11.2)/1(8.85) to 100K(22.48K)/10K(88.51K)
- Compact size
- Force and moment values MUST be calculated using supplied 36-term coefficient matrix
- Low crosstalk
- Temperature compensated
- Optional BX8 amplifier and software can be used for force and moment value calculation

Interface's 6-axis load cell measures forces simultaneously in three mutually perpendicular axes and three simultaneous torques about those same axes. Six full bridges provide mV/V output on six independent channels. Interface's 6-axis load cell is ideally suited to many industrial and scientific applications, such as aerospace, robotics, automotive and medical research (orthopedics and biomechanical). A 36-term coefficient matrix is included for calculating the load and torque values in each axis. An 8-channel amplifier with USB PC interface is also available which simplifies data analysis.

SPECIFICATIONS

ACCURACY – (MAX ERROR)		
Nonlinearity – %FS		± 0.1
Hysteresis – %FS		± 0.1
Nonrepeatability – %RO		± 0.5
Creep, in 20 min – %		± 0.1
TEMPERATURE		
Effect on Zero – %RO / deg	°C	± 0.01
Effect on Output – % / deg	°C	± 0.05
Compensated Range	°C	-10 to +70*
	°F	+14 to +158*
Operating Range	°C	-10 to +85
	°F	+14 to +185
ELECTRICAL		
Rated Output – mV/V (Nominal)		±0.4
Excitation Voltage – V MAX		5
Crosstalk – %		±1
Zero Balance – mV/V		< 2
Input Resistance (6A27) – Ω		1K ±10
Output Resistance (6A27) – Ω		1K ±10
Input Resistance – Ω		350 ±10
Output Resistance – Ω		350 ±10
MECHANICAL		
Safe Overload – %CAP		150
Ultimate Overload – %RO		300
Cable Length	m	5
	ft	16.4

* Temperature compensation not available on Models 6A27 and 6A40

6A SERIES 6-AXIS STANDARD CAPACITY LOAD CELLS - Fx Fy Fz Mx My Mz (U.S. & METRIC)

CHARACTERISTICS

See Drawing	MODEL												
	6A27	6A40			6A68					6A80			
	A	A	B	C	A	B	C	D	E	A	B	C	D
Fx (N)	50	200	500	50	1K	2K	5K	10K	10K	1K	2K	5K	500
Fy (N)	50	200	500	50	1K	2K	5K	10K	10K	1K	2K	5K	500
Fz (N)	200	500	2K	200	2K	4K	10K	20K	20K	2.5K	5K	15K	1K
Mx (Nm)	1	5	20	5	20	50	50	100	500	50	100	250	20
My (Nm)	1	5	20	5	20	50	50	100	500	50	100	250	20
Mz (Nm)	1	5	40	5	20	50	50	100	500	50	100	250	20
Diameter (mm)	Ø27	Ø60		Ø60	Ø83					Ø80			
Height (mm)	25	40		40	64					50			
Weight (g)	25	160	450	160	830 (500 w/o cable)		1050			450		1000	450
Material	SS	AL	SS		AL		SS			AL		SS	AL

See Drawing	MODEL							
	6A110				6A130			
	A	B	C	D	A	B	C	
Fx (N)	4K	10K	1K	8K	5K	15K	1K	
Fy (N)	4K	10K	1K	8K	5K	15K	1K	
Fz (N)	10K	25K	2.5K	20K	15K	50K	2.5K	
Mx (Nm)	250	750	100	500	500	1.2K	200	
My (Nm)	250	750	100	500	500	1.2K	200	
Mz (Nm)	250	750	100	500	500	1.2K	200	
Diameter (mm)	Ø110		Ø110	Ø110	Ø130		Ø130	
Height (mm)	60		60	60	80		80	
Weight (g)	880	1800	880	880	1500	3200	1500	
Material	AL	SS	AL	AL	AL	SS	AL	
Protection (IP)	65		65	65	65		65	

See Drawing	MODEL										
	6A150				6A154				6A175		
	A	B	C	D	A	B	C	D	A	B	C
Fx (N)	2K	4K	10K	30K	50	100	200	500	10K	20K	50K
Fy (N)	2K	4K	10K	30K	50	100	200	500	10K	20K	50K
Fz (N)	5K	10K	25K	90K	100	200	500	1K	20K	50K	100K
Mx (Nm)	200	500	1K	3K	5	10	20	50	1K	2K	5K
My (Nm)	200	500	1K	3K	5	10	20	50	1K	2K	5K
Mz (Nm)	200	500	1K	3K	5	10	20	50	1K	5K	10K
Diameter (mm)	Ø150				Ø154				Ø175		
Height (mm)	90				120				116		
Weight (g)	1500			5400	1400				11,000		
Material	AL			SS	AL				SS		
Protection (IP)	65				65				65		

Note: Higher capacities available upon request

6A27 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A27 (Shown)

