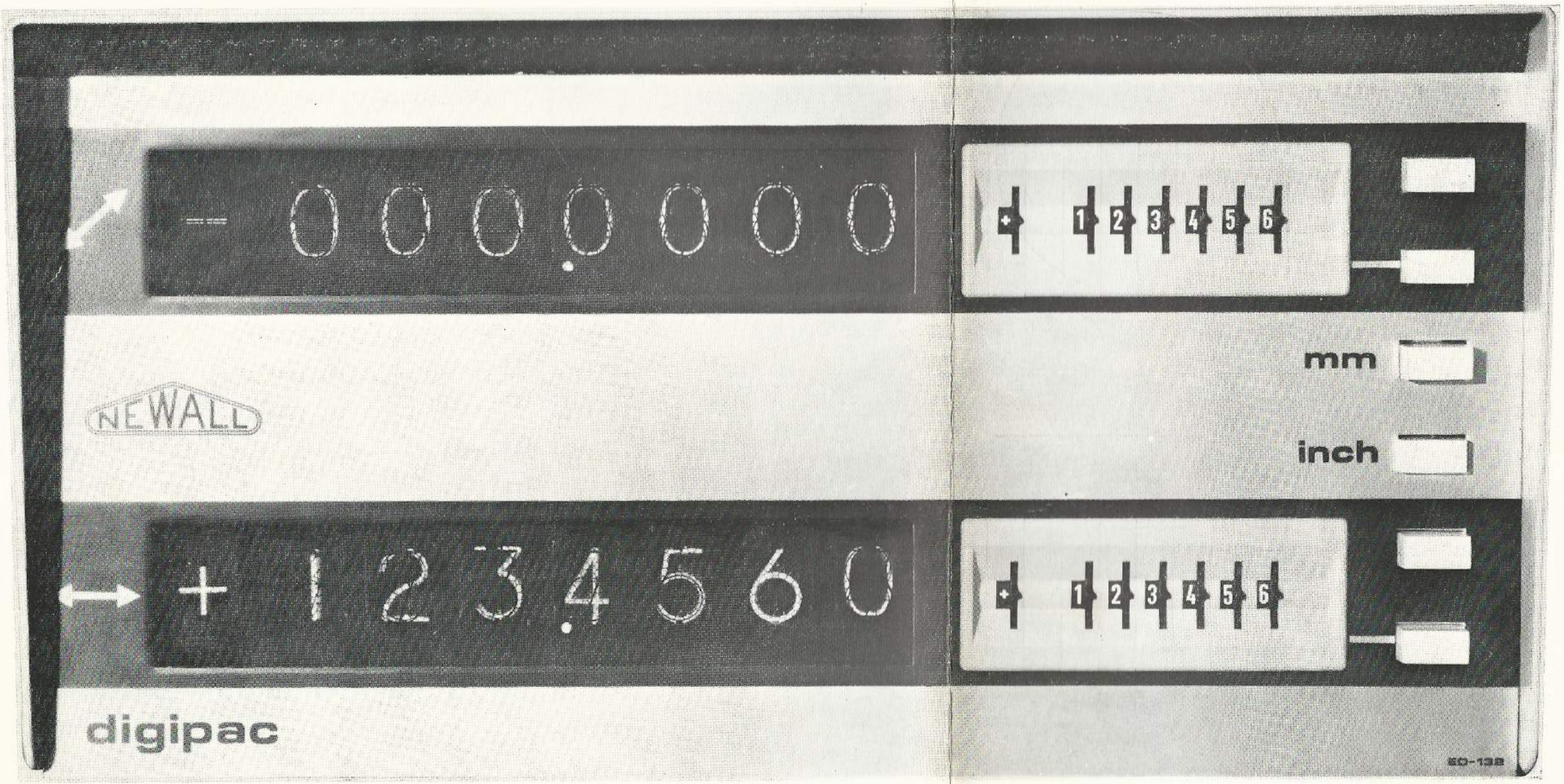
NEWALL DIGIPAC



- Instant inch/metric measurement
- No stopping the machine to measure
- No calculations between drawing and component
- Datum can be set anywhere on the workpiece, changed and recovered
- Backlash effect of lead screws avoided
- Resolutions to 0·00005 in.
- Built to last in rugged workshop conditions
- Easily fitted to all machines – old or new, large or small

THE MODERN WAY TO MEASURE

Newall Digipac is the measuring method of the 70's. It makes anvil micrometers, Vernier calipers, height gauges and so forth as out of date for measuring on machine tools as the Hansom Cab is on the roads.

Machine tools earn money cutting metal. Digipac boosts turnover by cutting down idle time, for all the reasons opposite.

