

MAXCESS

MAGPOWR



TIDLAND



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 10kg to 15000kg (22 lbs to 33000 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.

GENERAL SPECIFICATIONS

Gage Resistance:
350Ω

Excitation Voltage:
10VDC 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:
0.02% of rating per °C

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

Repeatability:
0.2% of full scale maximum

Overload Stops:
105% to 150% of full load Tension for GTSa, GTSB

Climate Class:
3K4 (EN60721)

Protection Class:
IP67 (EN60529)

Weight:
GTSa = 1.4 kg (3 lbs)
GTSB = 3.4 kg (7.5 lbs)
GTSa = 23.8 kg (52.5 lbs)
GTSd = 60.3 kg (133 lbs)
TA1 = 0.14 kg (0.3 lb)
TA2 = 0.18 kg (0.4 lb)
TA3 = 0.9 kg (1.9 lb)
TA4 = 10.3 kg (22.7 lbs)
TA5 = 32.9 kg (72.5 lbs)

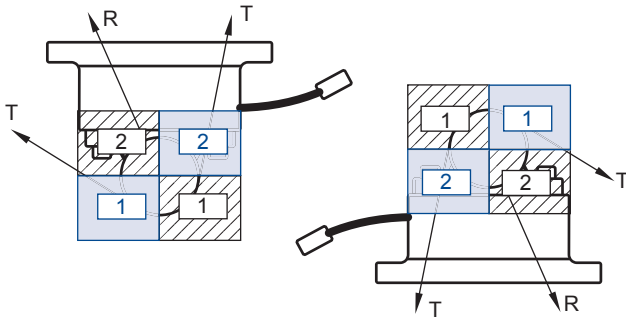
Connector:
GTSa; GTSB: M12-connector
pin 1, + power; pin 2, + signal;
pin 3, - signal; pin 4, - power
GTSa, GTSd: PT01P-10-6P-SR
pin A, + power; pin B, + signal;
pin C, - signal; pin D, - power

KEY FEATURES

- Four sizes with twelve sensing ranges from 10 kg to 15000 kg (22 lbs to 33000 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 1000 KG (2200 LB) REFER TO QUADRANTS IN BLACK
FOR LOADS OVER 1000 KG (2200 LB) REFER TO QUADRANTS IN BLUE

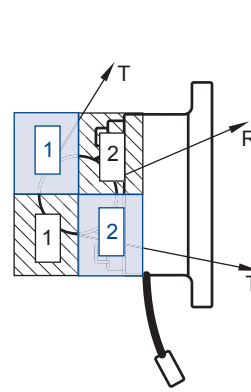


CASE 1:

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

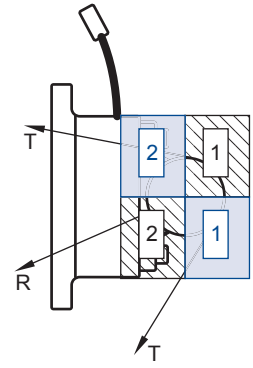
CASE 2:

- 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.

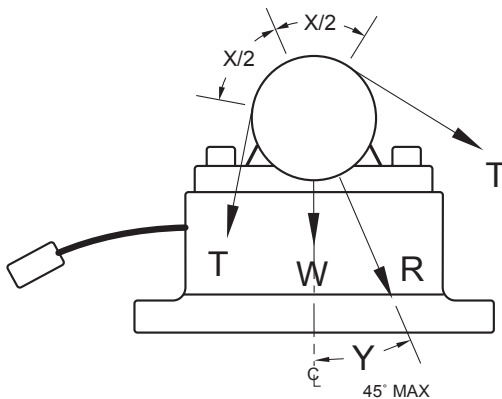
Step 2: Using your known maximum tension, roll weight and angles as shown below, apply the following equation to calculate a "load rating" L.

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

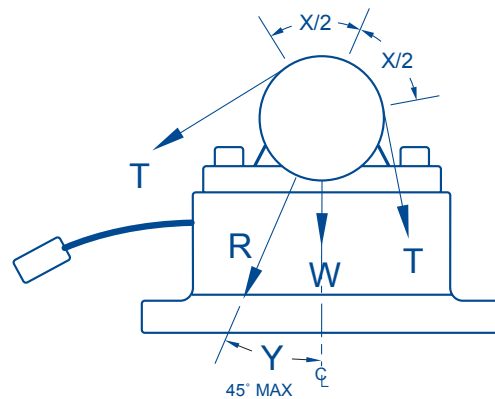
↳ See cases ABOVE

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

FOR LOADS UP TO 1000KG (2200LB)



FOR LOADS OVER 1000KG (2200LB)



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:

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

$$L = 2(700 \text{ kg}) \sin 90^\circ (\cos 30^\circ + \sin 30^\circ) + 200 \text{ kg}$$

$$L = 1400 \text{ kg} (1) (0.866 + 0.500) + 200 \text{ kg}$$

$$L = 2112 \text{ kg}$$

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

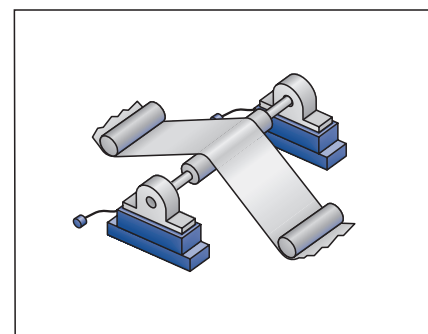
Order two load cells, one for each side of the sensing roll. GTS A and B Model Load Cells are available in both imperial and metric load ratings. Metric models carry an “M” designation after the load rating, which is in kilograms, with metric tapped holes to match standard pillow block housings. Imperial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

