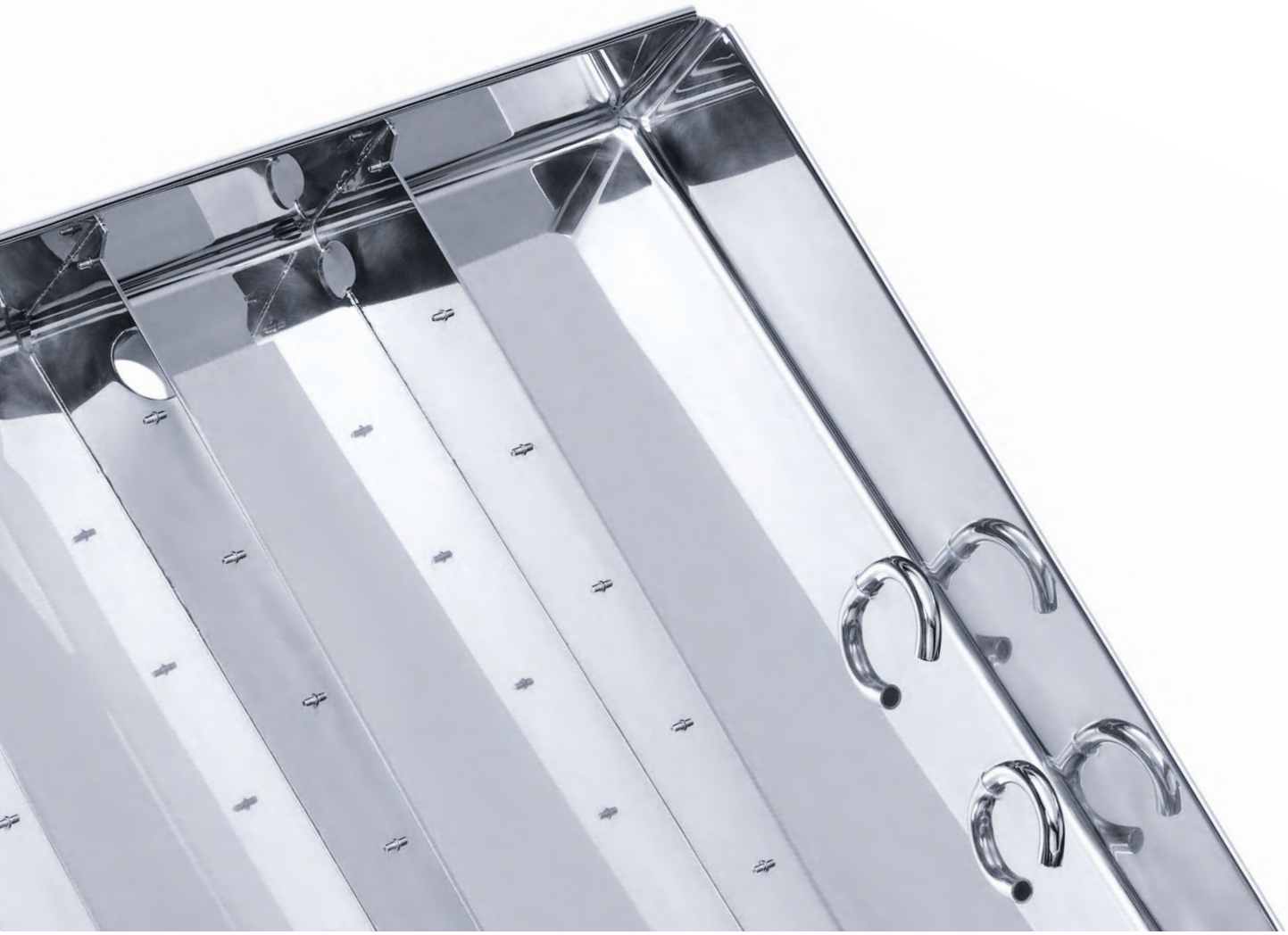


SHEET METAL TECHNOLOGY.

RAFF+GRUND

FIRST CLASS SHEET METALWORKING OF STAINLESS STEEL

Raff + Grund has more than 50 years experience of stainless steel-sheet metalworking. We are specialists in sophisticated sheet metalworking, welded constructions with tight production tolerances as well as high-quality surface finishes. Many of our components are used in the pharmaceutical, semiconductor or food and chemical industry. We also work for interior designers; renowned artists also have their metal designs made by us.

