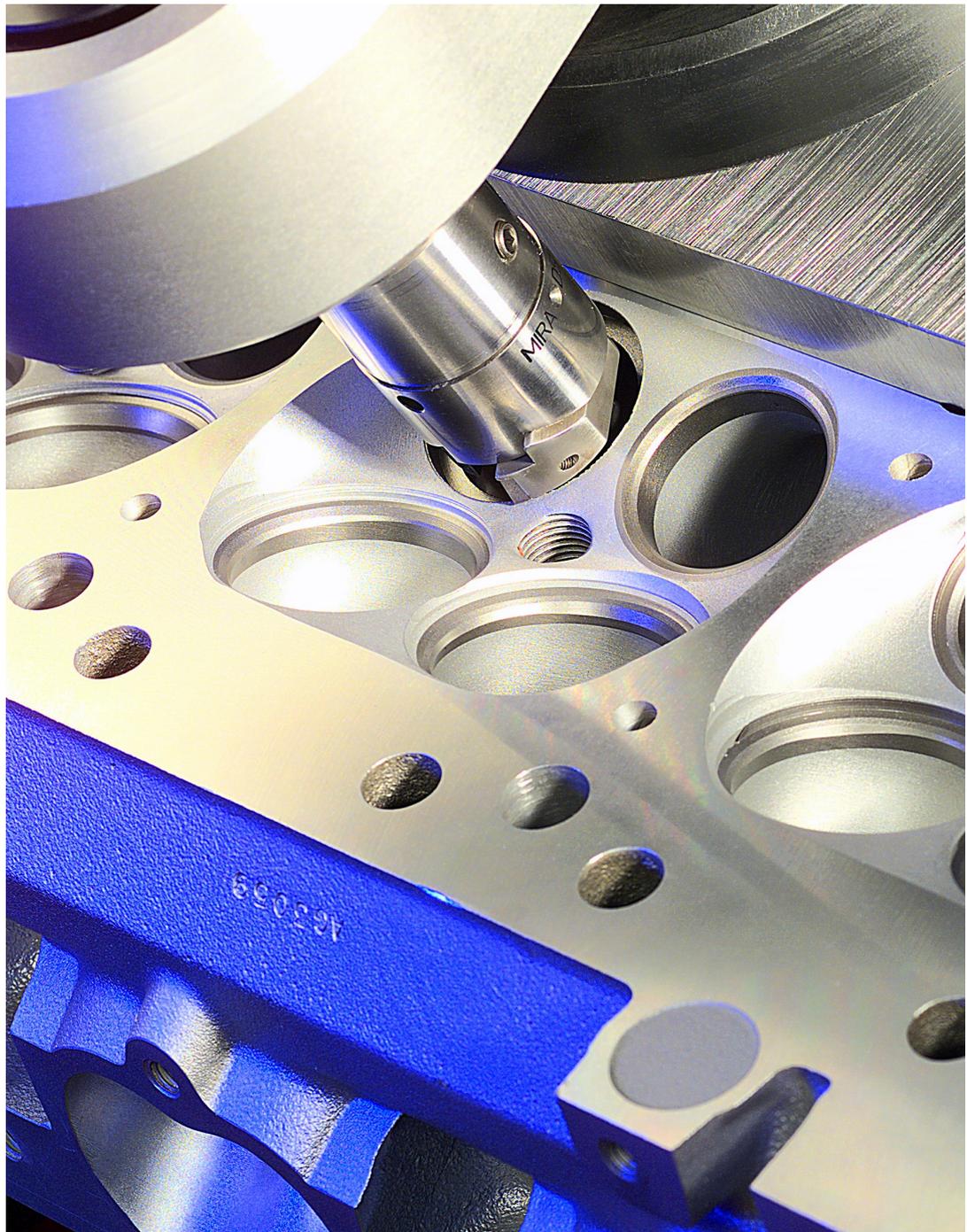




Precision Tools for Engine Rebuilding

Automotive Catalog



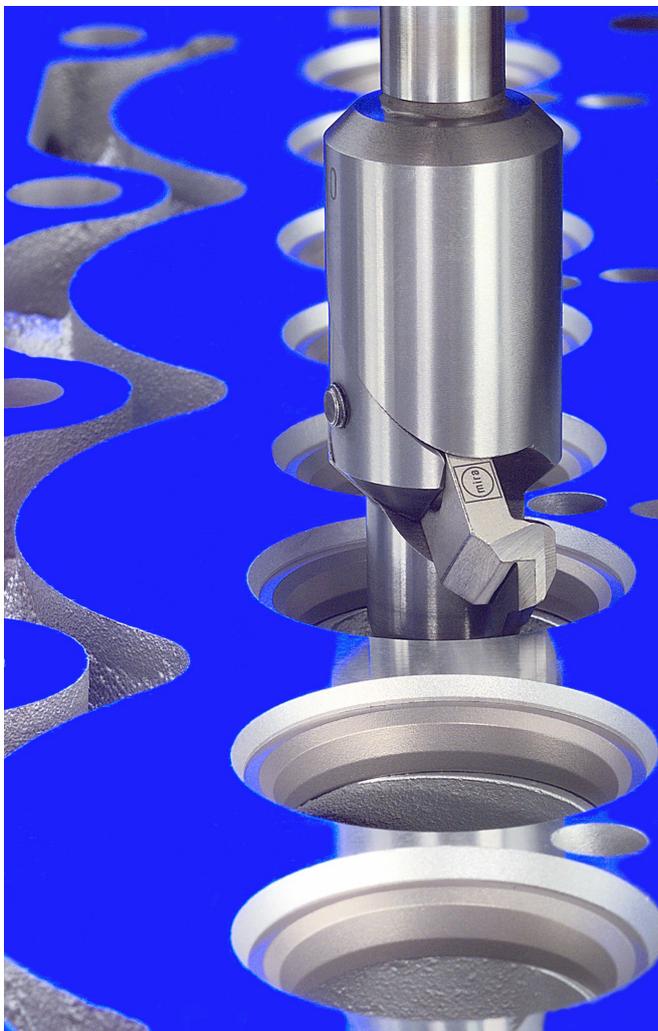
MIRA[®]