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	6 x (M2x0.4) $\downarrow$ 4 $\vee$ 118°	6 x (M2x0.4) $\downarrow$ 0.2 $\vee$ 118°
(2)	$\varnothing$ 2 E7 $\downarrow$ 4	$\varnothing$ (0.0797/0.0793) $\downarrow$ 0.2
(3)	60°	
(4)	$\varnothing$ 27	$\varnothing$ 1.1
(5)	$\varnothing$ 23 (+0.000/-0.025)	$\varnothing$ 0.9 (+0.0000/-0.0010)
(6)	$\varnothing$ 20	$\varnothing$ 0.8
(7)	$\varnothing$ 17 (+0.10/+0.05)	$\varnothing$ 0.7 (+0.004/+0.002)
(8)	25	1.0
(9)	23	0.9
(10)	3.5	0.14
(11)	Bolting Surface / Measuring Platform	
(12)	Bolting Surface	

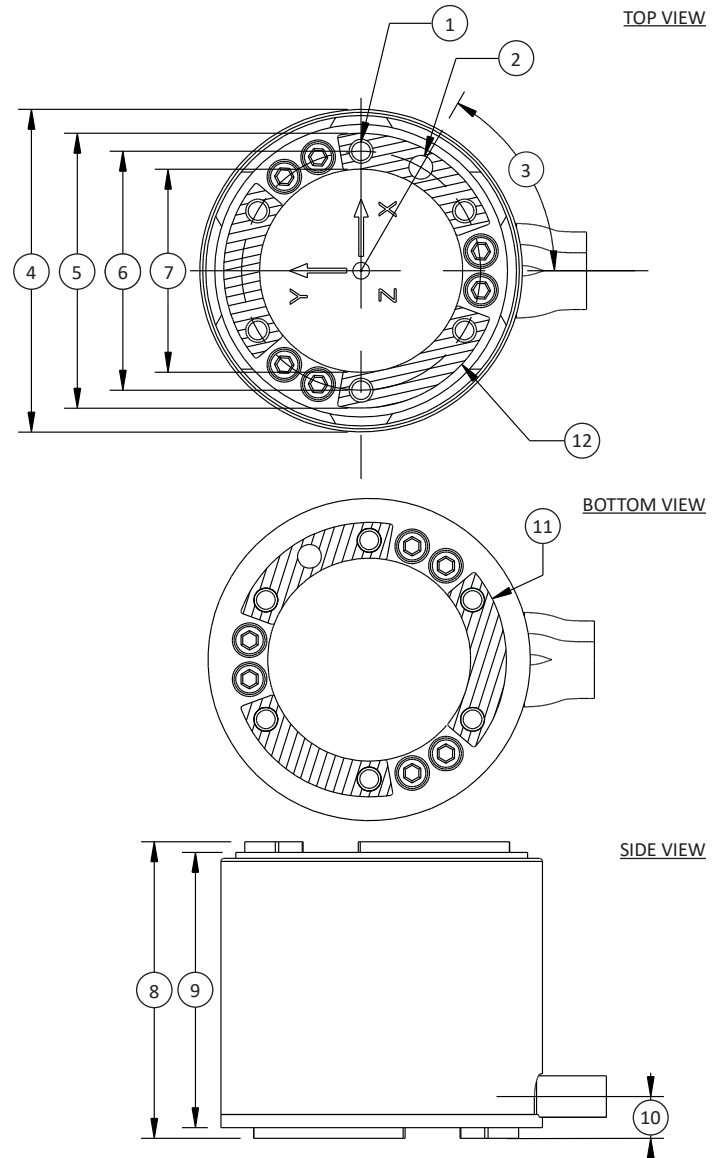
U.S. dimensions and capacities are provided for conversion only. Standard product will be sold in kN and Metric dimensions. U.S. capacities available upon special request and at an additional cost.

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

- 24-Pin M16
- 44-Pin High Density D-Sub



6A40 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A40 (Shown)

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	$\varnothing 3 \text{ E7 } \downarrow 7$	$\varnothing(0.1192/0.1187) \downarrow 0.3$
(2)	6 x (M5x0.8) $\downarrow 6$	6 x (M5x0.8) $\downarrow 0.2$
(3)	60°	
(4)	$\varnothing 60$	$\varnothing 2.4$
(5)	$\varnothing 52 (+0.000/-0.050)$	$\varnothing 2.0 (+0.0000/-0.0020)$
(6)	$\varnothing 47$	$\varnothing 1.9$
(7)	$\varnothing 42$	$\varnothing 1.7$
(8)	40	1.6
(9)	36	1.4
(10)	17	0.7
(11)	30	1.2
(12)	64	2.5
(13)	Bolting Surface / Measuring Platform	
(14)	Bolting Surface	

