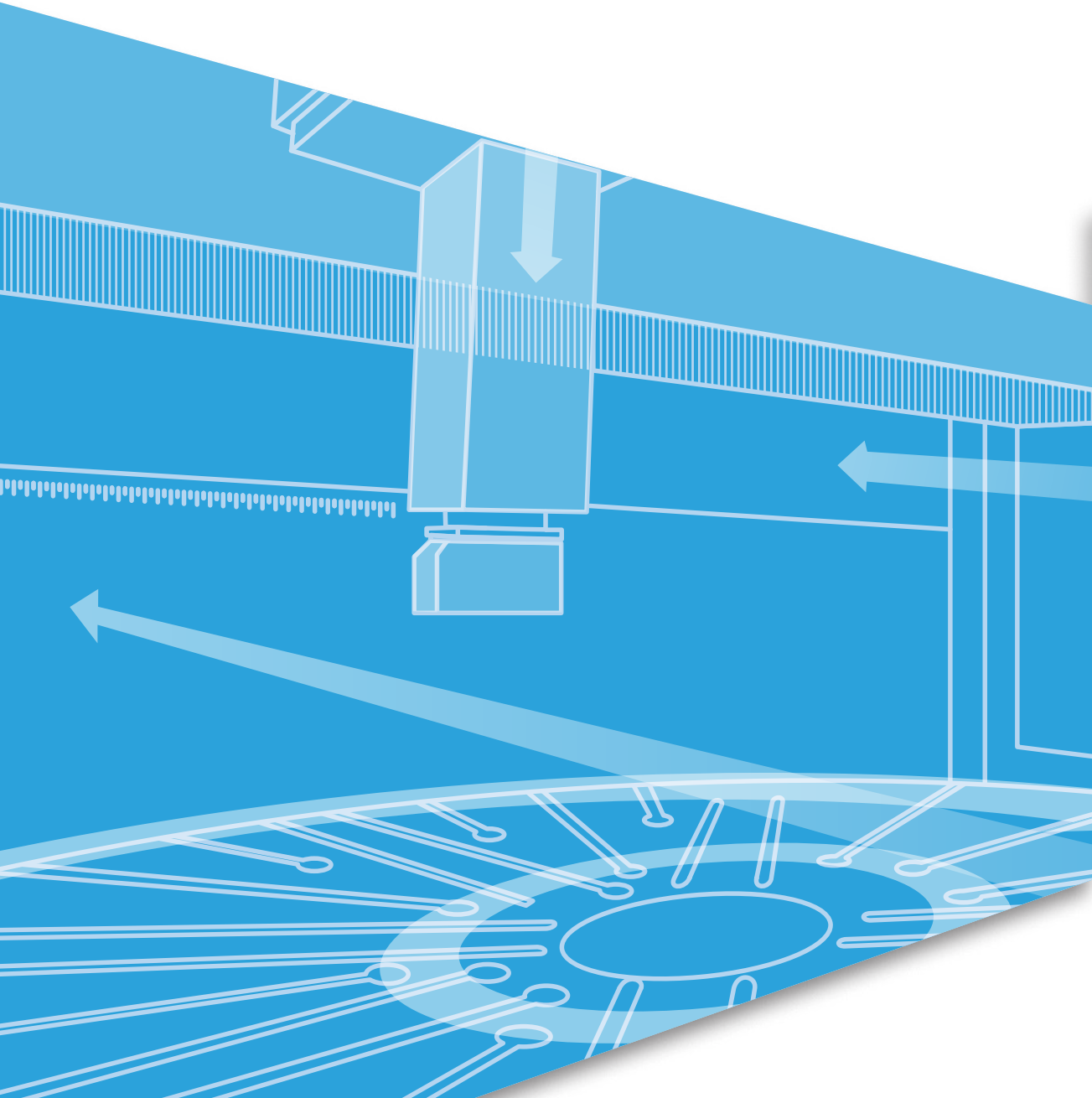


# DRO Systems and Linear Encoders



# About Newall

**Newall Measurement Systems, Ltd.** was founded in 1968 in Peterborough, United Kingdom. Since that time, Newall has dedicated itself to providing the machine tool and other machinery and production industries with leading edge technologies that increase productivity and machine tool efficiency.

