

Highspeed-Honingmaschine

VISION ^{1 2 3} *Ultimate*



Impressive advantages by HSC-honing



Stand-Alone-Machine

Production-Unit



Stand-Alone-machine for manual loading.



Specially designed for small and medium-size lots

Compared to conventional honing-machines, Vision Ultimate requires less operations

- Machine-Investment only on demand and in steps
- Reusable
- Standardized
- Short delivery-times
- Minimized interference-sources
- Workpiece-loading system for free
- Best accessibility and operability
- Simple process



Applications

Bores: from 1 to 20 mm diameter

Workpieces: up to 3 kg weight

Type of bores: Blind-End Bores

Throughbore

Interrupted bore



Application-Fields:

Automotive

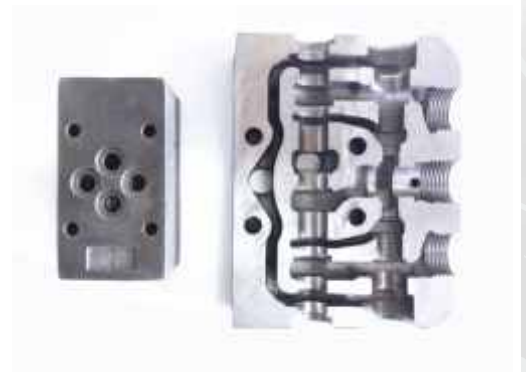
- Diesel-Injection
- Gas-Injection
- Powertrain

Medical

Aviation / Space

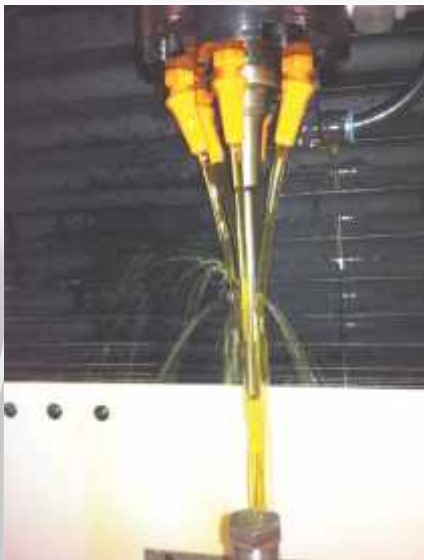
Hydraulics

- Vehicle-Hydraulics
- Mobile-Hydraulics



High-Speed Honing Slide

Only the slide, together with the tool-clamping-system, is moving. All other masses, like electric, cables, coolant-system and lubrication are not moving!



Coolant-Supply

The coolant-supply through the honing tool combined with the highly-effective ring-coolant enables maximum cutting-performance with minimum temperature-influences

Fully automated pick-and-place System

The pick-and-place loading-system, fully integrated into the machine, picks the workpiece from outside the machine and moves it through the single stations inside the machine. The loader can handle 3 workpieces simultaneously.



Honing-Spindle

Standardized tooling-interface, based on "Schunk-Tendo" hydraulic expansion tool-clamping system.

Tool-changing inside the machine

Runout of clamped honing-tool inside the honing-spindle: less than 3 μ

Spezial features: Tools

Competitive and flexible

Highest accuracy

Very high cutting - capacity

Blind-end bores

Interrupted bores

Internal coolant-supply

Disposable sleeves

Low tooling stock necessary

Reduced honing-fixture costs

Reduced interferences



Honing-Sleeves

Long tool-life

Shortest change-over-time

Short delivery times

Inexpensive

No preparation / conditioning necessary



References

References - Workpiece Impellor

Workpiece / Requirements



Customer	Automotive
Workpiece	Impellor for oil-pump
Material	Sinter Material
Hardness	Hb 120
Bore-Diameter	Ø 10/14 x L 18/27
Stock-Remove	105 µm