Company

Almost 60 years ago and along with the development and manufacturing of its line of VG-valve seat refacing machines, MIRA[®] invented the famous 3-angle seat cutting system. A device which truly revolutionised the way of valve seat cutting and machining.

Meantime MIRA[®] has gradually become a leader in the field of designing, developing and manufacturing first class tooling and equipment for the professional engine builder, cylinderhead professional, race engine builder and OEM's.

MIRA[®] is a family owned, highly innovative and fully customer orientated Swiss Engineering and Manufacturing Company. From its beginnings MIRA[®] has always produced top-quality products at affordable prices.



MIRA[®] manufactures a fine line of high precision machinery, tooling and equipment for the remanufacturing and tuning of petrol and Diesel cylinderheads as well as engine blocks with counterbores.

MIRA products are used for the following main applications:

- **Car & Truck Engines**
- **Motorcycles Engines**
- **Marine Engines**
- **Aero Engines**
- **Performance Engines**

MIRA[®] machines and tools are built to deliver higher accuracy than any other comparable equipment on the market. To this day, MIRA[®] designs and produces all critical components in-house using dedicated state-of-the-art CAD and CNC machines to ensure rock-solid engineering and high manufacturing quality.

If you are planning to invest into your engine rebuilding shop or if you have questions - just give us a call ! At MIRA[®] we are a team of friendly, experienced and highly motivated people - all ready and dedicated to serving your individual needs !

The Swiss Automotive Toolmaker

MIRA®

VGX-21

Perfect 3-Angle Valve Seat Cutting



The portable VGX-21 valve seat refacing unit has been developed for the specialised petrol and diesel cylinderhead workshop. The highly accurate valve seat processing is achieved by a spherical spindle guide bearing as well as a unique **hydraulic ball clamping system**. A almost pressure free centering and braceless fixing of the MIRA® rotary head is made possible in order to achieve precise and concentric valve seats !

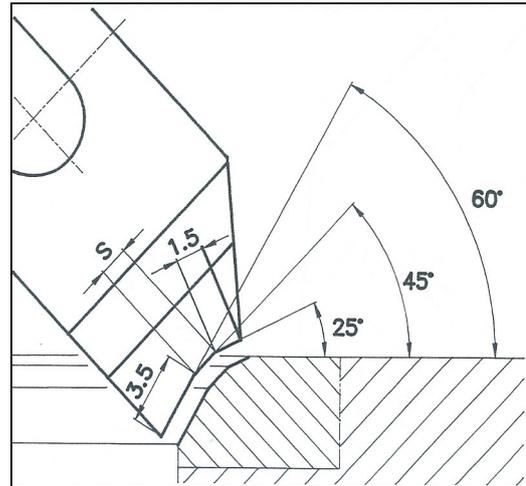
Fast exchangeable Toolhead System

MIRA® VGX Tooling

Perfect 3-Angle Valve Seat Cutting



The VGX-21 tooling system features unique exchangeable toolheads for the rapid and easy adjustability to the desired seat dimensions.



A broad range of standard MIRA® **MULTICUT FORMTOOLS** and **PILOTS** are listed in the illustrated MIRA® tooling catalog!