The need for a reliable and highly accurate linear encoder led Newall, in 1973, to develop its world renowned Spherosyn™ linear encoder. Spherosyn™ incorporates a truly unique design in that none of the electrical or measuring components are exposed to the harsh workshop environment. This allows the encoder to operate under the harshest environmental conditions.

Newall's products also include a wide range of DRO systems, each specifically designed and dedicated to increasing productivity and machine tool efficiency. The digital readout range has developed to include some of the most advanced, market-leading readouts available today.

Over the years, Newall has grown to be a well-respected leader in digital readout systems and linear encoder technology. Over 85% of Newall's products are exported, with distribution and service outlets in over 63 countries. Newall actively supports these markets with a worldwide network of fully trained sales and service personnel. In addition, there are offices located in the USA and Europe. Newall operates a Quality Management System that complies with the requirements of ISO 9001:2008 for the design, manufacture and service of digital readout systems, interface units, encoders and scales for machine tools and allied equipment.



## NEWALL KEY MARKETS

### Metal Cutting Conventional

Provide positional data of axis location at OEM and aftermarket (retrofit/rebuilder) level. Primarily sold through machine tool and industrial distribution networks.

### CNC Metal Fabrication

Provide positional feedback in servo loop for press brakes, plasma and water cutting. Sold directly and through limited industrial distribution.

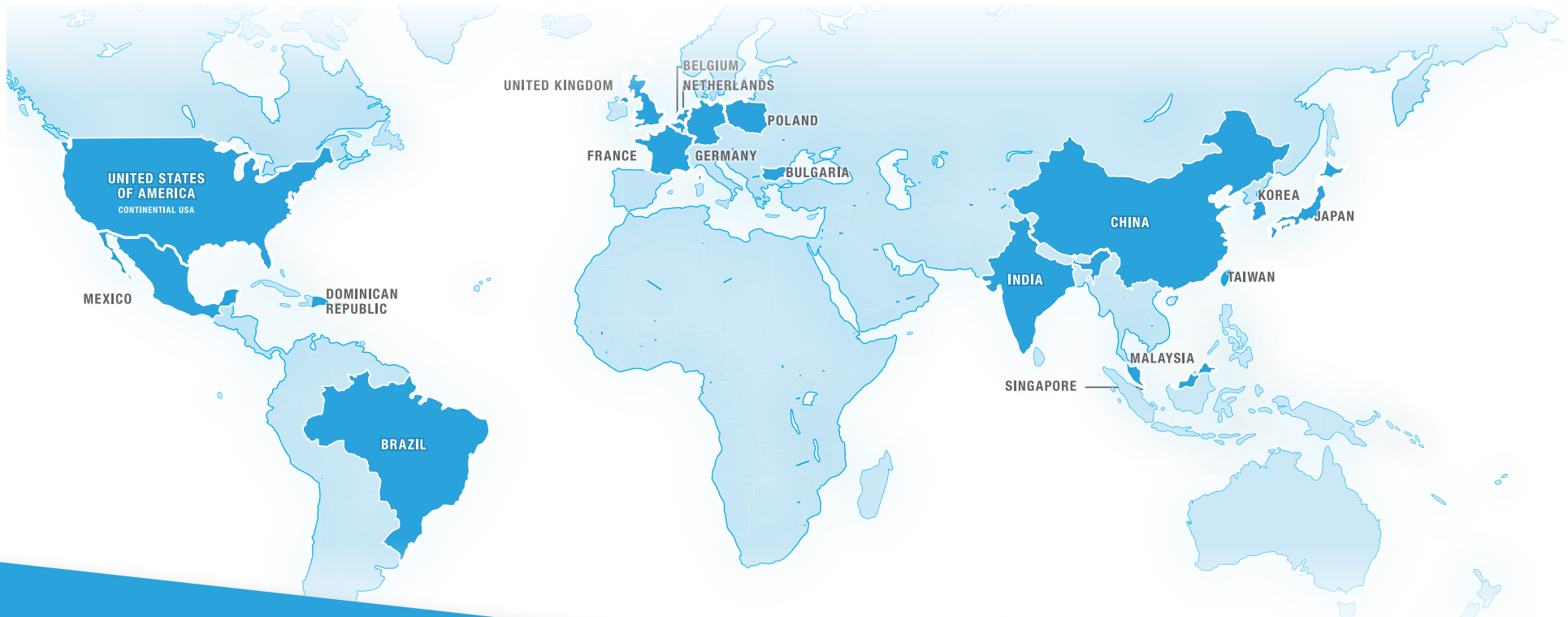
### Metal Cutting CNC

Provide linear feedback for servo driven applications. Primary market: machine tools, OEM and retrofit/rebuilder. Sold directly and through limited industrial distribution.

