

260 SERIES

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DECADE

With its **forward thinking technology**, the Decade 260 Series not only offers you up to the minute analysis of systems but also **enhances their capabilities**. Monitoring up to *eight test processes* on one machine, cutting-edge technology means the Decade 260 Series can be used to not only measure and analyse assembly, but also to **determine the quality of every component made**.

The Decade 260 Series allows you to *measure and analyse*, before deciding on a pass or fail and can report on variables such as force and position, detecting anomalies and making sure all is correct.

The 260 can monitor up to *eight separate test processes on one machine*.

- **Tool-based system stores all process monitoring parameters in tool database. A tool can also be externally selected by controlling PLC**
- **The test sequencer function can package individual test processes in multi-stage machines to give one overall result for each machine cycle**
- **Each test process can have up to four check-regions each with separate pass/fail criteria**
- **A result log provides historical failure information**
- **Statistical functions generate Xbar, Range, Cpk and sigma results from process results**
- **Large 10.4" TFT colour touch screen for clear display of process data and an intuitive interface**
- **Configurable I/O channels and easy wiring to controlling PLC**
- **Data output facility to get sampled data, SPC data and fault log data into spreadsheets**
- **Data logging capability**
- **Label printing function**
- **Programmable digital outputs upon transducer level**

Typical Applications

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- General component insertion
- PDI test machines
- Bearing and oil seal insertion
- Gear and pinion pressing on to shafts
- Valve guide / Valve seat insertion in to cylinder head
- Cylinder linear insertion
- Core plug insertion
- Wheel stud insertion

- Spin riveting, rivet setting
- Pressure testing
- Staking and swaging operations
- Single and multi-point bush insertions
- Push-out testing
- Effort checking in sub-assemblies
- Deflection testing
- Torque, friction testing



Monitor Screen

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The Monitor Screen displays results from **each process test as it happens**.
You can select from a graphic display, a numeric display or a statistical display.

- The graphic display shows the process curves and the check box areas that have been applied to the test
- The numeric display shows simply the overall process value in large easy to read digits
- The statistical display shows Xbar and Range charts along with calculated Cpk values
- Each process test has a pass/fail count that is displayed
- Function keys at the bottom of the screen give quick access to the various features of the 260.



Tool Database

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The Tool Database stores **all the process setup parameters** for the 260 unit. Typically, the tool database can store up to *20 tool setups* with the standard memory.

The user can create *different tools to accommodate different assembly processes* or machine-tools.

Tool setup can also be automatically loaded via external BCD coded input signals from a PLC of **machine control**.

TOOL NAME	DESCRIPTION	DATE	TIME	-	TOOL CODE
ACC	*	10-10-2005	11:23		0
DMG		12-05-2005	08:13		0
GKN	*	21-06-2005	13:37		2
L320	RUCA-BUSH	14-04-2005	12:49		0
RIVETS 1-4	4 RIVETS	06-10-2005	08:24		1
RIVETS 5-6	2 RIVETS	09-05-2005	10:55		3
TEST JOB	*	14-04-2005	12:49		0

GKN	*	21-06-2005	13:37		2
L320	RUCA-BUSH	14-04-2005	12:49		0
RIVETS 1-4	4 RIVETS	06-10-2005	08:24		1
RIVETS 5-6					3
TEST JOB					0

CREATE NEW TOOL

This will create a new tool entry in the tool database. You will be asked to enter in the new tool name and description.

Intuitive Setup Screens

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Setting up new process tests and checks is **quick and simple**.

The 260 unit is designed to be *extremely flexible but simple to understand*. A single screen controls all of the process test parameters, and check setup screens control how the process is measured.

When setting up process checks the user can see a graph of the measurement and control signals, and *check boxes are clearly displayed on the graphs*.



