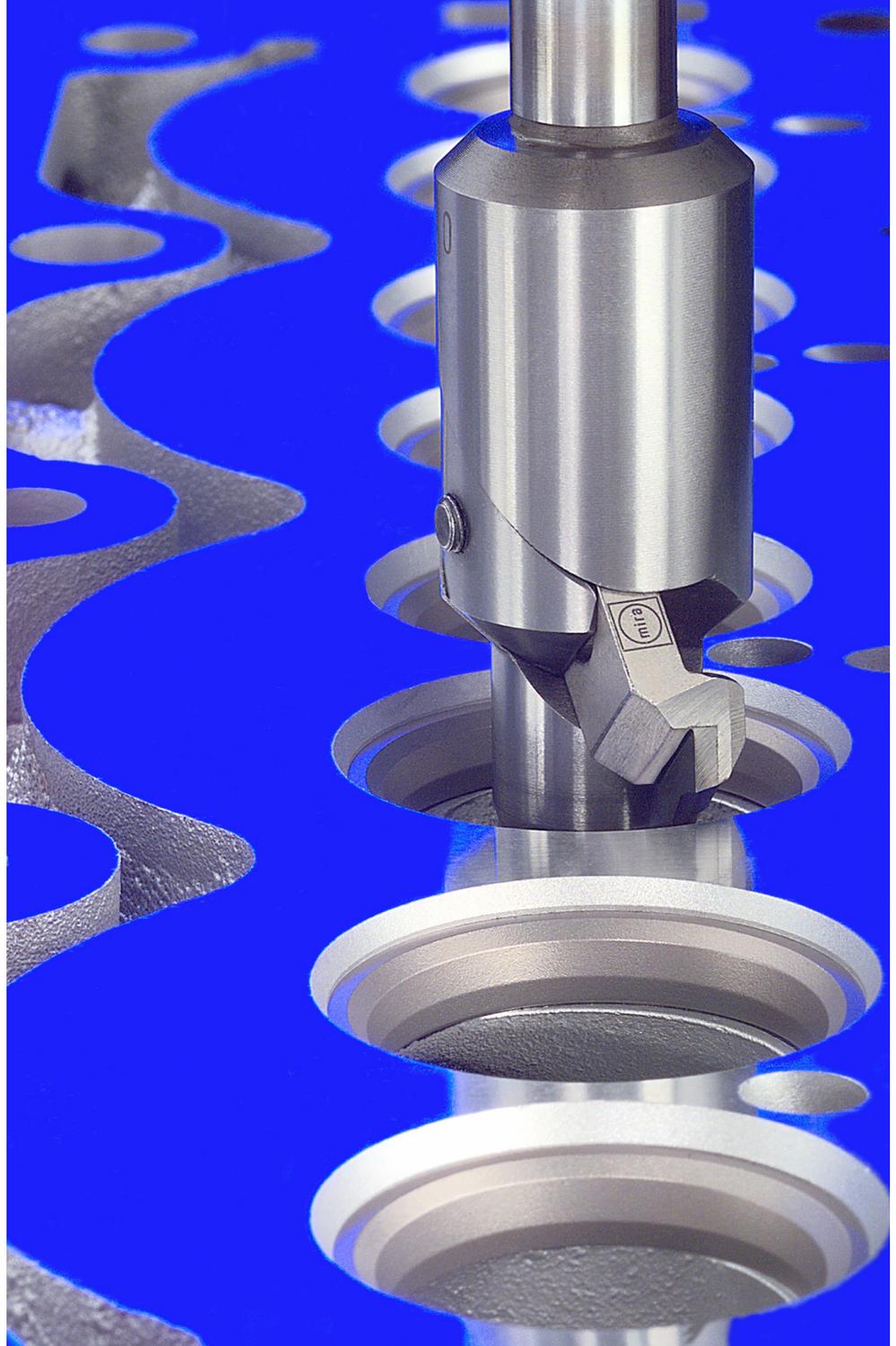


**MIRA<sup>®</sup>**

# Automotive Catalog



**Swiss Precision Engineering**

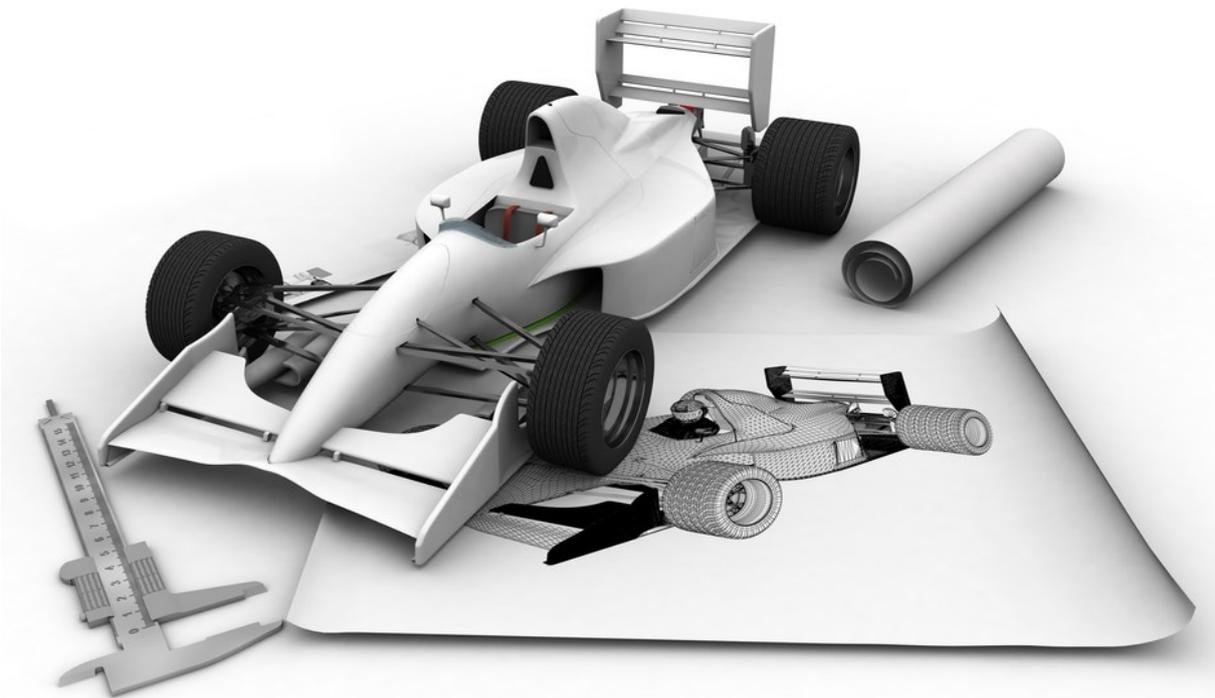
# MIRA<sup>®</sup>

# Company

Almost 50 years ago and along with the development and manufacturing of its line of VG-valve seat refacing machines, MIRA<sup>®</sup> invented the famous 3-angle seat cutting system. A device which truly revolutionised the way of valve seat cutting and machining.

Meantime MIRA<sup>®</sup> 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 car builder and OEM's.

MIRA<sup>®</sup> is a family owned, highly innovative and fully customer orientated Swiss Engineering and Manufacturing Company. From its beginnings in 1967, MIRA<sup>®</sup> has always produced top-quality products at affordable prices.



MIRA<sup>®</sup> 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<sup>®</sup> machines and tools are built to deliver higher accuracy than any other comparable equipment on the market. To this day, MIRA<sup>®</sup> 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. MIRA<sup>®</sup>'s quality management system is fully ISO 9001:2008 certified!

Over the last years, MIRA<sup>®</sup> has gradually expanded its services into the field of first class automotive consulting and engineering as well as prototyping and pre-production batch manufacturing for road, race, marine and industrial applications.

If you are looking for additional products or if you have questions - just give us a call ! At MIRA<sup>®</sup> we are a team of friendly, experienced and highly motivated people - all ready and dedicated to serving your individual needs !