### Industrial Automation

Provide linear positional feedback for PLC and other industrial automation applications. Sold directly and through limited industrial distribution.

# Sensata Technologies Worldwide



**Sensata Technologies is one of the world's leading suppliers of sensing, electrical protection, control and power management solutions with operations and business centers in 16 countries.**

Sensata's products improve safety, efficiency and comfort for millions of people every day

in automotive, appliance, aircraft, industrial, military, heavy vehicle, heating, air-conditioning and ventilation, data, telecommunications, recreational vehicle and marine applications.

Newall is a brand of Sensata Technologies.  
[www.sensata.com](http://www.sensata.com)

# DP1200 DIGITAL READOUT

A new dimension of ultimate performance



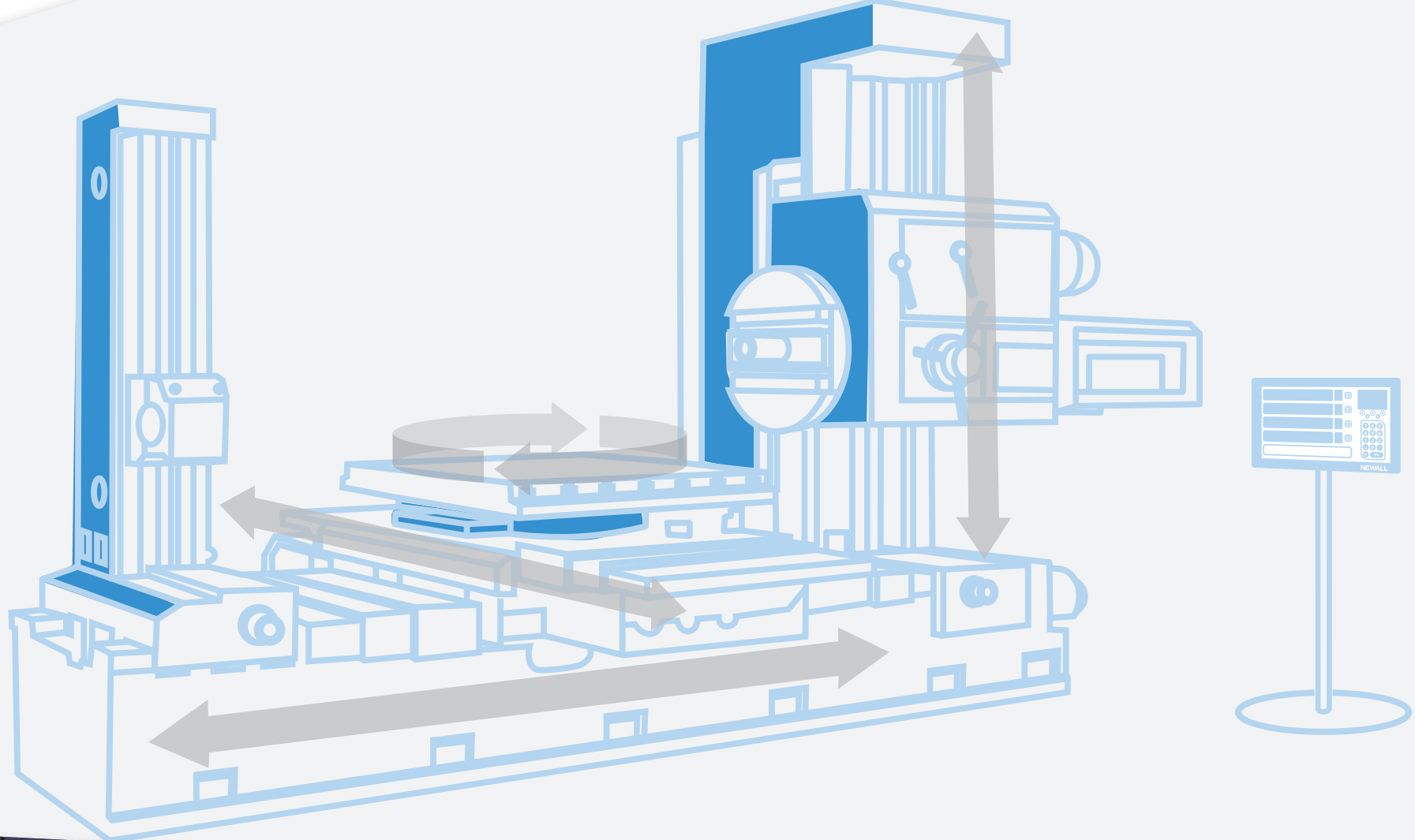
## THE IDEAL DRO SOLUTION FOR LARGE MACHINE TOOLS

Engineered specifically for long travel machine tools, the DP1200 DRO offers features that are essential for increasing productivity of boring mills, planer mills, VTLs, milling machines and long travel lathes. Built with the operator in mind, the DP1200 includes large, clear numerical displays with a high resolution, 3.5" TFT screen. With an intuitive user interface and an optional DSU, the DP1200 is the ideal solution for either retrofit or OEM.