Have a look into the MIRA® formtool catalog under www.miratool.ch

Ask for **MIRA® Custom Made Formtools and Pilots!**

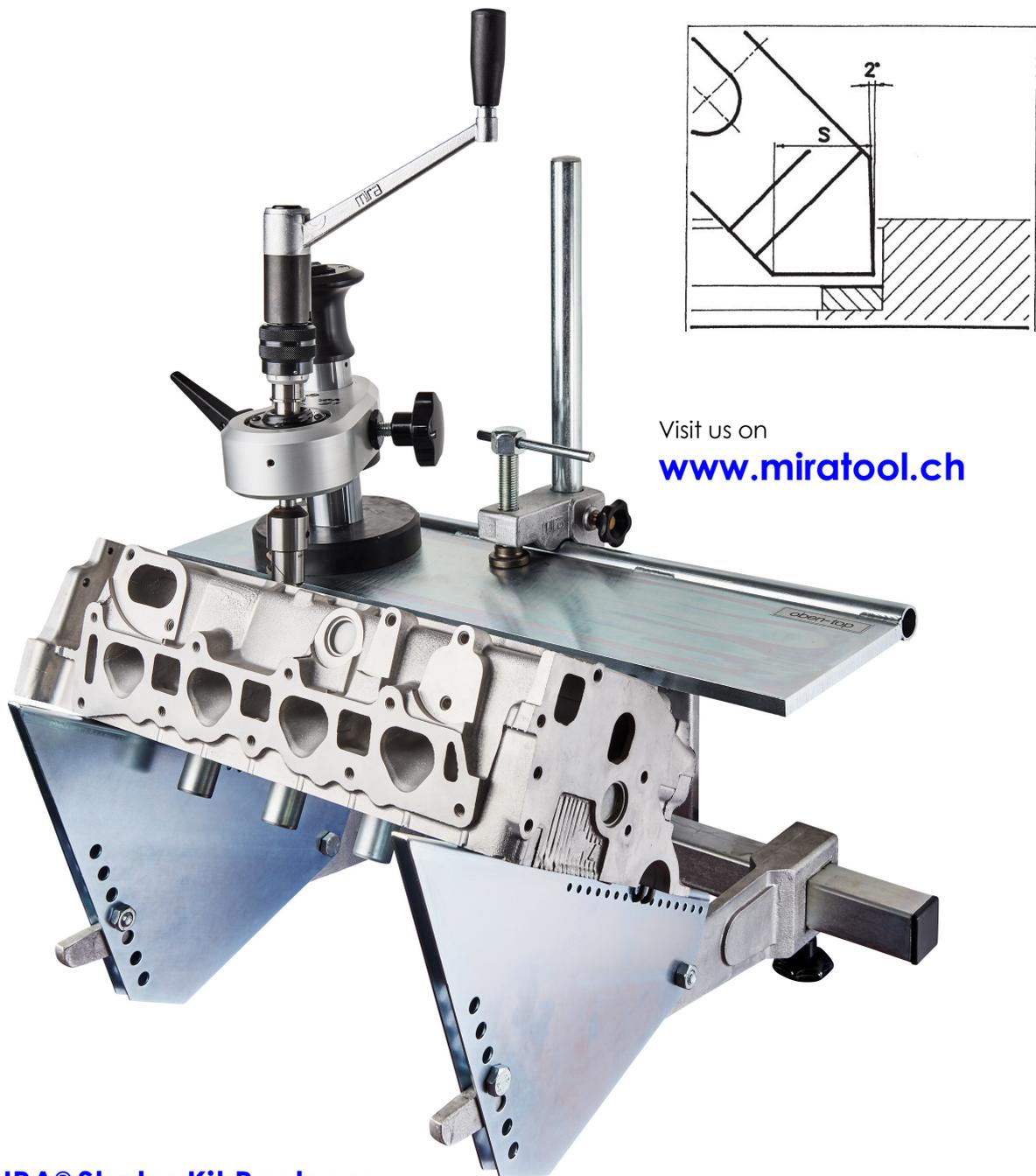
The genuine MIRA® double edged toolhead system with exchangeable hard alloy carbide typs for the easy turn out of seat rings and the manufacturing of precise ring seat counterbores!



Exchangeable Precision Toolhead System

MIRA® VGX-21 AV

Accurate Valve Seat Refacing Starter Kit



Visit us on
www.miratool.ch

MIRA® Starter Kit Package

consisting of

VGX-21 valve seat refacing unit DT1 exchangeable toolhead 06 FD-type pilots (free selection) 06 SK-type formtools (free selection). AV basic cylinderhead support for wall mounting. SH set of inclined plates. Formtool setting gauge. Service tooling. Instruction manual. Wooden storing box.

