Special products

Our value-added portfolio

Schmidt + Clemens Group

Since 1879, the name Schmidt + Clemens has been synonymous for highest quality in stainless steel.

From this time on, the “Made by S+C” signet has been a guarantee of outstanding components and solutions made of high-quality steels and alloys. Our “Special Products” business ranges from centrifugally cast tubes up to semi-finished products and cover even ready-to-install components. Whether corrosion-resistant, heat-resistant or wear-resistant, our experts always find the right solution to ensure that your products perform to the desired maximum performance. Our manufacturing process begins with centrifugal casting over sand and investment casting and covers even forging. All our products are of course solely made of high-quality stainless steels and alloys. Welded constructions, if necessary assembled from components of different manufacturing processes, are also a specialty of S+C.

This versatility is unique in the stainless steel industry and offers our customers the required solutions from a single source.

Our services at a glance:

- Casting and forging technology
- Heat treatment
- Mechanical machining
- Material testing / laboratory services
- Material and application consultancy
- Failure analyses

Centrifugal casting processes

Vertical and horizontal centrifugal casting

The centrifugal casting process that has perfected by S+C for stainless steels is nowadays the first choice for the production of hollow, rotationally symmetrical components, regardless of whether they are cylindrical or conical in shape. The directional solidification, with a uniformly distributed grain structure, typical for this casting process, enables workpieces whose technological properties are clearly superior to products made by other manufacturing processes. In a particular noteworthy is the good dimensional stability as well as the excellent creep resistance in the high-temperature range.

Horizontal centrifugal casting:

External Ø:	50 mm – 1,010 mm
Length:	max. 5,550 mm
(Casting / finished) weight:	6,000 kgs

Vertical centrifugal casting:

External Ø:	150 mm – 1,800 mm
Height:	150 mm – 1,700 mm
(Casting / finished) weight:	6,000 kgs

The minimum wall thicknesses depend on the diameter. We will be pleased to provide you with these on request.

Static casting process

For freedom of design

The static (sand) casting process is best suited for the production of parts with complex geometries, possibly with cavities and different cross-sections. In this process, there are hardly any limits to the freedom of design. To ensure best castability, we rely on digital 3-D solidification simulation. We use the latest FEM technology in order to achieve the best possible result or, if necessary or desired, to make proposals on how to optimize the component with modifications, or to achieve cost savings.

Mould casting:

External Ø:	30 mm – 2,000 mm
Length:	30 mm – 4,500 mm
Width:	30 mm – 2,000 mm
Height:	1,700 mm
(Casting / finished) weight:	5,600 kgs / 3,000 kgs

Investment casting process

For smaller and complex castings

Stainless steel castings in sizes up to 500 mm length and 45 kgs (80 kgs)* of weight can be manufactured optimally by using the investment casting process. This process enable very precise and clearly shaped parts with high dimensional accuracy and good surface quality. Due to their high precision, investment castings are usually ready or almost ready for installation in the as-cast state but we can also supply you pre-machined or finish-machined investment castings, and this at an exceptionally good value for money.

Investment casting:
Length: 500 mm
Width: 500 mm
Height: 400 mm
Parts weight: 0.005 kgs – 45 kgs (80 kgs)*

Rapid prototyping:
- Polystyrene patterns made by 3-D laser printing
- Shortest possible lead-time
- Dimensions: 360 x 360 x 670 mm
- Layer thickness: 0.15 mm

Advantages of rapid prototyping to the conventional manufacturing process: Saving of the design and manufacturing time of the tooling for wax pattern production.

Forgings

For high mechanical load capacity and component safety

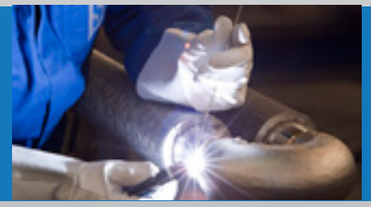
Forged parts have always been used for mechanical engineering and plant construction. In particular, those components, which transmit forces and movements and require a high degree of safety, are preferably made from forgings. For the pump and valve industry, our portfolio includes a variety of special stainless steels such as martensitic and duplex steels which were partly specially developed for this purpose. We will find the best possible solution for your application from our scope of supply of forged stainless steels.