## ADVANCED TECHNICAL FEATURES

- Available in 2, 3, or 4 axes (including angular/rotary)
- Real-time tool path graphics with auto-zoom
- Ultra-wide viewing angle
- Arc Contouring: Calculates points along an arc for rough machining
- Polar Co-ordinate Readings: Display radial and angular coordinates
- Line Hole Routine: Calculates points along a line at equal distance
- Programmable Memory/Teach: Store dimensional data into memory while machining the first part
- Tool Offsets: Retain all dimensional data even after tool change
- Feed-Rate Display: Longer tool life and increased cutting tool performance
- Linear and Segmented Error Compensation: Applies a compensation factor for machine geometric and abbey errors





### OPTIONAL DIGITAL SENDING UNIT (DSU)

The encoders, along with the incoming power supply, are connected to the DSU. A standard 3.5 metre cable is connected from the DSU to the DP1200. Since the DSU can be mounted anywhere on the machine it reduces the need for extension cables and simplifies cable routing.

# DP700 DIGITAL READOUT

A powerfull and intuitive DRO

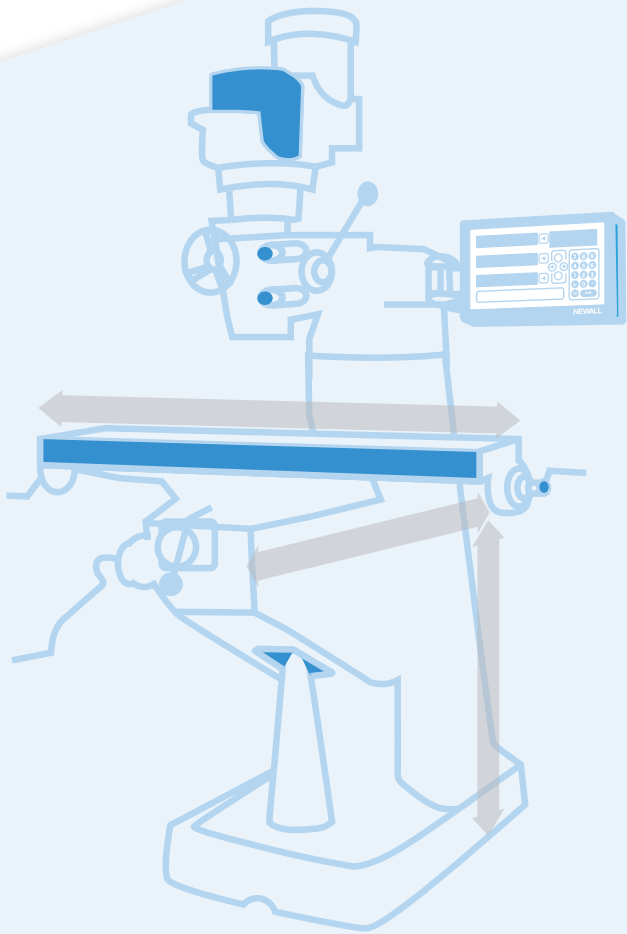


## FOR ALL TYPES OF METAL CUTTING APPLICATIONS

The DP700 is a powerful and intuitive DRO that is housed in a rugged cast aluminum chassis with a wipe clean front panel. The innovative design allows the operator to easily configure the DRO for general machining, milling or turning specific features.