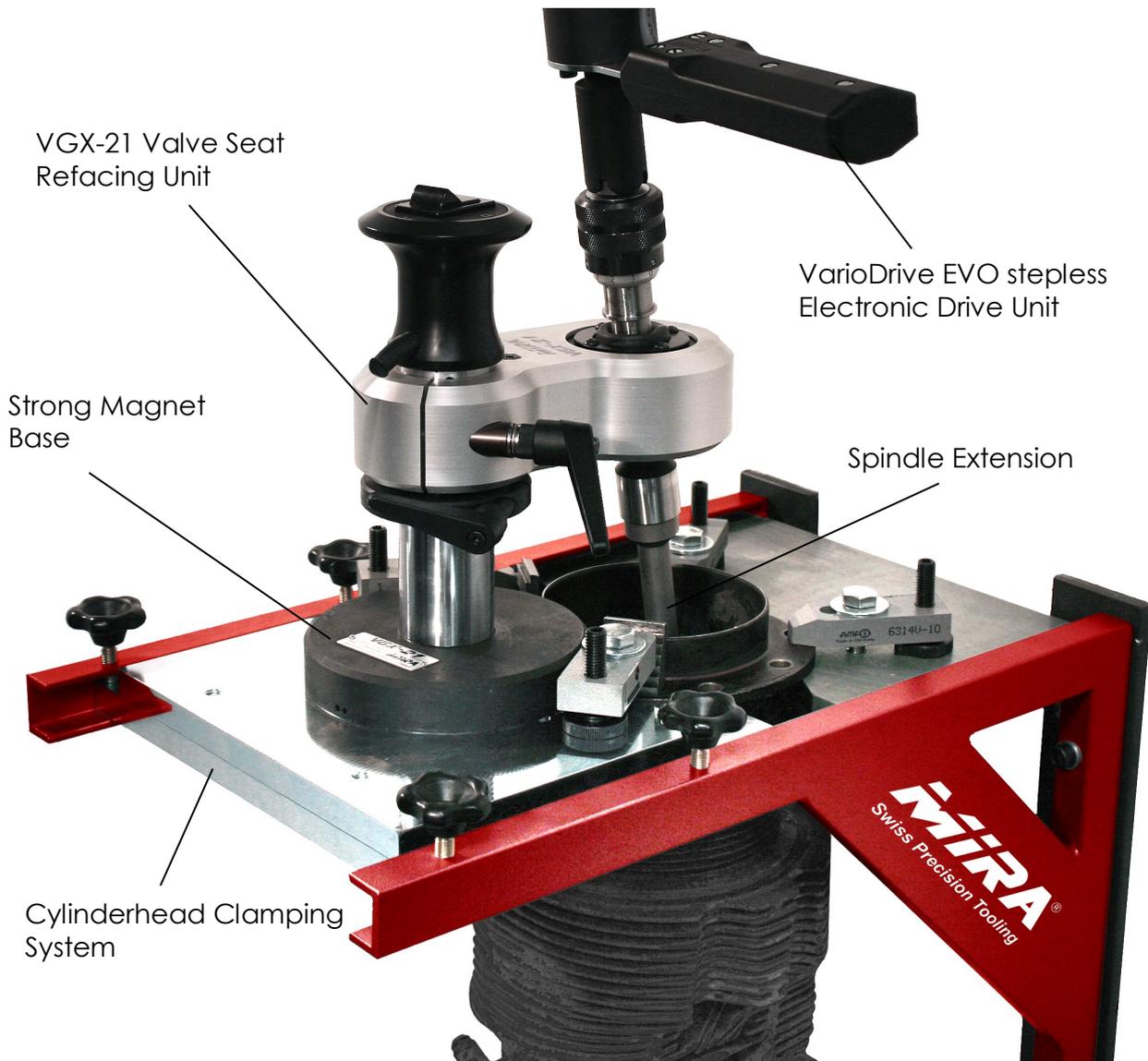
Complete VGX-21/ AV Starter Package!

MIRA®

VGX-Aero

Blind Cylinder Machining of Aero Engines

The MIRA® AeroKit has been specially designed for valve seat cutting on blind cylinders of **CONTINENTAL®** and **LYCOMING®** Aero Engines.



Standard MIRA® Aero Toolkit includes:

- VGX-21 Valve Seat Refacing Unit
- DT1 tool head (processing \varnothing 21-45mm)
- 200mm extension shaft
- Cylinderhead Support for wall mounting
- Vario-Drive stepless Electronic Drive Unit
- 02 MIRA® SKX MultiCut Formtools
- 02 MIRA® FD Centering Pilots

Optional Equipment

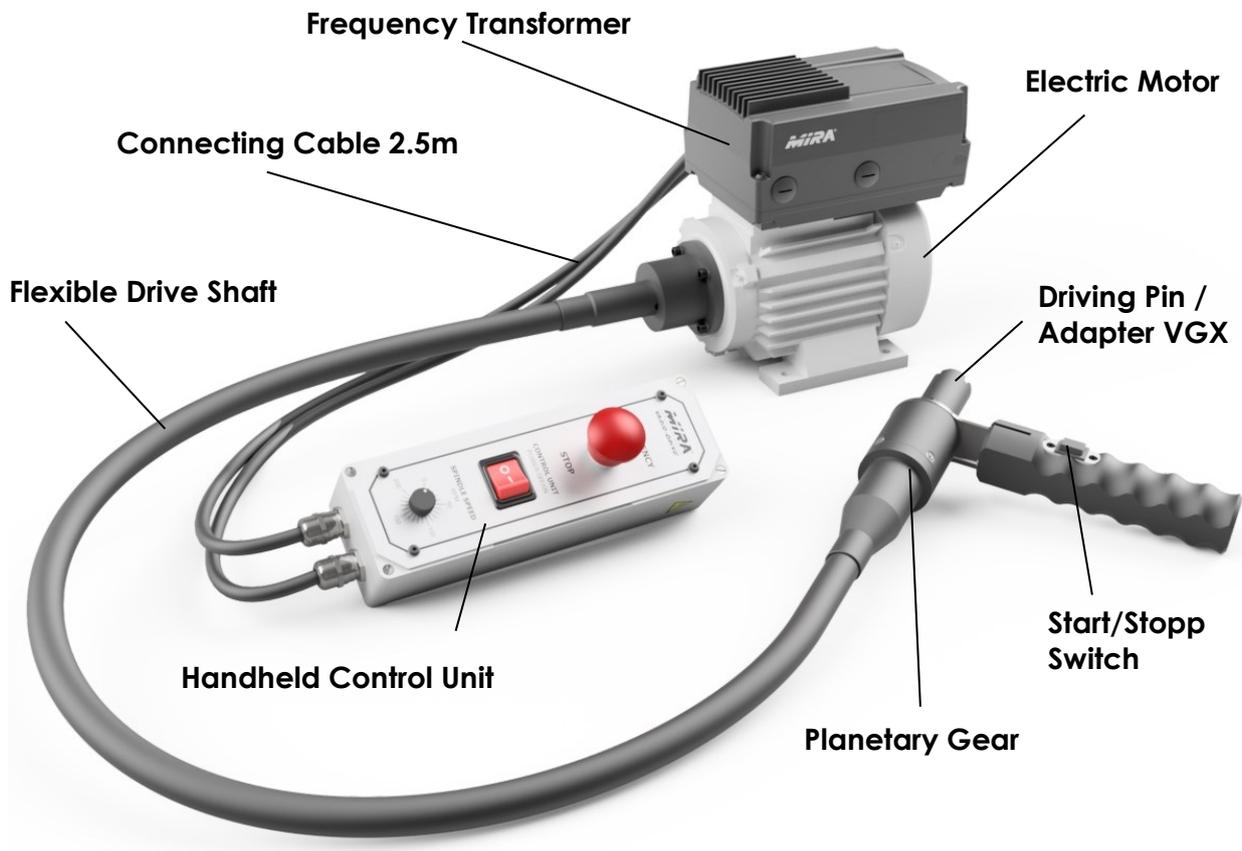
- DT2 tool head (\varnothing 37-55mm)
- DSD double-edged tool for counterboring \varnothing 44-55mm
- Custom Made Extension Shafts
- EM25-75mm Adj.Micrometer
- MIRA® Vacuum Test Unit

