

# Positive drive indicators

## Features

Suitable for use on control spindles in any position. The movement is housed in a sealed case (fig.1). The handwheel/knob, containing the indicator, is coupled to the control spindle. On the rear of the handwheel/knob, a flange with internal crown gear wheel (shrouded) is fitted to the machine frame by means of an anchor pin (or similar). By so doing, during handwheel rotation, the flange is integral with the machine. The rotation of the handwheel causes the planet pinion to rotate, transmitting in this way the movement inside the indicator case. The rotation is then transmitted to both pointers by means of a gearing, while the graduated dial remains still, thanks to the fixing to the machine frame, by means of the anchor pin.

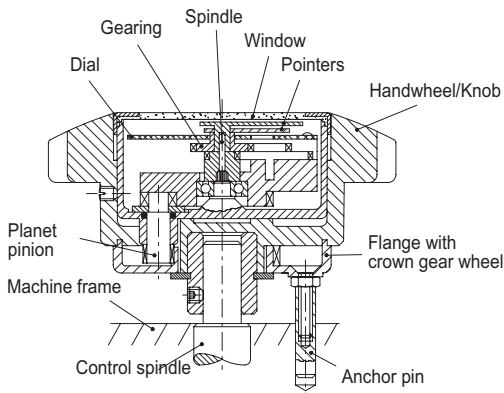


figure 1

## Ratios

Each complete turn of the big pointer (red) corresponds to a fraction of turn of the small pointer (black). The number of turns of the red pointer, to make the black pointer to carry out one complete turn, is the ratio of the indicator.

Example: a ratio of 12:1 means that 12 turns of the red pointer correspond to a complete turn of the black pointer (fig. 2).

12 turns of the handwheel cover the entire setting range. For each turn of the handwheel, the black pointer indicates 1/12 of the entire dial.



figure 2

## Choice of the indicator ratio

- Set the control spindle to the initial or referring position.
- Count the number of turns of the control spindle to cover the entire setting range.
- The result of this operation is the ratio. Should it not correspond to a standard ratio, choose the next highest one.
- For an optimal dial reading, and therefore for a more precise reading, we recommend to choose a ratio which is as near as possible to the handwheel turns required to cover the entire setting range. For instance, if 11 turns are required, the ratio 12:1 is the most convenient, because 11/12 of the available graduation will be used. If 24:1 ratio would be chosen, only 11/24 of the graduation would be used and reading would be less accurate.
- Indicators with standard ratios are normally on stock to suit most requirements.

## Dials

Dials are available for all standard ratios in both clockwise (D) or anticlockwise (S) configurations.













Standard dials give a number which can be translated, by means of conversion tables, to the value of the set-up executed.

On request and for sufficient quantities, special dials with marks or customised graduations can be supplied to have a direct reading.

## Assembly instructions

- Drill a bore in the machine frame for the rear anchor pin of the flange.
- Set the control spindle to the initial or referring position.
- Remove the black protection cap of the planet pinion, turn the latter until the pointers are in zero position.
- Take the chosen handwheel/knob and mount the supplied anchor pin on the screw protruding from the rear flange. Be sure that the hole for the indicator planet pinion is at 12 o'clock. Turn the rear flange and position the anchor pin in line with the referring bore drilled on the machine.
- Gently fit the zeroed indicator into the handwheel/knob, inserting the planet pinion smoothly into the corresponding hole. To make the fitting of the indicator easier, gently turn by some degrees the rear flange until the planet pinion is geared to the internal crown gear wheel. Check that the indicator is zeroed and that the screw for the anchor pin is in the correct position.
- Uniformly tighten the lateral grub screws for fixing the indicator case with a moderate torque, to prevent distortion of the case itself and thus locking the movement.
- Adjust the height of the anchor pin so that no undue strain is caused to the flange and tighten the locknut.
- Couple the handwheel with the indicator to the zeroed control spindle. Be sure that the indicator pointers are in zero position and that the anchor pin is in line with the referring bore on the machine.
- Pin the handwheel on the spindle.
- Check the right functioning of the indicator over all the rotation range.

# Possible assembly

Handwheels - Knobs		Positive drive indicators					
		 <b>PA01</b>	 <b>PA02</b> page 699	 <b>PA05</b>	 <b>PA11</b>	 <b>PA12</b> page 700	 <b>PW12</b> page 701
 <b>MBT-XX</b> page 703		•	•		•	•	•
 <b>VHT-XX</b> page 704		•	•		•	•	•
 <b>VC.792-XX</b> page 705		•	•		•	•	•
 <b>EWW-XX</b> page 708			•			•	•
 <b>VDC-XX</b> page 710		•	•		•	•	•
 <b>VAD-XX</b> page 713		•	•	•	•	•	•



7  
Rotary controls