

# Engine Indicator Type 30 System Maihak



## **Engine Indicator**

The mechanical pressure indicator type 30 measures dynamic pressures. It is designed to analyze and adjust 2- and 4- stroke large diesel engines.

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#### Description

Leutert Engine Indicators are used on diesel engines, steam engines, gas engines, air compressors, pumps, etc. A metal stylus draws a clear pressure-path diagram which records the pressure curve within the engine cylinders as influenced by the piston stroke. The recording drum can be moved by means of a string, which is pulled manually or by the engine. If the drum is driven by the engine, the diagram may be planimetered.

Our indicators are designed to cover various ranges of speed and rates of pressure-change: For high pressure-change rates use type 30. For low pressure-change rates type 50 should be used and for extra high pressure-change rates use type S1 (barspring).

It will always be advisable to operate with small diagrams as far as possible, in consideration of the oscillating masses. In doubtful cases it is suggested to forward particulars of the operating conditions, and on orders to give particulars regarding kind of engine, pressures to be measured, engine stroke and r.p.m.

The selection of the correct indicator size depends not only on the r.p.m but also on the rate of pressure rise at time unit dp/dt. If the above stated limit values are exceeded, the resulting acceleration would cause too high an indication of pressure. Size of piston and spring are selected such that the maximum natural frequency is attained. With regard to the accelerations, for best results the diagram length should be progressively reduced as the r.p.m. approaches the designed maximum of the indicator.

### **Features**

- Minimum reciprocating mass.
- Pressure springs are double-coiled. They operate in tension.
- Piston, cylinders and springs are detachable and interchangeable.
- Easy to handle, simple to operate. •
- Rugged design

### **Technical specifications**

Measuring range : Engine sizes :		see spring table below up to n = 1,000 rpm or max. dp/dt = 18 x 10 <sup>3</sup> bar/sec
Max. diagram :	:	30 mm / 60 mm (height / length)
Drum diameter :	:	40 mm
Paper size :	:	145 mm x 45 mm
Dimensions :	:	120 mm x 105 mm x 85 mm
Weight :	:	1.1 kg without wooden box
		4.0 kg with wooden box
Natural frequency/sec:	:	320/ $\sqrt{f}$ (f = measuring scale)
Standard connection :	:	W27 x 23.75 dia 10 tpi (W1-1/16")

### Standard accessories

Scale

0.30 mm/bar

0.24 mm/bar

0.20 mm/bar

0.18 mm/bar

0.16 mm/bar

0.12 mm/bar

0.10 mm/bar

0.09 mm/bar

0.08 mm/bar

0.06 mm/bar

Piston

1/5

1/5

1/5

1/5

1/5

1/5

1/10

1/10

1/10

1/10

1 wooden box, 1 spring, 1 measuring scale, 1 block indicator paper each 40 sheets, 1 cord tightening hook, 1 oil can for piston and links, 2 screw drivers, 1 flat plier, 1 cylinder spanner, 1 hollow spanner, 1 cylinder cleaner, 1 stand for instrument, 1 bundle indicator cord, 1 tube incl. 5 recording pencils, 1 vacuum washer 1 mm, 1 vacuum washer 0.5 mm, 1 instruction manual

Table of Indicator Springs Type 30

Max. Pressure

100 bar

125 bar

150 bar

175 bar

200 bar

250 bar



Type 30 complete in wooden box

Subject to change without notice

Spring-No.

30 / 20 bar

30 / 25 bar

30 / 30 bar

30 / 35 bar

30 / 40 bar

30 / 50 bar

Part-No.

4611.0.71.12000 4611.0.71.13000

4611.0.71.14000 4611.0.71.15000

4611.0.71.16000

4611.0.71.17000