

MAGPOWRA Maxcess
International
Company

GTS

Global Load Cells



KEY FEATURES

Accurate load measurement in rugged environments

When installed at both ends of a sensing roll, GTS Load Cells accurately measure the total web tension force acting on the roll, independent of web width or location. Built for extreme environments, the GTS family of load cells are ideal for applications ranging from 5 kg to 15,000 kg (11 lbs to 33,000 lbs). IP67 Protection ensures reliable operation in applications where wash-down and submersion up to 1 meter (3.28 ft) are required.

GTS Load Cells are easily added to an existing line. Top plate adapter kits are also available for special applications.

SPECS

General Specifications

Gage Resistance: 350 Ω

Excitation Voltage: 10 VDC nominal

Output Signal: 21 mVDC nominal per load cell at full load rating

Operating Temperature:
-30° to 95° C (-22° to 203° F)

Temp. Effect on Zero:
.02% of rating per °C

Combined Non-linearity and Hysteresis:
0.5% of full scale maximum

Repeatability: 0.2% of full scale maximum

Overload Stops:
Compression: 105% to 150% of full load
Tension: GTS Models A & B only

Climate Class: 3K4 (EN60721)

Protection Class: IP67 (EN60529)

Deflection at Full Load:

All GTSA = 0.38 mm (0.015 inch)
GTSB 220 & 550 = 0.23 mm (0.009 inch)
GTSB1100 = 0.15 mm (0.006 inch)
GTSB2200 = 0.38 mm (0.015 inch)
All GTSC = 0.30 mm (0.012 inch)

MAGPOWR Mating Cable Assembly:

Part #SCE-15 or Connector Part #12A36-1
(pin A, + power; pin B, + signal;
pin C, - signal; pin D, - power)

Connector: PT01P-10-6P-SR

Weight

GTSA = 1.4 kg (3 lbs)
GTSB = 3.4 kg (7.5 lbs)
GTSC = 23.8 kg (52.5 lbs)

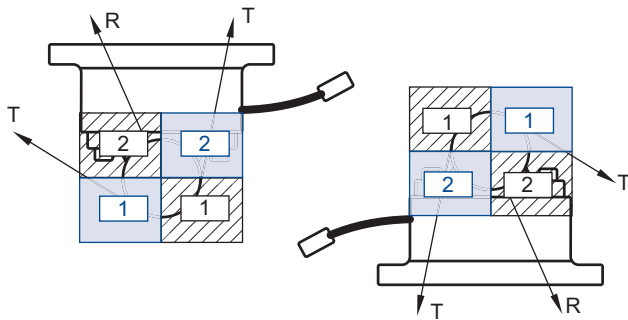


Key Features:

- Four sizes with thirteen sensing ranges to 15,000 kg (33,000 lbs)
- Fast Delivery
- Rugged construction and IP67 rating for harsh environments
- Positive overload stops prevent load cell damage
- Full Wheatstone Bridge ensures the highest levels of accuracy to reduce scrap and increase efficiency
- Pre-drilled and tapped for easy mounting to existing pillow block bearings
- Compatible with all MAGPOWR tension controls including Cygnus, which features weightless load cell calibration

Selection Process

FOR LOADS UP TO 1,000 KG (2,200 LB) REFER TO QUADRANTS IN BLACK
FOR LOADS OVER 1,000 KG (2,200 LB) REFER TO QUADRANTS IN BLUE

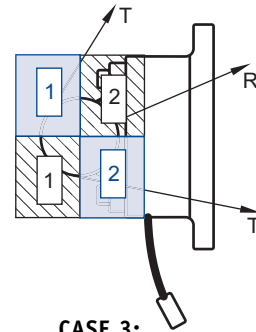


CASE 1:

- + For resultant in quadrant 1
- For resultant in quadrant 2 (shown)

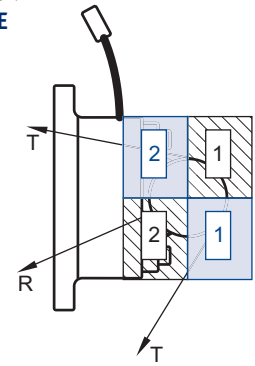
CASE 2:

- For resultant in quadrant 1
- + For resultant in quadrant 2 (shown)



CASE 3:

- + For resultant in quadrant 1
- For resultant in quadrant 2 (shown)



CASE 4:

- For resultant in quadrant 1
- + For resultant in quadrant 2 (shown)

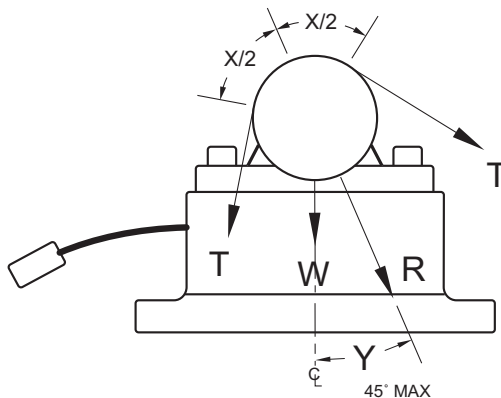
Step 1 Select the mounting orientation which resembles your application from the examples shown above.

Step 2 Using your known maximum tension, roll weight and angles as shown below, apply the following equation to calculate a "load rating" L.

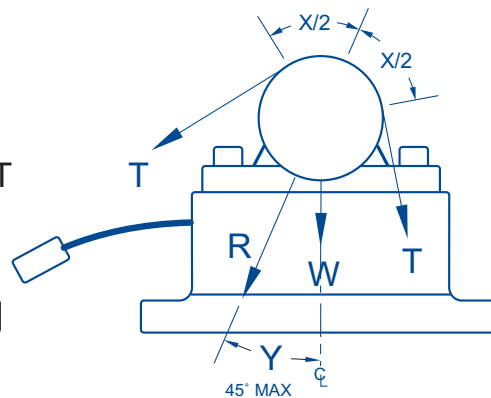
$$L = 2 T \sin(X/2) (\cos Y + \sin Y) \pm (W/2)$$

SEE CASES ABOVE (RESULTANT FORCE DIRECTION MUST BE IN QUADRANTS 1 OR 2)

FOR LOADS UP TO 1,000 KG (2,200 LB)



FOR LOADS OVER 1,000 KG (2,200 LB)



- L = SENSOR LOAD RATING
- T = MAXIMUM TENSION
- R = RESULTANT FORCE DUE TO TENSION
- W = ROLL WEIGHT
- X = WRAP ANGLE
- Y = ANGLE BETWEEN RESULTANT FORCE DIRECTION AND THE CENTERLINE OF THE LOAD CELL

NOTES: Angle Y cannot exceed 45°. The second term (roll weight "W") of the equation must not exceed 50% of the selected load cell rating. If it does exceed 50%, select the next larger load rating unit. When the resultant force (R) is pulling in a direction away from the load cell, the signal leads must be reversed at the terminal block of the control.

Step 3 Select a pair of load cells from the charts below with a total load rating greater than that calculated.

Example:

In case 2 (left), T=700 kg, X=180°, Y=30°, w=400 kg
 then:
 $L=2T \sin(X/2)(\cos Y + \sin Y) + w/2$
 $L=2(700)\sin 90^\circ(\cos 30^\circ + \sin 30^\circ) + 200$
 $L=1,400(1)(0.866 + 0.500) + 200$
 $L=2,112 \text{ kg}$

Select a pair of GTSC2500M Load Cells

Sine/Cosine Functions

Degrees	Sine	Cosine	Degrees	Sine	Cosine
0	.0000	1.000	50	.7660	.6428
5	.0872	.9962	55	.8192	.5736
10	.1736	.9848	60	.8660	.5000
15	.2588	.9659	65	.9063	.4226
20	.3420	.9397	70	.9397	.3420
25	.4226	.9063	75	.9659	.2588
30	.5000	.8660	80	.9849	.1736
35	.5736	.8192	85	.9962	.0872
40	.6428	.7660	90	1.000	.0000
45	.7071	.7071			

Ordering Information

Order two load cells, one for each side of the sensing roll. GTS A and B Model Load Cells are available in both imperial and metric load ratings. Metric models carry an "M" designation after the load rating, which is in kilograms, with metric tapped holes to match standard pillow block housings. Imperial series load ratings are in pounds with inch dimension tapped holes in the top plate to match standard inch series pillow block housings.

