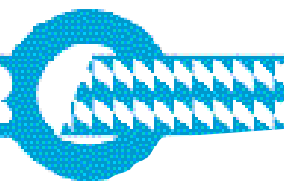


HUNGER



**Equipment for Refacing the
Valve Seats and Valves
of Marine and Stationary
Diesel Engines**

Catalog M11

Experience Performance Quality

HUNGER - a company with experience - specializing in the manufacture of engine valve service equipment for many years - and with the most comprehensive range of valve service equipment.

Years ago, **HUNGER** pioneered precision valve and valve seat refacing systems which have been further developed and refined until we have the present high performance equipment.

The qualities of **HUNGER** equipment are derived from working in very close cooperation with leading engine manufacturers, and the research and experience gained by **HUNGER** in over 75 years of precision equipment manufacture.

HUNGER equipment has been tested and approved by leading engine manufacturers, and is being used for high performance work throughout the world.

You can rely on **HUNGER**.

In addition to the products listed in this catalog **HUNGER** also manufactures the following products:

- Valve service equipment for automotive engines.

- Special tools for automotive engine rebuilders.

- Hand reamers in various designs for repair and assembly jobs.

HUNGER will be please to send you further information on request.

We are constantly searching for ways to improve **HUNGER** products. Improvements may be made at any time. Therefore, specifications for products listed in this catalog may be changed without notice.

HUNGER Products

Page

Valve Seat Refacing:

VDS 2E VDS 2.3E VDS 2.5E	Handy valve seat refacing machines for valve seats up to 140 mm in diameter	4
VD 4E	Compact valve seat refacing machine for valve seats from 70 to 250 mm in diameter	5
VD 5E	Powerful valve seat refacing machine for valve seats from 200 to 500 mm in diameter	6
VD 3	The simple valve seat refacing tool for valve seats from 60 to 200 mm in diameter	7
SB 2	Compact valve seat grinding machine for valve seats up to 110 mm in diameter	8
SB 3 SB 3M SB 3S	The precision valve seat grinding machines for valve seats up to 200 mm in diameter	9

Valve Refacing:

VKM 2A VKM 2.3A VKM 2.3M	The compact precision grinding machines for valves up to 32 mm in stem diameter	10
VKM 3.0 VKM 3.1 VKM 3.4	The low cost grinding machines for valves up to 41 mm in stem diameter	11
VKM 4A	The heavy duty precision grinding machine for valves up to 50 mm in stem diameter	12
VKM 5	The extra heavy precision grinding machine for valves up to 110 mm in stem diameter	13
SG 175	Support grinder for grinding valves on a lathe	14

Counterboring:

ADM 4E	Counterboring machine for installing oversize valve seat inserts	15
---------------	---	-----------

VDS 2E
VDS 2.3E
VDS 2.5E

The New Generation:

**Handy machines for refacing valve seats
up to 140 mm in diameter**



Advantages:

Extremely short machining time!
No abrasive dust!
No noise!

Working Principle:

The valve seat is refaced to the pre-set depth by the simultaneous application of both a rotary and a transverse feed motion to the single point cutter.

While the cutter rotates in a circle around the valve seat, a feed gear mechanism ensures a continuous outward transverse feed motion under the proper seat angle.

This angle is defined by an inclined slideway provided for the tool slide in the exchangeable adapter head.

The lathe-type refacing action provides a flawless concentric seating surface texture for a complete valve seal.

Handling:

Setup is fast and easy.

First, lock the pilot with mounted centering spider in the valve guide. Then, lower the machine over the pilot and position the cutter in front of the inner edge of the valve seat. Turn micrometer downfeed to set the desired depth of cut.

Refacing is automatic.

Pressing one button is enough to start both the rotation and the transverse feed of the cutter.

Features:

Power drive unit includes two low voltage motors providing smooth cutting action.

Exchangeable adapter head with built-in slideway for cutter travel ensures precise seat angle.

Roundness, concentricity and surface finish are within manufacturers' specifications or even better.