Digipac is well proven. Hundreds of machines have been equipped and Digipac is backed by the same quality and service which has made Newall jig borers world renowned.

Digipac comprises two basic elements, the transducer and measuring element which is fitted to the machine, and the read-out that converts the transducer's electrical signals to a digital display. The Digipac system encompasses one read-out unit and four measuring elements. In combination, all measuring requirements are covered from simple length setting on a sawing machine, to precision cross slide positioning on lathes, milling machines, and jig borers through to complex, multi-axis inspection machines with print out and computer terminal link up facilities.

MANS MODERN MICROMETER

Measuring elements

Diffraction gratings
The diffraction grating provides the most accurate form of measuring element and is particularly suited to jig borers and grinding machines. Digipac gratings are manufactured by Optical Measuring Tools Limited, a wholly owned Newall subsidiary. The grating is usually fixed to the bed of the machine, and the transducer to the slide. The interconnection between the scale and the grating in the transducer produces the well-known Moire Fringe effect. The fringes are counted and displayed relative to the zero position. The gratings, rotary or linear, give resolution to 0·001 mm. (0·00005 in.) but are fragile and need protection from swarf and coolant.

Tape Inductosyn (Figs 3 & 4)
Tape Inductosyn has a lesser resolution of either 0·01 or 0·005 mm. (0·0005 or 0·0002 in.) but is more suited to large borers and lathes with traverses of up to 60 ft. The measuring element is a tensioned steel tape with a copper pattern etched on one side. Installation is simple. Only two machined pads at the extremes of the bed need be prepared. A pre-set spring unit automatically tensions the tape. The transducer head has a dovetail slot to guide the tape past the reader. The tape is read over a long reading face whose averaging effect accounts for Inductosyn's inherent accuracy.

Friction Roller (Fig. 5)
The Friction Roller is the cheapest system but applicable only where the accuracy requirements are less demanding, i.e. movement of a lathe saddle along the bed or length setting on a saw. Resolution is normally 0·01 mm. (0·0005 in.), which provides accuracies around 0·001 in. with a similar repeatability. With the Friction Roller there is no limit on the length of traverse.

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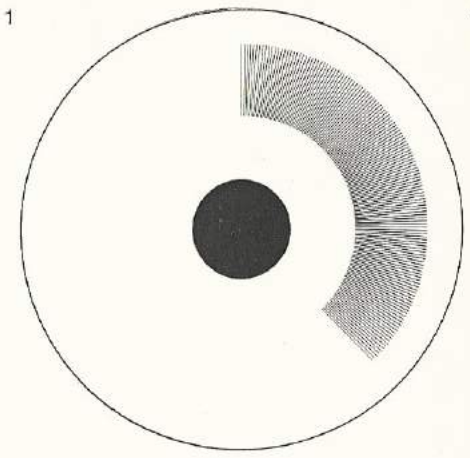

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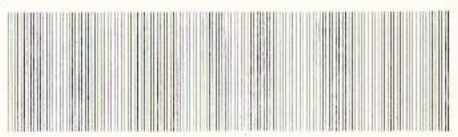

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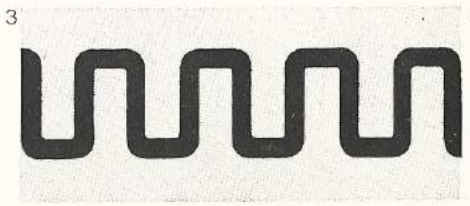