***Innovative Swiss Quality Engineering***

# **MIRA<sup>®</sup>**

# **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 ! **Order Number: VGX-21**

## ***With Fast Exchangeable Toolhead System***

# MIRA<sup>®</sup>

# VGX-21 Tooling

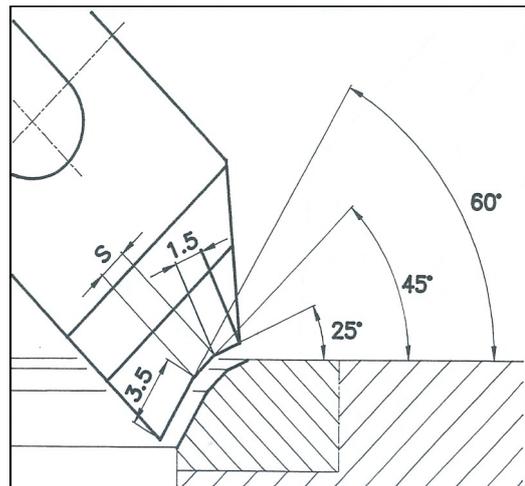
## Perfect 3-Angle Valve Seat Cutting



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

A huge selection of standard and custom made **MIRA MULTICUT FORMTOOLS** and **PILOTS** are available from the manufacturer!

**Ask for the MIRA formtool & pilot catalog or send your specific drawing for your custom made MIRA tooling!**



The **MIRA EM-25-75** adjusting micrometer makes it possible to rapidly adjust the tool-head for seat ring processing.



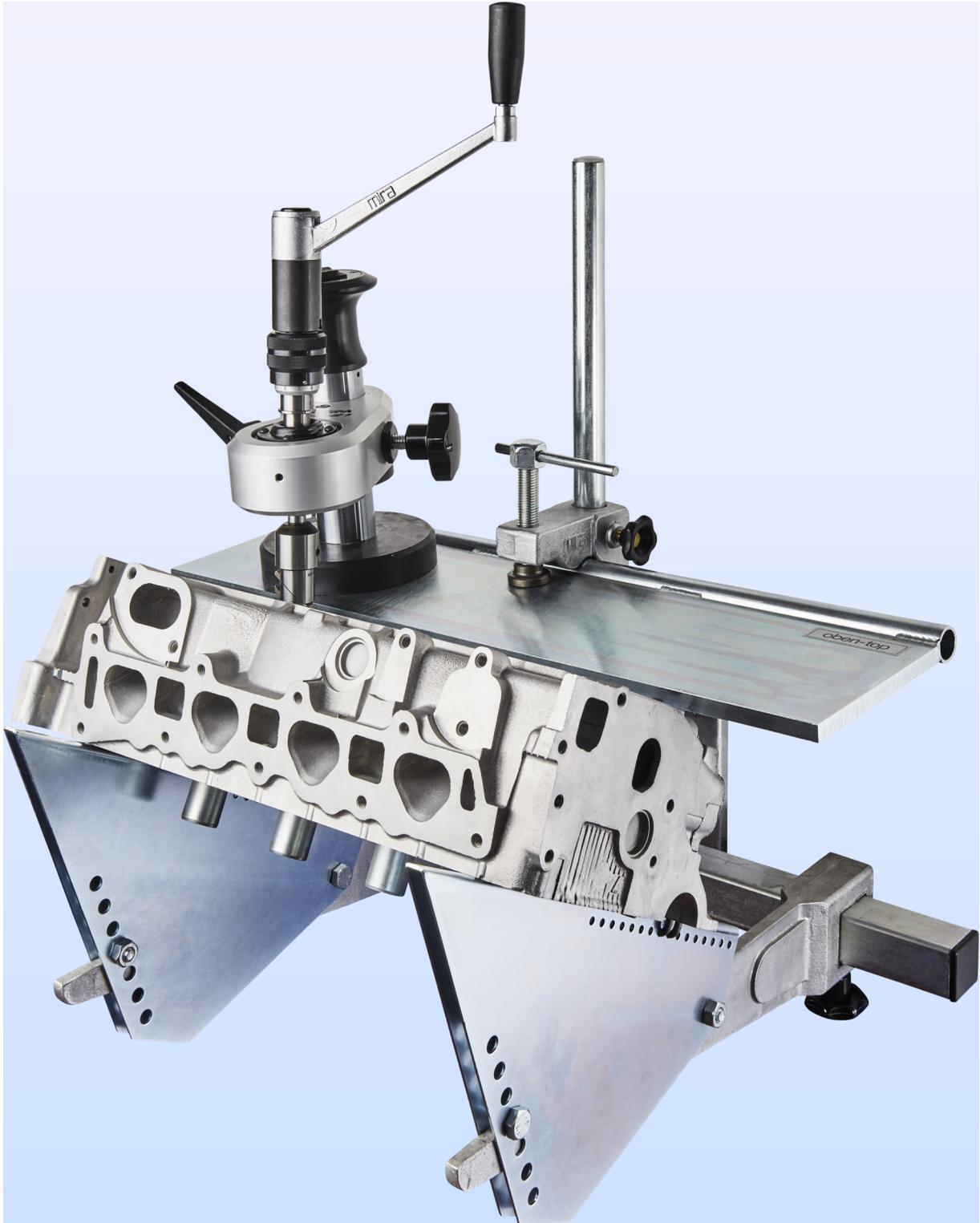
The genuine MIRA double edged toolhead system with exchangeable hard alloy carbide tips for the easy turn out of seat rings and the manufacturing of precise ring seat counterbores!

