

Sheet metal manufacturing

Flat metal processing, laser cutting and punching

Process	Machine	Dimensions	Materials
CNC Flatbed laser with Liftmaster	Trumpf TC L-3030 • Laser power: TLF 5000 Turbo	1500 x 3000 mm	<ul style="list-style-type: none"> • Steel 25 mm • CrNi 20 mm • Alu 12 mm
CNC punching / laser	Trumpf TC 6000L • Laser power: 2700 W • Press force: 22 t	1250 x 2500 mm	<ul style="list-style-type: none"> • Steel ≤ 8 mm • CrNi 6 mm • Alu 4 mm
Punching automat	Weingarten • Press force: 60 t		<ul style="list-style-type: none"> • Steel ≤ 3 mm • CrNi ≤ 3 mm • Alu ≤ 3 mm • Copper ≤ 3 mm
Hydraulic press	Laufer / Müller • Press force: 40 t		<ul style="list-style-type: none"> • Steel ≤ 6 mm • CrNi ≤ 4 mm • Alu ≤ 6 mm • Copper ≤ 3 mm

Metal levelling

Process	Machine	Dimensions	Material thickness
Plan rolling	Schubert	<ul style="list-style-type: none"> • Width: max. 600 mm • Length: mind. 50 mm 	<ul style="list-style-type: none"> • Mind. 0.5 mm • Max. 8 mm
Plan rolling	Schubert	Width: max. 150 mm	Max. 3 mm
Round rolling	Auerbach	Width: max. 100 mm	Max. 15 mm
Round rolling	Several	Width: max. 1800 mm	

CNC bending, forming

Process	Machine	Dimensions
CNC bending with sensor	Trumabend 5230 • Press force: 230 t	3200 mm
CNC bending with sensor	Trumabend V230 • Press force: 230 t	3000 mm
NC bending	Promecam • Press force: 50 t	2000 mm
Forming	Laufer / Müller • Press force: 40 t	several

Welding technology

Process	Machine	Dimensions	Material
Robot welding MIG/MAG and CMT	ABB FlexArc 250R	<ul style="list-style-type: none"> • Length: 1200 mm • Width: 1000 mm 	<ul style="list-style-type: none"> • Steel • CrNi • Alu
Linear welding	Kemppi Pro Evolution	<ul style="list-style-type: none"> • Length: 1000 mm • Width: several 	<ul style="list-style-type: none"> • Steel • CrNi • Alu
Hand spot welding	Nimak L193T <ul style="list-style-type: none"> • Press force: max. 6 bar 	Reach: 500 mm	<ul style="list-style-type: none"> • Steel ≤ 4 mm • CrNi ≤ 3 mm
Spot welding machine	PMP 11 / 80 – 200 kVA	3000 x 1050 mm	<ul style="list-style-type: none"> • Steel ≤ 6 mm • CrNi ≤ 3 mm • Alu ≤ 3 mm
Additional manual Processes	<ul style="list-style-type: none"> • TIG • MIG • MAG 		<ul style="list-style-type: none"> • Construction steel • CrNi alloys • Alu

Mechanical production

Milling and turning

Process	Machine	Dimensions	Additional Equipment
5-axis milling (HSC simultaneous)	Reiden RX10	1000 x 1100 x 810 mm	5-fold pallet exchange system
5-axis milling (HSC simultaneous)	Makino DA300	∅ 450 x 400 mm	Robotic automation
4-axis milling	DMU 100 monoBLOCK®	1250 x 710 x 710 mm	<ul style="list-style-type: none"> • NC-controlled swivel milling head • NC dividing attachment: height 220 mm
CNC turning	Okuma LB45	<ul style="list-style-type: none"> • Up to ∅ 890 • Length 2000 mm 	With driven tools and Y-axis
CNC turning	Gildemeister NEF 400	<ul style="list-style-type: none"> • Up to ∅ 385 • Length 800 mm 	With driven tools
CNC turning	CMZ TA-25-YS-640 + GL20II	max.-workspace: ∅ 314 x 640 mm	<ul style="list-style-type: none"> • Sub-spindle • Live tooling • Y-axis <u>Automation:</u> <ul style="list-style-type: none"> • Bar feeder up to ∅ 65 mm • Gantry-loader for parts up to 2 x 10 kg
Conventional turning	Reiden R20 2		

Grinding

Process	Machine	Dimensions
EDM drilling machine	Charmilles Drill 11	300 x 200 x 300 mm
Round grinding machine	Kellenberger URF 320	<ul style="list-style-type: none"> • Ø 630 • Length 450 mm
Round grinding machine	Studer RHU400125C	<ul style="list-style-type: none"> • Ø 240 • Length 400 mm
Flat grinding machine	Elb Perfekt BD12	1200 x 600 x 400 mm
Flat grinding machine	Blohm Simplex 5	600 x 300 x 250 mm