The machine has been tested and approved by the leading engine

Specifications:

Capacity:

Valve seat diam.	mm	VDS 2E	VDS 2.3E	VDS 2.5E
Valve seat angle	deg.	35 - 90	35 - 110	35 - 140
		45°, 35°, 30°	45°, 40°, 35°	45°, 30°
		25°, 20°, 0°	25°, 20°	0°

Feed motions:

Speed	rpm	VDS 2E	VDS 2.3E	VDS 2.5E
Transverse feed	mm/rev.	270/360	270/360	270/360
		0,05	0,05	0,05

Electrical system:

Operating voltage	VDC	VDS 2E	VDS 2.3E	VDS 2.5E
Rated current	A	38/50	38/50	38/50
Supply voltage	VAC	7/7,5	7/7,5	7/7,5
(1 ph. 50/60 Hz)		230	230	230
		or 120	or 120	or 120

Dimensions & Weight:

Width	mm	VDS 2E	VDS 2.3E	VDS 2.5E
Height	mm	300	400	400
Net weight	approx. kg	350	350	350
		6	9	9,5

VD 4E

The New Generation: **Compact machine for refacing valve seats** **up to 250 mm in diameter**



Advantages:

Extremely short refacing time!

No abrasive dust!

No noise!

Working Principle:

The valve seat is refaced to the pre-set depth by the simultaneous application of both a rotary and a transverse feed motion to the single point cutter.

While the cutter rotates in a circle around the valve seat, a feed gear mechanism ensures a continuous outward transverse feed motion under the proper seat angle.

This angle is defined by an inclined slideway provided for the tool slide in the exchangeable adapter head.

The lathe-type refacing action provides a flawless concentric seating surface texture for a complete valve seal.

Features:

The machine is fitted with two motors providing a smooth cutting action.

The speed of the motors is infinitely variable so that the circular motion of the cutter around the valve seat can be adapted to the diameter and material of the valve seat. The motors are of the low voltage type to eliminate electric hazards. The control circuits are housed in a separate power supply unit to reduce the weight of the machine for ease of handling.

The exchangeable adapter head with the built-in slideway for cutter travel ensures a precise seat angle. Roundness, concentricity and surface finish of the refaced valve seat are within manufacturers' specifications or even better.

The machine has been tested and approved by the leading engine manufacturers.

Specifications:

Capacity:

Valve seat diam. 70 - 250 mm

Valve seat angle 45°, 40°, 30°
20° & 0°

Feed motions

Speed 120 - 270 rpm

Transverse feed 0,05 mm/rev.

Electrical system:

Operating voltage max. 50 VDC

Rated current max. 10 A

Supply voltage 230 VAC

(1 ph. 50/60 Hz) or 120 VAC

Dimensions & Weight:

Width 380 mm

Height 400 mm

Net weight approx. 17 kg

Handling:

Setup is fast and easy.

First, lock the pilot with mounted centering spider in the valve guide.

Then, lower the machine over the pilot and position the cutter in front of the inner edge of the valve seat.

Turn micrometer downfeed to set the desired depth of cut.

Refacing is automatic.

Pressing one button is enough to start both the rotation and the transverse feed of the cutter.

VD 5E

The New Generation:

Powerful machine for refacing valve seats from 200 to 500 mm in diameter



Advantages:

Extremely short refacing time!

No abrasive dust!

No noise!

Working Principle:

The VD 5E machines the valve seat in a lathe-type facing action.

The valve seat is refaced to the pre-set depth by the simultaneous application of both a rotary and a transverse feed motion to the single point carbide cutter.

While the cutter rotates in a circle around the valve seat, a feed gear mechanism ensures a continuous outward transverse feed motion under the proper seat angle.

This angle is defined by an inclined slideway for the tool slide carrying the cutter.

The lathe-type refacing action provides a flawless concentric seating surface texture for a complete valve seal.

Features:

The machine is fitted with two motors providing smooth cutting action.

The speed of the motors is infinitely adjustable so that the cutting speed can be adapted to the diameter and material of the valve seat.

The controls are housed in a separate power supply unit for ease of handling.

The exchangeable adapter head with built-in slideway for cutter travel ensures a precise seat angle.

The machine has been tested and approved by a leading slow speed engine manufacturer.

