polymeca
PASSION FOR PRECISION

Machines and facilities

Your supplier for:

High-precision mechanical engineering

Components

Surface treatment

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com

Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Technologies

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

Milling

Materials: Aluminium, Non-ferrous metal, Mild steel, Stainless steel, Titanium, Cast, Block mat.
Surface: Ra ≤ 0.2 (depending on machine and process)
Accuracy: 0.005 bis 0.02 (depending on machine and process)

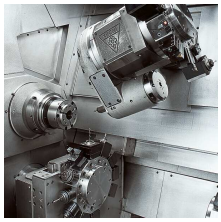
Number	Specification	Processing range [mm]		
		X	Y	Z
3	4-Axis Horizontal Machining Center **MCM Clock 600** 240 Tools places per machine Spindle speed 20'000 min^{-1} Tool system HSK-A63 Fanuc Control Unit Pallet changer with in total 30 places (linked with all 3 machine tools) 	600	600	700
2	5-Axis Machining Center **DMC 60 U** 180 Tool places Simultaneous 5-axis- and 5-sided machining Spindle speed 18'000 min^{-1} Tool system HSK-A63. iTNC530 Heidenhain control unit Pallet changer with 10 places. With high precision option 	600	750	600
2	5-Axis Machining Center **DMU 50 eVolution** 60 Tool places 5-Sided machining Spindle speed 18'000 min^{-1}. Tool system HSK-A63. Millplus Heidenhain control unit 	500	400	400
1	Tool Presetter **Zoller Venturion 450** Fully automatic, NC-controlled Tool measurement 	-	-	-

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

Turning

Materials: Aluminium, Non-ferrous metal, Mild steel, Stainless steel
Surface: Ra ≤ 0.4 (dep. on machine and process)
Accuracy: Dimensions 0.005 und Roundness < 0.002 (depending on machine and process)

Number	Specification	Processing range [mm]	
		Max. Ø	Max. length
1 (2)	Multifunctional Machining Center (Turning-Milling) **Index R300** Main and counter spindle with 2 additional milling spindles Simultaneous milling process by parallel machining on main and counter spindle. 140 Tool places Machining from the bar or in chuck 2nd machine will be installed in March 2014 	100 (Bar) 230 (Chuck)	250
1	Turning-Milling Machining Center **Index G300** Complete machining in Chuck with counter spindle. Two 12-fold-revolvers with driven tools Fully automatic gantry loading system Incl. B-Axis 	180	300
2	Turning-Milling Machining Center **Index G300** Machining from the bar with bar loading magazine and counter spindle Two 12-fold-revolvers with driven tools Incl. B-Axis 	90	300
2	Turning-Milling Machining Center **Index G200** Machining from the bar with bar loading magazine and counter spindle Two 14-fold-revolvers with driven tools Incl. B-Axis 	60	200
2	Turning-Milling Machining Center **Index G160** Machining from the bar with bar loading magazine and counter spindle With separately milling spindle 64 Tool places Two 12- fold-revolvers with driven tools Incl. B-Axis 	65	250

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

Number	Specification	Processing range [mm]	
		Max. Ø	Max. length
1	Turning-Milling Machining Center **Index C65** Machining from the bar with bar loading magazine and counter spindle Three 12- fold-revolvers with driven tools 	65	70
1	Turning-Milling Machining Center **Gildemeister Twin 42** Machining from the bar with bar loading magazine and counter spindle Two 12-fold-revolvers with driven tools 	42	150
1	CNC Precision Lathe **Ebosa CNC 140** 2 Axis For high precision finishing machining 	100	100
1	CNC Chuck Lathe **Weiler Primus** 2 Axis For finishing machining 	150	150
1	**CNC Hard Turning Machine** **Hardinge Quest 8/51 SP** 3 Axis For hard material machining in precision clamping chuck 12- fold-revolvers with driven tools 	50 (Bar) 100 (Chuck)	150

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

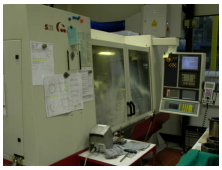
Grinding

Materials: Aluminium (hard anodised), Steel, Hardened steel, Titanium
Surface: Ra ≤ 0.05
Accuracy: Dimensions 0.002, Roundness 0.0003, Cylindricity < 0.001, Fit-tolerance < 0.001

Number	Specification	Processing range [mm]	
		Max. Ø	Max. length
1	Grinding Machine **Studer S145** Cylindrical grinding (internal and external) Special software for Internal grinding Robot for load and re-loading incl. measurement controlling 	350	400
1	Grinding Machine **Studer S145** Cylindrical grinding (internal and external) Special software for Internal grinding 	350	400
1	Grinding Machine **Studer S40** Cylindrical-, form- and thread grinding External complete machining Measurement and control system for bore parallel pair grinding Manually operated or fully automated Robot for load and re-loading incl. measurement control 	350	400
1	Grinding Machine **Studer S31C** Cylindrical-, form- and thread grinding Internal and external machining High Speed Machining Automatic measurement control Robot for load and re-loading 	320	220
1	Grinding Machine **Studer S31** Cylindrical-, form- and thread grinding External complete machining Measurement and control system for bore parallel pair grinding Manually operated or fully automated Robot for load and re-loading incl. measurement control Synchronous tailstock (makes it possible to process without carrier) 	320	220

