

System **BG20** Series 2

> The BG20 Gun Barrel Bore Gauge System

The BG20 has been specifically designed to modernise and improve the inspection routines of large calibre barrels.



The gauge may be introduced into the breech or muzzle end of the barrel and the measuring head located anywhere along its length. The measuring process can be effected in minutes.

In the Normal mode of operation, horizontal and vertical measurements, at a particular location, give rise to an indicated average bore dimension. In Ovality mode, two additional (45°) measurements are taken allowing the gauge to compute the maximum out-of-roundness, or ovality figure. The system is made versatile by means of an interchangeable feeder tube, thus allowing each gauge to measure a wide range of barrel types from 20-155mm in diameter.

The BG20 is supported by a Software Analysis Package which is PC based, allowing a range of barrel and measurement data to be down-loaded directly from the gauge, via the integral RS232 serial port, onto the PC for presentation in tabular or graphical format.

The Bore Gauges are supplied in a rugged carrying case affording protection, storage and ease of transportation.



About AGI

AGI is backed by 30 years of experience in the design, development, manufacture and installations of defence systems and provides full Integrated Logistic Support services, training, installation and documentation.

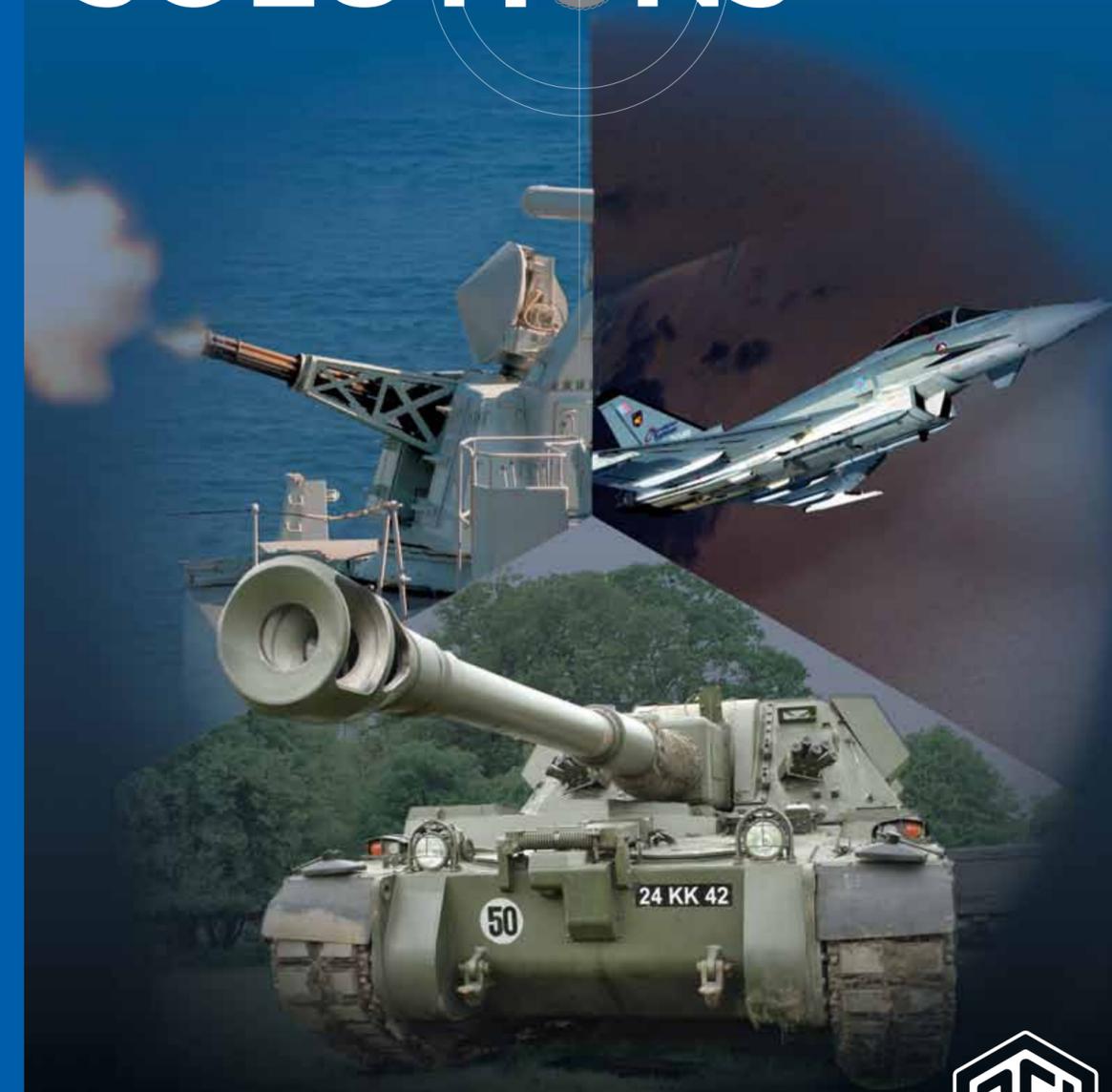
AGI is accredited to International Quality Standards ISO 9001/BS5750 Part 1 and Tick-It software procedures.