Specifications:

Capacity:

Valve seat diam. 200 - 500 mm
Valve seat angle 30°

Feed motions:

Speed 150 - 300 rpm
Transverse feed 0,05 mm/rev.

Electrical system:

Supply voltage 230 V
(single phase) 50/60 Hz
Rated current max. 4 A

Dimensions & weight:

Width 400 mm
Height 650 mm
Net weight approx. 70 kg

Handling:

Set up is fast and easy.

First, lock the pilot in the valve guide.

Then, lower the machine over the pilot and position the cutter in front of the inner edge of the valve seat.

Turn micrometer infeed to set the desired depth of cut.

Refacing is automatic.

Pressing one button is enough to start rotation and transverse feed of the cutter.

Roundness, concentricity and surface finish within manufacturers' specifications.

VD 3

The simple valve seat refacing system for valve seats up to 200 mm in diameter



Working principle:

The VD 3 machines the valve seat in a lathe-type facing operation.

A pilot is locked in the valve guide to align the VD 3 in centerline with the valve guide.

The VD 3 is placed on top of the pilot.

With the single point carbide cutter positioned in front of the inside edge of the valve seat, the proper depth of cut is set.

The depth of cut is set by a micrometer mechanism to maintain positive control over the stock to be removed from the valve seat.

When the VD 3 is then rotated on the pilot, the cutter travels in a circle around the valve seat with continuous outward transverse feed motion under the proper seat angle. As a result, the seat is refaced to concentricity with the valve guide under the correct seat angle

Features:

The tool head includes two tool-slides guided in dove-tailed slide-ways inclined under different valve seat angles.

The single point carbide cutter can be attached to either toolslide.

A feed gear mechanism in the tool head ensures continuous tool slide traverse, when the VD 3 is rotated around the pilot.

Cutters with indexable carbide inserts are available in addition to standard carbide tipped cutters.

The standard carbide tipped cutters can be resharpened on a normal tool sharpener.

Solid and adjustable pilots are available to align the VD 3 in centerline with the valve guide.

Specifications:

Capacity:

Valve seat diam.	60 - 200 mm
Valve seat angle	45° & 30° or 45° & 35° or 30° & 20°

Tool Head:

Drive	manual
-------	--------

Feed rate:

Transverse feed	0,05 mm/rev.
-----------------	--------------

Dimensions & Weight:

Width	300 mm
Depth	250 mm
Height	350 mm
Net weight	approx. 8kg

Application:

The VD 3 is a low cost hand tool for refacing valve seats.

The VD 3 refaces even hard seats and especially tough seat materials like Nimonic which, when machined by grinding, tend to load the grinding wheel rather fast.

Roundness, concentricity and surface finish of the refaced valve seat are within manufacturers' specifications.

The compact precision grinding machine for valve seats up to 110 mm in diameter



Working Principle:

The machine is aligned in centerline with the valve guide by a pilot which is locked in the valve guide.

Prior to starting the automatic grinding operation, the depth of cut is set with the grinding wheel in front of the inside edge of the valve seat.

The seat is then refaced to the preset depth by the simultaneous application of a circular feed motion and a transverse feed motion to the grinding wheel.

While the grinding wheel itself is revolving with the grinding spindle at high speed, the spindle and the wheel are also travelling slowly around the valve seat in a circle with simultaneous transverse feed motion across the valve seat.

As a result, the valve seat is refaced to concentricity with the valve guide under the correct seat angle.

Features:

The machine is fitted with low voltage motors to eliminate electric hazards.

The electrical controls are housed in a separate control unit to reduce the weight of the machine for ease of handling.

The unique asymmetrical design of the guiding tube for the grinding head enables the use of larger-sized grinding wheels ensuring superior grinding action and excellent valve seat finish.

Independent variable speed motors are provided so that both the circular motion of the grinding wheel around the valve seat and the transverse motion of the grinding wheel across the valve seat can be adapted to the valve seat material by the mere turn of the respective control knob.