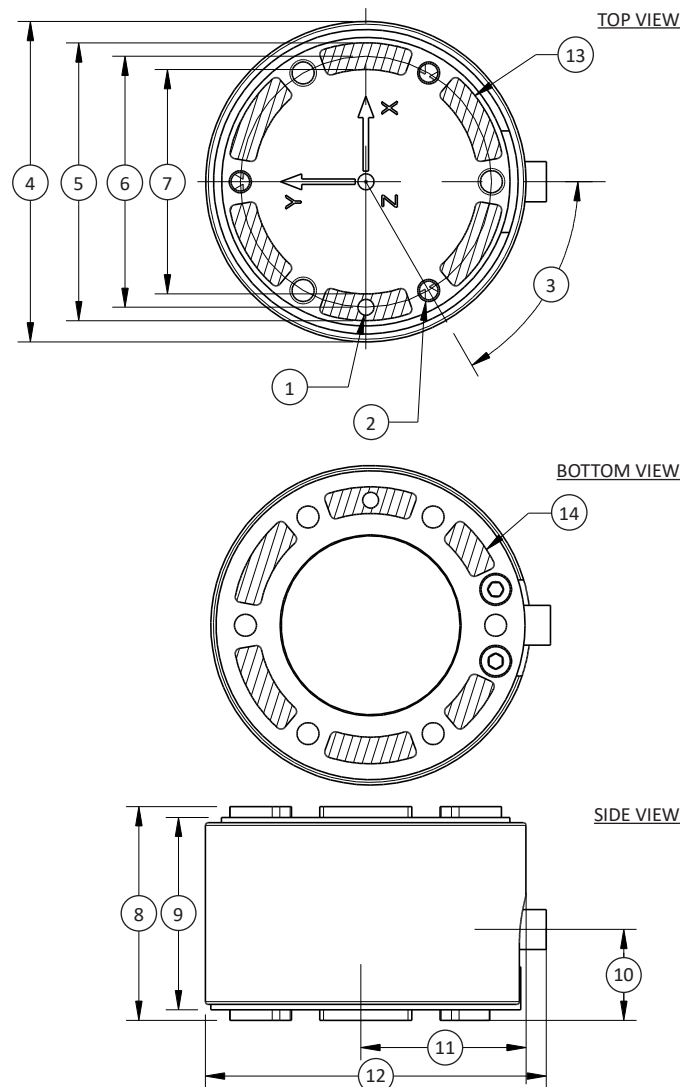
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APPLICATIONS

- Collision detection
- "Teach-In"
- Presence or error detection
- Medical / prosthetics / orthopedics
- Gait analysis
- Sports medicine
- Comfort / ergonomics

CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub



6A68 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A68 (Shown)

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	6 x (M10x1.5) ↓ 12	6 x (M10x1.5) ↓ 0.5
(2)	2 x Ø6 H7 ↓ 12	2 x Ø(0.2367/0.2362) ↓ 0.5
(3)	30°	
(4)	Ø84	Ø3.3
(5)	Ø69	Ø2.7
(6)	Ø65	Ø2.6
(7)	64	2.5
(8)	63	2.5
(9)	24	0.9
(10)	42	1.7
(11)	105 (+5)	4.1 (+0.2)
(12)	Bolting Surface / Measuring Platform	
(13)	Bolting Surface	

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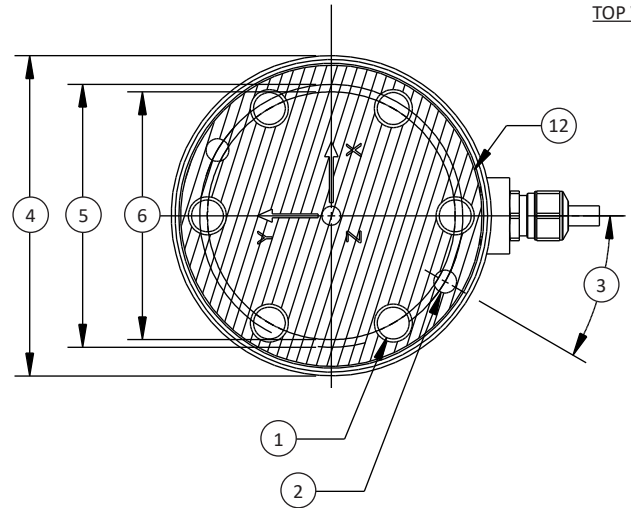
APPLICATIONS

- Collision detection
- "Teach-In"
- Presence or error detection
- Medical / prosthetics / orthopedics
- Gait analysis
- Sports medicine
- Comfort / ergonomics

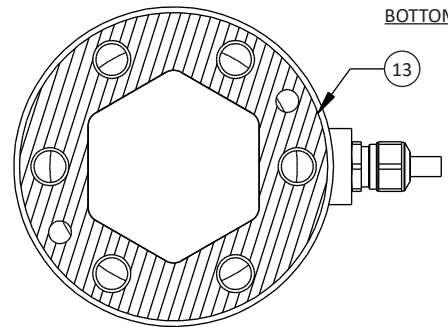
CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub

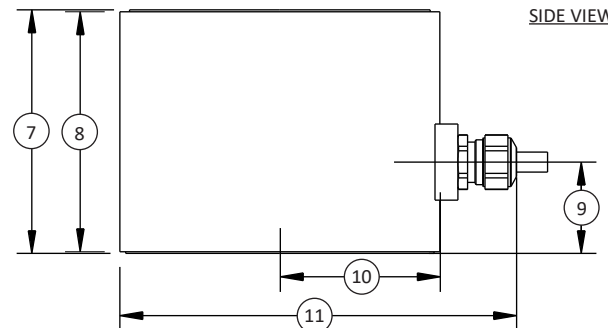
TOP VIEW



BOTTOM VIEW



SIDE VIEW



6A68 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

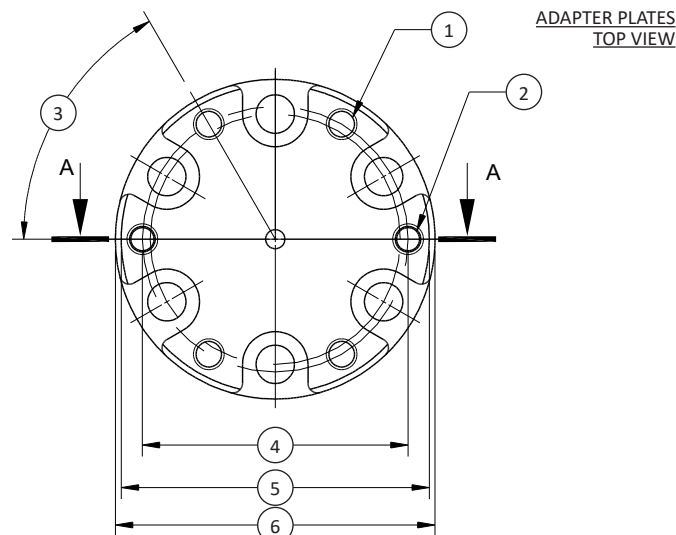
ADAPTER PLATES

- Two required per sensor
- Aluminum or stainless steel depending on capacity
- 6A68 only

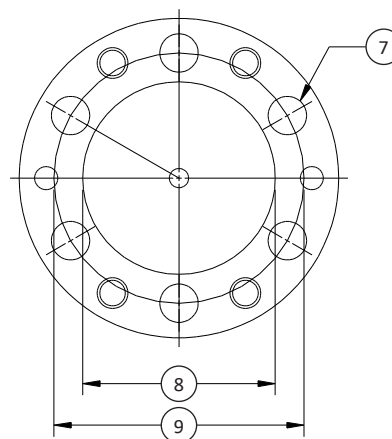
DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	4 x (M8x1.25) THRU	4 x (M8x1.25) THRU
(2)	2 x Ø6 H7 THRU, (M8x1.25) ↓ 12 √ 118°	2 x Ø(0.2367/0.2362) THRU, (M8x1.25) ↓ 0.5 √ 118°
(3)	6 x 60°	
(4)	Ø69	Ø2.7
(5)	Ø80 h7	Ø(3.1496/3.1484)
(6)	Ø83	Ø3.3
(7)	6 x Ø10 THRU	6 x Ø0.4 THRU
(8)	Ø50	2.0
(9)	Ø65	2.6
(10)	4	0.2
(11)	15	0.6
(12)	3	0.1
(13)	2	0.08
(14)	Ø6 H7	Ø(0.2367/0.2362)
(15)	12	0.5
(16)	Ø5 h7	Ø(0.1968/0.1964)
(17)	M8x1.25	⅜-24

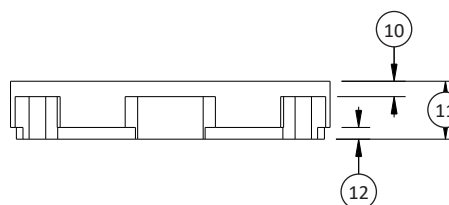
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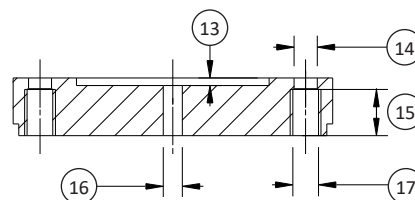
ADAPTER PLATES
TOP VIEW



ADAPTER PLATES
BOTTOM VIEW



ADAPTER PLATES
SIDE VIEW



ADAPTER PLATES
A-A SECTION
VIEW

Adapter Plates (Shown)

6A80 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A80 (Shown)

DIMENSIONS

See Drawing	Metric	U.S.
	mm	in
(1)	2 x $\varnothing 5$ E7 $\downarrow$ 6	2 x $\varnothing$ (0.1981/0.1976) $\downarrow$ 0.2
(2)	6 x (M8x1.25) $\downarrow$ 9	6 x (M8x1.25) $\downarrow$ 0.4
(3)	$\varnothing 80$	$\varnothing 3.1$
(4)	$\varnothing 75$	$\varnothing 3.0$
(5)	$\varnothing 60$	$\varnothing 2.4$
(6)	$\varnothing 45$ H8 $\downarrow$ 3	$\varnothing$ (1.7732/1.7716) $\downarrow$ 0.1
(7)		60°
(8)		45°
(9)	50	2.0
(10)	1	0.04
(11)	21.5	0.85
(12)	94 (+1)	3.7 (+0.04)
(13)	Bolting Surface / Measuring Platform	
(14)	Bolting Surface	
(15)	$\varnothing 45$ H8 – Spigot	$\varnothing$ (1.7732/1.7716) – Spigot

