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Where Can I Buy a Flow Bench?

Here's a list of flow benches that are using Flow Pro and where you can buy them. We also have several customer's with "home-made" benches using Flow Pro. If your bench is not listed call us. We have yet to see a flow bench to which we could not adapt Flow Pro.

Flow Data 2761 Regal Park Drive Anaheim, CA 92806 Phone: (714)632-7828	JKM Automotive 250 Farm Street Bellingham, MA 02019 Phone: (508) 966-2531 Fax: (508) 966-4051	Superflow 3512 N. Tejon Colorado springs, CO 80907 Phone: (719)471-1646 Fax: (719) 471-1490
Saenz Malvinas 2127 7600 Mar del Plata Argentina Phone/Fax: 023-77-5260		Australian Thermophysical Technologies Lot 108 Norseman Road Esperance, West Australia 6450 Phone: 90-714499 Fax: 90-714000

Good Reading

The latest issue of Competition Proven magazine has an excellent article detailing their use of Cam Pro to analyze a camshaft problem. If you are not familiar with "Competition Proven" do yourself a favor and check it out. The quality of the writing is good and the articles include many useful illustrations. Much of the content is based on first hand real world testing. These guys don't just write about it - they do it. Contact: Competition Proven, Box 250, Valley Springs, SD 57068, Phone (605) 757-6472, Fax (605) 757-6282.

Another magazine that you might find interesting is "Precision Machine Shop." This appears to be a trade journal (translation: free subscription if you are in the trade). It is not just a bunch of ads. A recent issue included articles on analyzing head gaskets, surface desk finish, waste oil haulers, and valve seat & guide equipment. Contact Precision Machine Shop, 306 N. Cleveland-Massillon Rd., Akron, OH 44298, Phone (216) 666-9553, Fax (216) 666-8912.

Accuracy, Repeatability, Resolution and Dynomation

Accuracy, repeatability, and resolution: these terms are very often interchanged with one another. Perhaps we should take a closer look at them and which is important for use in Dynomation.

Accuracy

Accuracy is an absolute often described as percent of the reading or percent of full scale. For example: +/-0.5%. The absolutes are traceable to well defined standards, such as the A.S.M.E., Australian and British, and the I.S.O. standards to name a few.

Repeatability

Repeatability is the ability of the rest to be repeated with the same results. Here a percent of repeatability is often applied. for example: +/-0.5% repeatability.

Accuracy does not play the slightest role in repeatability. Your dyno might be extremely repeatable, repeatable at making exactly the same mistake over and over again. Some dynos are repeatable because of poor resolution, or more precisely this could be a factor affecting repeatability. Also, certain math routines can dull the results making them appear more repeatable than they are.

Resolution

Resolution is often confused with accuracy. For example: An everyday Mitutoyo 0-1" micrometer, resolves the inch into 1000 equal steps of one thousandth. If it is not zeroed its repeatability and resolution are not effected but its accuracy will be miles out.

When dealing with electronic analog instruments, resolution is expressed in bits. "Bit" is a reference to the binary numbers that represent the sensor output in digital form. The power of 2 that corresponds to the number of bits is the number of increments within the full scale of the instrument. For Example:

Bits	8	12	16
Power of 2	2⁸	2¹²	2¹⁶
Number of steps	256	4096	65536

A common sensor voltage is 0 to 5 volts. If we resolve this 5 volt range to 12 bits, each increment would be 0.00122 volts (5/4096 = 0.00122).

Dynomation

When we enter various data into Dynomation which parameter is most important? Accuracy? Repeatability? Resolution? The A's have it - accuracy is the one. The accuracy of Dynomation's results can be no better than the accuracy of your inputs.

International Reps

The article above was contributed by our Australian representative, Kevin Jaeger of Australian Thermophysical Technologies. Audie Technology has international reps in Argentina, Australia, England, Germany (French & German speaking), New Zealand, Scandinavia, and South Africa.