Specifications:

Capacity:

Valve seat diam.	55 - 110 mm
Valve Seat angle	20° - 45°

Grinding spindle

Wheel diam.	50 mm
No load speed	15 000 rpm

Feed rates:

Circular motion	4 - 30 rpm
Transverse motion	2 - 9 mm/min

Electrical system:

Operating voltage	42 VDC
Power consumption	750 W
Supply voltage	230 V
(1ph. 50/60 Hz)	or 110 V

Dimensions & Weight:

Width	500 mm
Depth	160 mm
Height	470 mm
Net weight	approx. 12 kg

Handling:

Setup is fast and easy!

First, insert the pilot in the valve guide. Then, lower the machine over the pilot and position the grinding wheel in front of the inner edge of the valve seat.

Set the desired depth of cut.

Grinding is automatic!

Turning the control knobs is enough to start both the circular motion and the transverse motion of the grinding wheel.

SB 3
SB 3M
SB 3S

The precision valve seat grinding machines for valve seats up to 200 mm in diameter



Working Principle:

The machine is aligned in centerline with the valve guide by a pilot which is locked in the valve guide.

Prior to starting the automatic grinding operation, the depth of cut is set with the grinding wheel in front of the inside edge of the valve seat. The seat is then refaced to the preset depth by the simultaneous application of a circular feed motion and a transverse feed motion to the grinding wheel.

While the grinding wheel itself is revolving with the grinding spindle at high speed, the spindle and the wheel are also travelling slowly around the valve seat in a circle with simultaneous transverse feed motion across the valve seat.

As a result, the valve seat is refaced to concentricity with the valve guide under the correct seat angle.

Features:

The grinding head includes a dovetailed slideway inclined under a seat angle of 30° and in some models a further dove-tailed slideway inclined under a seat angle of 45°.

The grinding slide carrying the heavy duty grinding spindle fits into either slideway.

Either slideway is adjustable to maintain long term accuracy.

Excellent valve seat finish due to the motorized drive unit which includes a variable speed motor to adapt the feed rates to the valve seat material.

The depth of cut is set by a micrometer mechanism to maintain positive control over the stock to be removed from the valve seat.

The basic SB 3 model includes a built-in dressing attachment for rapid in-situ dressing of the grinding wheel.

Specifications:

Capacity:

Valve seat diam. mm
Valve seat angle deg.

Grinding spindle:

Wheel diam. mm
No load speed rpm
Drive motor W

Feed rates:

Circular motion rpm
Transverse motion mm/rev.

Electrical system:

Supply voltage V
(1 ph., 50/60 Hz)
Max. consumption W

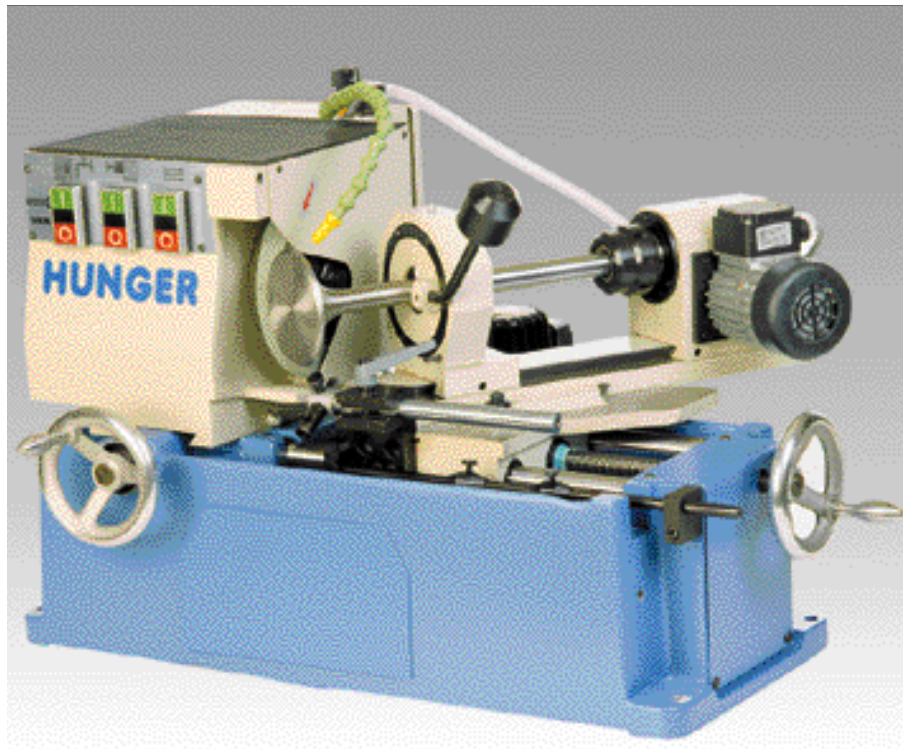
Dimensions & Weight:

Width mm
Depth mm
Height mm
Net weight approx. kg

	SB 3	SB 3M	SB 3S
Valve seat diam. mm	60 - 200	105 - 200	105 - 200
Valve seat angle deg.	30° & 45°	30°	30° & 45°
Wheel diam. mm	32	50	50
No load speed rpm	27 000	11 000	11 000
Drive motor W	500	500	500
Circular motion rpm	5 - 25	5 - 25	5 - 25
Transverse motion mm/rev.	0,3	0,3	0,3
Supply voltage V (1 ph., 50/60 Hz)	220 - 240	220 - 240	220 - 240
Max. consumption W	600	600	600
Width mm	600	600	600
Depth mm	250	250	250
Height mm	500	500	500
Net weight approx. kg	18	18	18

VKM 2A
VKM 2.3A
VKM 2.3M

**The compact precision grinding machines
for valves up to 32 mm in stem diameter**



Features:

Machine Base:

Heavily ribbed cast iron structure with integrated slideway for wheel-head .

Wheelhead:

Box type monobloc casting noted for excellent vibration dampening. Permanently sealed and lubricated grinding spindle.

Workhead:

Monobloc work spindle housing with permanently sealed and lubricated work spindle bearings. Work spindle fitted with collet chuck for use of high precision collets. Workhead located on an elongated swivel plate provided with a wide-spaced scale for angular adjustment. The workhead is adjustable along the swivel plate to clamp each valve on that part of the valve stem which normally travels in the valve guide. The workhead table is mounted on guide bars to reduce friction for smooth traversing of the valve face across the grinding wheel. Oscillating equipment for automated power traverse of the workhead table is available as an option to assure efficient stock removal and superior finish. The stroke of oscillation is infinitely adjustable.

Steady:

A selfcentering steady (a VKM 2.3 A and VKM 2.3M standard) fits on the swivel plate for additional support of long stem valves. The combination of collet chucking and steadying ensures perfect alignment of long valves.

Coolant system:

Coolant is delivered to the grinding site by an industrial type flood pump. The baffled coolant tank is housed in the machine base and can be drawn

Specifications:

Capacity:

Valve stem diam.	mm	3,2-22,5	3,2-25	9,5-32
Max. valve head diam.	mm	200	200	200
Valve seat angle	deg.	19° - 47°	19° - 47°	19° - 47°

Grinding spindle:

Wheel diam.	mm	175	175	175
Wheel width	mm	25	25	25
Speed at 50 cycles	rpm	2790	2790	2790
Drive motor	W	370	370	370

Work spindle:

Speed (Standard)	rpm	50	50	50
Speed range (Option)	rpm	5 - 85	5 - 85	5 - 85

Coolant system:

Coolant capacity	l	5	5	5
------------------	---	---	---	---

Electrical system:

Supply voltage	V	380 - 440	380 - 440	380 - 440
(3 ph. 50/60 Hz)	or V	220 - 254	220 - 254	220 - 254
Control voltage	V	24	24	24
Max. consumption	W	500	500	500

Dimensions & Weight:

Length	mm	800	800	800
Width	mm	550	550	550
Height	mm	450	450	450
Net weight	approx. kg	150	155	155

VKM 3.0
VKM 3.1
VKM 3.4

The low cost grinding machines for valves up to 41 mm in stem diameter



Application:

Recommended as accessories to large diesel engines for regrinding the valves in course of the periodical overhauls.

Features:

Machine Base:

Box type monobloc casting with integrated slideway for the workhead.

Grinding Spindle:

The permanently sealed and lubricated grinding spindle is slideably mounted on a swivel plate.

The swivel plate is set the the proper angular position by means of a wide spaced scale.

Workhead:

Monobloc work spindle housing with permanently sealed and lubricated spindle bearings.