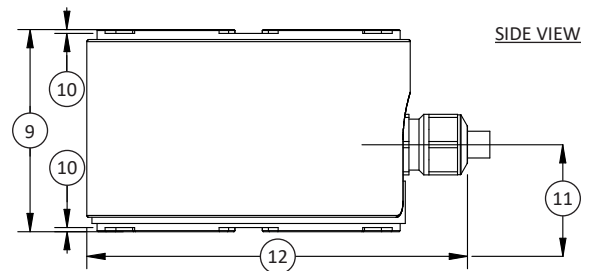
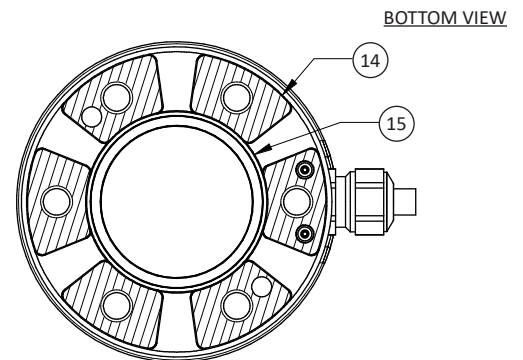
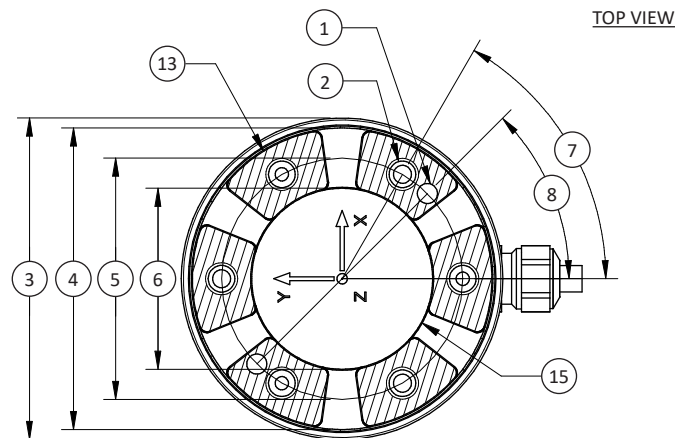
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APPLICATIONS

- Collision detection
- “Teach-In”
- Presence or error detection
- Medical / prosthetics / orthopedics
- Force or torque-controlled operation
- Sports medicine
- Comfort / ergonomics

CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub



6A110 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A110 (Shown)

DIMENSIONS

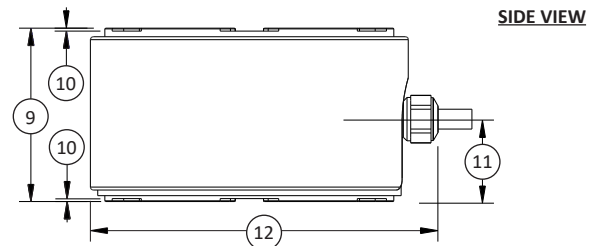
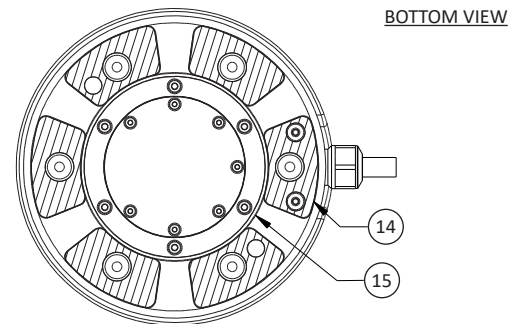
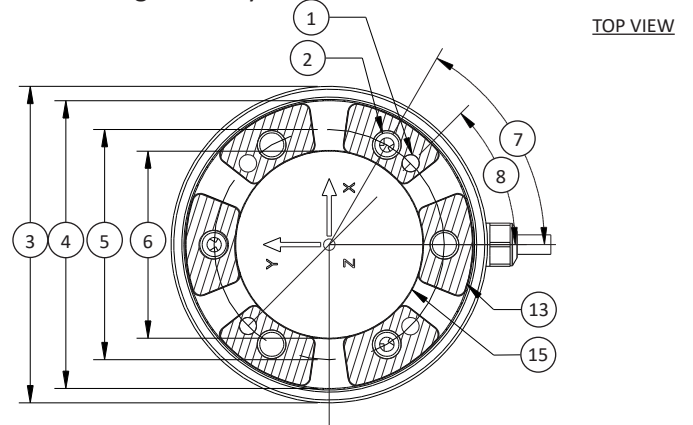
See Drawing	Metric	U.S.
	mm	in
(1)	2 x Ø6 E7 $\downarrow$ 10	2 x Ø(0.2375/0.2370) $\downarrow$ 0.4
(2)	6 x (M10x1.5) $\downarrow$ 10	6 x (M10x1.5) $\downarrow$ 0.4
(3)	Ø110	Ø4.3
(4)	Ø100	Ø3.9
(5)	Ø80	Ø3.1
(6)	Ø65 H8 $\downarrow$ 3	Ø(2.5609/2.5590) $\downarrow$ 0.1
(7)	60°	
(8)	45°	
(9)	60	2.4
(10)	1	0.04
(11)	28.5	1.12
(12)	120 (±1)	4.7 (±0.04)
(13)	Bolting Surface / Measuring Platform	
(14)	Bolting Surface	
(15)	Ø65 H8 – Spigot	Ø(2.5609/2.5590) – Spigot

