

Feb 8, 2006  
GaugeMate, Inc  
4315 Product Drive, Suite C  
Cameron Park, CA 95682

Dear Sirs:

I have completed the ballistic tests you requested and the test-result data is included on the attached pages. Testing consisted of measuring the velocity and pressure produced by 28-ga ammunition fired in a 16-gauge test gun and 20-ga and 28-ga ammunition fired in a 12-gauge test gun. The sub-gauge ammunition was held in GaugeMate adapters.

The **velocity** figures from shots fired in the **16-gauge** test gun are **instrumental at 4 feet** from the muzzle. A correction factor of -46 ft/sec was applied to conform to the results determined by firing the test gun with SAAMI 16-gauge reference ammunition, lot # 16F-105F. In the **12-gauge** tests the **velocity** figures are **instrumental** at 6 feet from the muzzle. A correction factor of +11 ft/sec was applied to the measured velocity, to conform to the results determined by firing the test gun with SAAMI 12-gauge reference ammunition, lot # 12T-109R.

The **16-gauge pressure** readings were obtained by use of a strain-gauge sensor mounted **at 3 5/16 inches from the breech face** of the 16-gauge test gun, which is just in front of the forcing cone. This gun has a 2 3/4-inch chamber. The GaugeMate adapters are 2.8" long. Mounting at this location was done to avoid placing the gauge on the tapered cone area. Mounting it to the rear of the cone would have placed it over the adapter itself, which would lead to falsely low pressure readings. The **12-ga pressure** readings were obtained by use of a strain-gauge sensor mounted **at 3 inches from the breech face** of a 12-gauge test gun, which has a 3-inch chamber. An Oehler Model 43 Ballistic Laboratory and an IBM ThinkPad computer were used to process the data. The pressure data has no correction factor applied, as there is no standard reference-load pressure data supplied by SAAMI for down-bore locations.

The **16-gauge tests** were performed with the **ambient temperature at 65 degrees (F)** and a barometric pressure of 29.71 in Hg. The 12-gauge tests were performed with the **ambient temperature at 45 degrees (F)** and

Barometric pressure of 30.22 in Hg. The data supplied are the result of firing a ten-round string of ammunition for each test and averaging the readings.

**In the 16-gauge gun with 28-gauge Gold adapter:**

A Remington 28-gauge STS factory load of 3/4 ounces of #8 lead shot, gave a velocity of 1215 ft/second and developed a pressure of 5100 psi at the front of the forcing cone.

A Winchester 28-gauge AA factory load, also with 3/4 ounces of #8 shot, gave a velocity of 1252 ft/second and developed a pressure of 5800 psi.

A 28-gauge handload in the STS hulls used the following components: W 209 primer, 13.5 grains of Universal Clays powder, Remington PT28 wad and 3/4ounce of #8 lead shot. The hull was closed with a six-point fold crimp. This load gave a velocity of 1158 ft/second and developed a pressure of 4900 psi.

**In the 12-gauge gun with 20-gauge adapters:**

A Winchester 20-gauge A-A Sporting Clays factory load of 7/8 ounces of #7 1/2 lead shot, fired in a Silver adapter, gave a velocity of 1319 ft/second and developed a pressure of 7700 psi. The same 20-gauge load fired in a Gold adapter gave a velocity of 1324 ft/second and developed a pressure of 7800 psi. With all 0-rings removed from the Gold adapter, per your request, the velocity was 1302 ft/second and the pressure was 7900 psi.

**In the 12-gauge gun with 28-gauge adapters:**

A Winchester 28-gauge A-A factory target load of 3/4 ounces of #8 lead shot, fired in a Silver adapter gave a velocity of 1247 ft/second and developed a pressure of 8300 psi. The same 28-gauge load fired in a Gold adapter gave a velocity of 1285 ft/second and developed a pressure of 8400 psi. With no 0-rings in place on the Gold adapter the velocity was 1255 ft/second and the pressure was 8100 psi.

A different lot of the same Winchester 28-gauge A-A factory target load was fired with Gold adapters. The velocity was 1318 A/second and the pressure was 8200 psi. With 0-rings removed the velocity was 1297 ft/second and the pressure was 7700 psi. The variation in measured pressure and velocity produced by changing from the Silver to the Gold adapters is of no ballistic significance and no more than the variation one can expect between various lots of the same ammunition. All the tests indicate very good performance of the sub-gauge ammunition fired in GaugeMate adapters.

Please contact me at any time, if I can be of further service.

Sincerely,



Sherman Bell