Toolkit for Aero Engine Rebuilding

MIRA®

VarioDrive

Stepless Electronic Drive Unit



The new **VARIO-DRIVE EVO** significantly improves the efficiency of your cylinderhead workplace. The unit enables a fatigue-free and time saving refacing of valve seats and counterbores and guarantees a smooth and even cutting motion. The new **VARIO-DRIVE EVO** is well adapted to complete all hand-driven MIRA Valve Seat Units.

Technical Specifications

Dimension VarioDrive Assy:	400x175x285mm (width x depth x height)
Dimension VarioDrive Control box:	80x 10x285mm (width x depth x height)
Weight:	17 Kg
Operation Range flexible shaft:	600mm Radius
Speed Range:	0-200 1/min.
Power supply:	230VAC, 50Hz / 110VAC, 60 Hz

Applicable to all MIRA® Valve Seat Refacing Units!

MIRA[®]

MULTIVAC

Automotive Vacuum Test Unit



The portable **MULTIVAC** is a versatile test unit especially designed for the important leak testing on valve seats before and after rebuilding.

Further to this the **MULTIVAC** permits a multitude of vehicle related vacuum tests and bleeding of all kinds of hydraulic braking and clutch systems.

The unit is equipped with a vacuum piston pump. A built-in pressure difference control allows the precise setting of the unit.

Technical Specifications

Dimensions:	270x180x70mm (width x depth x height)
Weight:	5 Kg
Range of vacuum:	-550 to -800mbar
Length of suction hose:	2000mm
Power supply:	230VAC, 50Hz / 110VAC, 60 Hz
Nominal Power:	80W

Final leak testing on valve seats

MIRA®

DT Toolset

High Precision Tool System



The extensive range of **MIRA® DT-Toolsets** are specially designed to enhance your VGX 21 valve seat refacing units.

A broad range of **MIRA® DT-Toolsets** for valve seat and ring seat processing are available ranging from 16.00mm to 75mm. A special MK3 toolholder for head shops and drilling machines is also available.

Ask for your custom-tailored DT-Toolset combination!

Enhance your MIRA® tool range

LTX Multiaxle Machine Table

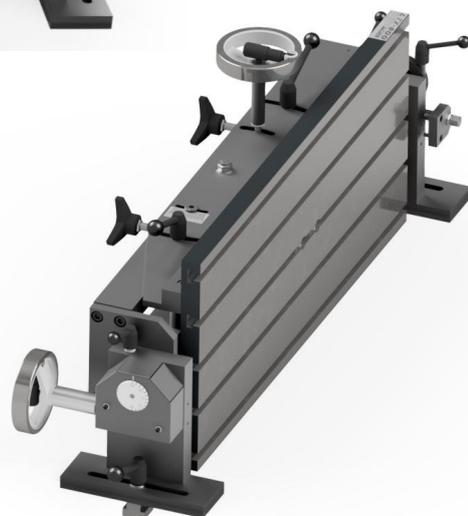


The universal MIRA® leveling table is used for the fast and easy surfacing of cylinderheads, engine blocks, inlet and exhaust collectors and for numerous individual machine shop applications.



LTX-800 Specifications

Table length	800mm
Table width.	350mm
Inclination X-Axis	0-10°
Inclination Y-Axis	0-90°
Slots on table top	5 (24mm)
Total Height	300mm
Weight Net	120 Kg



Fast clamping, aligning and surfacing

MIRA®

VMX-2000

ValveMaster Workstation



VMX-2000 ValveMaster incl.
VGX-21 Valve Seat Refacing Unit
Set of standard FD-Pilots, SK-Form-
tools, Formtool Setting Gauge.
Service Tooling.

Economical Cylinder Head Stand

VMX-2000 ValveMaster Cylinder Head Workstation with 300° AV rotating cylinderhead Support 25mm steel table. Cylinderhead support profiles. Standard colour RAL 3001 Red.

Swiss Quality Tooling and Equipment

MIRA®

HMX-2000



HMX-2000 EVO including VGX-21 Valve Seat Refacing Unit with set of standard FD-Pilots, SK-Formtools, Formtool Setting Gauge and Service Tooling.