Here you can find our stocks, which we can currently sell at attractive conditions:

Fabrication, repair and joint welding

For extensive quality requirements

We are able to carry out all fabrication, repair and joint welding on our components or get it done under our control. TÜV Rheinland confirms that we understand our business. “Made by S+C” also means that our welding engineers select the most suitable welding method for you. Our welding methods include MIG, MAG, manual arc welding, laser welding (subcontract) and electron beam welding (subcontract).



*in individual production

Heat treatment

For optimum material properties

Heat treatment is often necessary or advisable for achieving the required material properties. Targeted setting of the optimum heat treatment parameters is of great importance, as the components performance is particularly depending on them. State-of-the-art heat treatment furnaces and other specialized plants are available for this purpose.

Our service consists of the following process steps:

- Annealing
- Cold and hot straightening
- Stress-relief annealing
- Solution annealing and quenching
- Ageing (precipitation hardening)
- Quenching and tempering
- Tempering

By the way, we would also be happy to accept your subcontract heat treatment order. Take the opportunity now and place an order for one or more of our services. Whether bar material, discs, blocks etc. – at S+C we virtually heat treat all shapes made of alloy steel.

Mechanical machining

High-precision machining

Our well-equipped machine shop enables a full range of machining operations such as sawing, turning, milling, drilling and deep hole drilling in a particularly wide range of dimensions. As a systems supplier, we also include external machining methods such as grinding, honing, gear cutting, etc. if this should be required. At S+C, everything comes from a single source.

Our machining operations at a glance:

- Sawing
- Drilling
- Deep-hole drilling / trepanning
- Turning
- Milling

Material testing / laboratory services

For extensive quality testing and R+D

Our company's own inspection and quality control department carries out all necessary tests and inspections. Third party classification societies such as TÜV, LRS or GL can be invited on request to monitor our inspections, if this should be necessary or desired. The following testing and laboratory services are available:

Non-destructive testing:

- Chemical composition
- Dye penetrant inspection
- Magnetic particle inspection test
- Radiographic test
- Pressure test
- Ultrasonic test
- Dimensional inspection

Mechanical testing:

- Tensile test
- Notched bar impact bending test
- Hardness tests BHN/HV/HRc

Metallographic examinations:

- Microstructure and macrostructure
- Grain size
- Degree of purity

Corrosion tests:

- Intercrystalline corrosion test
- CPT/CTT test

Material and application consultancy

Advisory by experienced materials specialists

Tailored solutions to our customers' demanding applications are our strength. Our specialists will find the best possible solution for your application too. If necessary or desired, we will customize the chemical composition of our high-performance steels and alloys exactly to your requirements in close cooperation with you.

Failure analysis

Expertise and outstanding laboratory equipment

Our specialists' experience, along with the outstanding equipment of the company's own materials testing laboratory enable us to carry out examinations to clarify the causes of the failure in order to provide the user with crucial information required for optimization of the steel component and / or its operating conditions.

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Lloyd's Register

Current issue date: 19 October 2020
Expiry date: 30 April 2023
Certificate identity number: 10300744

Original approval(s):
ISO 14001 - 7 December 2011
ISO 45001 - 19 October 2020
ISO 50001 - 29 April 2013
ISO 9001 - 2 May 1994

Certificate of Approval

This is to certify that the Management System of:

Schmidt + Clemens GmbH + Co. KG

Kaiserau 2, 51789 Lindlar, Germany

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015

Approval number(s): ISO 14001 – 0018209, ISO 45001 – 0018212, ISO 50001 – 0018210, ISO 9001 – 0018211

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:
ISO 14001:2015
Development, manufacture, fabrication, procurement and sales of centrifugally cast-, statically cast-, forged and rolled products. Technical Service.
ISO 45001:2018
Development, manufacture, fabrication, procurement and sales of centrifugally cast-, statically cast-, forged and rolled products. Technical Service.
ISO 50001:2018
Development, manufacture, fabrication, procurement and sales of centrifugally cast-, statically cast-, forged and rolled products. Technical Service.
ISO 9001:2015
Development, manufacture, fabrication, procurement and sales of centrifugally cast-, statically cast-, forged and rolled products. Technical Service.

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Issued by: Lloyd's Register Deutschland GmbH
for and on behalf of: Lloyd's Register Quality Assurance Limited

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