Work spindle fitted with collet chuck for use of high precision collets.

The workhead can be moved along the slideway on top of the machine base to clamp each valve on that part of the valve stem which normally travels in the valve guide.

A micrometer feed unit is combined with the workhead to feed the valve head of a valve clamped in the work spindle into the grinding wheel.

Steady:

A selfcentering steady (a VKM 3.1 and VKM 3.4 standard) fits onto the swivel plate for additional support of long stem valves. The combination of collet chucking and steadying ensures perfect alignment of long valves.

Coolant system:

Coolant is delivered to the grinding site by an industrial type flood pump.

The baffled coolant tank is housed in the machine base and can be drawn out for ease of cleaning.

Specifications:

Capacity:

Valve stem diam.	mm	VKM 3.0	VKM 3.1	VKM 3.4
Max. valve head diam.	mm	9,5-22,5	9,5-32	15,9-41
Valve seat angle	deg.	200	200	200
		27° - 46°	27° - 46°	27° - 46°

Grinding spindle:

Wheel diam.	mm	175	175	175
Wheel width	mm	25	25	25
Speed at 50 Hz	rpm	2790	2790	2790
Grinding spindle motor	W	370	370	370

Work spindle:

Speed	rpm	25	25	35
Work spindle motor	W	34	34	120

Coolant system:

Coolant capacity	l	5	5	5
Pump motor	W	50	50	50

Electrical system:

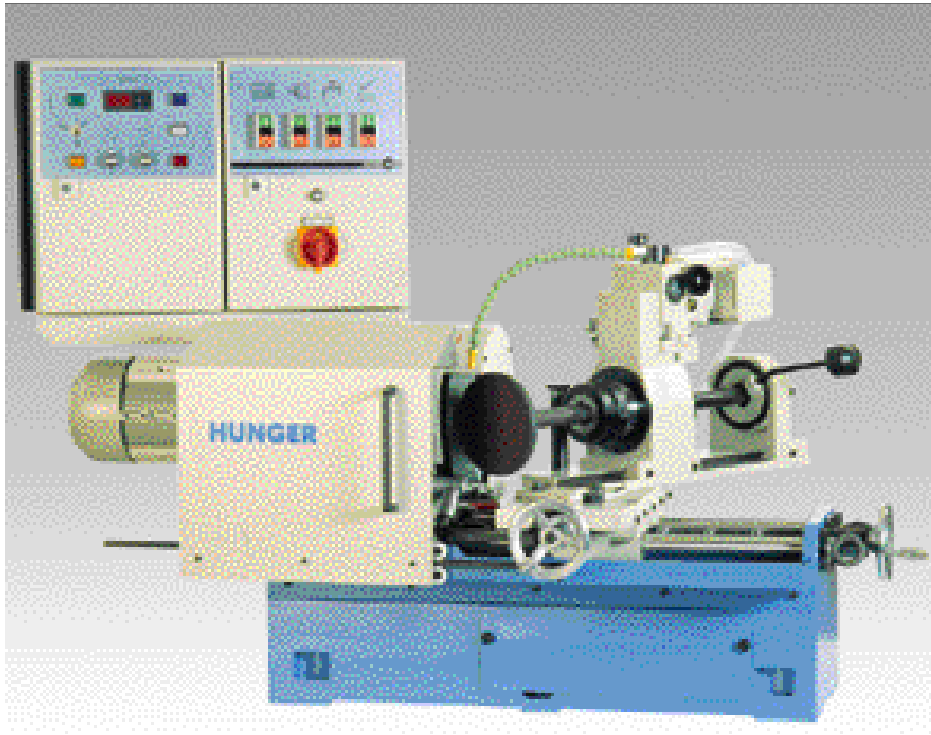
Supply voltage	V	380 - 440	380 - 440	380 - 440
(3 ph. 50/60 Hz)	or V	220 - 254	220 - 254	220 - 254
Max. consumption	W	500	500	600

Dimensions & Weight:

Length	mm	850	850	850
Width	mm	680	680	680
Height	mm	400	400	450
Net weight	approx. kg	95	95	100

VKM 4A

The heavy duty precision grinding machine for valves up to 50 mm in stem diameter