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

Number	Specification		Processing range [mm]	
			Max. Ø	Max. length
1	Grinding Machine **Studer S31** Cylindrical grinding Internal and external machining Measurement and control system for bore parallel pair grinding Manually operated		320	220
1	Grinding Machine **Studer S20** Cylindrical grinding External machining Measurement and control system for bore parallel pair grinding Manually operated		350	400
1	Flat Grinding Machine **Mägerle**		100x80	500
1	Honing Machine **Sunnen ML2000** will be installed in December 2013		165 (man.) 100 (autom.)	170
1	Lapping **Lapping Machine**		200	100

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Measuring

Measuring room according VDI/VDE 2627, Grade 3, ±0.5 °C/h				
Number	Specification	Measuring range [mm]		
		X	Y	Z
1	Precision Coordinate Measuring Machine **Leitz PMM 12106** Accuracy in µm (L in mm): E = 1.0 + L/400 P = 0.8 	1'200	1'000	600
1	Precision Gauge Measuring Machine **SIP 550M** Accuracy in µm (L in mm): U1 = 0.2 + L/2500 	550	-	-
1	CNC Precision Formtester **Mahr MMQ 400** Accuracy in µm: Roundness ≤ 0.1 Flatness ≤ 0.1 Cylindricity 1.0/100mm Straightness 0.25/100mm Right angel ≤ 0.1 	Ø 350	-	300

Measuring room according VDI/VDE 2627, Grade 4, ±1.0 °C/h				
Number	Specification	Measuring range [mm]		
		X	Y	Z
1	Coordinate measuring machine **Leitz Reference Xe 10.7.6** Accuracy in µm (L in mm): E = 1.4 + L/350 Repetabillity range in µm: R = 0.9 	1000	700	650

Machines and facilities

Measuring room according VDI/VDE 2627, Grade 4, ±1.0 °C/h				
Number	**Specification**	**Measuring range [mm]**		
		X	**Y**	**Z**
1	Coordinate Measuring Machine **Leitz Reference 15.9.7** Accuracy in µm (L in mm): E = 1.0 + L/350 P = 1.0 	1'500	900	700
1	Coordinate Measuring Machine **TESA 3D Micro-MS 454** Accuracy µm (L in mm): U1 = 5.0 + L/140 U3 = 6.0 + L/110 	400	500	400
2	Coordinate Measuring Machine **TESA 3D Micro-MS 343** Accuracy in µm (L in mm): U1 = 5.0 + L/170 U3 = 8.0 + L/125 	300	400	300
1	Roughness Tester **Hommel T4000** 	50	-	-
1	Precision Formtester **Taylor Hobson** Accuracy (in µm): Roundness ≤ 0.1 Flatness ≤ 0.1 Cylindricity 1.0/100mm Straightness 0.25/100mm Perpendicularity ≤ 0.1 	Ø 350	-	300

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

In the shop floor – machining area				
Number	**Specification**	**Measuring range [mm]**		
		X	**Y**	**Z**
1	Shop-Floor Measurement Robot (CMM) **Leitz Sirio 688** With pallet system Accuracy µm (L in mm): E = 1.9 + L/250 In use of the rotary table: Ur = 6.0, Ut = 7.0, Ua = 4.5 	600	800	800
1	Optical Testing Device Schneider **Projector** Profile projector with measuring scales 	200	150	100
13	Vertical testing device **Height Gauge Trimos** Accuracy: 5.0 µm 	-	-	400
1	Roughness Tester **Hommel Etamic T1000** Scan length 0.48 – 16 mm 	-	-	-

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Surface treatment and finishing

Anodizing: Aluminium
Electroplating: Aluminium, Steel, Copper, Brass, Bronze
Painting: Metall, Plastic
Support Proc.: Cleaning, Blasting

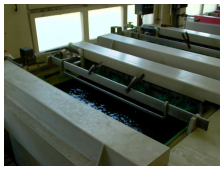
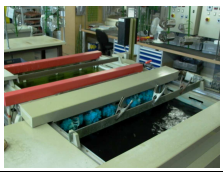
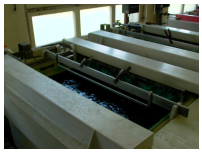
Anodizing

Specification		Facilities size [mm]		
		L	W	H
Anodizing Fully automatic system GS-process colorless and organic coloring Colors: deep-black, gold-orange, blue, red, violet, green, and other on request Corrosion protection, decorative layers, wear protection **For aluminium und aluminium alloys**		2'500	600	1200
Passivation of aluminium Fully automatic system Transparent (SurTec 650 / Alodine 1'500) Ideal priming for paints Brilliant conductor (EMV) **For aluminium and aluminium alloys**		2'500	600	1200
Chemical Gloss Manually operated High gloss surface Together with glass pearl blasting gives a satin finish **For aluminium and aluminium alloys**		800	600	700