## Exchangeable Precision Toolhead System

**MIRA<sup>®</sup>**

**VGX-21 Package**

**For Road and Race Cylinder Heads**

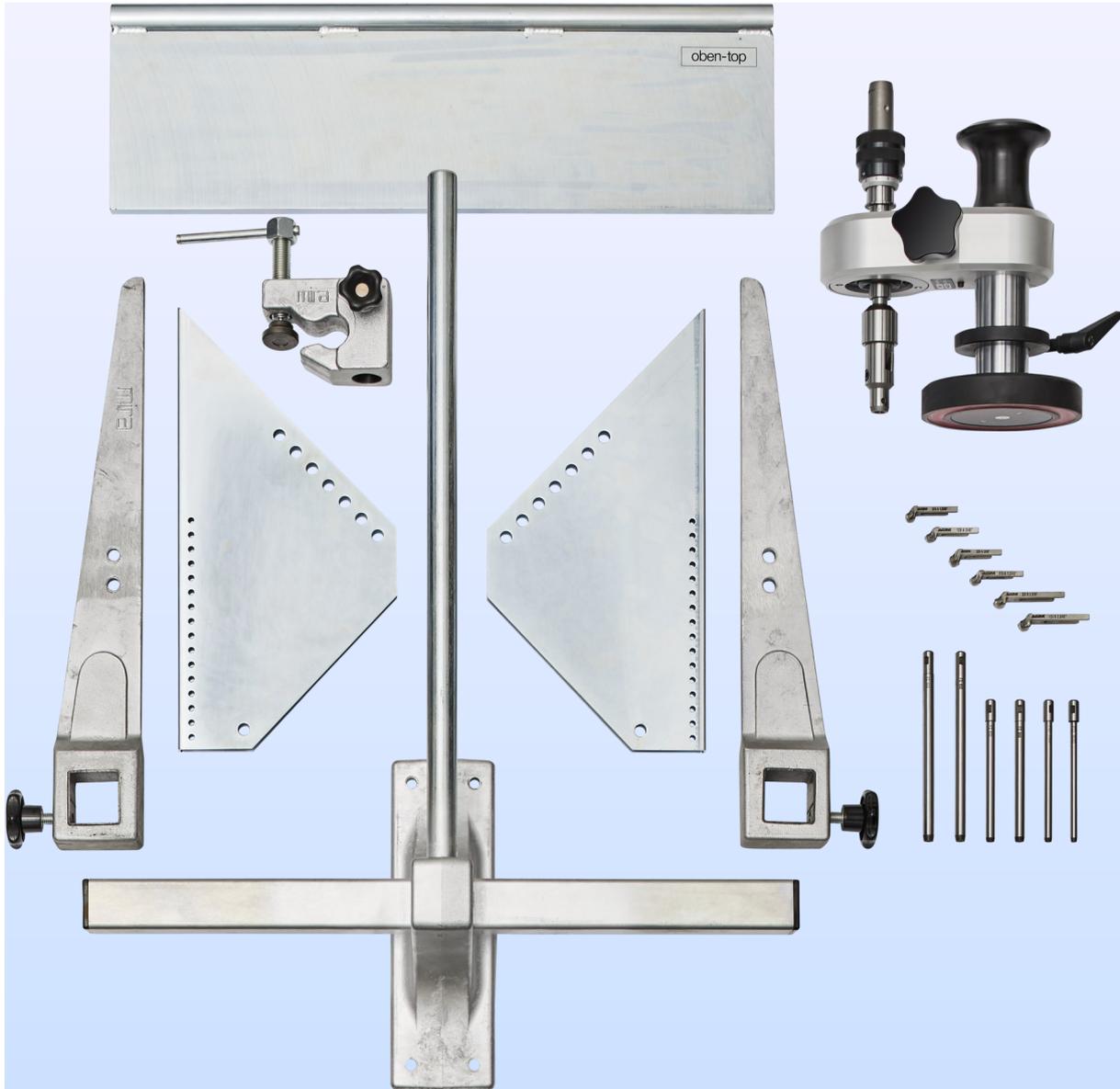


**Complete with AV wall mounting workplace!**

# MIRA®

# VGX-21

## Valve Seat Refacing Starter Kit



**VGX-21 Package 1** consisting of:

VGX-21 valve seat refacing unit with DT1 exchangeable toolhead.  
06 FD-type pilots / 06 SK-type formtools (free selection) / AV basic cylinder head wall support with inclined plates / formtool setting gauge / service tooling & instruction manual / wooden storing case export packing.

## Swiss Quality Tooling and Equipment

# MIRA<sup>®</sup>

# Vario-Drive

## Variable Electronic Speed Drive Unit

The **VARIO-DRIVE** 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 **Vario-Drive** is integrated in the MIRA HM-2000 workplace. It is also well adapted to complete all hand-driven MIRA equipment.

The system is stepless adjustable between 50 - 200 1/min.



**Order Number: VD-97**

---

# MIRA<sup>®</sup>

# MULTIVAC

## Universal Vacuum Test Unit



The **MULTIVAC** is a versatile test unit for sealing tests on cylinderheads before and after rebuilding and on installed engines for rapid diagnosis.

It can be used for functional tests on the vacuum controlled components on a vehicle with a maximum vacuum up to 800 mbar