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BARREL CARE SOLUTIONS



Aeronautical & General
Instruments Limited

System BG10 Series 2

> The BG10 Gun Barrel Bore Gauge System

The BG10 Gun Barrel Bore Gauge System is highly recommended for applications where measurement accuracy must not be compromised by the priority for a fast operational turn-around time.



With the BG10, measurements of the bore are taken at pre-determined positions along the barrel and the values stored in its electronics unit under entered identification codes for multiple barrels. At each position the measurement is automatically compared to pre-stored warning and rejection limits of wear, whilst a clear visual indication of the wear status is given to the operator. The entire measuring process takes less than three minutes, typically per barrel and may be achieved with the barrel in-situ. The system is made versatile by means of an interchangeable feeder tube, thus allowing each gauge to measure a range of barrel types from 20-60mm in diameter.

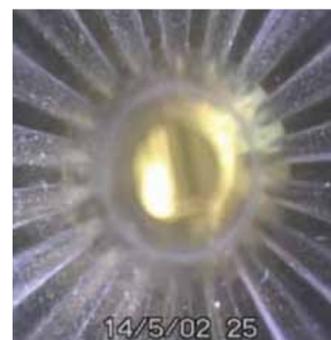
All data stored during measurement in the non-volatile System BG10 memory may be subsequently down-loaded via the integral RS232 serial port to a personal computer. Alternatively, the data may be down-loaded directly to a portable thermal printer or viewed directly on the electronic unit's display screen.



System AGICAM 2

> AGI's Visual Inspection Camera System

For Use With AGI Gun Barrel Bore Gauges



AGI's Visual Inspection Camera System has been designed to compliment and be used with the Gun Barrel Bore Gauge. One single instrument that will provide accurate repeatable measurements, whilst also being able to view and record the condition of the barrel.

Visual inspection allows identification of any defects such as removal of chromium plating, particularly in the forcing cone, or the leading edge of rifling, erosion, pitting, scoring and, in extreme circumstances, rifling that has been stripped from the barrel. Physical measurement is undertaken with a precision instrument, such as AGI's Gun Barrel Bore Gauge System. Although separate systems have worked reasonably well, the introduction of safety systems and total quality management programmes require auditable records of the inspection to be made and retained for future reference.

Imagery may be captured and stored on a digital recorder or a lap-top computer, using compatible software, enabling in-depth studies of barrel inspections.

The Visual Inspection System will provide the user with an option to view the internal bore of a barrel with 360° peripheral vision or focus upon a particular area, in more detail, by utilising a 90° viewing head.