Process Monitoring

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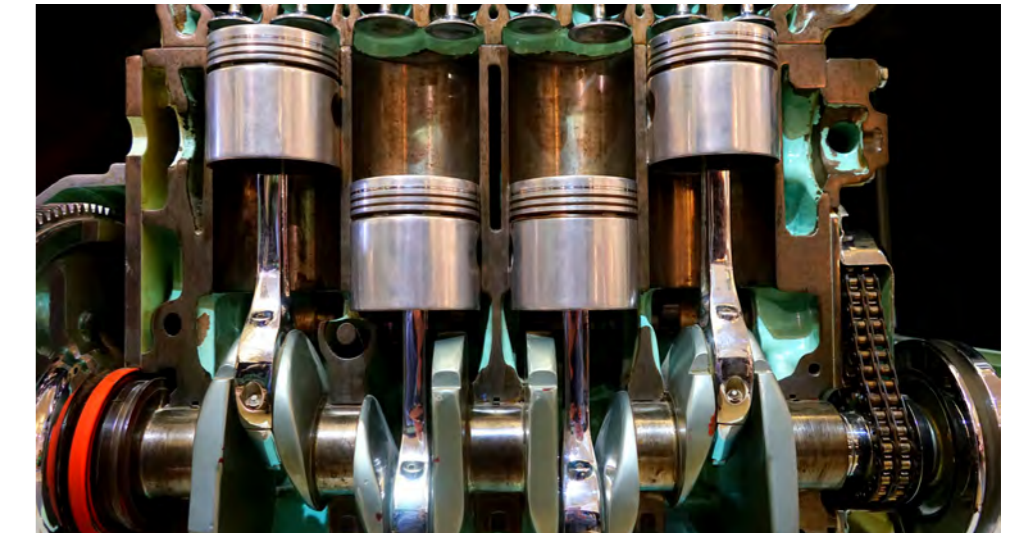
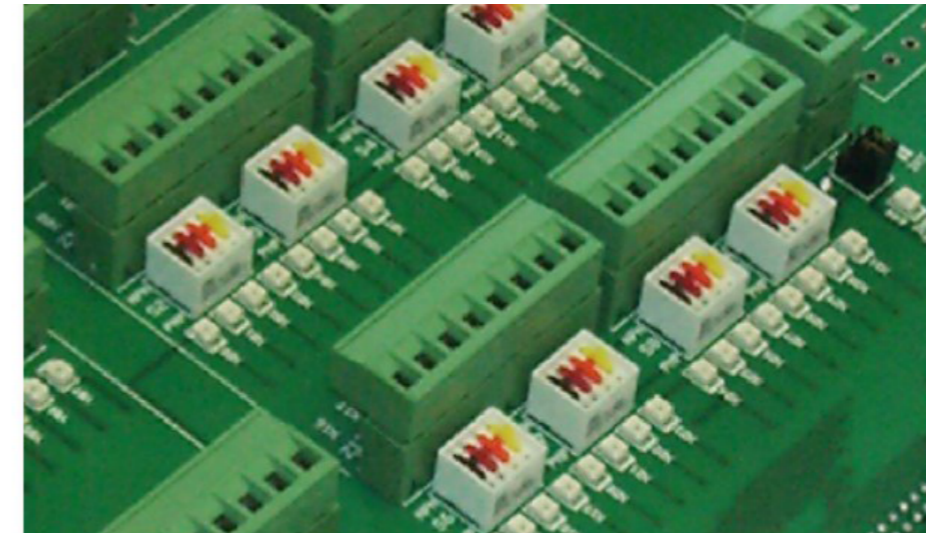
The 260 works by **measuring process values** such as Force, Pressure or Torque from a transducer situated along the tooling of the machine. Each of these measurement signals is processed in a 'Test'. As a part is pushed into another part, a Torque is applied, or a pressure is built up, the 260 is sampling these values into its memory. The based on other controlling signals 'Checks' are made during the 'Test' that compare the measured values against pre-set process limits, and if the measured signal falls outside these set limits the whole Test is flagged up as failed. The following example of a bearing insertion shows how a Test can be setup to measure the inserting force as the bearing is pushed into the bore and then the final force as the bearing reaches the bottom of the bore.

- 1 The 'Test' is signaled to start when the hydraulic cylinder moves away from the TDC position**
- 2 The 260 now starts to monitor the load cell and the position transducer signals**
- 3 The load then starts to increase as the bearing is pushed into the bore due to the interference fit**
- 4 When the position transducer reaches a pre-set position, and after a set delay, the 260 checks the load cell value stays inside the red limit box for the duration of the 'assembly' check**
- 5 When the 'Assembly' check is over, the 260 moves to the second check – the 'final' check**
- 6 Again, the 260 checks the load cell value and stays inside the red check box until the check is over**
- 7 When all the checks are complete, and if the measured load has stayed inside the red boxes, the test process is passed**

Recording Test Results

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At the end of each test cycle the 260 unit displays **process graphs** on its colour screen showing force and position plots and check criteria. These test results are also then sent via an Ethernet network link to a *central database where they are saved*. The central database records test results for the many 260 units used in the manufacturing cell. This facility enables the results of testing operations to be viewed in the future should the need arise. The database can list tests carried out with results and time-date stamps, and for failed tests a graph of the data can also be displayed.