**Order Number: MUV-95**

## Final Inspection of Valve Seat Sealing

# MIRA®

# VMX-2000 ValveMaster



The **VMX-2000 ValveMaster** is a versatile and compact cylinderhead working center. Cylinderheads up to 800mm in length can be quickly fixed into position by a universal quick locking fixture!

The VMX-2000 contains the following standard equipment:

- **MIRA VGX-21 Valve Seat Refacing unit with DT1 toolhead**
- **06 SK-Formtools / 06 FD-type pilots (free selection)**

**Optional:**                      **VarioDrive** electronic drive unit / **MULTIVAC** Vacuum test unit

Dimensions:                      1300mm x 1100mm x 1300mm

Weight:                              295 Kg gross / 235 Kg net.

## Swiss Quality Workshop and Equipment!

# MIRA®

## **HMX-2000** **HeadMaster**



The **HMX-2000 HeadMaster** is a versatile, sturdy working center for the professional engine builder. Almost any kind of cylinderheads up to 120Kg in weight and 800mm in length can be quickly fixed into place by means of a universal quick-locking fixture.

The HMX Center contains the following standard equipment:

- **MIRA VGX-21 Valve Seat Refacing Unit with DT1 Toolhead**
- **Vario-Drive electronic variable speed drive**
- **Multivac vacuum test unit**
- **06 FD-type pilots / 06 SK-type formtools** (free selection)

Standard colour RAL 3002 Red (alternative colours on request)

Machine Dimensions: 1300mm x 1100mm x 1900mm (length x width x height)