Professional Cylinder Head Workstation

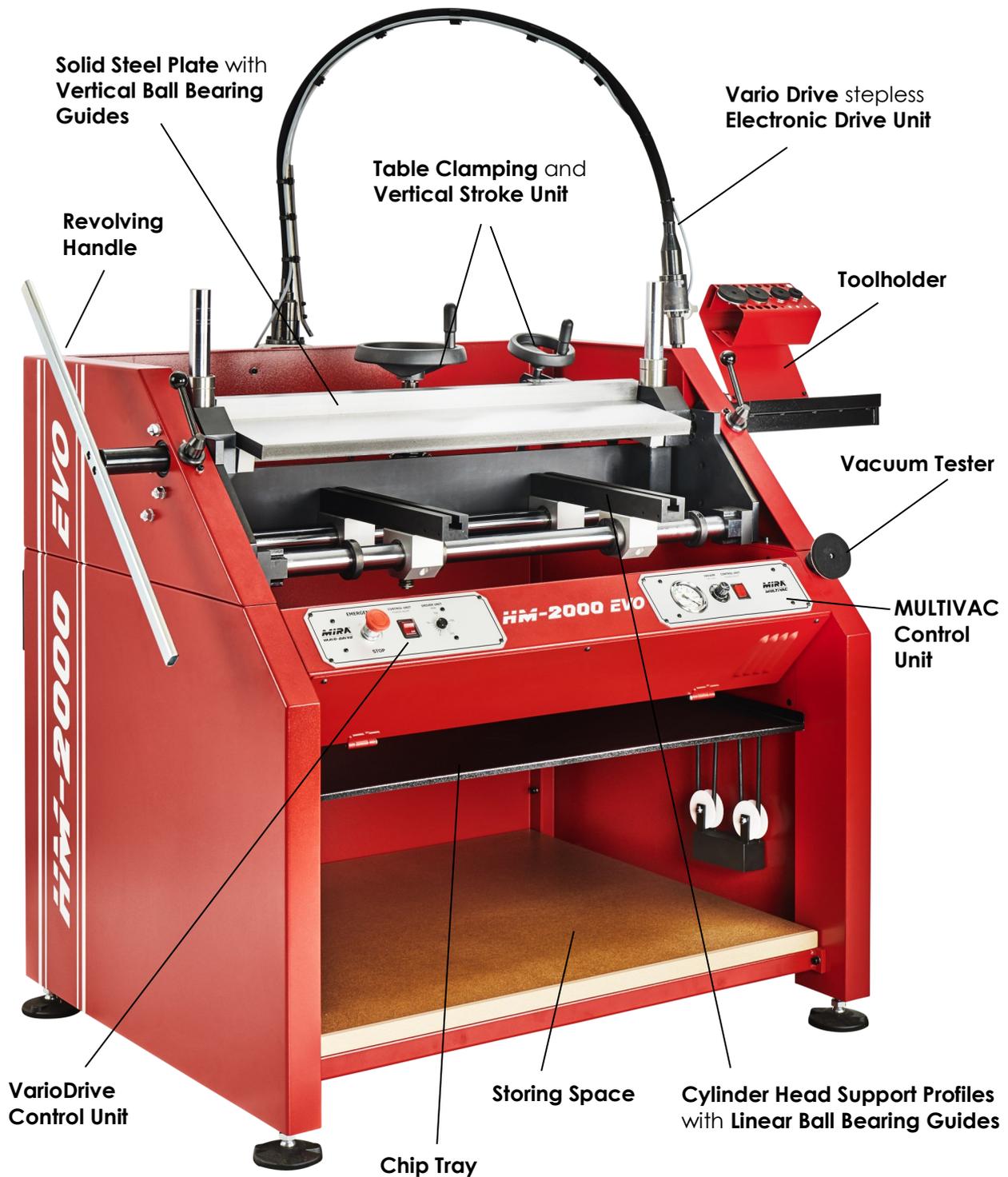
HMX-2000 EVO Cylinder Head Workstation with **300° rotating cylinderhead support**. Strong, height adjustable 25mm steel table. Cylinderhead support profiles with linear ball bearings. **VarioDrive** integrated electronic drive unit. Integrated **Multivac** vacuum test unit. Standard colour RAL 3001 Red.

Swiss Quality Tooling and Equipment

MIRA[®]