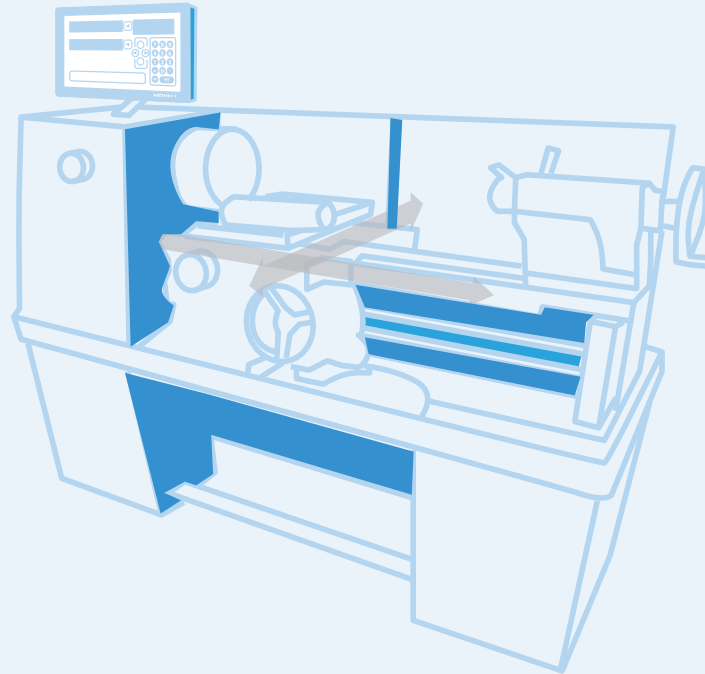
## ADVANCED TECHNICAL FEATURES INCLUDE:

- Bolt Hole Circle Routine: Enter parameters via question and answer message prompts
- Arc Contouring: Calculates points along an arc for rough machining
- Polar Co-ordinate Readings: Display radial and angular coordinate
- Line Hole Routine: Calculates points along a line at equal distance
- Programmable Memory/Teach: Store dimensional data into memory while machining the first part
- Tool Offsets: Retain all dimensional data even after tool change
- Axis Summing: Sums two axes within the same plane
- Feed-Rate Display: Longer tool life and increased cutting tool performance
- Linear and Segmented Error Compensation: Applies a compensation factor for machine geometric and abbey errors
- RS-232 Output: Allows for data output



