



# Pipes and Components for Geothermal Energy



The use of geothermal energy has opened an exciting and varied chapter in energy supply. There is a practically inexhaustible supply of energy in our planet. Thus it offers fascinating opportunities for its use in energy provision.

Geothermal energy describes the heat stored in the accessible part of the earth's crust. It includes all the energy stored in the earth which can be extracted and used, and is classified as a renewable energy source. The possible uses are many and various, and so the same applies to the use of pipes and pipe materials in this up-and-coming branch of industry. BUTTING produces and supplies a variety

of stainless steel and nickel alloy-based products for this sector, from line pipes through prefabricated spools to casings.

## Tailor-made Products for Geothermal Energy

In a number of areas of use involving geothermal power, what is to be transported demands highly corrosion-resistant materials. For this purpose, BUTTING offers a wide variety of solutions for the entire plant structure: from casings and their various components such as the entire "float equipment", "line hangers" and "tie back parts" for depth drilling (for production and injection) to transport



**Casings manufactured to customers' specifications**

pipes (cross-country line pipes) in 12 m lengths between the well and the power station. BUTTING also supplies the ready-to-install pipe parts for process piping in the power station.

**For geothermal energy, BUTTING offers pipes and line pipes in different material grades, such as duplex, superduplex, Alloy 625, titanium, and also in clad condition**



## Casings

In order to cope with the high degree of corrosion resistance required by geothermal power, BUTTING offers casings in a variety of materials, such as duplex, superduplex, Alloy 625, titanium, and also in clad condition.

The customer can select from a whole range of dimensions. The casings are manufactured in line with standard codes (e.g. API 5CT) and customer specifications and are provided with the required licensed threads. The threads are mainly connected by flush threads.



The initial product for our components is the high-quality pipe we ourselves produce: cross over subs 13 3/8" / 16" in Alloy 625

## Tolerance Requirements

The casings are made from steel plates at BUTTING and welded longitudinally. The specified tolerances for roundness and ovality are extremely tight, at <0.5%. Thus the current requirements such as the drift test and above all cutting the threads on the pipe bodies (with relatively thin wall thicknesses) can be ensured.

Tests such as an X-ray test of the longitudinal weld, corrosion tests and a collapse test on the pipe body are part of our standard procedure. In addition, the casings can be provided with centralizers at the

**The pipes go through an entire turning and milling process and are equipped with compatible threads by appropriately licensed partners**



outside circumference. The centralizers enable the precise centring of the casing spool in the bore hole, to allow an even spread of the concrete around the spool when it is cemented in.

## Optimizing the Mechanical and Technological Properties

BUTTING is able to provide the casings with a cold work. This procedure offers you a whole series of advantages: the cold work allows the strength and the yield strength to be increased; the latter is important for constructive laying. As a result, the wall thicknesses at the casing can be considerably reduced, and the same applies to both the weight and the costs.



## Fittings for Geothermal Drilling

As well as the casings, BUTTING also supplies the appropriate components, such as:

- float collars
- float shoes
- cross over subs
- drill bits
- lifting plugs
- tie back components

The basis of these components is always our high-quality, longitudinally-welded pipe, calibrated to very tight roundness tolerances. The pipes go through a complete turning and milling process and are equipped with compatible threads by appropriately licensed partners.

## Line Pipes

To transport thermal water from the bore hole to the power station, BUTTING also manufactures the required pipes, using material grades including duplex, superduplex, nickel alloys, and in clad condition.

Standard delivery lengths of 12 m reduce the number of circumferential welds to be performed on site, and thus also cut the laying costs.

The increased demands imposed by the customer specifications of the tolerances for the roundness and ovality allow the pipes to be fitted together on site using orbital technology with no problems whatever, and are the basis for the high quality of the circumferential weld seam.

**Delivery of casings in size 10 3/4" / 45.5 lb/ft in 12-m lengths, from superduplex (UNS S32750)**



We offer a wide variety of highly corrosion-resistant material grades for geothermal drilling: clad pipework manifold 36" x (12.7 + 3) mm / SA 516 size 60 / 317L

## Pipework Components for Power Station Construction

For the piping systems of a plant, BUTTING buys in the required fittings and flanges and welds the pipes it has constructed itself into pipework components. Here the standard codes like PED 97/23/EC, ASME B 31.1 and B 31.3, are used as desired by the customer.

Prefabrication, unlike "on-site" completion, brings benefits in terms of quality and time. Welding and testing the individual components (e.g. X-ray, dye-penetrant



Ready-to-install spools – prefabrication in our plant ensures good quality

**BUTTING already has supplied more than 55 projects with pipes from metallurgically clad materials**



and ultrasonic testing) take place under optimum workshop conditions. Another advantage is the full-body and spray pickling (e.g. in clad condition) of the piping components, which is only possible on site to a very limited extent, with high, cost-intensive environmental conditions. In addition, optimum anti-corrosion protection of the pipe surfaces is ensured.

## Everything from a single Source

BUTTING's business activity is focused on the manufacturing of high-quality longitudinally welded pipes of stainless

steels and clad materials. Few companies in Europe can point to such long-standing experience and diversity as BUTTING in the production of pipes in dimensions ranging from 0.5" (21.3 mm) to 72" (1,829 mm).

Our customers can purchase their complete pipe, fittings and pipework requirements from a single source. In the previous years the family-owned company has invested in state-of-the-art manufacturing technology, environmental and quality assurance equipment. So our core competencies in the fields of material grades, forming and welding technology could be expanded.



## High-quality demands on the casings: from receipt of goods through production to container stuffing

### Longitudinally welded Pipes

BUTTING basically has two different production processes available for manufacturing pipes:

- pipe production from coils
- pipe production from individual steel plates

Longitudinally welded pipes are produced from coils on multiple fully-automatic production lines. We manufacture pipes with wall thicknesses of up to 70 mm from steel plates without outsourcing individual production steps, in delivery lengths of up to 24 m.

For these pipes, usually ordered in small quantities or made from special material grades (e. g. Alloy 625, Alloy 825, Alloy C276), the maximum ratio of wall thickness to outside diameter is approximately 1 : 10.

We use the same manufacturing procedure to form clad steel plates into pipes. One-sided cladding can be applied either inside or outside. The range of sizes comprises external diameters from OD 114.3 mm (4") to OD 1,219 mm (48") in various material combinations. We can produce tolerances strictly limited in shape and position, and manufactured lengths of up to 24 m, and make clad elbows and spools.

BUTTING manufactures prefabricated components and special constructions to customers' requirements. Within the framework of our prefabrication, BUTTING also processes pipes and prefabricated fittings to make ready-to-install spools.

### Years of Experience with Material Grades

BUTTING has been processing stainless steels since they were first developed and in this time has acquired extensive experience over several sectors in forming, joining and heat-treating.

BUTTING's processing programme offers you a wide range of high-performance material grades for specific, anti-corrosive

applications in many different sectors. We process inter alia:

- clad materials
- ferrite steels
- ferrite-austenite steels
- austenitic steels
- nickel-based alloys
- titanium alloys

### Duplex Material Grades

BUTTING has specialized in the processing of duplex, superduplex and lean duplex materials. More than 130,000 tons have been processed since 1979 for the petrochemical, paper and oil and gas industries, as well as for waste water treatment, chemical tanker construction and seawater desalination plants.

### Your contact



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