

## VALVE GRINDING & LAPPING EQUIPMENT



### MODEL: OPTIC 15 FLAT LAPPING UNIT

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## **Optic 15 Flat lapping Unit.**

The OPTIC is a flat lapping and polishing machine for high precision and fine finishing of the sealing faces of (safety) valve and components. The frame mounted 'open face' OPTIC is built on rigid metal construction with a height adjustment and waste tank. The machine incorporates a fully automatic Liquid Diamond Dispensing System and process timer.

The OPTIC flat lapping machines are used in valve repair shops for fine finishing of all common safety valve discs, seats or complete nozzles. Only optical flat lapping can be used for reaching the so important required seat tightness of metal seated safety valves, used in oil- and gas industry. The Ventil OPTIC lapping plate and standard supplied consumable are specially selected for this purpose. The OPTIC can be used to reach a flatness accuracy within three light bands. The OPTIC is specially designed and equipped for the use in valve repair, but for a long and reliable working effect, it needs to be placed in a dedicated lapping room.

## Optic 15 Standard Scope of Supply

<b>Description</b>	<b>Optic 15</b>
Lapping plate outside diameter	380 mm / 15"
Lapping plate speed	0 - 50 RPM.
Lapping Plate Type	Composite Copper
Number conditions rings	3
Condition rings inside diameter	140 mm / 5.5"
Dispenser system	Standard, automatic
Motor timer.	0 – 1800 sec.
Machine dimensions.	685 x 555 mm / 27 x 21.9 "
Weight.	98 kg.
Main drive motor.	0.37 kW.
Standard electric supply.	230 V 50-60 Hz single phase
Required air supply.	4-6 bar / 60-90 PSI.
Result composite copper.	3 – 14 $\mu$
Standard consumables	Liquid Diamond, 6 micron for Lapping and pre-polishing Oil based Lubrication Liquid

## Options

Optical flats are optical-grade, lapped and polished glass pieces which are extremely flat (about 25 nanometres). They are used in combination with a monochromatic light to determine the flatness of the lapped valve seat or disc.

When the valve seat or disc and optical flat are placed under the monochromatic light, the surface is illuminated and the light waves reflect off both the bottom surface of the flat and the surface of the seat. The reflected waves interfere, creating a pattern of interference fringes (Newton's rings), visible as light and dark bands.



The spacing between the fringes is smaller where the gap is changing more rapidly, indicating a departure from flatness in one of the two surfaces, in a similar way to the contour lines on a map.

A flat surface is indicated by a pattern of straight, parallel fringes with equal spacing, while other patterns indicate uneven surfaces. Two adjacent fringes indicate a difference in elevation of one-half wavelength of the light used, so by counting the fringes differences in elevation of the surface can be measured to millionths of an inch. The delivery includes a laminated poster with operating instructions and indicative guidelines of levels of flatness.