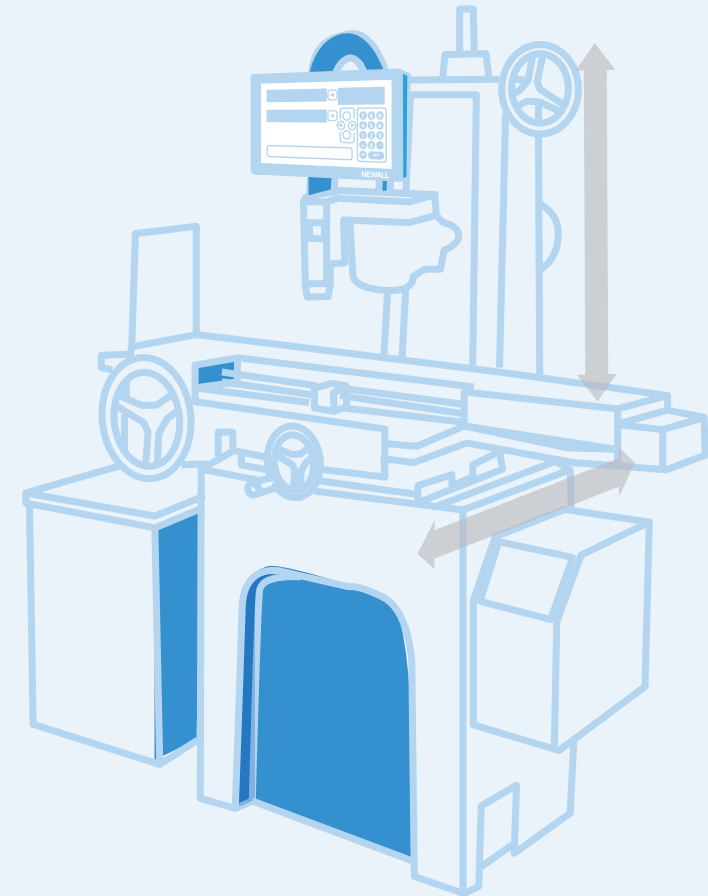
### Knee Type Milling Machine

For milling applications, Newall Digital Readouts dramatically increase productivity and machine efficiency. The DP700 includes features such as bolt hole circle, line hole routine and arc contouring which calculates tool position by way of simple message prompts. Axis feed rate is displayed meaning better tool life and surface finish.



### Lathe

Adding a Newall DRO to your lathe means you measure the part diameter one time and enter the value into the DRO. Since the DP700 allows you to enter a tool offset library, true diameter will always be displayed even after tool changes. Operators report a 20-40% increase in productivity and less scrap when using a Newall DRO on lathes.



### Grinder

Nothing compares to Newall on a surface or cylindrical grinder as the Microsyn encoders will withstand grinding dust, coolant and slurry. With resolutions down to  $1\mu\text{m}$  (0.00005"), the Newall DP700 can guide the operator to the precise location without the worry of miscounting due to scale contamination. Programmable memory along with absolute and incremental features means faster and more accurate grinding.

# SPHEROSYN 2G / MICROSYN 2G

Consistent accuracy and reliability even under the harshest environmental conditions

Designed to work exclusively with Newall's Digital Readouts, the Spherosyn 2G and Microsyn 2G encoders embody a truly innovative design in which all of the electronics and measuring components are sealed and protected. Unlike other encoder technologies, Newall encoders carry an IP67 environmental rating and will continue to provide accurate, reliable readings even when fully submersed in water, oil or coolant. No other linear encoder matches the durability and reliability of Newall.



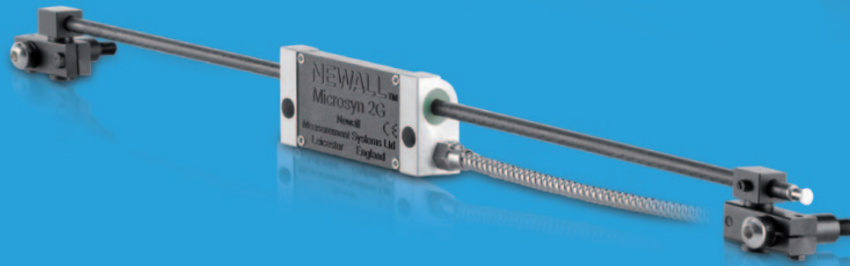
## SPHEROSYN 2G

**Travel length:** Up to 13.5 metres

**Accuracy:** +/-10µm per any one metre of travel

Resolution: 10µm or 5µm (0.0005" or 0.0002")

Repeatability: Within one resolution count



## MICROSYN 2G

**Travel length:** Up to 1 metre

Accuracy: +/-5µm or +/-10µm

Resolution: 10µm, 5µm, 2µm or 1µm (0.0005", 0.0002", 0.0001" or 0.00005")