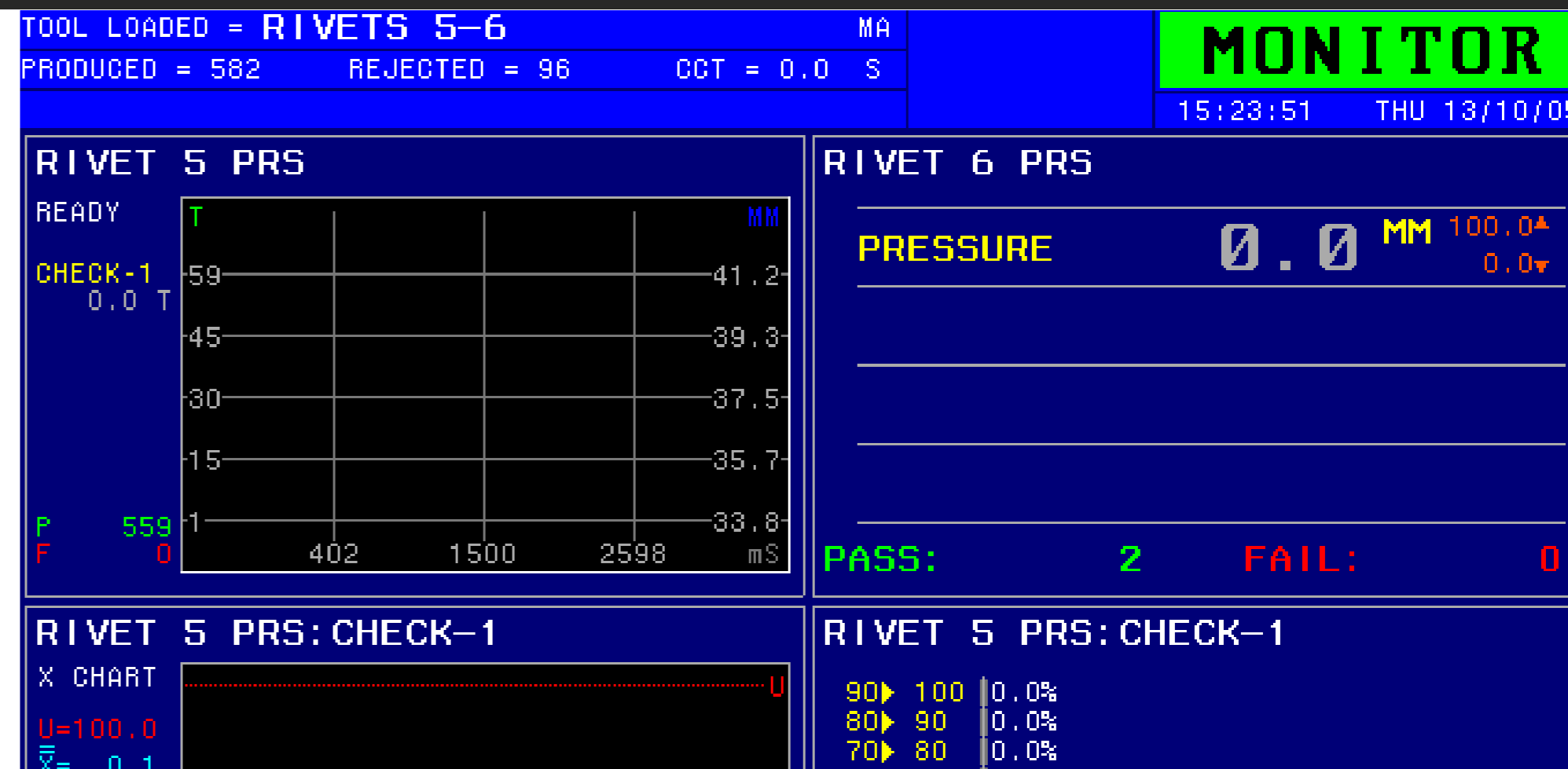
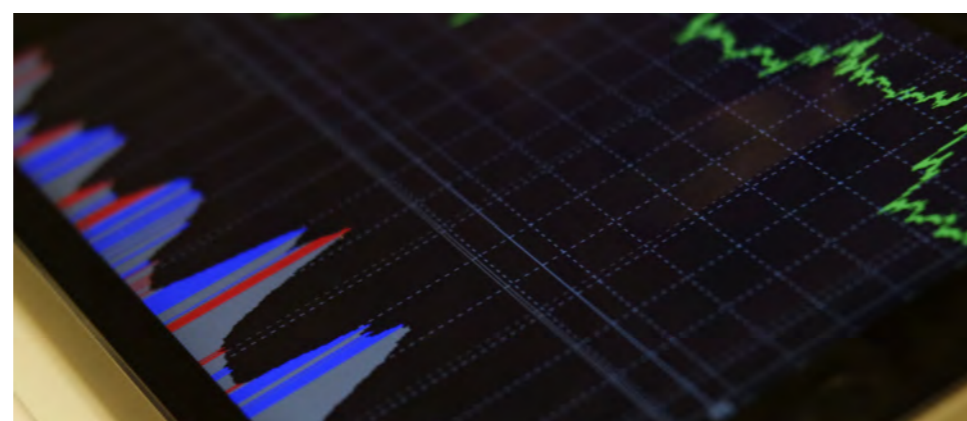