Metric Series:

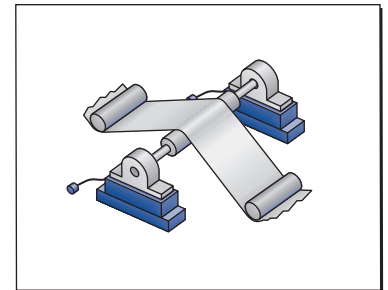
Model Number	Load Rating
GTSA-5M	5 kg
GTSA-10M	10 kg
GTSA-25M	25 kg
GTSA-50M	50 kg
GTSB-100M	100 kg
GTSB-250M	250 kg
GTSB-500M	500 kg
GTSB-1000M	1000 kg
GTSC-2500M	2500 kg
GTSC-5000M	5000 kg
GTSC-7500M	7500 kg

Imperial Series:

Model Number	Load Rating
GTSA-11	11 lbs
GTSA-22	22 lbs
GTSA-55	55 lbs
GTSA-110	110 lbs
GTSB-220	220 lbs
GTSB-550	550 lbs
GTSB-1100	1100 lbs
GTSB-2200	2200 lbs

Top Plate Adapter Kits:

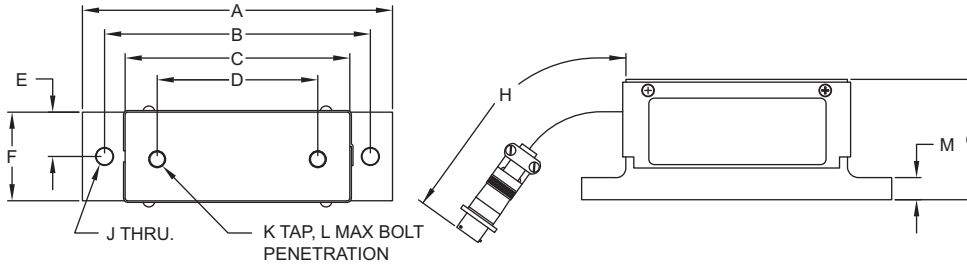
Due to the large number of metric pillow blocks, and in keeping with metric practices, mounting adapter kits are available for metric series load cells. Order one kit for each load cell. Metric model load cells are pre-tapped to receive the correct adapter kit.



Model Number	Description	Weight
TA1	11 mm T-Slot Kit for GTSAM; includes 2 rails and 4 screws	0.14 kg (0.3 lbs)
TA2	12 mm T-Slot Kit for GTSAM; includes 2 rails and 4 screws	0.18 kg (0.4 lbs)
TA3	Blank Top Plate Kit for GTSBM; includes plate and 4 screws	0.9 kg (1.9 lbs)
TA4	Blank Top Plate Kit for GTSCM; includes 4 M16 screws	10.3 kg (22.7 lbs)
BA1	Bottom Plate Kit for GTSCM; 410 x 70 mm mounting holes includes 6 M16 screws	11.7 kg (25.7 lbs)
BA2	Bottom Plate Kit for GTSCM; 254 x 76 mm mounting holes includes 6 M16 screws	9.1 kg (20.0 lbs)

