

The V-Tec 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 the oil- & gas industry. The V-Tec OPTIC lapping plate and standard supplied consumables are specially selected for this purpose. The OPTIC can be used to reach a flatness accuracy within 3 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.

### THE OPTIC IS EQUIPPED WITH:

- ✓ Motor with gearbox
- ✓ Fully automatic liquid diamond and lubricating dispensing system
- ✓ Motor timer 0 - 999 minutes
- ✓ Adjustable table top
- ✓ 3 conditioning rings, spray head and guide levers
- ✓ Standard lapping plate is Copper Composite
- ✓ Plate specially for valve seats and discs



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### AUTOMATIC DISPENSING UNIT

The accurately controlled automatic unit dispenses liquid diamond and lubrication on the lapping plate. It contains a stirring system to ensure a consistent mixture and distribution of the diamond abrasive liquid. The dual channel dispenser arm can be easily positioned to dispense both liquid diamond and lubrication.

### CONSUMABLES (LAPPING MIXTURE)

The OPTIC machine is delivered ready for use, including all required materials and consumables. The Lapping mixture exists of an abrasive mixed with a lapping, lubricating liquid.

### OPTIONAL FEATURES - OPTICAL FLATS & MONOCHROMATIC LIGHT

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.



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OPTIC SPECIFICATION	OPTIC 15	OPTIC 24	OPTIC 36	OPTIC 60
Lapping plate diameter	380 mm. / 15"	610 mm. / 24"	900 mm / 36"	1500 mm / 60"
Lapping plate speed	0 - 60 rpm	0 - 60 rpm	0 - 60 rpm	0 - 60 rpm
Number of conditioning rings	3	3	3	3
Conditioning rings inside dia.	Ø140 mm. / 5.5"	Ø240 mm./ 9.5"	Ø368 mm. / 14,5"	Ø580 mm. / 23"
Dispenser system	Standard automatic	Standard automatic	Standard automatic	Standard automatic
Motor timer	0-1800 sec.	0-1800 sec.	0-1800 sec.	0-1800 sec.
Machine dimensions	670x550 mm./ 26x21"	1100x1100 mm./ 44x44"	1500x1500 mm./ 60x60"	2000x2200 mm./ 80x86"
Working height	340 mm./ 14"	900 mm./ 36"	1250 mm./ 50"	1250 mm./ 50"
Weight	100 kg.	320 kg.	520 kg.	1750 kg.
Main drive motor	0.37 kw.	2,2 kw.	2,5 kw.	5,5 kw.
Standard electrical supply	Single phase 220-240 Volt 50-60 Hz or 110 Volt	Single phase 220-240 Volt 50-60 Hz or 3 Phase 380 – 400 Volt 50-60 Hz.	Single phase 220-240 Volt 50-60 Hz or 3 Phase 380 – 400 Volt 50-60 Hz.	Single phase 220-240 Volt 50-60 Hz or 3 Phase 380 – 400 Volt 50-60 Hz.
Required air supply	5-6 bar / 70-90 PSI.	-	-	-
Certification	CE Marking	CE Marking	CE Marking	CE Marking
Standard consumables	Silicon carbide grain 600 and lubrication liquid diamond 6 Micron	Silicon carbide grain 600 and lubrication liquid diamond 6 Micron	Silicon carbide grain 600 and lubrication liquid diamond 6 Micron	Silicon carbide grain 600 and lubrication liquid diamond 6 Micron
Optional components	Monochromatic light and optical flat lenses	Monochromatic light and optical flat lenses	Monochromatic light and optical flat lenses	Monochromatic light and optical flat lenses

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