SPC Data & Cpk Values

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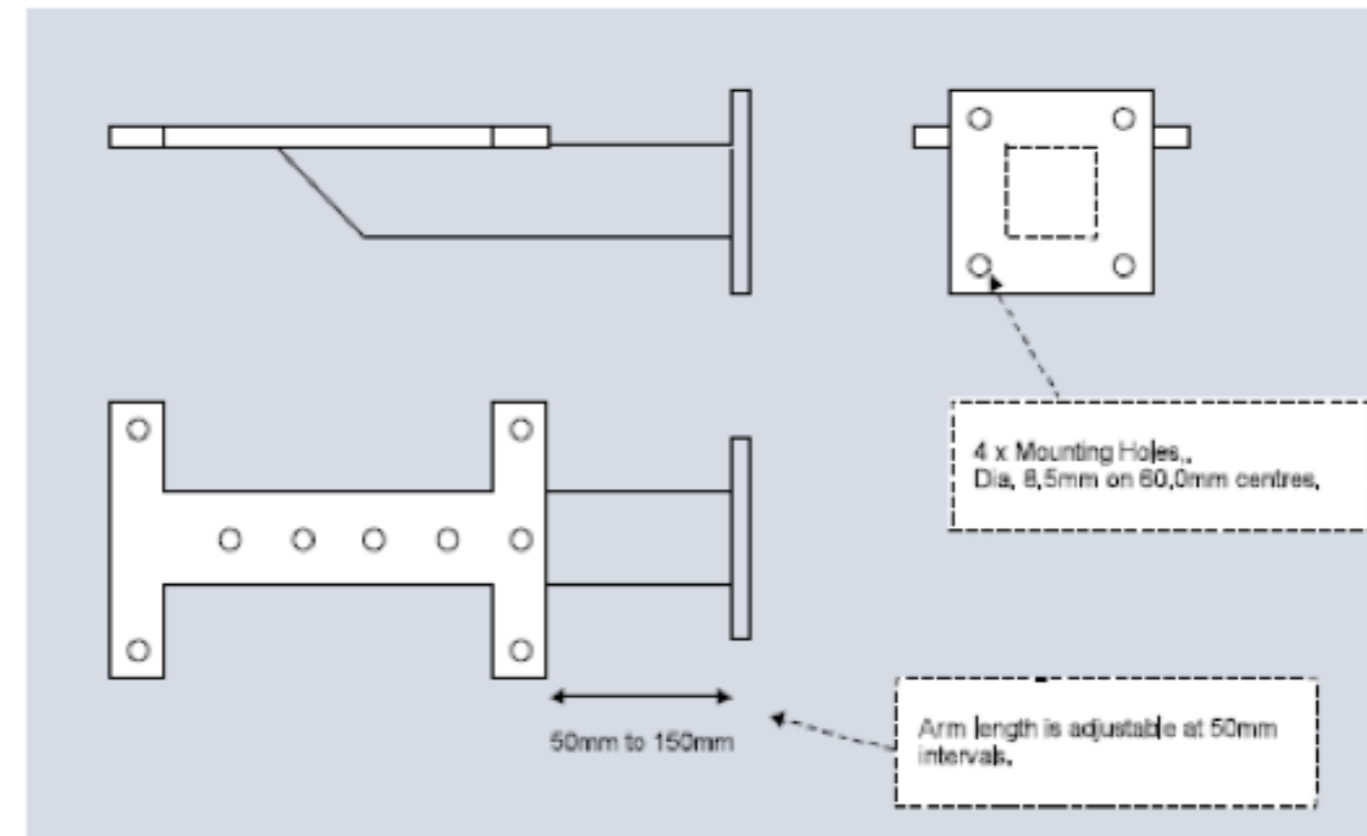
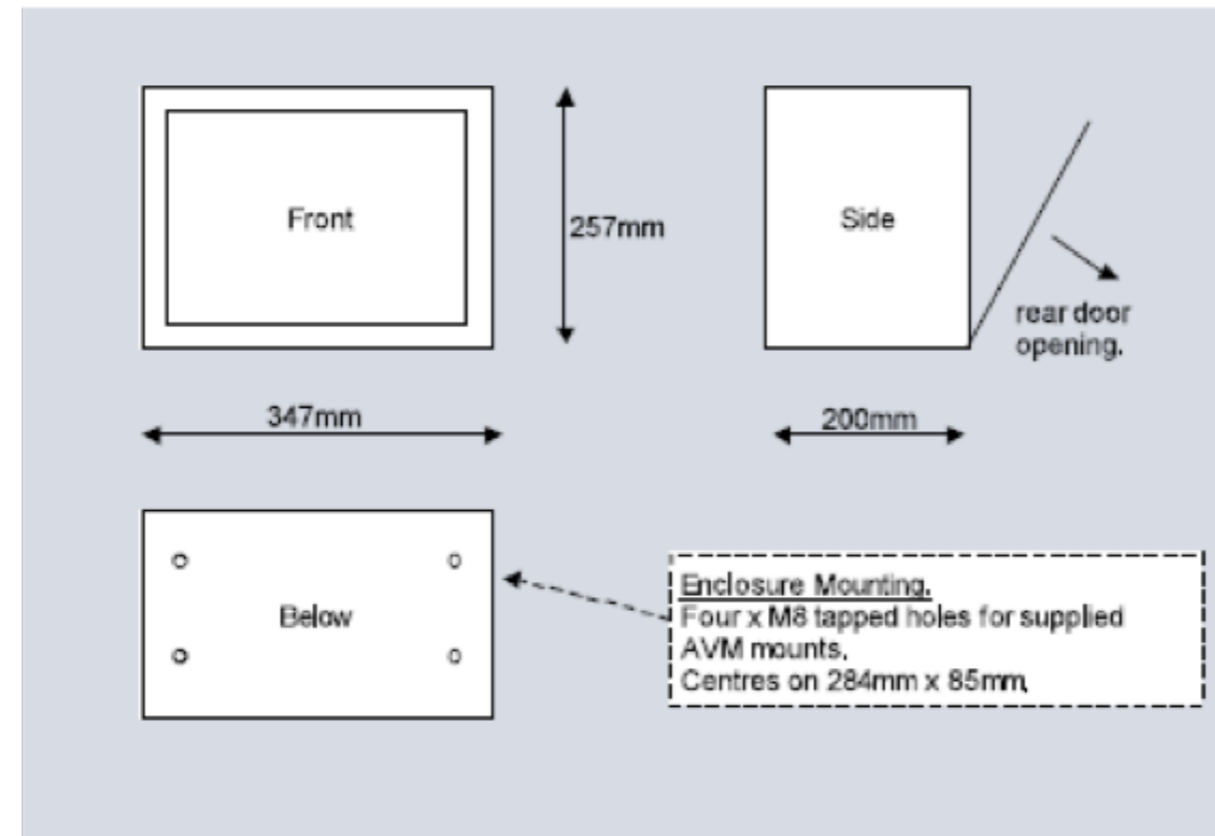
The 260 Series can **generate SPC information from the measurements it takes**. In this application the staking depth and final pressure values are recorded and the results shown on SPC charts. A standard Xbar and R-chart displays process trends, values of Sigma, Cp and Cpk are also *calculated and displayed*. A histogram is also displayed detailing distribution. The SPC data collected can be **downloaded to a PC** via a serial port and supplied link software.

TOOL LOADED = RIVETS 1-4				MA	MONITOR	
PRODUCED = 115				REJECTED = 93	ACT = 0.0	S
TESTS OVERVIEW				13:48:22 MON 10/10/05		
TEST NAME	STATUS	RESULTS	PASSED	FAILED		
RIVET 1 PRS	READY	PRES=0.0 T	599	35		
RIVET 2 PRS	READY	PRES=0.0 MM	579	1		
RIVET-3 PRS	READY	PRES=0.0 B	579	1		
RIVET-4 PRS	READY	PRES=0.0 MM	579	1		
RIVET 1 POS	READY	PRES=0.00 MM	597	1		
RIVET-2 POS	READY	PRES=0.00 MM	597	1		
RIVET-3 POS	READY	PRES=0.00 MM	581	18		
RIVET-4 POS	READY	PRES=0.00 MM	581	18		
STATISTICS OVERVIEW						
SOURCE DATA	STATUS	X-Bar	R-Bar	Sigma	Cp	Cpk



Dimensions

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Thank You

For any enquiries please call us on **+44 (0)121 359 3978** or
email us at **info@decade.co.uk**