









## Solutions for the aerospace industry

-  Corrosion resistant pipes
-  Special pipes and components ready for installation
-  Clad pipes
-  Spools and components in CRA or clad materials
-  Vessels, tanks and apparatus
-  Assemblies



**BUTTING**





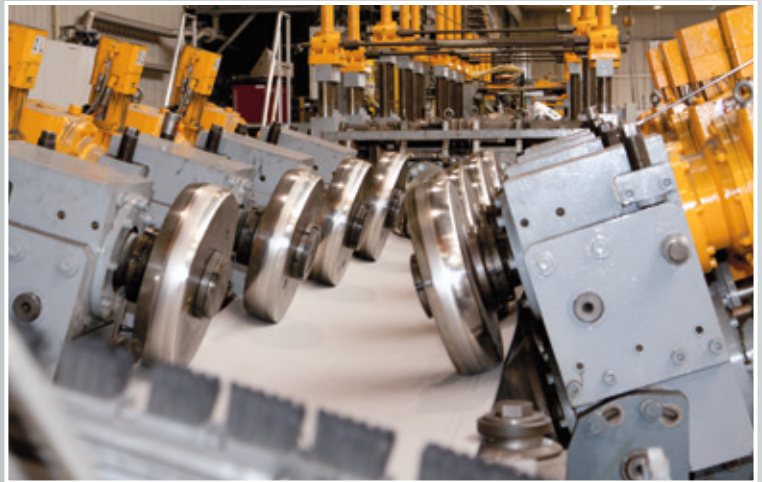
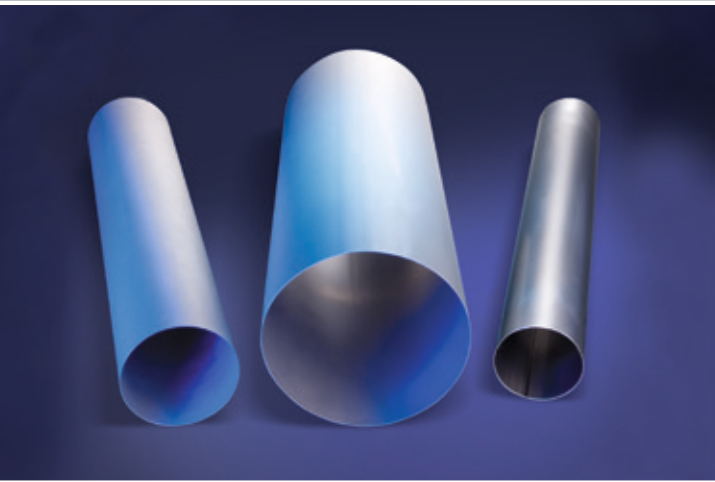
## A reliable supplier since the late 1970s

BUTTING is a family-owned company with its roots in Germany and a history going back more than 240 years. We have been producing piping components for the aerospace industry since the late 1970s.

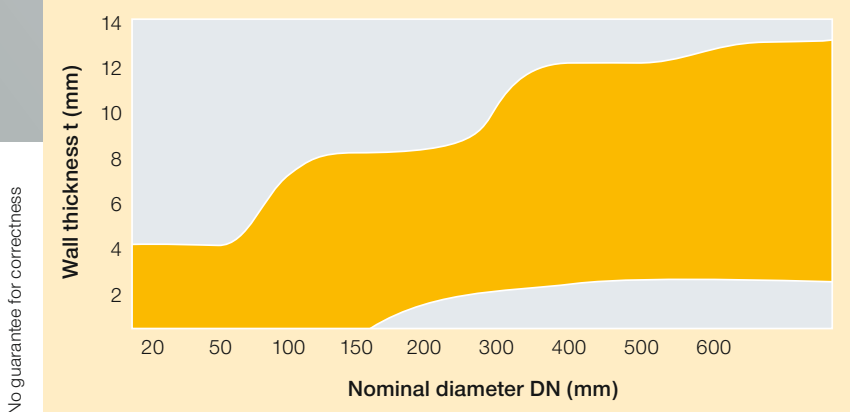
BUTTING products are used in the Ariane girder system, in the International Space Station and in Airbus aircraft. Our services bear witness to our reliability and high quality standards.

Precision, accuracy and cleanliness: we use only specific forming tools and equipment to manufacture these components. These tools are mainly in-house products.

We offer product solutions in stainless steel, special alloys and titanium for individual requirements.



Production options for pipes made from coil



Standard production options;  
other diameters and wall thicknesses  
available on request

## Quality pipes from BUTTING

Our production programme offers you a broad range of high-performance materials for specific corrosive applications.

On several production lines, BUTTING produces pipes in outer diameters ranging from 18 mm to 762 mm, with wall thickness up to 16 mm.

BUTTING has been making pipes for the aerospace industry for more than 40 years, including ready-to-install pressure gas and fuel lines for the Ariane programme and drain lines for Airbus.



