



S. HIMMELSTEIN & COMPANY

FOR IMMEDIATE RELEASE

How Using a More Precise Torquemeter Can Often Save Time and Money

Consider an installation to measure the output Torque and Power of 1,725 rpm 10, 25 and 50 HP Electric Motors to within 1.0%. The table below summarizes the expected torque and maximum acceptable torque error.

DUT Rating	DUT Rated Torque	Allowable Torque Error
10 HP	365.4 lbf-in	3.65 lbf-in
25 HP	913.4 lbf-in	9.13 lbf-in
50 HP	1,827 lbf-in	18.27 lbf-in



Torque and Speed requirements are readily met with Himmelstein's low cost [MCRT® 48200V](#) Compact Digital Torquemeters equipped with a zero velocity speed pickup. They output torque in digital and analog form and speed as a pulse train. In summary:

Combined Error for the 10 HP Motor using the 500 lbf-in MCRT® 48202V(5-2)CZ is ≤ 0.75 lbf-in
Combined Error for the 25 HP Motor using the 1,000 lbf-in MCRT® 48202V(1-3)NZ is ≤ 2.0 lbf-in
Combined Error for the 50 HP Motor using the 2,000 lbf-in MCRT® 48203V(2-3)NZ is ≤ 4.0 lbf-in

The combined error of each is less than a fourth of the allowable torque error. *That provides **the error margin** needed to accommodate unknown field test variables such as extraneous loads, temperature gradients, etc.* Read previous [newsletter](#).

Should you procure an alternate data acquisition/display including a Speed Signal Conditioner, Power Computation and interconnect cables, the cost is \$11,025. If Himmelstein manufactures a complete system consisting of 3 torquemeters, a [Model 723+](#) local digital display which includes speed conditioning and HP computation, and speed and torque cables, the cost becomes \$13,500.



Alternately, Himmelstein can furnish a single, standard grade MCRT® 48802V(2-3)NFZ Ultra-Precise torquemeter rated 2,000 lbf-in with combined error ≤ 0.8 lbf-in. The [MCRT® 48802V\(2-3\)NFZ](#) outputs digital data and analog voltages of motor **Torque**, **Speed**, and **Power** and exceeds all of the above requirements. Its low combined error provides greater error margins for the 25 and 50 HP tests than the low cost Sensors.

Moreover, use of the Himmelstein MCRT® 48802V(2-3)NFZ avoids the time and cost needed to remove the torquemeter,



change couplings, etc. and there's no need to re-install different torque meters and couplings when the motor size changes. What's more, not only does it eliminate the need for you to supply speed and power signal conditioning, it adds many powerful and useful signal processing functions. Its cost is \$5,850 which, in addition to ongoing operating savings, produces out-of-pocket savings of \$5,175 to \$7,650 or 47 to 57 percent.

Finally, like all modern Himmelstein digitally based torque sensors, the MCRT[®] 48800V Series has high overrange which avoids the risk of significant errors caused by clipped torque peaks at or near full scale. See [application note](#). Other advantages compared to the low cost alternative are extended operating temperatures, superior temperature compensation, low long term drift and more. Torque ranges from 25 to 375,000 lbf-in are offered.

In summary, using a precision sensor can reduce the quantity needed, lower cost and improve test efficiency. That's because a precision device satisfies accuracy goals over a wider torque range than a less precise one.

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Application Note 20805B

OVERRANGE, A CRUCIAL ROTARY TORQUEMETER PARAMETER



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Established in 1960, S. Himmelstein and Company makes the worlds best sensors and data acquisition systems. Company innovations have created many advances in sensor technology.

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