MODEL NUMBER	LOAD RATING
GTSA10-EC12M	10 kg
GTSA25-EC12M	25 kg
GTSA50-EC12M	50 kg
GTSB100-EC12M	100 kg
GTSB250-EC12M	250 kg
GTSB500-EC12M	500 kg
GTSB1000-EC12M	1000 kg
GTSC-2500M	2500 kg
GTSC-5000M	5000 kg
GTSC-7500M	7500 kg
GTSD-10000M	10000 kg
GTSD-15000M	15000 kg

MODEL NUMBER	LOAD RATING
GTSA22-EC12	22 lbs
GTSA55-EC12	55 lbs
GTSA110-EC12	110 lbs
GTSB220-EC12	220 lbs
GTSB550-EC12	550 lbs
GTSB1100-EC12	1100 lbs
GTSB2200-EC12	2200 lbs

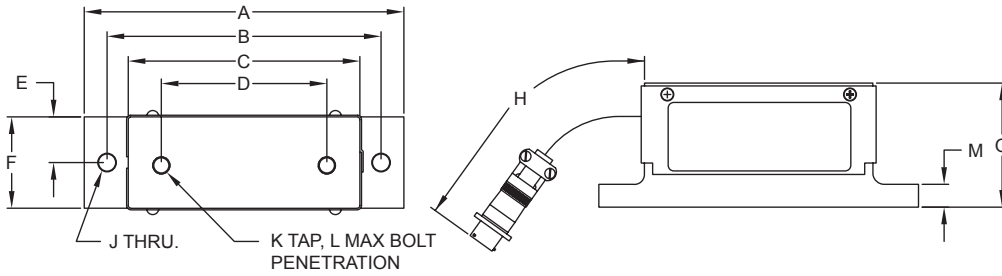
Top Plate Adapter Kits:

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)
TA5	Blank Top Plate Kit for GTSDM; includes 4 M24 screws	32.9 kg (72.5 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)

GTSA AND GTSB LOAD CELLS



MODEL	A	B	C	D	E	F	G	H	J	K	L	M
GTSA-EC12M	184	162	127	95	25	51	64	152	11	M10 x 1.5	16	13
GTSA-EC12	7.25	6.375	5.0	3.750	1.00	2.00	2.50	6.0	.422	3/8-16	.63	.50
GTSB-EC12M	284	254	203	159	32	64	99	305	13	M12 x 1.75	25	25
GTSB-EC12	11.19	10.00	8.0	6.250	1.25	2.50	3.88	12	.500	7/16-14	1.00	1.00

Dimensions shown in mm (inches in shaded area).

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)

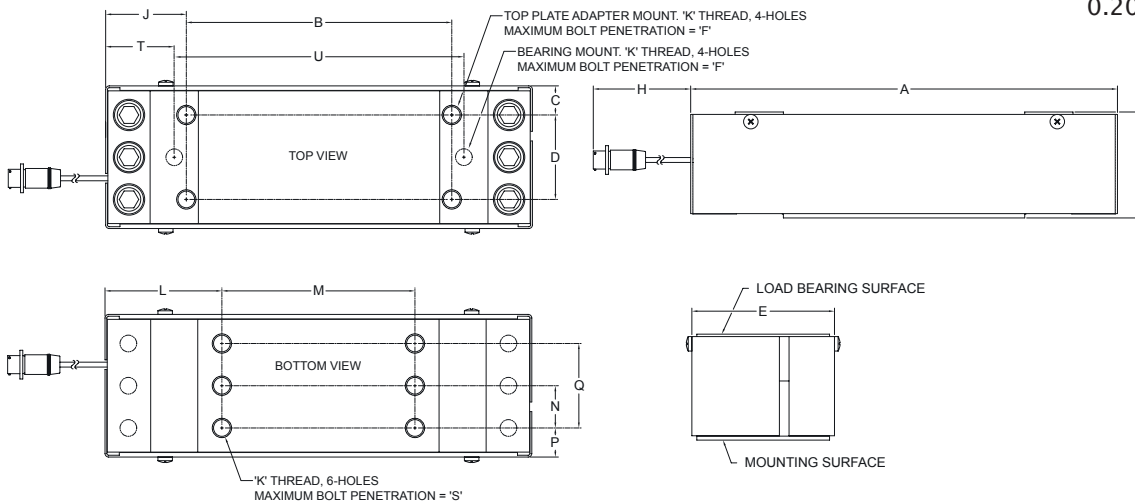
GTSD10000

0.152 mm (0.006 inch)

GTSD15000

0.203 mm (0.0084 inch)

GTSC AND GTSD LOAD CELLS



MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	S	T	U
GTSCM	357.7	220	23.1	70	116.2	23	87.8	152	68.85	M16x2-6H	98.85	160	35	23.1	70	40	63.85	230
GTSCM	14.08	8.661	0.95	2.756	4.57	0.98	3.46	6.0	2.71	M16x2-6H	3.89	6.299	1.378	0.91	2.756	1.57	2.51	9.06
GTSDM	541	390	27.6	114	169.2	34	95	152	75.5	M24x2-6H	140.5	260	57	27.6	114	40	95.5	350
GTSDM	21.3	15.35	1.09	4.49	6.66	1.34	3.74	5.98	2.97	M24x2-6H	5.53	10.24	2.24	1.09	4.49	1.57	3.76	13.78

Dimensions shown in mm (inches in shaded area).



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