APPLICATIONS

- Collision detection
- “Teach-In”
- Presence or error detection
- Medical / prosthetics / orthopedics
- Force or torque-controlled operation
- Sports medicine
- Comfort / ergonomics

CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub



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6A130 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A130 (Shown)

DIMENSIONS

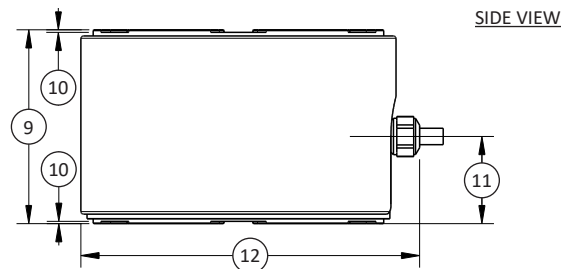
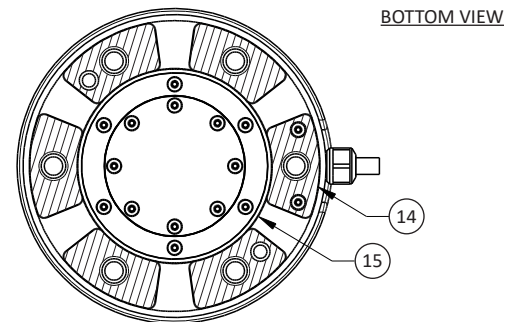
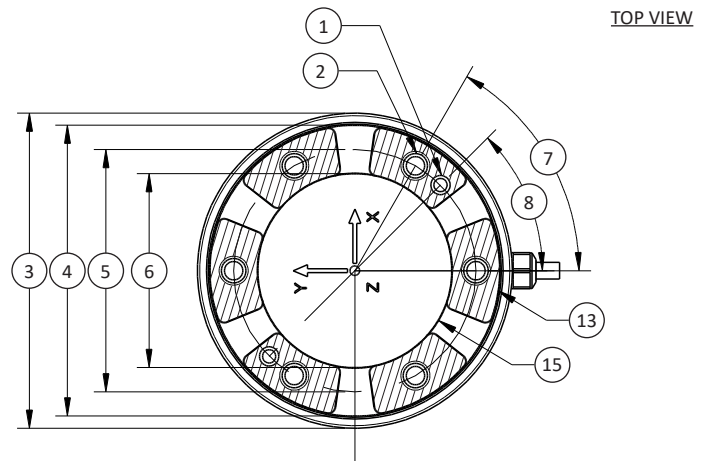
See Drawing	Metric	U.S.
	mm	in
(1)	2 x Ø8 E7 ↓ 15	2 x Ø(0.3165/0.3159) ↓ 0.6
(2)	6 x (M12x1.75) ↓ 15	6 x (M12x1.75) ↓ 0.6
(3)	Ø130	Ø5.1
(4)	Ø120	Ø4.7
(5)	Ø100	Ø3.9
(6)	Ø80 H8 ↓ 3	Ø(3.1514/3.1496) ↓ 0.1
(7)	60°	
(8)	45°	
(9)	80	3.1
(10)	1	0.04
(11)	36	1.4
(12)	140 (±1)	5.5 (±0.04)
(13)	Bolting Surface / Measuring Platform	
(14)	Bolting Surface	
(15)	Ø80 H8 – Spigot	Ø(3.1514/3.1496) – Spigot

APPLICATIONS

- Collision detection
- “Teach-In”
- Presence or error detection
- Medical / prosthetics / orthopedics
- Force or torque-controlled operation
- Sports medicine
- Comfort / ergonomics

CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub



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6A150 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A150 (Shown)