We usually process stainless steel such as 1.4301, 1.4404, 1.4435 or 1.4571. Materials such as 1.4539 (254 SMO), aluminium, copper, titanium or nickel-based alloys such as Hastelloy, etc. are also processed to order.

We can produce the welded constructions to your specifications and drawings. It is also possible for you to tell us your ideas and we implement them in 3D-CAD, and design and produce to these specifications.

Top quality manufacturing is the norm at Raff + Grund. This means proper processing of the materials, perfect quality welds, including orbit welded pipes, surfaces with diverse finishes such as pickled and passivated, ground, glass bead blasted, bright finish polished or electropolished.


RAFF + GRUND
Edelstahltechnik

RAFF + GRUND – THE SPECIALIST FOR STAINLESS STEEL PROCESSING

For more than 100 years, our company has stood for high-quality sheet metalworking and first-class tank and vessel construction. Today we only process rust-proof materials and have more than 50 years' experience of stainless steel processing. We consistently focus on quality and customer orientation in every aspect of order processing. We are always happy to help our customers to find solutions to problems. We plan and design the components individually to your specifications using our 3D-CAD system. We also produce to your own drawings. Whatever aspect of Raff + Grund's knowledge you want to draw on — we are pleased to help. Whether it is the layout of your plant or component, the design, laser cutting, the complete production, the surface finish or pickling and passivating. At Raff + Grund you get everything from a single source, from the design to delivery.

We have a certified quality and environmental management system. We are an approved manufacturer for the construction of pressure vessels, a recommended specialist company to §19.1 WHG (German water management law) and have manufacturer qualifications for the welding of steel components. Good employee training is very important to us. Our trainees have been national or state winners of vessel and apparatus construction apprentice competitions. Raff + Grund – experience and cutting edge technologies for the production of high-quality stainless steel products!

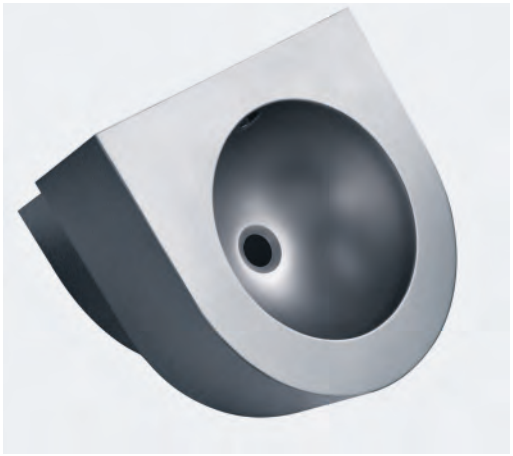
FIRST CLASS SHEET METALWORKING OF STAINLESS STEEL

WELDED CONSTRUCTIONS MADE OF STAINLESS STEEL

Raff + Grund is the right partner, especially when difficult welding tasks and high surface qualities are required. We produce a wide range; from small, high-precision, folded sheet metal components through to welded constructions weighing up to 10to. All developments – even those of complicated shapes and transitions – are prepared by us in-house. Tell us what you need or your idea and we will implement it.

STAINLESS STEEL HOPPERS

We produce angular as well as round or elliptical hoppers with very large dimensions, e.g. for the chemical industry, through to high-precision hoppers with GMP-compatible design for the pharmaceutical and food industry or for packaging machine manufacturers with high surface quality requirements. We can equip the hoppers with attachments you have requested, e.g. CIP cleaning, magnetic separators, nitrogen lances, diverse valves and fittings for pressure or temperature display, sight glasses or heating systems.



Basin for super yacht

Machine frame for packaging machine

BASINS AND TRAYS MADE OF STAINLESS STEEL

Raff + Grund is a manufacturer of basins and trays of all sizes and types. We produce basins, among other things, for the pharmaceutical and semiconductor industry. We are also a certified specialist company for spillage trays to §19.1 WHG (German Water Management Law). We have extensive experience in multi-wall basins, as well as in basins and trays with spherical corners or partition walls.

WELDED RACKS AND MACHINE FRAMES MADE OF STAINLESS STEEL

The production of precise, dimensionally accurate welded racks or machine frames, e.g. for packaging machines, in which tight tolerances are frequently needed, requires plenty of experience and skill. Raff + Grund is precisely the right partner. The racks are made of welded round or square tubular, folded profiles or lasered sheet metal blanks. Welded machine frames made of folded sheet metal components are today frequently an economically interesting construction method. If necessary the relevant surfaces are then machined. All racks are completely immersed or spray pickled. Pickled, ground, glass bead blasted or polished finishes are possible.

