

# MODELS 2208 and 2209 COMPACT, HIGH CAPACITY SQUARE DRIVE REACTION TORQUEMETERS

300,000 to 3,000,000 lbf-in (33.9 kNm to 339 kNm)

These strain gage torque meters are calibrated CW and CCW to full rated load in our NVLAP accredited laboratory (Lab Code 200487-0\*). A NVLAP approved Calibration Certificate documenting NIST traceability is supplied. Their low weight and compact size simplify installation

and handling. The design yields high stiffness, very high overload and high extraneous load capacity. See Bulletin 770 for reaction torque measurement theory and definition of extraneous loads.

\* See our website or follow the "Lab Accreditation" link at [www.NIST.gov](http://www.NIST.gov) for details.

## Standard Ratings

MODEL No.	TORQUE RANGE		TORQUE OVERLOAD		TORSIONAL STIFFNESS <sup>1</sup>		MAXIMUM WEIGHT (lb)	MAXIMUM EXTRANEOUS LOADS	
	(lbf-in)	(N-m)	(lbf-in)	(N-m)	(lbf-in/rad)	(N-m/rad)		THRUST (F) <sup>2</sup> (lbf)	BENDING MOMENT <sup>2</sup> (lbf-in)
2208(3-5)	300,000	33,900	600,000	67,800	52,200,000	5,898,000	57	400,000	400,000
2208(6-5)	600,000	67,800	1,200,000	135,600	56,600,000	6,395,000			
2208(12-5)	1,200,000	135,600	2,400,000	271,000	57,200,000	6,460,000			
2209(18-5)	1,800,000	203,000	3,600,000	407,000	171,000,000	19,320,000	166	1,500,000	1,500,000
2209(24-5)	2,400,000	271,000	4,800,000	542,000	207,000,000	23,390,000			
2209(3-6)	3,000,000	339,000	6,000,000	678,000	220,000,000	24,856,000			

NOTES: 1. Conservatively rated from end-to-end. 2. See Bulletin 770 for definition of extraneous loads.

**Pinout**

A = +Exc.      D = -Exc.  
 B = +Exc. Sen.      E = - Sig.  
 C = -Exc. Sen.      F = +Sig.

Use Model 708 to display one Torque or Model 788 for two Torques.

MODEL	A	B	C	D	E	F	G	H	J
2208	10 3/4	3 1/2	3 3/4	3 1/4	1 7/8	6	3 7/8	4 31/32	4
2209	16	5 1/2	5	5	2 1/2	8 1/2	5 1/8	7 1/2	5 1/2

## Specifications

**Bridge Impedance:** (Ohms, Nominal) ..... 350  
**Output:** (mV/V, Nominal) ..... 3  
**Zero Unbalance:** (% of Range) ..... ≤ ±1  
**Nonlinearity** (% of Range) ≤ 0.25 except 0.5 for Model 2208(12-5)  
**Hysteresis** (% of Range) . ≤ 0.25 except 0.5 for Model 2208(12-5)  
**Nonrepeatability:** (% of Full Scale) ..... ≤ ±0.05

### Temperature Effects

**Zero Drift:** (% of Full Scale/Degree F) ..... ≤ ±0.002  
**Span Drift:** (% of Reading/Degree F) ..... ≤ ±0.002  
**Compensated Temperature Range:** (Degrees F) +75 to +175  
**Usable Temperature Range:** (Degrees F) ..... - 65 to +225  
**Maximum Excitation:** (Volts, ac or dc) ..... 15

Specifications and dimensions are subject to change without notice. Certified drawings are available on request.

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