System Specifications

BG10

Weight: 5kg Unit Unpacked – 16kg Packed

Power Supply: replaceable internal batteries (6 x AA size)

Battery Life: In excess of 100hrs continuous use

Calibre Range: 20-60mm

Repeatable Accuracy: ±5 Microns (0.0002")

Flexible Feeder Tube Length: Up to 4.5m maximum fitted with 16 pre-determined measurement location ferrules to suit any particular barrel.

Data Storage Capacity: Up to 20 individual barrels each of 16 measurements.

Operating Temperature Range: -30° to +70° C

Diagnostics: Incorporates automatic Built-in test routines

BG20

Weight: 5kg Unit Unpacked – 16kg Packed

Power Supply: replaceable internal batteries (6 x AA size)

Battery Life: In excess of 100hrs continuous use

Calibre Range: 20-155mm

Repeatable Accuracy: ±5 Microns (0.0002") 20-60mm, ±20 Microns (0.0008") 61-155mm

Maximum Measuring Range: 6.5mm

Flexible Feeder Tube Length: Up to 4.5m maximum fitted measurement scale graduations or pre-determined measurement location ferrules to suit any particular barrel.

Data Storage Capacity: In excess of 300 individual measurements

Operating Temperature Range: -30° to +70° C

Diagnostics: Incorporates automatic Built-in test routines

AGICAM 2

Operating Temperature: -10° to +50° C

Storage Temperature: -10° to +70° C

Packed Weight: 5kg Approx.

A typical Visual Inspection System will comprise of the following items:

- Camera Assembly with axial 360° lens
- USB power supply
- Inter-connecting cables
- Rugged carrying case
- Multi media recorder

Optional Items include:

- 90° Viewing head
- Measuring head adapters

Minimum requirement for standard TV and video recorder:

In order for the Visual Inspection System to operate satisfactorily, any customer supplied television monitor and video recording unit must have a composite video input available.

Operation

The BG10 is simply calibrated against a separate ring gauge (supplied) of known dimension, to provide the instrument with an accurate known reference bore. A purpose designed muzzle adapter attaches the gauge to the muzzle on either installed or detached barrels, for control and the sequential positioning of the sensing head at 16 pre-determined measurement stations. At each station in turn, a measurement is taken by squeezing the trigger on the hand-held electronics unit, where indicator lamps and a digital display will show the "Go", "Warning" or "No-Go" status of the wear in the barrel, as compared to user programmed rejection criteria.

The entire measuring operation typically takes less than three minutes and is achieved with optimum accuracy and repeatability.

All measurement data taken is stored in the system memory and may be subsequently downloaded to a personal computer utilising the analysis software support package, alternatively the unit may be connected directly to a miniature Thermal Printer for an instant hard copy printout.

Operation

The BG20 system is initially calibrated against a removable gauge (supplied), of known dimension, to provide the system with an accurate known reference bore. The sensing head may then be introduced into the barrel from either breech or muzzle to the desired measurement position. The head is then rotated using the indexing handle to measure in the desired axis and a measurement taken by squeezing the trigger on the hand-held electronics unit. The operator may select the gauge to operate in either a normal or ovality mode. The gauge automatically calculates the average bore diameter in the normal mode and the maximum out-of-roundness value in the ovality mode. In either mode all dimensions taken may be observed on the instruments display panel and are stored in the System BG20 memory under the operator defined barrel identification number.

Measurement data obtained may be viewed on the unit's display panel or connected directly to a miniature thermal printer for an instant hard copy printout.

Operation

AGICAM 2 System must be set up, ensuring that any necessary support disks have been fitted to the camera assembly. The camera assembly is then inserted into the barrel, at a required depth, or passed through the entire length of the barrel.

When using AGICAM 2 System with AGI Gun Barrel Bore Gauge, the camera assembly must be fitted directly to the transducer using the transducer attachment.

The camera assembly must be connected to the multi media recorder. The imagery may then be viewed and recorded, if so desired.