TECHNOLOGY AND PRODUCTION FACILITIES

EXPERIENCE AND MODERN OPERATING EQUIPMENT FOR HIGH-QUALITY STAINLESS STEEL PROCESSING

Raff + Grund offers modern operating equipment for the complete supply of welded components from a single source. Experienced engineers and technicians plan and design individual vessels, welded and sheet metal constructions using 3D CAD systems. Our production planning department produces the routines for the 3D sheet metal bending programmes. Experienced master craftsmen and skilled workers work in our production department, many with TÜV approval for the manufacture of pressure vessels. Our modern operating equipment ensures rational and high-quality production of stainless steel components.

Automatic welders, numerous manual welding equipment and a very modern orbit welding facility are available for welding. In our own grinding shop, high-quality component surfaces are produced and all components are pickled and passivated in the pickling shop. Numerous test instruments are available for acceptance and documentation. We are also able to produce complete plants, including controls.

DESIGN AND ENGINEERING USING 3D CAD SYSTEMS

Experienced engineers and technicians plan and design individual vessels, apparatus and plants as well as welded and sheet metal constructions to your specifications.Tell us e.g. your processing requirements or specifications, we will take care of the rest! Several workstations with the SolidWorks© 3D CAD system are available. Following clarification of your requirements, our specialists produce a three-dimensional design. All their experience and competent knowledge is utilised for this. You can examine the vessels, apparatus and sheet metal constructions as a 3D design, from the inside or outside, before they are actually produced.

CUTTING TECHNOLOGIES, INCLUDING LASER CUTTING OF STAINLESS STEEL AND ALUMINIUM

The stainless steel sheets, up to a thickness of 15 mm and 3000mm x 1500mm in size, are cut on our Trumpf Trumatic 3030 laser cutting machine with 4kW laser power for sheet sizes up to 15mm. This laser cutting machine is directly connected to an automated sheet metal high-bay storage rack with 60to capacity.In addition, our laser cutting machine is equipped with a pipe laser device. This can be used to cut round and square section pipes to size. Guillotine shears (3m long), a Trumatic nibbler and a manual plasma facility are also available for cutting. CNC controlled band saws and circular saws up to Ø300mm are available for cutting pipes and solid material to size, and a GF planetary saw up to Ø120mm is available especially for saw cut preparation of orbit welds.

AUTOMATED AND MANUAL WELDING

High-quality welding is our highest priority. For this reason, we mainly use the TIG welding method. Several automatic welders are available for economic and high-quality welds. In this way, we are able to make automated circumferential welds up to Ø3.3m and longitudinal welds up to 12m long. 25 TIG/E manual welding equipment and a TIG/MAG welding facility are available for manual welding. Many of our skilled workers are TÜV-tested welders with approval for manufacturing pressure vessels. Piping can be produced using a very modern orbit welding facility, including internal weld documentation in open or closed welding guns.

FOLDING AND ROLLING OF METAL SHEETS AND STAINLESS STEEL BLANKS

The blanks are folded and bended on our modern Trumpf Trumabend V170 CNC folding press with 4m edge length and bending angle sensor system for precise and accurate repeatable folding, as well as the EHT folding press with 3m edge length. A pivot bending machine with 3m bending length, a large sheet metal roller (3m long) and diverse small sheet metal rollers from Ø70 mm, beading machines, etc. are also available.

FIRST CLASS SHEET METALWORKING OF STAINLESS STEEL

Hoppers according to GMP-requirements

Screw conveyor trough with helical screws

Hopper

Hopper with sight glass

Distribution pipe

Granulating hood

Double hoppers

SURFACE FINISH

GRINDING AND POLISHING OF STAINLESS STEEL AND ALUMINIUM

Whether for vessels, hoppers or sheet metal constructions, all grinding and polishing of components at Raff + Grund is carried out with the greatest possible care.
Our grinding shop has 5 workstations manned by experienced specialists. We produce surfaces with bright polished finishes up to Ra<=0.2µm maximum, ground, satin finished or finely marbled finish. The roughness required by the customer is naturally checked using calibrated measuring instruments and documented. A longitudinal grinding machine is available for longitudinal grinding. All workstations and machine workstations are connected to a modern, central extraction system.