Assembly

Assembly

Process	Workspace	Dimensions	Additional Information
Large systems as-semblies	Flexible assembly zone	100 m ²	
Medical systems assem- blies (dust free)	Dust free assembly room	60 m ²	e.g. for electromechanical and medi- cal systems

Services

Process	Machine	Dimensions	Additional Equipment
2-axis milling / drilling Fehlman	PICOMAX P 100 CNC 3	1000 x 420 x 500 mm	
Band hacksaw	Petrazzi SN 360	≤ Ø 360 mm	
Band saw	Mössner Rekord	785 x 500 mm	
Surface finishing	Micro-Glass pearls		
Engraving	Graphograph IS 400	305 x 210 mm	
Pressure / Tightness tests	Hydraulic test device	≤ 60 bar	Medium: water

Engineering und Project-Management

Engineering / work preparation / programming and data exchange

System	Software	Datenaustauschformate
CAD	Solidworks, SPI Sheet Metal Editor	Step, dxf (iges, ipt, idw, iam, sat, prt, asm)
CAM	Mastercam X4	Step, dxf, stl
NC punching and lase programming	Tru Tops Boost (laser, punch, bend)	
ERP System	Pro Alpha	
Advanced Planning System (APS)	Pro Alpha	
EDI	Customer platforms (SAP Ariba, ASCC, Pool4Tool)	Electronic data exchange

Quality assurance and logistics

Material testing lab

Process	Machine	Dimensions	Additional information
Roughness test	Hommel Tester		Ra and Rz measurements
Hardness tests	Brinell, Rockwell und Vickers, Equotip	Height: ≤ 800 mm	<ul style="list-style-type: none"> • DIN EN 6506-1 • DIN EN 6507-1 • DIN EN 6508-1
Tensile tests	≤ 150 kN	∅ 4 – 30 mm	<ul style="list-style-type: none"> • DIN EN 50125:2009 • DIN EN ISO 6892-1:2009-12
Electrical conductivity tests			All common non ferric alloys
Spectral analysis	Spectrotest metal analysis	Mobile version	All common metal alloys
Metallographic tests	Keyence		All common metal alloys
Crack inspection test	Fish & Partner	1000 x 700 x 600 mm	Fluorescent crack detecting

Quality assurance and logistics

Process	Machine	Dimensions	Additional Information
3D measuring machine	Zeiss Prismo MP5	900 x 1800 x 650 mm	Air conditioned, 500 kg crane
Hight measuring instruments	Tesa Microhite (several)	≤ 850 mm	
Hall cranes	Several	≤ 2 t	
Automated sheet metal storage system	Stopa	Plates up to 1500 x 3000 mm	300 boxes
Heavy load shifting shelf system	Schäfer PR 600	300 pallet spaces	Warehouse management system
Packaging / commissioning	Several	Unlimited	On site packager available

Heat and surface treatment technologies

Heat treatment

Process	Machine	Max. batch dimension	Additional Equipment
Gas nitriding, nitro carburizing, protective gas annealing	Rhode	Ø 1000 x 1500 mm	Nitriding sensor to ensure the nitriding quality
Aluminium tempering	Nabertherm	Ø 1200 x 700 mm	Quench tank with 11 m ³ volume and circulation
Quenching, hardening, carbo-nitriding, tempering under protection atmosphere, oxi-nitriding	Codere	Length: Ø 700 x 1000 mm	Oil bath
Annealing, hardening and brazing under vacuum	High vacuum ovens	≤ 1200 x 800 x 600 mm	
Atmospheric glowing	Nabertherm	2500 x 2500 x 1300 mm	

Surface treatment technologies

Process	Machine	Dimensions
Rotary brush machine with wide belt grinding unit	Grindingmaster Typ 1350-WRB	<ul style="list-style-type: none"> • Width: max. 1300 mm • Thickness: max. 40 mm
Flat grinding machine	Niederberger	Width: max. 150 mm
Plannishing / finishing units (bell and dryer)	<ul style="list-style-type: none"> • TT25 / TT90 • Circlon CL505 / CV55 	
Plannishing	Length vibration V150	<ul style="list-style-type: none"> • Width: max. 200 mm • Length: max. 1000 mm
Galvanic, painting, laser engraving	Aartech supply chain	Length: max. 2000 mm
Glass, sand, pearl surface finishing	IEPCO	