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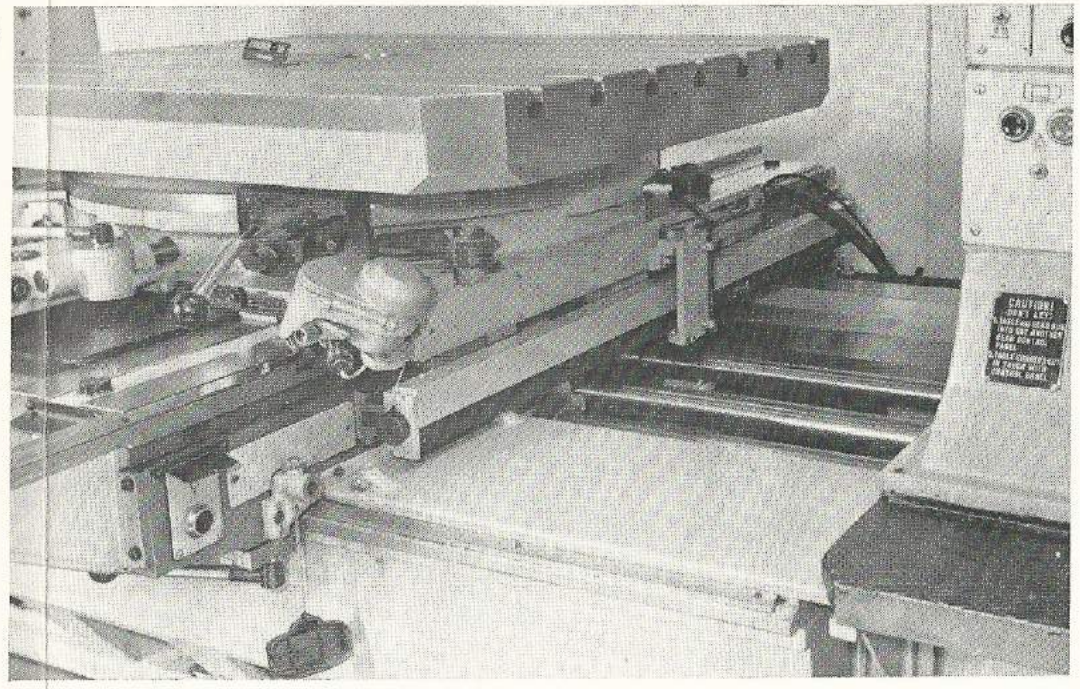

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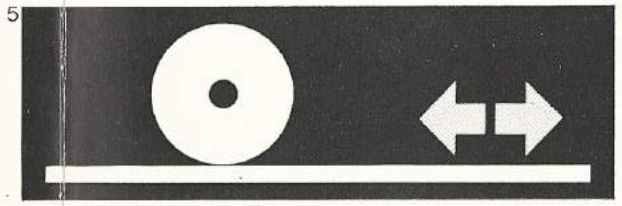

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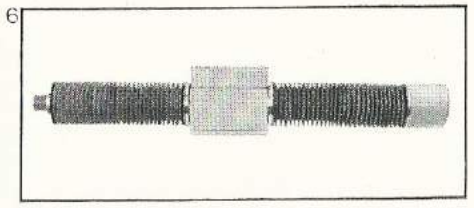

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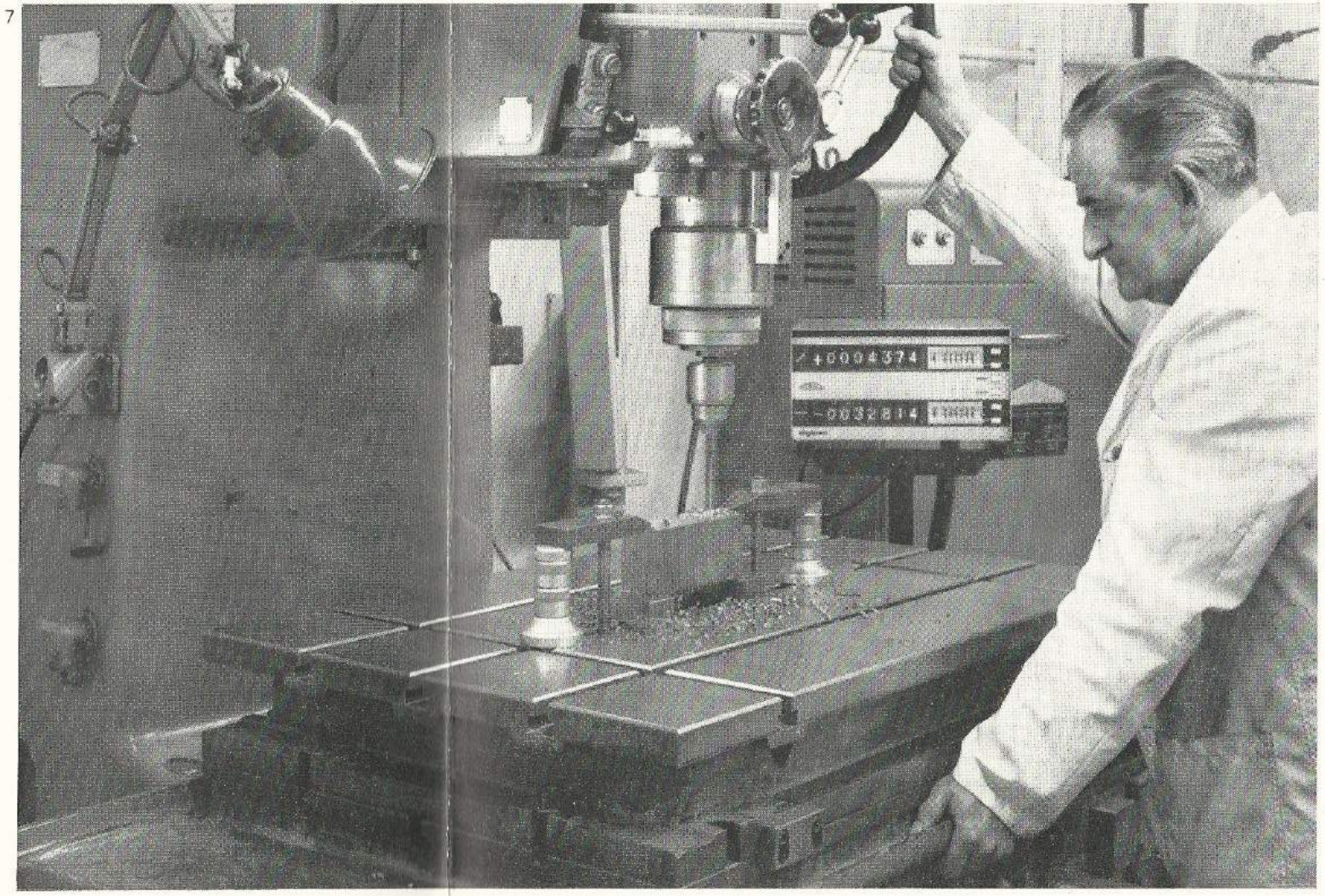