Specifications:

Capacity:

Valve stem diam.	6,4 - 50 mm
Valve head diam.	max. 320 mm
Valve seat angle	15° - 90°

Grinding spindle:

Wheel diam.	250 mm
Wheel width	40 mm
Speed at 50 Hz	2880 rpm
Drive motor	1,2 kW

Work spindle:

Speed	5 - 50 rpm
Drive motor	0,09 kW

Coolant system:

Coolant capacity	12 l
Pump motor	0,05 kW

Electrical system:

Supply voltage	380 - 440 V
(3 ph. 50/60 Hz)	or 220 - 254 V
Max. consumption	1,7 kW

Dimensions & Weight:

Length	1550 mm
Width	900 mm
Height	950 mm
Net weight	approx. 300 kg

Application:

Due to the rigid construction the VKM 4A is particularly suited for volume engine rebuilders and high performance shops.

Features:

Machine base:

Heavily ripped cast iron structure for vibration free performance.

Wheelhead:

Box type monobloc casting noted for excellent vibration dampening characteristics.

Powerful grinding spindle permanently sealed and lubricated for lifetime accuracy.

Dressing attachment:

The dressing attachment houses in the wheelhead for rapid wheel dressing, also with the valve chucked in the work spindle. Individual handwheel for traversing the diamond dresser across the grinding wheel.

Workhead:

Monobloc work spindle housing with permanently sealed and lubricated spindle bearings.

Work spindle fitted with collet chuck for use of high precision collets.

The workhead is located on an elongated swivel plate provided with a wide-spaced scale for angular adjustment.

Index stops with micrometer adjustment at 30° and 45°.

The workhead is adjustable along the swivel plate to clamp each valve on that part of the valve stem which normally travels in the valve guide.

An optional selfcentering steady fits on the swivel plate for additional support of long stem valves.

The combination of collet chucking and steadying ensures perfect alignment of long valves. The workhead table is mounted on guide bars to reduce friction for smooth traversing of the valve face across the grinding wheel.

Coolant system:

The baffled coolant tank is housed in the machine base and can be drawn out for ease of cleaning.

Options:

Oscillating equipment

Automated power traverse of the workhead table is available to assure efficient stock removal and superior finish. The stroke of oscillation is infinitely adjustable.

Automated infeed

Power infeed is available for automatic grinding according to a pre-selected grinding program. The total infeed, the feed rate and the sparkout time are easily selected by the mere turn of code switches.

VKM 5

The extra heavy precision grinding machine for valves up to 110 mm in stem diameter



Workhead and Steadies:

The universal VKM 5 model features two selfcentering steadies to align and clamp all valves from 40 to 90 mm in stem diameter.

The workhead of the universal model is fitted with a driver plate for rotating the valve.

The standard VKM 5 model is tailored to a particular engine to be serviced and includes only one steady and a collet chuck in the workhead to grip the valve of the particular engine to be serviced. The workhead and the steadies can be individually located along the slideway on top of the machine base to clamp each valve on that part of the valve stem which normally travels in the valve guide.

Specifications:

Capacity:

Valve stem diam.	40 - 110 mm
optional from	6,5 mm
Valve head diam.	max. 500 mm
Valve seat angle	28° - 47°

Grinding spindle:

Wheel diam.	250 mm
Speed at 50 Hz	2880 rpm
Drive motor	1,2 kW

Work spindle:

Speed	3 - 14 rpm
Drive motor	0,12 kW

Coolant system:

Coolant capacity	30 l
Pump motor	0,05 kW

Electrical system:

Supply voltage	380 - 440 V
(3 ph. 50/60 Hz)	or 220 - 254 V
Max. consumption	1,5 kW

Dimensions & Weight:

Length	1950 mm
Width	1300 mm
Height	900 mm
Net weight	approx. 900 kg

Application:

The VKM 5 is designed to grind very big valves, especially the valves of Sulzer RTA type engines.

Features:

Machine base:

Extra heavy rigid cast iron construction with an integrated dovetail slideway for the workhead and steadies.

Grinding spindle:

The powerful grinding spindle is permanently sealed and lubricated for lifetime accuracy.