Results



Bore-Diameter	+/- 2 µm Cmk 1,67
Roundness	< 2 µm Cmk 1,67
Cylinderform	< 3 µm Cmk 1,67
Squareness of bore	15 µm Cmk 1,67
Surface-Finish	< Rz 4 µm Cmk 1,67
Operation Steps	1 with D 46
Cycle-Time Part-Part	12 s

Reference-Workpiece Valve-Flange

Workpiece / Requirements

Customer	Automotive
Workpiece	Valve-Flange
Hardness	Soft
Material	11 SMnPb30
Bore-Diameter	Ø 5,75 + 6,95 mm
Stock-Remove	Ø 35 µm

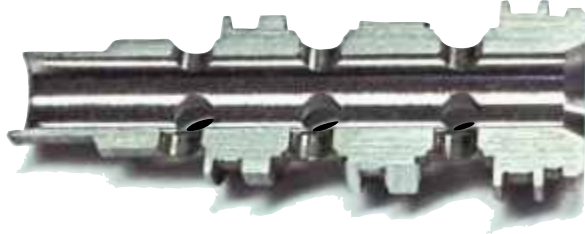
Results

Bore-Diameter	+/- 2 µm Cmk 1,67
Roundness	< 0.8 µm Cmk 1,67
Parallelism	< 1,2 µm Cmk 1,67
Straightness	< 1,0 µm Cmk 1,67
Concentricity	< 1,0 µm Cmk 1,67
Surface-Finish	< Rz 4 µm Cmk 1,67
Operation Steps	1 with D 20
Cycle-Time Part-Part	16 s



References - Workpiece Valve - Flange

Workpiece



Customer
Workpiece
Material
Hardness
Bore-Diameter
Stock-Remove

Automotive
Valve-Flange
11 SMnPb30
Soft
Ø 6,0 mm
Ø 15 - 25 µm

Requirements

Bore-Diameter	6,000 + 0,003 mm Cmk
Roundness	< 1,0 µm Cmk 1,67
Parallelism	< 2,0 µm Cmk 1,67
Straightness	< 1,0 µm Cmk 1,67
Surface-Quality	< Rz max 3,2 µm
Operation Steps	1 with D 20
Cycle-Time Part-Part	12 s

References - Workpiece Injector-Body

Workpiece

Customer	Automotive
Workpiece	Injector-Body
Material	20 CrMo
Hardness	HRC60
Bore-Diameter	Ø 4,3
Stock-Remove	Ø 15 µm



Requirements

Bore-Diameter	4,3 ± ,003 mm Cmk 1,67
Roundness	< 0,0005 µm
Parallelism	< 0,0006 µm
Surface-Quality	< Rz 2 µm
Cycle-Time Part-Part	16 s

Technical data

General:

power input	16 kVA
Bore diameter	max. 20 mm
Bore length	max. 80/ 250 mm
Work piece weight	max. 3 kg
Blind hole bores	yes
Materials	all

Measures

Width	1.000 mm
Depth	2.700 mm
Height	2.250 mm
Weight	1.800 kg

Stroke length

Stroke length	0 - 300 mm
Stroke acceleration	max. 20 m/ s ² (2 g)
Stroke speed	max. 60 m/ min
Drive	ball-screw spindle
Measurement	Encoder

Honing spindle

Rotation	0 - 12.000 rpm
Concentricity	3 µm
Termination diameter	20 mm (hydraulic expansion chuck)
Drive	servo motor
Inner cooling agent supply	yes

High-speed stroke

Stroke length	0 - 95 mm
Stroke acceleration	max. 60 m/ s ² (6 g)
Stroke speed	max. 120 m/ min
Drive	linear drive
Measurement	glass scale

Tool infeed

Infeed path	25 mm
Infeed steps	0,1 µm
Cutting force control	force sensor
Ingate detection	yes
Path measurement system	Encoder



Degen Maschinenbau GmbH

Litzelbergstraße 12

72355 Schömburg

Germany

Phone +49 (0)7427 94910

Fax +49 (0)7427 9491-11

info@degengmbh.com

www.degengmbh.com



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