Read-out unit (Fig. 7 & 8)
The Mark IV read-out brings all the benefits of modern circuitry and the latest MSI techniques at low cost. There are one, two or three axis units for both linear and rotary applications. Any of the linear transducers can be used, including Optosyn, and again facilities linking in proprietary tabulators, typewriters, and computer terminals are available. A fault indication lamp is incorporated for use when used with optical transducers such as gratings.

Lathpac (Fig. 6)
The Lathpac package specifically modernises measurement on centre lathes. An enclosed Inductosyn transducer on the cross slide is linked with a Friction Roller unit for longitudinal measurement and a two axis read-out. The read-out displays diameter, not radius, automatically. Maximum capacity is 30 in. diameter. If desired the bed transducer can incorporate a Tape Inductosyn as well, with its associated higher accuracy.

Modernises measurement on machine tools

Inch/Metric measurement instantly available – at the flick of a switch. Metrication need no longer be a problem, just another unit of measurement.

No stopping the machine to measure the work and set the slides as with yesterday's methods. Digipac indicates slide position directly, all the time. If the slide moves, Digipac shows by how much.

No backlash problem. Only actual slide movement is shown.

Calculations are eliminated when transferring dimensions from drawing to machine. Slides are set instantly and accurately simply by matching the Digipac display to the dimension required.