The grinding spindle rests on a compound slide unit including a massive swivel plate with a wide-spaced scale for exact angular adjustment.

The transverse slide is guided by a pair of steel bars to reduce friction for smooth traversing of the grinding wheel along the valve face.

Coolant system:

A separate coolant tank is provided to efficiently settle out grinding residue. Coolant is delivered to the grinding site by an industrial type flood pump.

Options:

Oscillating equipment

Automated power traverse of the transverse slide is available to assure efficient stock removal and superior finish. The stroke of oscillation is infinitely adjustable.

Automated infeed

Power infeed is available for automatic grinding according to a pre-selected grinding program. The total infeed, the feed rate and the sparkout time are easily selected by the mere turn of code switches.

Three-jaw chuck

For grinding the valve seat rings of large B&W two stroke diesel engines, the workhead can be fitted with a three-jaw chuck to grip the valve seat rings.

SG 175

Support grinder for grinding valves on a lathe



Handling:

The support grinder is clamped in the toolpost located on the top slide of the lathe.

The grinding angle corresponding to the required valve seat angle is adjusted by turning the top slide of the lathe to an angular position which corresponds to the valve seat angle and which is defined by the template supplied with the grinder.

The valve stem is clamped in the chuck of the lathe and the valve face is ground by feeding the grinding wheel into the rotating valve face.

Features:

The precision grinding spindle is permanently sealed and lubricated for lifetime accuracy.

The spindle drive motor in combination with the 175 mm diameter grinding wheel allows fast stock removal.

The wheel guarding system is designed to the prevailing safety regulations.

The cone-shaped head of the template is provided with a bore receiving the dressing diamond so that the grinding wheel can be properly dressed after adjustment of the grinding angle.

The switch for the grinding spindle drive motor is integrated in the terminal box of the motor.

Specifications:

Grinding spindle:

Grinding wheel diam.	175 mm
Grinding wheel width	25 mm
Speed at 50 cycles	2790 rpm

Electrical system:

Supply voltage	380-440 V
(3 ph. 50/60 Hz)	or 220-254 V
Power consumption	370 W

Dimensions & Weight:

Width	380 mm
Length	300 mm
Net weight	approx. 16 kg

Application:

The SG 175 support grinder is designed for grinding the conical seating surface of valves of medium speed diesel engines on a standard lathe.

ADM 4E

The New Generation: Counterboring machine for installing oversize valve seat inserts



Working Principle:

The ADM 4E is aligned in centerline with the valve guide by means of a pilot inserted into the valve guide. The counterbore is machined in a lathe-type turning action to the preset diameter by the simultaneous application of both a circular and an axial feed motion to the single point cutter. While the cutter rotates around the counterbore, a feed gear mechanism ensures a continuous axial feed motion which is defined by a slideway in the tool head.

Features:

The machine is fitted with two motors providing a smooth cutting action.

The speed of the motors is infinitely variable so that the circular motion of the cutter around the counterbore can be adapted to the diameter and the material to be cut.

The motors are of the low voltage type to eliminate electric hazards. The control circuits are housed in a separate power supply unit to reduce the weight of the machine for ease of handling.

Various tool heads are available to cover a broad diameter range. For instance, a typical tool head covers a diameter range from 150 to 190 mm.

The tool slide guided in the tool head for axial feed motion is fitted with a fine boring head for coarse adjustment of the turning diameter as well as precise radial setting of the cutter by means of a circular scale to ensure high precision machining to IT6 tolerances.

The tool head includes a friction coupling so that axial feed motion of

Specifications:

Capacity:

Counterbore diam. 70 - 250 mm

Feed rates:

Speed 120 - 270 rpm

Axial feed 0,05 mm/rev.

Electrical system:

Operating voltage max. 50 VDC

Rated current max. 10 A

Supply voltage 230 VAC

(1 ph. 50/60 Hz) or 120 VAC

Dimensions & Weight:

Width 380 mm

Height 400 mm

Net weight approx. 17 kg

Application:

The Hunger ADM 4E is designed to precision machine the valve seat ring counter-bores in cylinder heads to produce smooth and closely fitting contact surfaces for oversize valve seat rings.