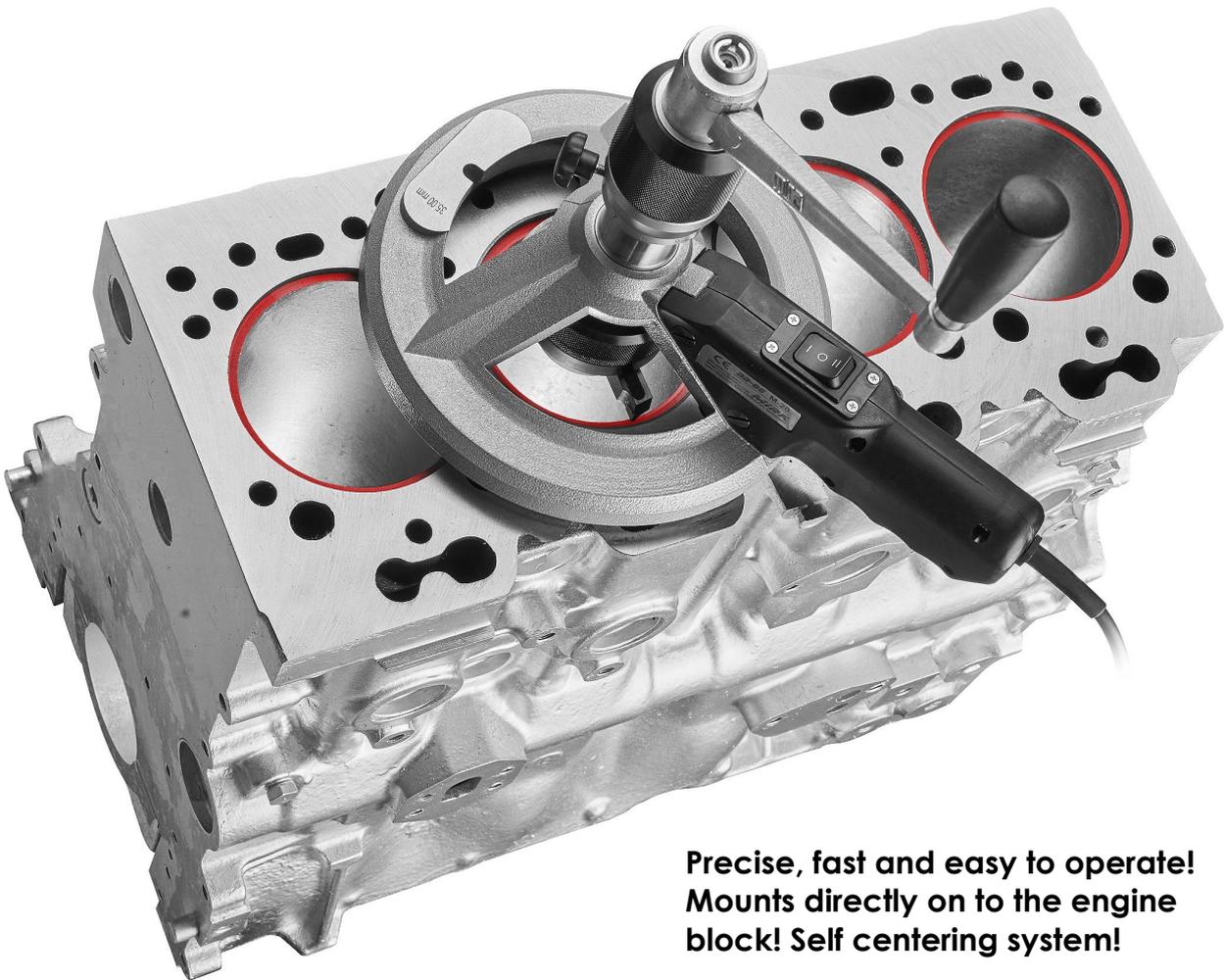
HM-2000

HeadMaster Workstation



Swiss Quality Cylinder Head Workplace

Recuts Diesel Sleeve Counterbores



**Precise, fast and easy to operate!
Mounts directly on to the engine
block! Self centering system!**

Counterbore Machining

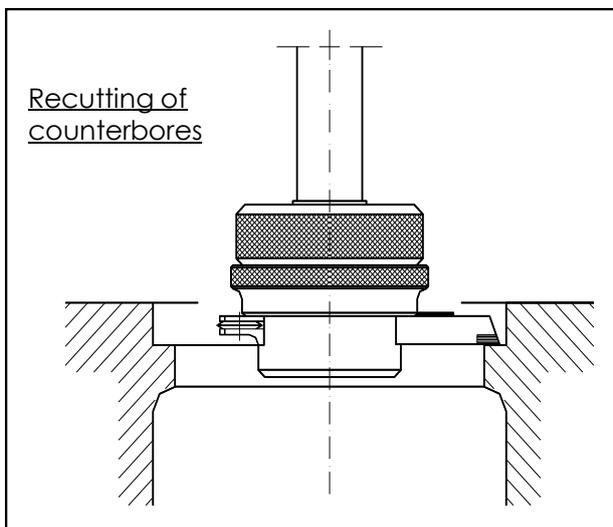
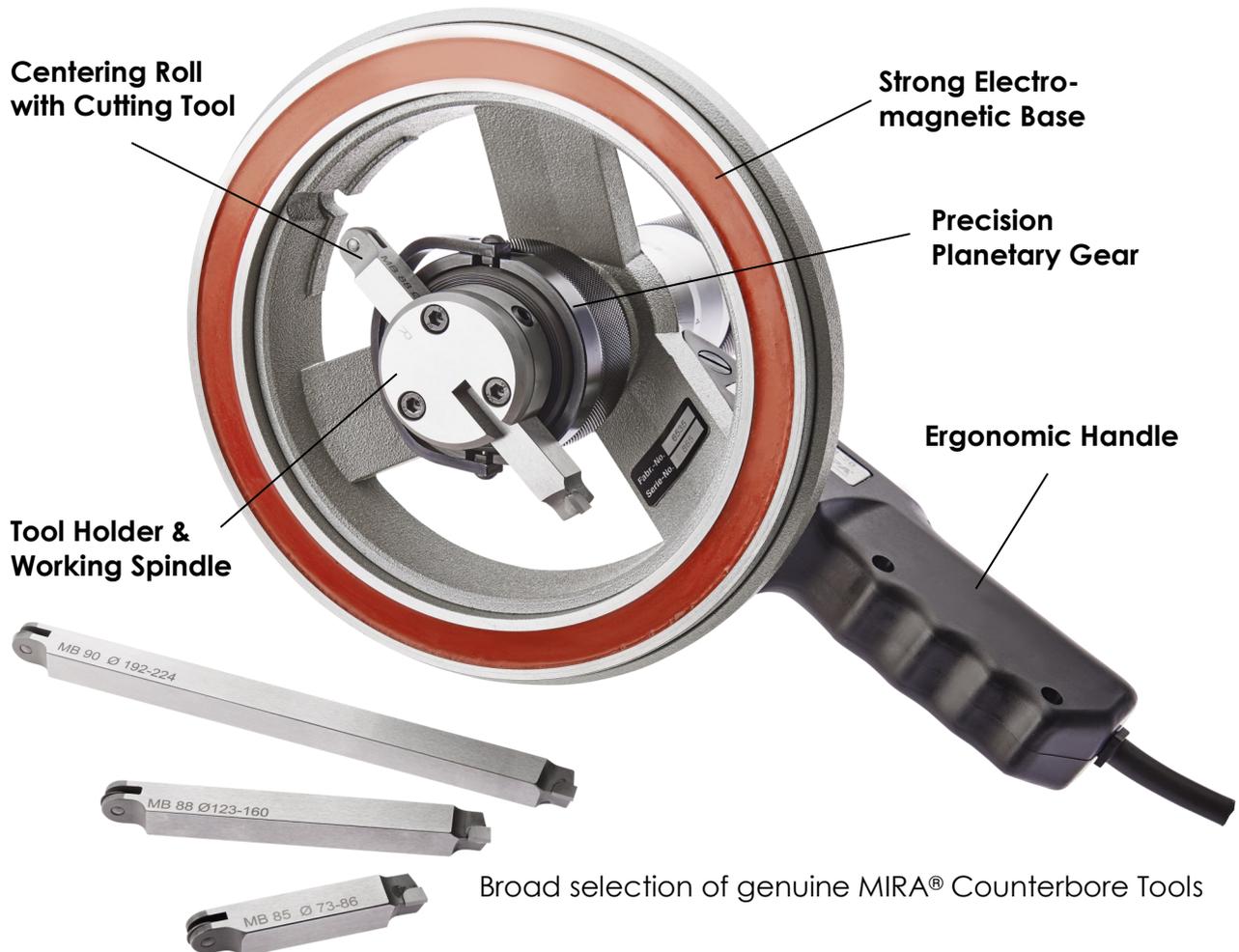
To guarantee a perfect seal between engine block and wet liners, the counterbore seat of an engine block must be refaced during engine overhaul and in case of leaks.

This job is rapidly and simply carried out with the very accurate BB unit. Its centering is automatic and the unit is clamped by means of a strong electro magnet. As the unit is placed directly on the sealing surface of an engine block, the refaced counterbore seats will automatically be parallel with the sealing surface.

The refacing procedures can be carried out on installed as well as on removed engine blocks or even built-in underfloor engines.

Precision Tooling for Engine Reconditioning

Portable and simple to operate



Standard MIRA® cutting tool range

MB-85	73.00 - 88.00 mm
MB-86	85.00 - 105.00 mm
MB-87	97.00 - 126.00 mm
MB-88	122.00 - 162.00 mm
MB-88 DAF	122.00 - 162.00 mm
MB-88 AD	130.00 - 170.00 mm
MB-89*	158.00 - 198.00 mm

MIRA® BB-86 Specifications

BB-86 Mini MD	Outside \varnothing = 154mm
BB-86 Standard	Outside \varnothing = 170mm
BB-86 „Giant“	Outside \varnothing = 198mm

On site remanufacturing of sleeve counterbores

MIRA®

BB-86 EXT

200mm Shaft Extension