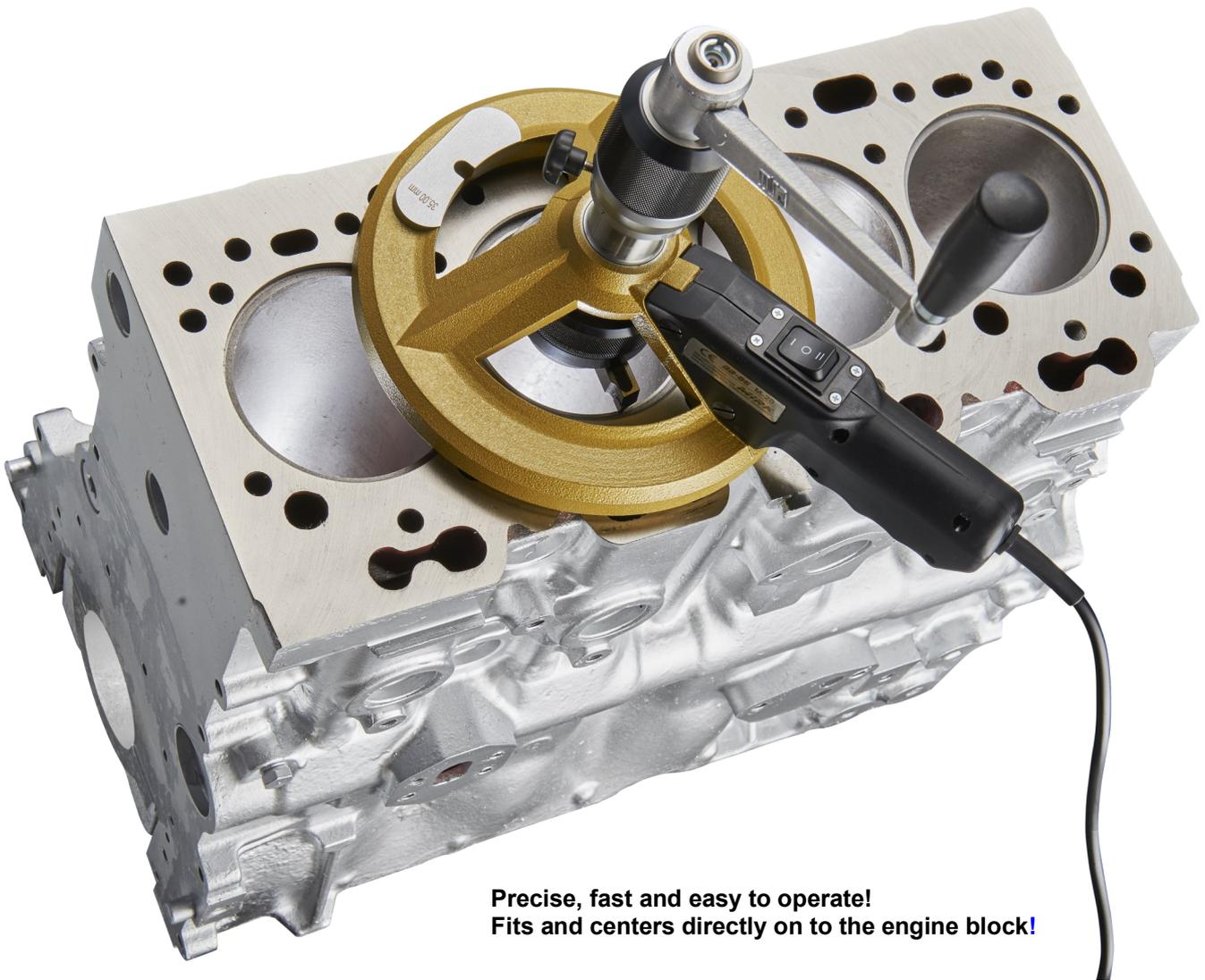
Machine weight: 440 Kg gross / 340Kg net.

## **Swiss Quality Cylinderhead Workplace**

# **MIRA<sup>®</sup>**

# **BB-86** Counterbore Unit

## **Recuts Diesel Sleeve Counterbores**



**Precise, fast and easy to operate!  
Fits and centers directly on to the engine block!**

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.