Repeatability: Within one resolution count

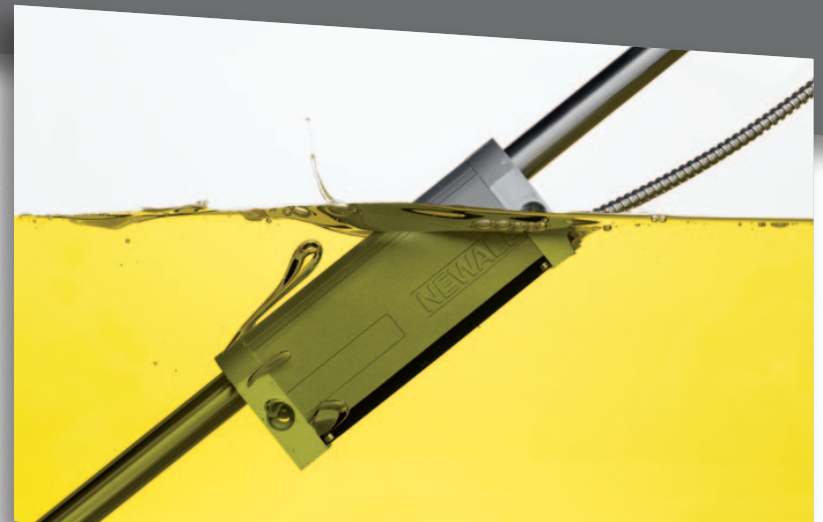


### KEY BENEFITS

- IP67 environmental rating. Fully submersible
- Withstands dust, dirt, oil and other harsh environmental conditions
- No mechanical wear characteristics
- No more broken or scratched glass
- Requires no cleaning or regular maintenance
- High tolerance to shock and vibration
- Easy to install – No backer bar or machined surface required

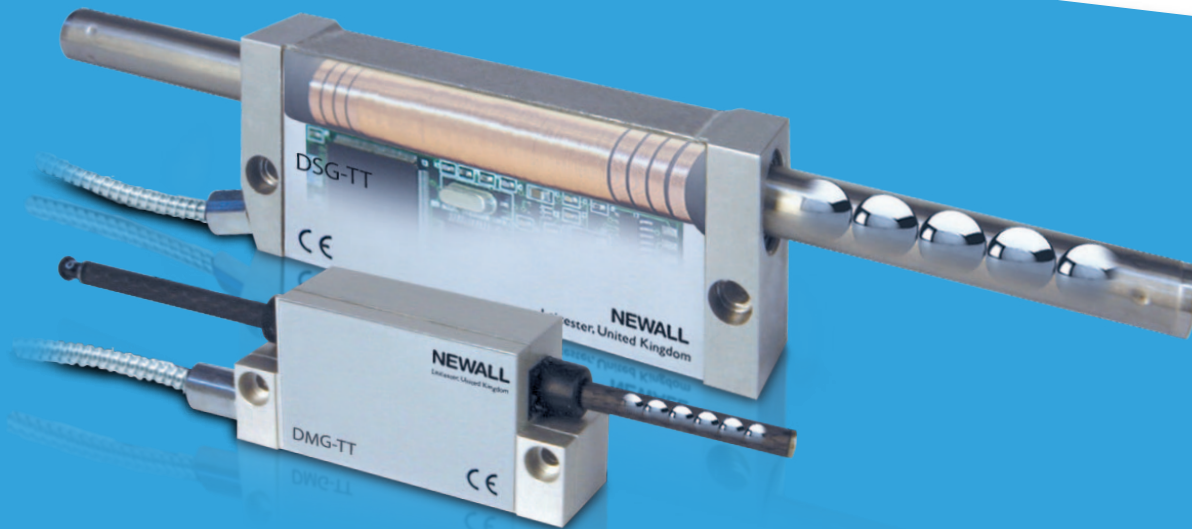
Mechanical Specifications	Spherosyn 2G	Microsyn 2G
Scale Travels	52mm – 13,500mm call for travels > 13.5 metres	50mm – 1000mm
Scale Diameter/Material	15.25mm / stainless steel	6.5mm / carbon fibre
Reader Head Dimensions	52mm x 141mm x 28mm	35mm x 75mm x 18mm
Overall Scale Length	Travel length + 254mm	Travel length x 178mm
Output Cable Length	3.5 metres stainless steel armor (extension cables available)	

To learn more about Newall's unique and innovative Spherosyn technology, visit [www.newall.com](http://www.newall.com).



# DSG AND DMG ENCODERS

## Positional feedback for non-servo applications



Newall's DSG and DMG linear encoders were specifically engineered to be used with competitive brands of DRO displays. The design of the DSG and DMG encoders is based on Newall's Spherosyn 2G and Microsyn 2G encoder technology that carries an IP67 environmental rating and is recognized throughout the world for quality, accuracy and reliability.