DIMENSIONS

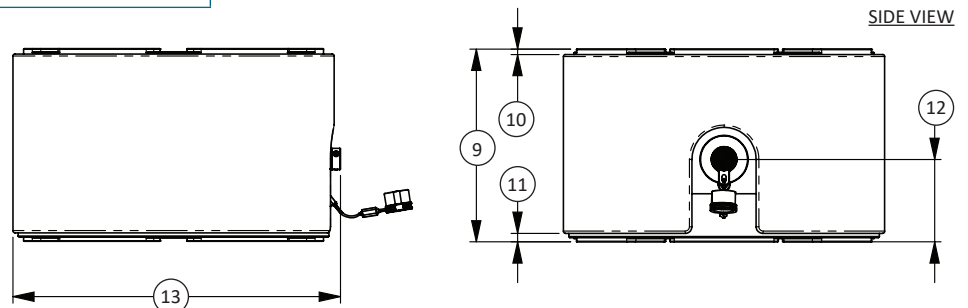
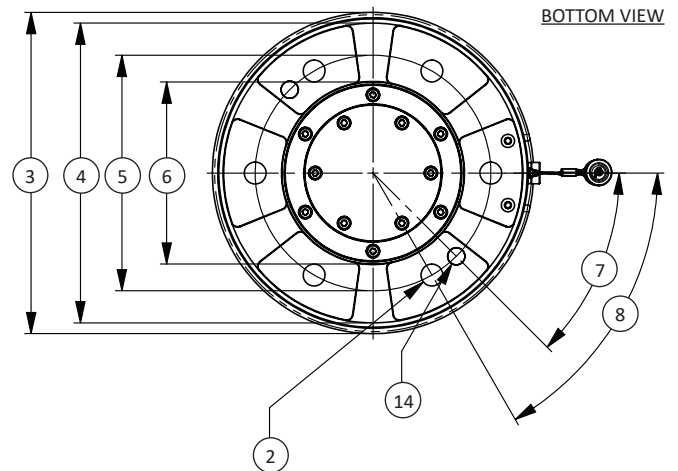
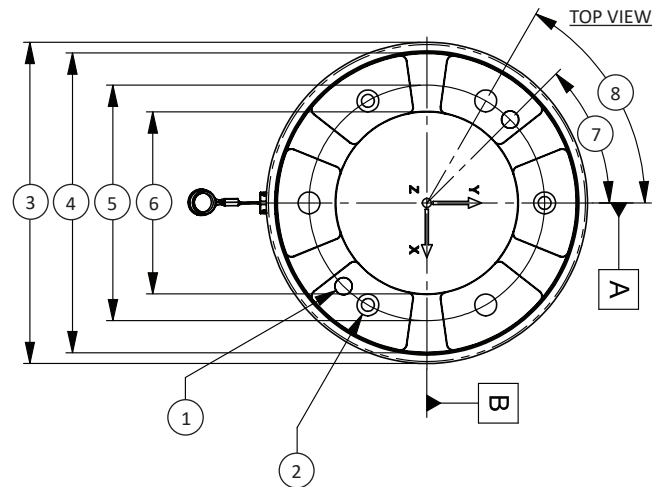
See Drawing	Metric	U.S.
	mm	in
(1)	+0.04 2x Ø8 E7 +0.03 ↓ 15 Ø8.05 X 90° Above ⊕ Ø0.02/A/B	+0.001 2x Ø0.3 E7 +0.001 ↓ 0.5 Ø0.31 X 90° Above ⊕ Ø0.0007/A/B
(2)	6x Ø10.20 ↓ 18 M12 - 6H ↓ 16	6x Ø0.4 ↓ 0.7 M12 - 6H ↓ 0.6
(3)	Ø150	Ø5.90
(4)	Ø140	Ø5.51
(5)	Ø110	Ø4.33
(6)	Ø85 H8	Ø3.3 H8
(7)	45°	45°
(8)	60°	60°
(9)	90	3.54
(10)	2.50	0.09
(11)	4	0.15
(12)	38.50	1.51
(13)	152.90	6.01
(1)	+0 2x Ø8 E7 +0 ↓ 15 Ø8.05 X 90° Above ⊕ Ø0.02/A/B	+0 2x Ø0.3 E7 +0 ↓ 0.5 Ø0.31 X 90° Above ⊕ Ø0.0007/A/B

APPLICATIONS

- Wind tunnel balances
- Combines low force with high moment capacity

CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub



6A154 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A154 (Shown)

DIMENSIONS

See Drawing	Metric mm	U.S. in
(1)	6 x (M6x1) $\downarrow$ 8	6 x (M6x1) $\downarrow$ 0.3
(2)	$\varnothing$ 6 E7 $\downarrow$ 8	$\varnothing$ (0.2375/0.2370) $\downarrow$ 0.3
(3)	$\varnothing$ 154	$\varnothing$ 6.1
(4)	$\varnothing$ 147	$\varnothing$ 5.8
(5)	$\varnothing$ 132 (+0.000/-0.025)	$\varnothing$ 5.2 (+0.0000/-0.0010)
(6)	$\varnothing$ 128	$\varnothing$ 5.0
(7)	60°	
(8)	30°	
(9)	$\varnothing$ 130	$\varnothing$ 5.1
(10)	100	3.9
(11)	96	3.8
(12)	28	1.1
(13)	77	3.0
(14)	158 (+4)	6.2 (+0.2)
(15)	Bolting Surface / Measuring Platform	
(16)	Bolting Surface	

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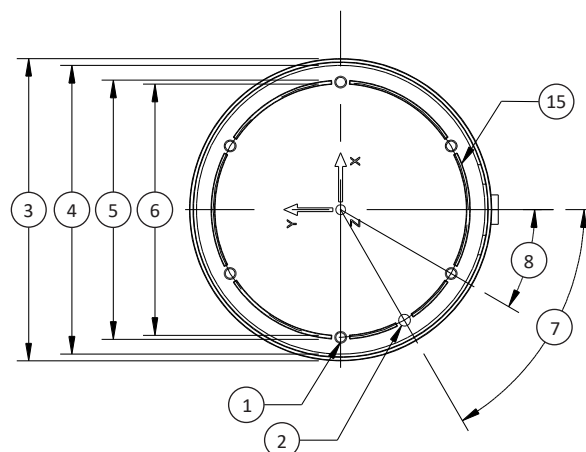
APPLICATIONS