ELECTROPOLISHING

Through its partner firm elpotech GmbH & Co. KG, Raff + Grund has extensive experience in the electropolishing of individual parts and small series. Electropolishing is primarily used for sheet metalworking components and vessel components for the pharmaceutical and food industry. Two electropolishing tanks with dimensions 1.8 x 0.8 x 1.1m high and 1.1 x 1.1 x 1.1m high are available for the electropolishing. Larger components such as vessels and tanks can be electropolished inside by means of pumped transfer. Thanks to a well-equipped toolmaking department, we are able to produce special jigs, so that even components with complicated contours can be cleanly electropolished on the inside and outside. All the steps in the workflow are carried out according to clearly defined processes to ensure high-quality results. An electropolishing duration and current intensity required by the customer to ensure adequate removal rate are fulfilled. After the electropolishing the components are cleaned by pickling and then rinsed. Here it is also possible to rinse the components in deionised water.
Roughness measurement using calibrated measuring instruments is of course also possible. Documentation of the work carried out is also possible.

PICKLING AND PASSIVATING OF STAINLESS STEEL AND SPECIAL MATERIALS

At Raff + Grund the stainless steel constructions are properly pickled and passivated. Our modern pickling shop fulfils all legal and environmental requirements. We have a certified quality management system to EN ISO 9001:2008 and an environmental management system to EN ISO 14001:2004. Our neutralisation plant is continuously monitored by neutral institutes. Three pickling tanks are available for immersion pickling, with dimensions: 6.1 x 1.5 x 1.5m high, 3.5 x 2.4 x 1.4m high and 3.1 x 2.0 x 1.3m high.
Large components, which cannot be immersion pickled in the pickling tanks, or components with interior spaces that cannot be rinsed are spray pickled at Raff + Grund. We can process components up to 5 x 5 x 15m in size and up to 10to weight.

Hopper for plastic production

QUALITY ASSURANCE

Raff + Grund stands for quality - regardless of whether of an individual part or an entire plant. This is our endeavour, our way of working and our understanding. We measure ourselves against this daily. This is documented by a certified quality and environmental management system to EN ISO 9001:2008 and EN ISO 14001:2004. We are approved for the construction of pressure vessels to ISO 3834-3 (HP0 - AD2000) and are a specialist company to §19.1 WHG (German Water Management Law). We also have manufacturer qualifications for the welding of steel components to DIN18800-7 Cl. B.
Before delivery the components are tested by our quality representatives and the results are documented. An in-house FAT of the plant is possible at Raff + Grund. We will also be pleased to assist you with validation/qualification, (IQ or OQ) of your plant.

AVAILABLE TESTING EQUIPMENT FOR ACCEPTANCE AND DOCUMENTATION

Raff + Grund has a large number of test instruments, measuring equipment and test setups for testing the components and for checking and documenting the required finish.

The following in-house tests and documentation are possible at Raff + Grund:

- Dimensional check and visual inspection using calibrated measuring instruments
- Surface roughness measurement using calibrated measuring instruments
- Dye penetration test to EN 473/ISO 9712 level 2
- Pressure test with calibrated pressure gauge and TÜV acceptances
- Pickling and passivation report
- Electropolishing report
- Ferrite content measurement in the weld using calibrated measuring instrument
- Videoendoscopy of piping
- Spectral analysis for material determination
- Riboflavin test to VDMA leaflet for checking the cleanability of the vessel
- Drain test to ASME-BPE
- Weld documentation (WPS)
- FAT (Factory Acceptance Test), IQ/OQ
- Agitation tests
- Helium leakage test
- X-ray/ultrasound measurement of the weld (by external partners)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FIRST CLASS SHEET METALWORKING OF STAINLESS STEEL

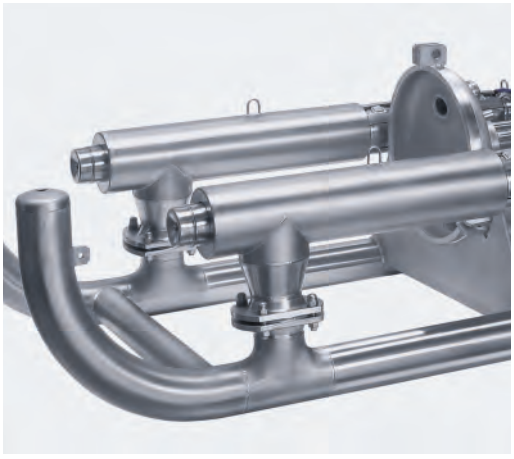
Raff + Grund has extensive experience of vessel and plant construction. We individually plan and produce the plants to your specifications. The necessary materials and wall thicknesses, surface qualities, piping, pieces of equipment such as temperature controls, agitators, safety equipment, as well as valves, fittings and controls, each suitably designed and produced for a specific process. Here the plant is fully completed by equipping it with the necessary controls, wiring, pneumatics or hydraulics. An ATEX control unit for use in potentially explosive atmospheres is also possible.