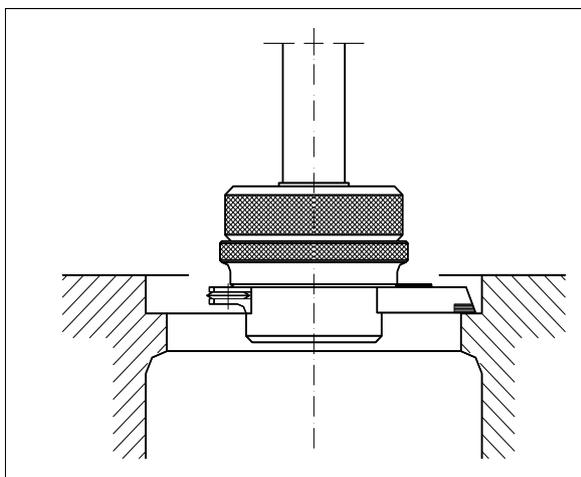
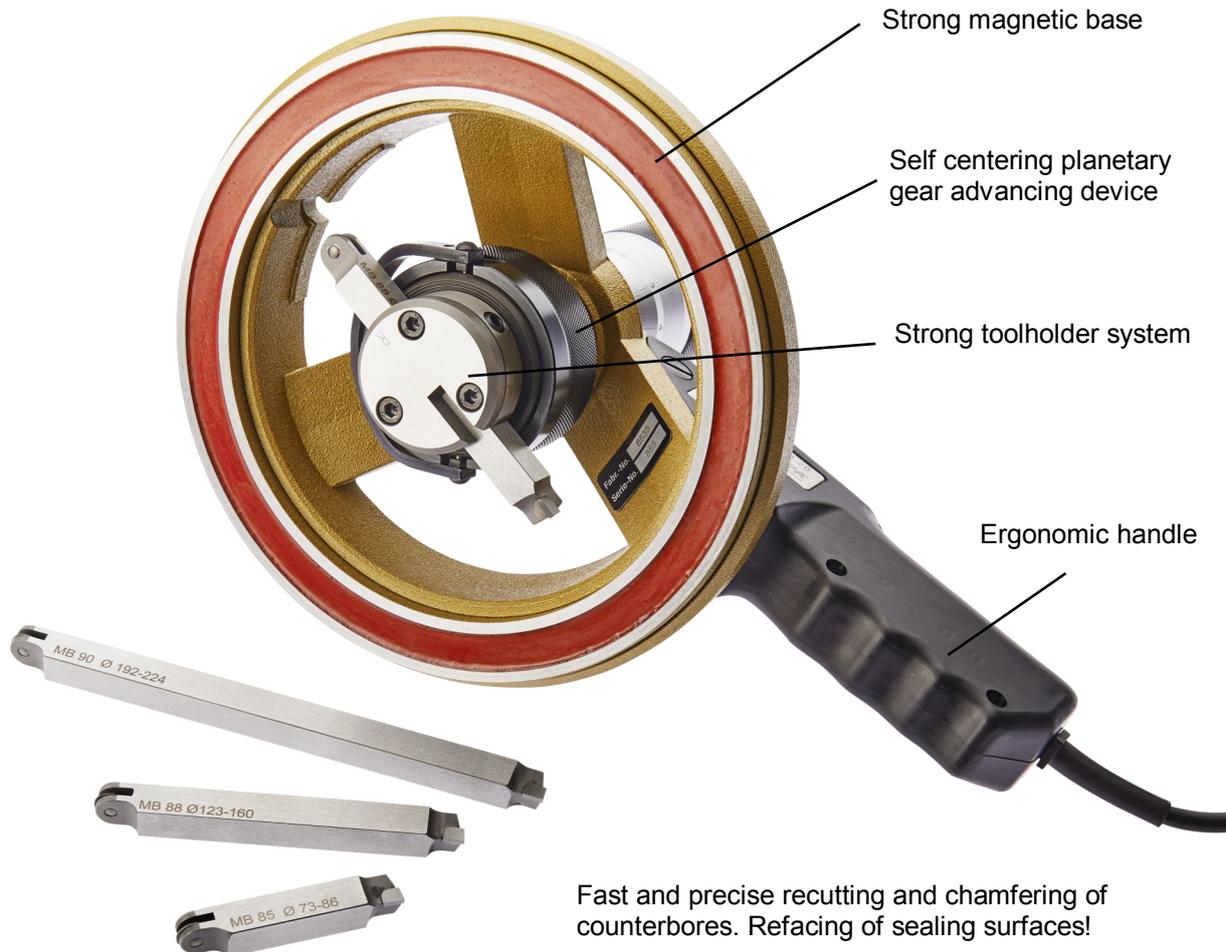
**Order Numbers:** BB-86 Standard or BB-86 „Giant“

## ***Precision Tooling for Engine Reconditioning***

# MIRA<sup>®</sup>

# BB-86 Counterbore Unit

## Portable and simple to operate



Available as BB-86 Standard 170mm unit or BB-86 „Giant“ with 198mm inside diameter!

#### 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
MB-90*	194.00 - 225.00 mm

\* In combination with an intermediate steel plate !

## Custom Made MIRA BB Tooling available!

# MIRA<sup>®</sup>

## BB-86 Extension



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

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

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

***Easy refacing of deep counterbores!***

# **MIRA<sup>®</sup>**

# **BB Special Tooling**

MIRA<sup>®</sup> is a leader in the design, development and manufacturing of special tooling and equipment for individual and specific OEM requirements!