- Wind tunnel balances
- Combines low force with high moment capacity

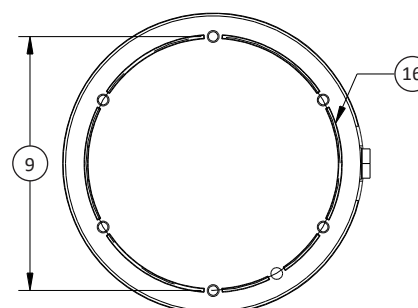
CONNECTOR OPTIONS

- 24-Pin M16
- 44-Pin High Density D-Sub

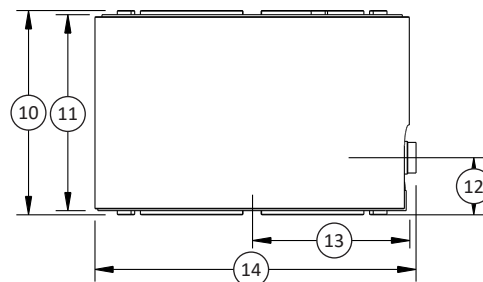
TOP VIEW



BOTTOM VIEW



SIDE VIEW



6A175 6-AXIS STANDARD CAPACITY LOAD CELL (U.S. & METRIC)

STANDARD CONFIGURATION



Model 6A175 (Shown)

DIMENSIONS

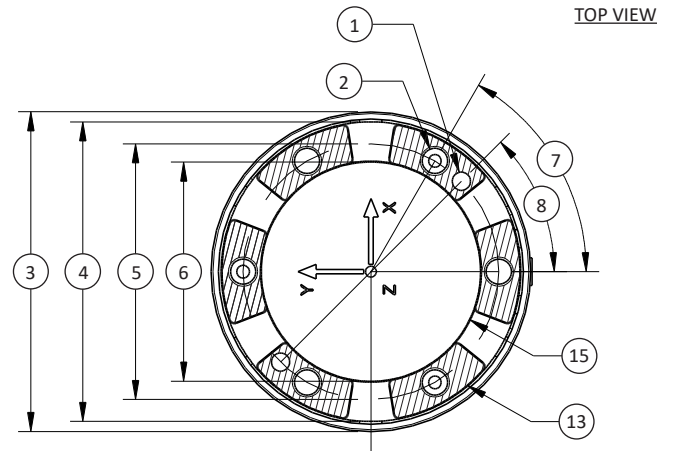
See Drawing	Metric	U.S.
	mm	in
(1)	2 x $\varnothing 10$ E7 $\downarrow$ 25	2 x $\varnothing(0.3953/0.3947)$ $\downarrow$ 1.0
(2)	6 x (M16x2) $\downarrow$ 25	6 x (M16x2) $\downarrow$ 1.0
(3)	$\varnothing 175$	$\varnothing 6.9$
(4)	$\varnothing 164$	$\varnothing 6.5$
(5)	$\varnothing 140$	$\varnothing 5.5$
(6)	$\varnothing 10$ H8 $\downarrow$ 4	$\varnothing(4.7265/4.7244)$ $\downarrow$ 0.2
(7)	60°	
(8)	45°	
(9)	110	4.3
(10)	1.7	0.07
(11)	46	1.8
(12)	176 (+3)	6.9 (+0.1)
(13)	Bolting Surface / Measuring Platform	
(14)	Bolting Surface	
(15)	$\varnothing 120$ H8 – Spigot	$\varnothing(4.7265/4.7244)$ – Spigot

APPLICATIONS

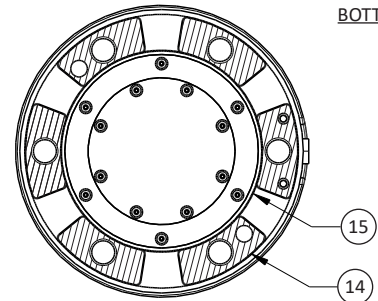
- Automation and robotics
- Press force
- Seismic studies

CONNECTOR OPTIONS

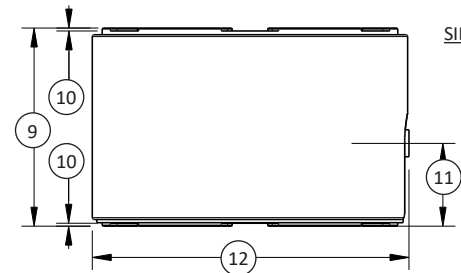
- 24-Pin M16
- 44-Pin High Density D-Sub



BOTTOM VIEW



SIDE VIEW



U.S. dimensions and capacities are provided for conversion only. Standard product will be sold in kN and Metric dimensions. U.S. capacities available upon special request and at an additional cost.