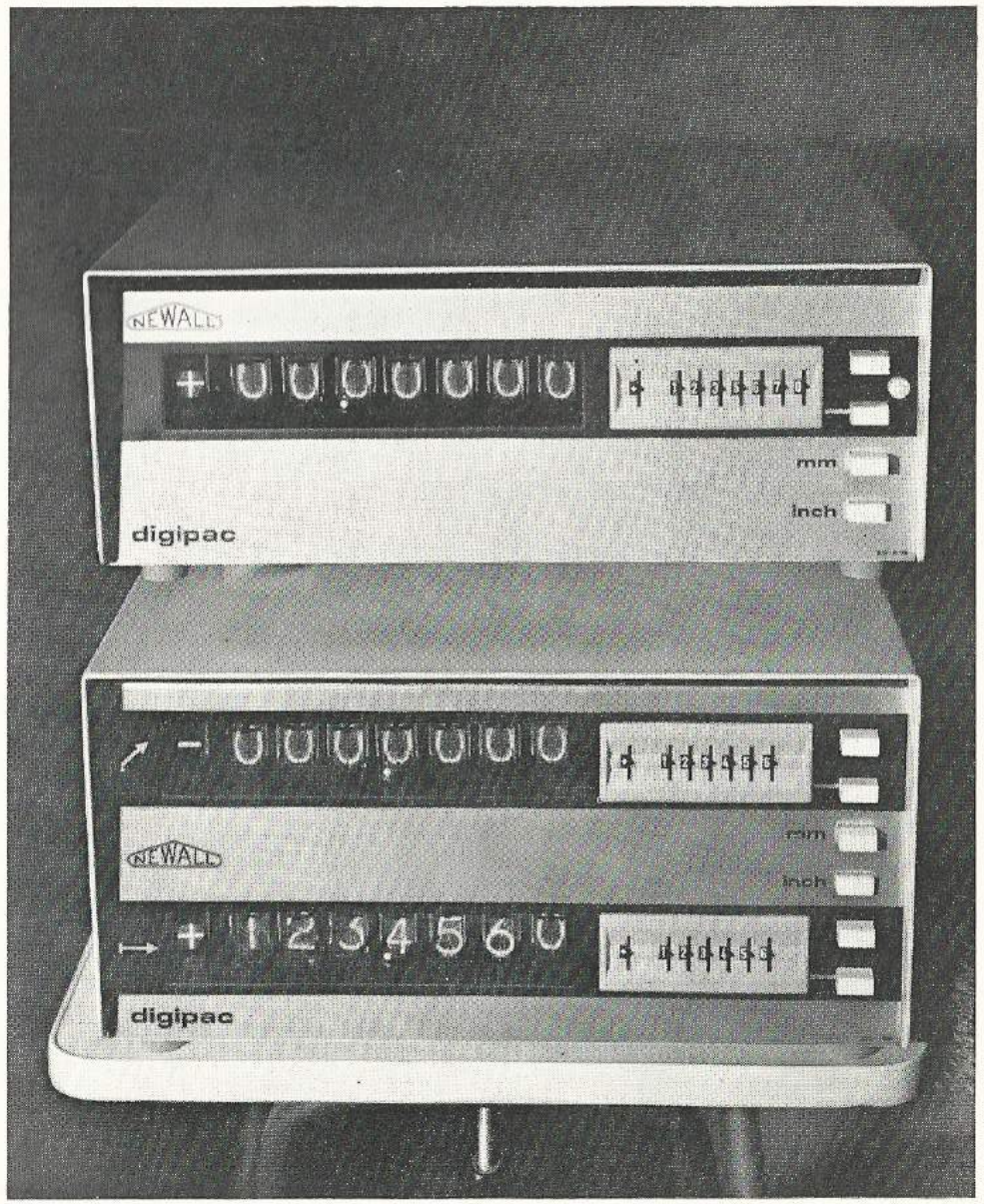
Datum can be established anywhere, anytime at the push of a button. If the drawing is dimensioned progressively from one surface to another, the display is zeroed to each new surface. The process can be reversed too. A dimension can be set on the display through thumbwheel switches and the slide moved back to zero, or any other dimension.

Resolutions to 0·00005 in. are available from Digipac systems. Final workpiece accuracy of course depends on the design and condition of the machine. The last digit shows 0·00005 in. increments on the imperial unit and 0·001 mm. on the metric. But on good machines tolerances of 0·0002 in. can be held. If lesser accuracies are adequate simpler Digipacs are available.

All machines can be equipped – large or small, young or old. There are systems for single or multi-axis installations, measuring both linear and rotary movements.

Existing machines updated in only a few days without bother. Newall Digipac is unit built for easy fitment to the machine. It's a straightforward D.I.Y. job for those that prefer it that way. Or you can use Newall's team of expert installation engineers.

Digipac is built to last in rugged workshop conditions. Integrated circuits are used throughout and MSI elements extensively. Operation is unaffected by oil or dirt and the measuring element is covered to protect it from excessive mechanical damage. Instant service is available, from field service representatives, overnight change units and rent-a-spare facilities.



TO GIVE FASTER FLOOR TO FLOOR TIMES, LESS SCRAP, REDUCED OPERATOR FATIGUE

NEWALL DIGIPAC

Newall Electronics

The Electronics Division of Newall Engineering Co. Ltd. was originally formed to supply the ever increasing electrical and electronic requirements of machine tool building within the Newall Group.
In particular Digipac was developed to meet Newalls own exacting jig borers needs. Today, Digipac units are available for all types of machine and accuracy performance, every one of which meets basic value for money criteria.

Newall Electronics also build electrical panels for all manner of uses. Many are still of the traditional relay type incorporating a high degree of standardisation and hence considerable cost efficiency, although nowadays a growing number of solid state, programmable, panels are being constructed. Other products include DC drives up to 1 h.p. for milling feeds and a miscellaneous group of items such as gap eliminators, wheel contact detectors and so forth.

Other products manufactured by Newall Group of Companies:

Cylindrical grinding machines
Angle Head grinding machines
Angle Approach grinding machines
Multi-wheel grinding machines
Unit built grinding machines
Camshaft grinding machines
Crankshaft grinding machines
Jig boring and milling machines (conventional and numerically controlled)
Jig grinding machines
Numerically controlled multi-spindle machining centres
Hydraulic units for machine tools
Toolmakers' microscopes
Optical comparators
Workshop projectors
Projection pantometers
Roundness measuring machines
Optical dividing heads
Rotary indexing tables
Electronic gauging equipment

NEWALL ELECTRONICS

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