Dimensions

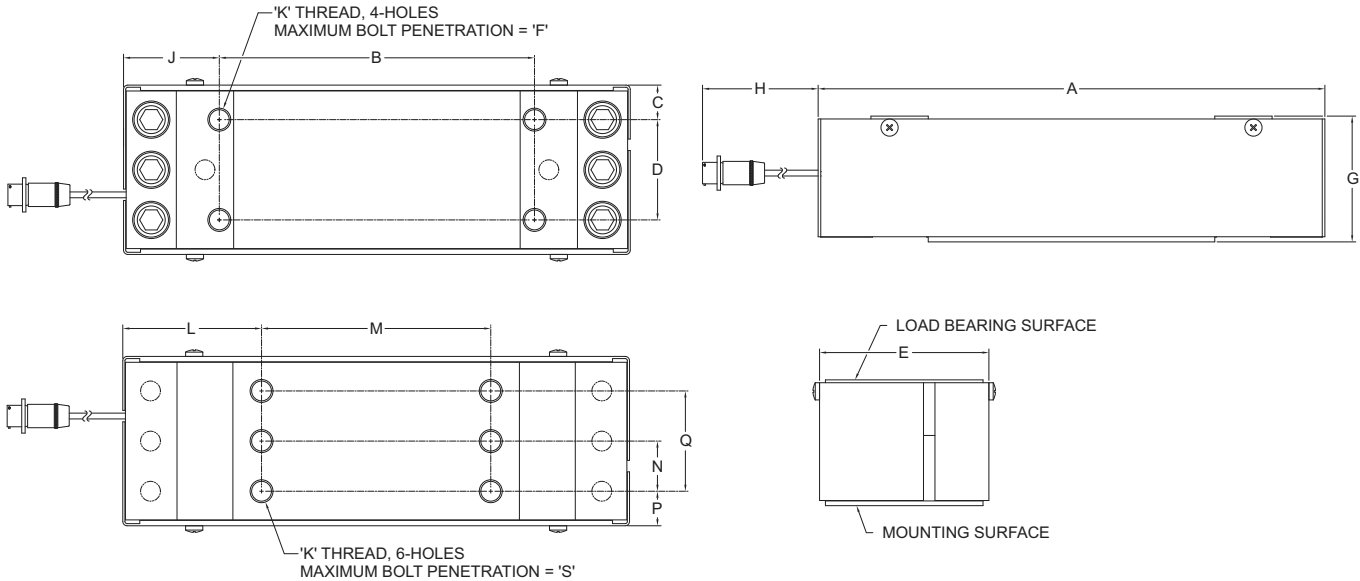
G TSA and G TSB Load Cells



Dimensions (inches in shaded area)

MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S
GTSAM	184	162	127	95	25	51	64	152	11	M10 x 1.5	16	13	-	-	-	-
G TSA	7.25	6.375	5.0	3.750	1.00	2.00	2.50	6.0	.422	3/8-16	.63	.50	-	-	-	-
GTSBM	284	254	203	159	32	64	99	305	13	M12 x 1.75	25	25	-	-	-	-
G TSB	11.19	10.00	8.0	6.250	1.25	2.50	3.88	12	.500	7/16-14	1.00	1.00	-	-	-	-
GTSCM	353.7	220	24.1	70	118.2	23	87.8	152	66.9	M16x2-8H	96.9	160	35	24.1	70	40
	13.93	8.661	0.95	2.756	4.65	0.98	3.46	6.0	2.63	M16x2-8H	3.81	6.299	1.378	0.95	2.756	1.57

GTSC Load Cells



A Maxcess International Company

MAGPOWR North America
 222 West Memorial Road
 Oklahoma City, OK 73114, USA
 Phone: 405-755-1600
 Fax: 405-755-8425
 E-mail: magpowr@magpowr.com
 Web: www.magpowr.com

Maxcess Europe
 Fifestrasse 1, D-65779
 Kelkheim/Ts., Germany
 Phone: (49) 6195-7002-0
 Fax: (49) 6195-7002-933
 E-mail: info@maxcess.eu

Maxcess Asia
 300 Orchard Road No. 15-05
 Orchard Towers
 Singapore 238875
 Phone: (65) 6834-1998
 Fax: (65) 6835-4818
 E-mail: asia@maxcessintl.com



MAXCESS INTERNATIONAL COMPANIES



GUIDING · INSPECTION
 1-800-639-3433
 (405) 755-1600



TENSION CONTROL
 1-800-MAGPOWR
 (405) 755-1600



SLITTING · WINDING
 1-800-426-1000
 (360) 834-2345