All the wanted and required acceptances, such as plant FAT, pressure or leak test and TÜV acceptance, surface roughness measurement, ferrite content measurement in the weld, weld documentation (WPS), riboflavin tests, agitation tests or videoendoscopy, are possible in-house at Raff + Grund with appropriate documentation. We can also assist you with validation/qualification, such as the IQ or OQ.

Hopper for plastic production

Pharmaceuticals panel

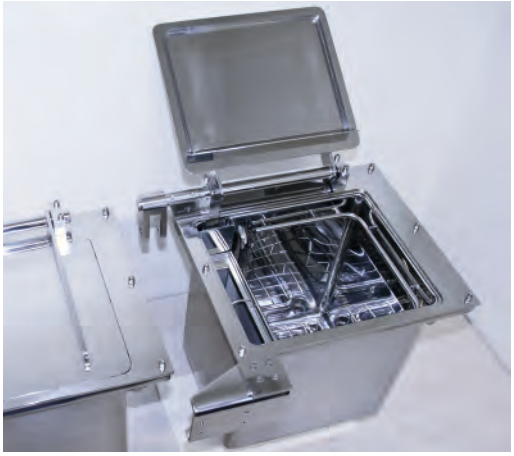
Lauter console



Extraction booster

Centrifuge housing

Suction head



Basins for semiconductor industry

Divided hopper

ART OBJECTS MADE OF STAINLESS STEEL, ALUMINIUM OR CORTEN STEEL

Renowned artists have their objects of art made by Raff + Grund. We also produce high-quality items of furniture and fitments for interior designers, wells, architectural fountains, company emblems and winners' cups. This requires the highest possible manufacturing quality. This is achieved by optimum processing of the materials, the welds and surfaces.

On request, all welds are ground flush with the surface; pickled, ground, bright polished or glass bead blasted surface finishes are possible. We will be pleased to implement your ideas following thorough discussion of the requirements or to your sketches and models.

Bohnet: Sphere, IGA garden exhibition site, Stuttgart

Water wall

Company emblem

Melis: Eagle sculpture

Cup

Kuhnert: Sculpture

PHARMACEUTICAL AND BIOTECHNOLOGY

FOOD TECHNOLOGY

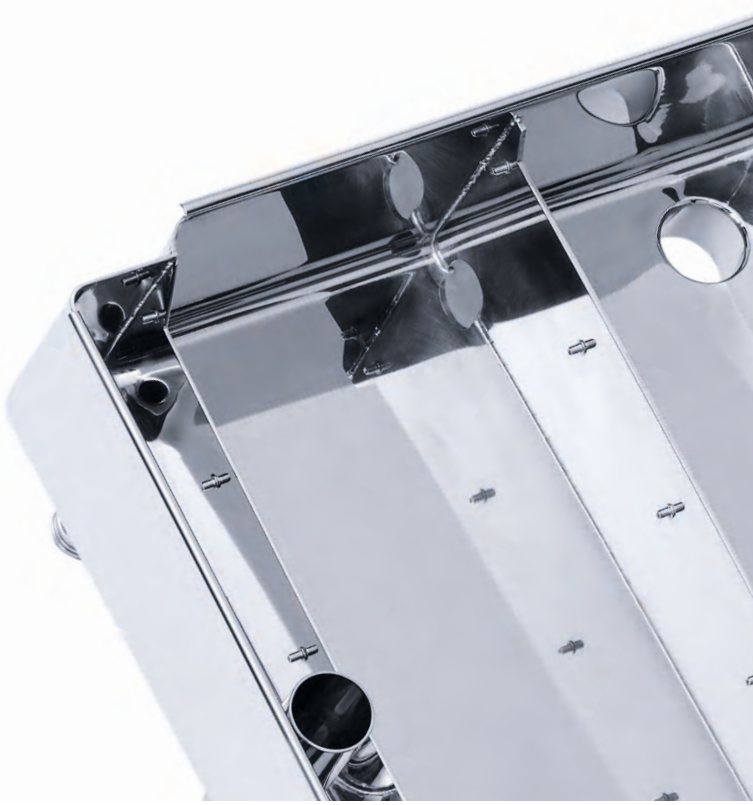
SEMICONDUCTOR INDUSTRY

WELDED CONSTRUCTIONS

LASER MACHINING

SURFACE FINISH

PICKLING / PASSIVATING



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