

WHY YOUR MACHINE NEEDS A DRO

VASTLY REDUCED POSITIONING TIME .

Digital Readouts (DRO's) utilise linear scales mounted to the axes of the Machine. The scale reads position independent of the lead screw and shows the true tool position, regardless of mechanical wear and backlash. Reading lines on Vernier dials, counting hand wheel revolutions and lead screw backlash compensation are eliminated.

The accuracy and repeatability of precision linear scales allow the operator to position the tool to the print dimensions – just like the print reads. Stop-check-measure steps are all but eliminated, save final cuts. Features like Direct Diameter Reading greatly reduce mathematics, calculations and scrap due to operator error. Less time checking and measuring means more time making chips.

Productivity improvement of 20-40% typically reported using DRO on Machines.

The Newall Advantage

- Backed by a company with nearly 50 years of proven reliability in manufacturing DRO systems & linear encoders
- Encoders carry an IP67 rating – All electronic and measuring components are sealed from the environment
- Continually provides accurate readings even under the harshest shop conditions.
- No cleaning or maintenance required
- Tolerant to shock and vibration
- No glass to break or scratch
- Ease of installation



Why Your Machine DRO Should be Newall

Manual Machine work Is A Harsh Environment

Most machine work is exposed to a high volume of chips, coolant and other potentially hazardous conditions.

If The Scale Doesn't Work, Neither Does The DRO

DRO display features are helpful, but the main DRO benefit is derived from independence of lead screw wear and backlash, which the linear scales provide.

Glass or Magnetic (Wire or Tape) Scales Can Fail In the Machine Environment

Glass Scales can scratch, break or misread due to condensation and contamination from chips, coolants and lubricants. - Magnetic wire and tape scales fail due to chip build up or loss of polarity.

If the Scale has an Enclosure and Lip Seal

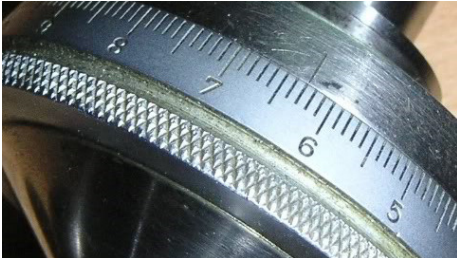
It Needs to be Protected and is Prone to Damage or Failure

Newall Spherosyn/Microsyn Scales are Unaffected by Chips, Coolant, Lubricants, Shock and Vibration

- Field Proven as the Most Reliable Linear Scale for over 30 years
- Unique Ball Bearing/Tube Design requires no enclosure or seals
- Easier and Faster to Install than any other linear scale for Machines
- Shock and Vibration Resistant Holds up to the most extreme conditions
- Impervious to liquids and coolant (IP67 Rated)
- Accuracy to 5 micron

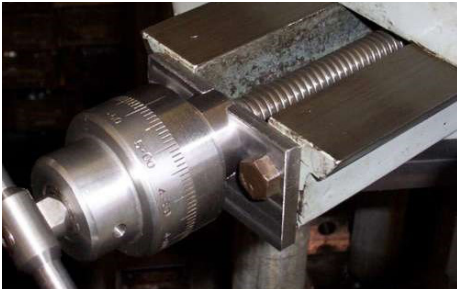


Without a DRO



- **Vernier Dials Are Hard To Read**

The lines of the dial are hard to see and can be obscured by oil and debris. Hand wheel revolutions must be counted. Misreading of the dial and scraping the part is easily done if not extremely careful.



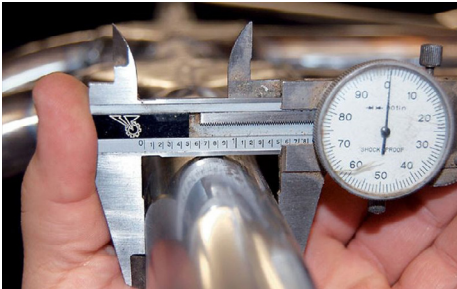
- **Tool Pressure Is Exerted on Machine Mechanisms**

Work piece exert pressure on the tool, which shifts mechanisms back against the positioning screw. With backlash always a consideration, each machine requires its own "feel."



- **Cross-Slides Have Backlash**

Lathes utilize a cross-slide to machine critical O.D. and I.D. dimensions.



- **Stop And Check Time is Non-Productive**

Since the operator cannot rely on the machine mechanisms and dials for finish dimensions, frequent stops to check the part with a scale, calliper, micrometre and dial indicators are required.



- **I.D. Work Is Even More Difficult To Measure "Blind"**

Difficult set-ups of indicators and magnetic base holders are time consuming, and always run the danger of being bumped or moved.



- **Step Lengths**

Since reading the carriage travel is even more difficult with the lathe's Vernier dial, due to its location (some lathes do not even have a dial on this axis), stop-and-measure is a must. Travel-type dial indicators are a small improvement, but are hard to read. They can jump and skip due to chips getting caught under the friction wheel, which must be held under compression against the lathe carriage way to spin the dial.

Testimonials

"I don't want to use a lathe without my Newall DRO. The DRO is much more efficient and accurate. I am always having to check and be sure I read the dial correctly, or that my indicator did not bump, without an operational DRO. I believe all lathes should have a DRO - it's too difficult without it. And I know my Newall DRO will keep working. I don't have to worry about keeping the scales clean. With Newall it's just a walk in the park." Bill Frontiera / Operations Manager – Stapels Manufacturing/Troy, MI

"I have seen our lathe operators be much more productive with a DRO on their lathe vs. without. We first bought our most recent engine lathe without a DRO on it, and you could easily see the difference in operator efficiency vs. those operators on lathes with a DRO. We soon purchased a Newall DRO for the new lathe. We have tried several DRO brands on our lathes and found Newall to be the most reliable, by far." Bee Amphlett / Shop Supervisor – Dyna-Drill Technologies/Houston, TX

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DRO Cost Justification (Typical Example)

(*Cost of DRO varies based on size of machine, make and model of DRO.)

Use/Hours per Week	20 hrs.	
Shop Rate/Hour	\$55.00	
DRO Productivity Improvement	25%	
Use/Hours per Week	20 hrs. X DRO Productivity Improvement	25% = 5 Hours /Week
DRO Productivity Improvement	5 Hours/Week X Shop Rate/Hour	\$55.00 = \$275 Savings/Week
Cost of DRO*	\$2,055 / \$275 Savings/Week = Return on Investment	7.5 Weeks

DRO Cost Justification Worksheet

Use/Hours per Week _____

Shop Rate/Hour \$____.____

DRO Productivity Improvement _____ %

Use/Hours per Week _____ hrs. X DRO Productivity Improvement _____ % = _____ Hours /Week

DRO Productivity Improvement _____ X Shop Rate/Hour \$____.____ = _____ Savings/Week

Cost of DRO* / Savings/Week = Return on Investment

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