Special MIRA<sup>®</sup> toolings are available for:

- **Stationary Engines**
- **Marine Engines**
- **Railway Engines**
- **AERO Engines**

Patent Pending

The MIRA<sup>®</sup> **BB-XJ** and **MT** series of tooling are specially developed for operating without electrical power! They are portable and specially designed to operate under a demanding service environment!

## **Custom made Service Tooling & Equipment**



# Engineering

## Automotive Design & Development



MIRA® Engineering is a centre for design, research and development in the automotive sector specialised in high precision mechanical engineering and manufacturing for the car, truck, kart and motorcycle industries!

In our Design and Engineering Department, experienced designers and engineers are bringing your product ideas on state of the art CAD systems to life.

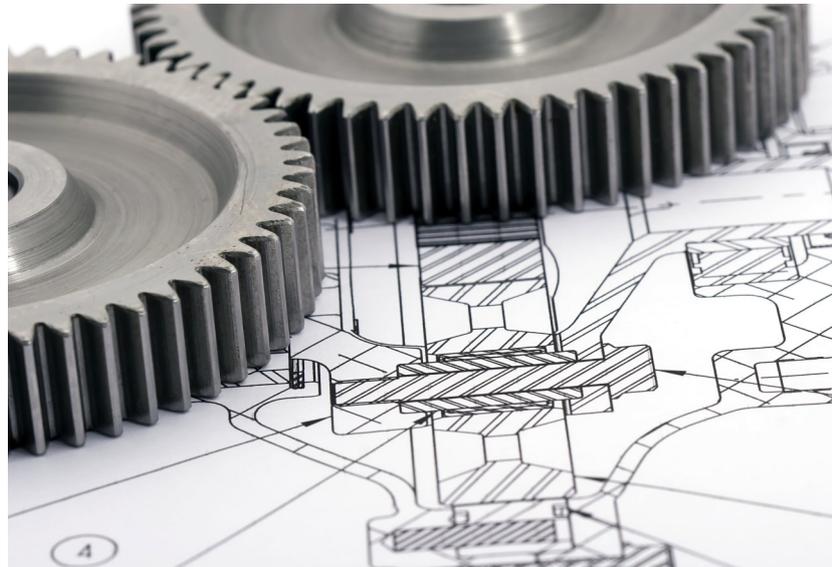
We have a global network in the field of development and construction, and can therefore draw on a broad interdisciplinary "know-how" to the benefit of our customers.

## Consulting, Engineering and Prototyping

### Your development partner

Based on your individual demands and requirements we design and develop products in different modules:

- Project study
- Construction
- Product design
- Prototype manufacturing
- Product testing
- Initial series production
- Certification
- Documentation



As a customer, you decide how far you want to take the process and your idea with us. Each of our modules is self-contained. The costs are shown upfront when the order is placed. On demand we develop products to contractually agreed **fixed costs!**

## Swiss Automotive Engineering Services

# MIRA<sup>®</sup>

# Manufacturing

## Prototyping and pre-production batch

On request, MIRA<sup>®</sup> produces sophisticated prototypes, custom made tooling, individual components or hard to find parts as well as special lots for its automotive clients.

MIRA<sup>®</sup> is ISO 9001:2008 certified which ensures top quality and batch to batch consistency of the finished product.

MIRA<sup>®</sup> has full CNC multi-axes machining and state of the art electronic testing capabilities!

If required, MIRA<sup>®</sup> takes on the complete manufacture of pre-production batches as well as the first production run for a fixed price that has been agreed in advance!



## Engines, Parts and Components



From the idea to the finished product, we see ourselves as a „**Full Service Provider**“ for our clients! MIRA<sup>®</sup> is working from drawing or original components. Just talk to us or send us your request and we will respond within the shortest possible time! MIRA<sup>®</sup> Engineering is here to serve you!

## Swiss Automotive Manufacturing Services!



Swiss Precision Machines & Tooling

**Manufacturer and Worldwide Distributor**

**MINELLI CORPORATION**  
**MIRA® Division**  
**8330 Pfaeffikon / Zurich**  
**Switzerland**

**Phone: 0041-44-952 35 35**  
**Fax: 0041-44-952 35 60**  
**Homepage: [www.miratool.ch](http://www.miratool.ch)**  
**Email: [sales@minelli.ch](mailto: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!