### COMPATIBLE WITH MOST BRANDS OF DRO DISPLAYS:

- Acu-Rite
- SWI/Trak
- Anilam/RSF
- Fagor
- Heidenhain
- Mitutoyo
- And Others

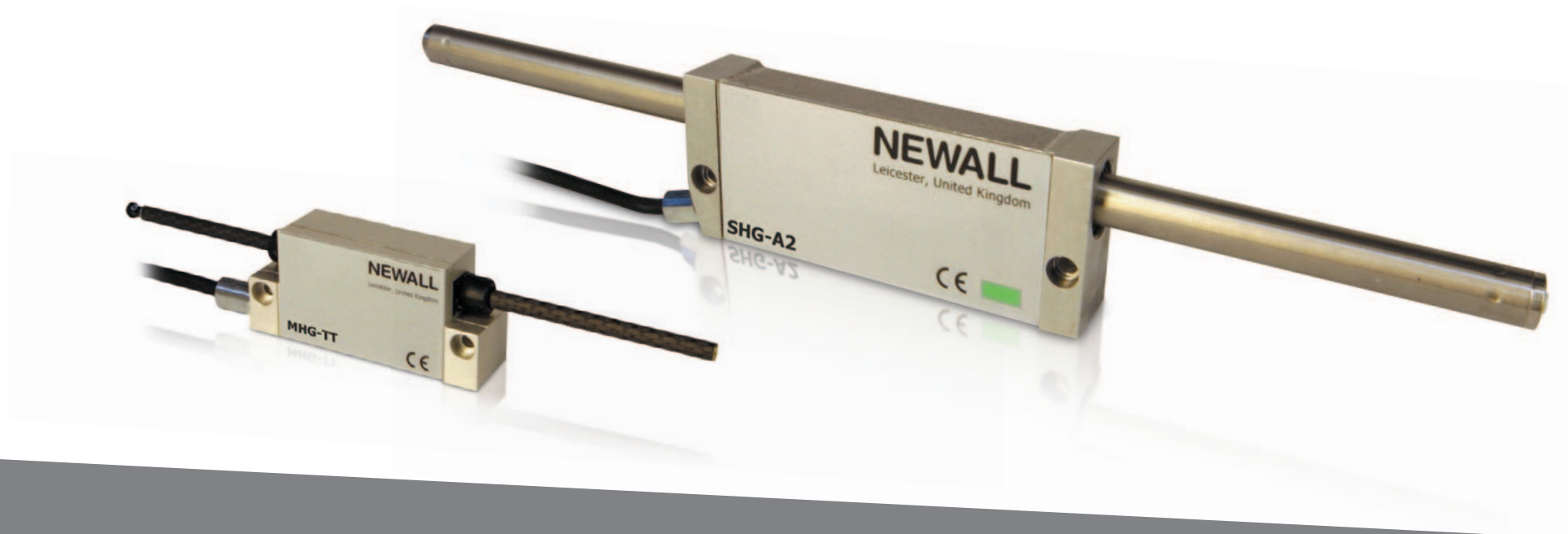
All the above brands and trademarks are the property of their respective owners.

	DSG-TT	DMG-TT
Core Technology	Spherosyn	Microsyn
Output Signal	TTL, 1Vpp or 11 $\mu$ App	
Cable	3.5 metres Armored with 9-pin D Connector	
Resolution	10 or 5 micron (0.0005" or 0.0002")	10, 5, 2, or 1 micron (0.0005", 0.0002", 0.0001" or 0.00005")
Reference Point	none	
Reader Head Dim.	131 x 53.5 x 28.5 (5.15" x 2.10" x 1.12")	75 x 35 x 25 (2.95" x 1.38" x 0.98")

# LINEAR FEEDBACK ENCODERS

## Positional feedback for CNC and other servo driven applications

CNC machine tool builders, retro-fitters and system integrators can take advantage of Newall's inductive encoder technology. The SHG, MHG and HLG line of linear encoders provide a wide range of industrial output protocols. Newall's inductive encoders offer performance and reliability benefits not found in other linear encoders.



### INCREMENTAL OUTPUT PROTOCOLS

- TTL quadrature
- 1Vpp - 20 $\mu$ m signal period
- 11 $\mu$ App
- 5-28V – Vin Vout quadrature or open collector

### ABSOLUTE OUTPUT PROTOCOLS

- RS-232
- RS-485
- SSI Gray Code
- SSI Binary
- SSI Gray Code with / Parity + Quad
- Fanuc Serial Absolute Protocol

Available with periodic or single point reference mark  
Resolutions down to 0.1 $\mu$ m available

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