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

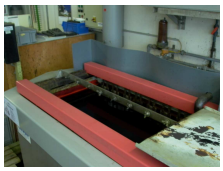
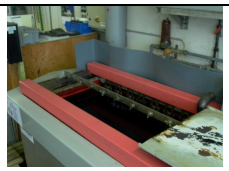
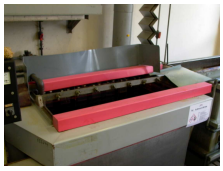
Machines and facilities

Electroplating

Specification		Facilities size [mm] L	W	H
Zinc Phosphating Dull grey, non-metallic, crystalline Layer thickness tolerance ±0.001 mm Priming for paint, corrosion protection **For all iron- and steel materials**		800	500	1‘000
Burnishing Decorative black surface Light corrosion protection **For steel with low till high Carbon content**		600	400	1‘000
Stainless steel passivation Homogenization for surfaces Better corrosion protection **For stainless steel**		800	600	700
Blue annealing for brass Rich black, decorative. Reduces stray light in the optical industry Less measure removal **For brass with Cu-content from 58 till 65 %**		800	600	700
Electrolytic copper plating Ductil, light bright (preserved shiny) **For steel, aluminium, Brass and Die-cast zinc with pre-treatment**		1‘200	600	1‘000
Nickel plating, galvanic Ductile layers Dull-, semi-bright- or bright nickel **For iron, aluminium, copper, brass**		1‘200	600	1‘000
Nickel plating, chemical Bright layers Corrosion- and wear protection. Non-magnetic, 480 till 560 HV With heat treatement (400℃ / 1h) approx. 1'000 HV P-content ~ 9 till 13 %. **For iron, aluminium, copper, brass**		1400	500	800

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

Specification		Facilities size [mm]		
		L	W	H
Shiny Chrome plating High-shine surface, decorativ. Max. coating area 18 dm^2. Layer thickness tolerance ±0.005 mm. **For iron, copper, brass**		1‘200	600	1‘000
Hard Chrome plating Functional layers to dimension or with oversize with following grinding **For iron, aluminium, copper, brass**		1‘200	600	1‘000
Black chrome plating Decorative black coating with high corrosion protection Prevent reflections on optical layers Max. coating area 18 dm^2 Layer thickness tolerance ±0.002 mm **For iron, copper, brass and stainless steel**		1‘200	600	1‘000

Industrial Wet-Painting (Aluminium, steel, non-ferrous metal and plastics)				
Number	**Specification**	**Facilities size [mm]**		
		L	**B**	**H**
1	**Dust-free Spray booth** **CMC Industrie 350** Maximum part weight: 1’000kg Drying of paint in the cabin possible Water- und solvent based paint 1- and 2-Component Systems Structure painting and stove-enamel up to 240℃ 	8‘200	3’400	2’300
5	**Spray booth ICS / 140** Maximum part weight 10kg Drying of paint in the cabin possible Water- und solvent based paint 1- and 2-Component Systems Structure painting and stove-enamel up to 240℃ 	1‘400	1‘400	500

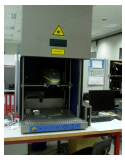
Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Machines and facilities

Support- Processes		Facilities size [mm]		
Specification		**L**	**W**	**H**
Ultrasonic-Cleaning Semi-automatic cleaning facility Ultimate cleanliness If required followed by vacuum-packaging in a Flow Box		1‘200	800	1‘000
Ultrasonic-Cleaning Machine Full-automatic cleaning facility		480	660	340
Vibratory Grinding For the removal of burrs and to reaching a unique and grinded surface Several machines installed in different places		div.		
Sand- and Glass Pearl Blasting		div.		
Sandblasting Blasting medium: Al2O3		1000	800	500
Glass Pearl Blasting Blasting medium: Glass pearls		600	500	250
Dustblasting Blasting medium: SiC		500	300	250

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Laser Marking

Number	Specification	Processing range [mm]		
		X	Y	Z
1	**Laser Marker** ACI Nexus Marker 	200	200	200

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com
Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com

Assembly

For your benefit: Reduction from logistical and storage effort

Complete solutions from a single source:

Procurement - Machining - Surface treatment - Assembly - Testing.

- Assembly for precision optics, single elements and mechatronic assemblies till complete devices with adding functional checking.
- Disposition and procurement from purchased parts.
- Glue and bolted connections.

Apparatus engineering

For specialities as

- Automatic thread insert assembly
- ESD-protected area (for electronic assemblys)
- 3D- glue robot
- Glue carousel
- Curing oven

Engineering of control systems

- With functionality- and tightness test-bench for hydraulics and pneumatics
- Assembly of components for engineering
- Control cabinets and control systems
- Testing in accordance to EN60439-1

Polymeca AG
Heinrich-Wild-Strasse
CH-9435 Heerbrugg
www.polymeca.com

Tel. +41 71 727 41 41
Fax +41 71 727 46 96
polymeca@polymeca.com