MIRA® can offer an a extension kit for refacing deep seated counterbores on todays truck engines.

Up to 200mm in depth can easily be refaced by simply adapting the special extension unit!

The BB-86 extension is adaptable on all genuine MIRA® BB-86 units!

Refacing of deep seated counterbores!

MIRA®

BB XJ-Tool

Precise on-site counterbore machining of Jenbacher 6-Series engine blocks



MIRA® is a leader in the design, development and manufacturing of special tooling and equipment for **Automotive & Industrial** OEM requirements!

Ask for your individual OEM tooling!



The Swiss Toolmaker

Manufacturer and Worldwide Distributor

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Switzerland

Phone: 0041-44-952 35 35
Fax: 0041-44-952 35 60
Homepage: www.miratool.ch
Email: sales@minelli.ch



MIRA[®] Service - Product Support - Warranty

MIRA[®] products are shipped worldwide. Replacement parts and after sales service will be provided by your local distributor or direct from the MIRA[®] factory in Switzerland.

MIRA[®] technical product support is available by phone, fax, email or Skype account. Personal product training is available at the MIRA[®] training centre in Switzerland upon request.

All MIRA[®] Swiss quality products are backed by a limited 24 months factory warranty!

MIRA[®] is the registered trademark of the MINELLI CORPORATION Switzerland. MIRA[®] products are protected by international patents and patent pendings. MIRA[®] reserves the right to change product design, specifications and prices without prior notice!