Apart from pipes, we also produce elbows and combine them into ready-to-install components

## Elbows for aerospace applications

BUTTING produces bended pipes according to customer specifications by the roller, hydraulic and mandrel bending processes. We also manufacture two half shells as welded components made from individual plates.

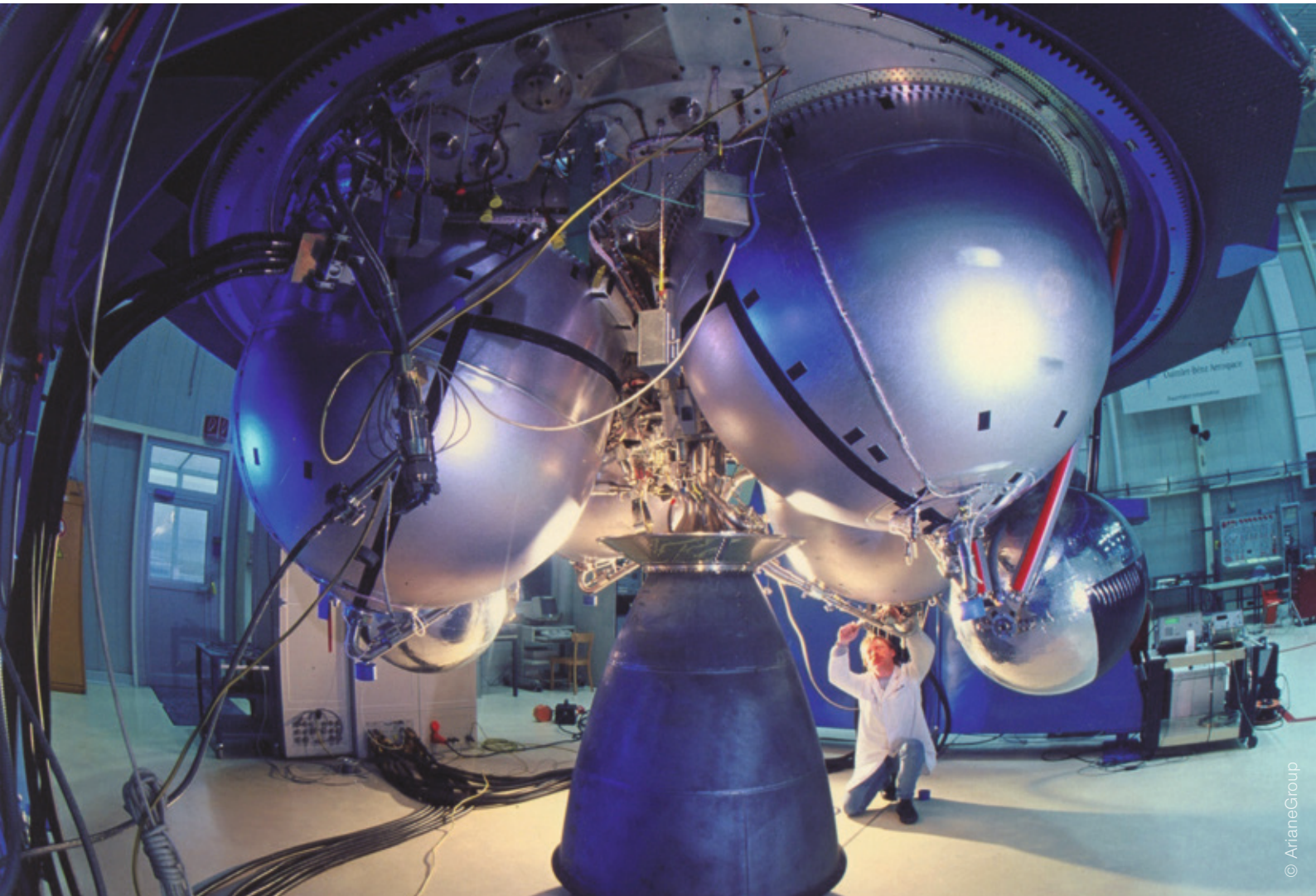
The elbows are produced according to specific customer requirements. Larger radii, with straight ends without circumferential welds, can also be supplied. Three-dimensional multiple bends with graded radii can be made in accordance with customers' isometric drawings.



## First-class processing: piping components

Through the combination of different production processes along the value added chain, e. g. laser, forming, welding and milling technology and surface processing, we manufacture your components ready for installation from our corrosion resistant special pipes.

BUTTING is the expert when entire components are required, complying with the strictest form and position tolerances – from the planning stage through production to final acceptance.



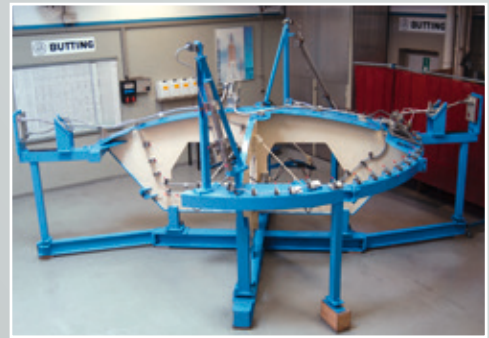
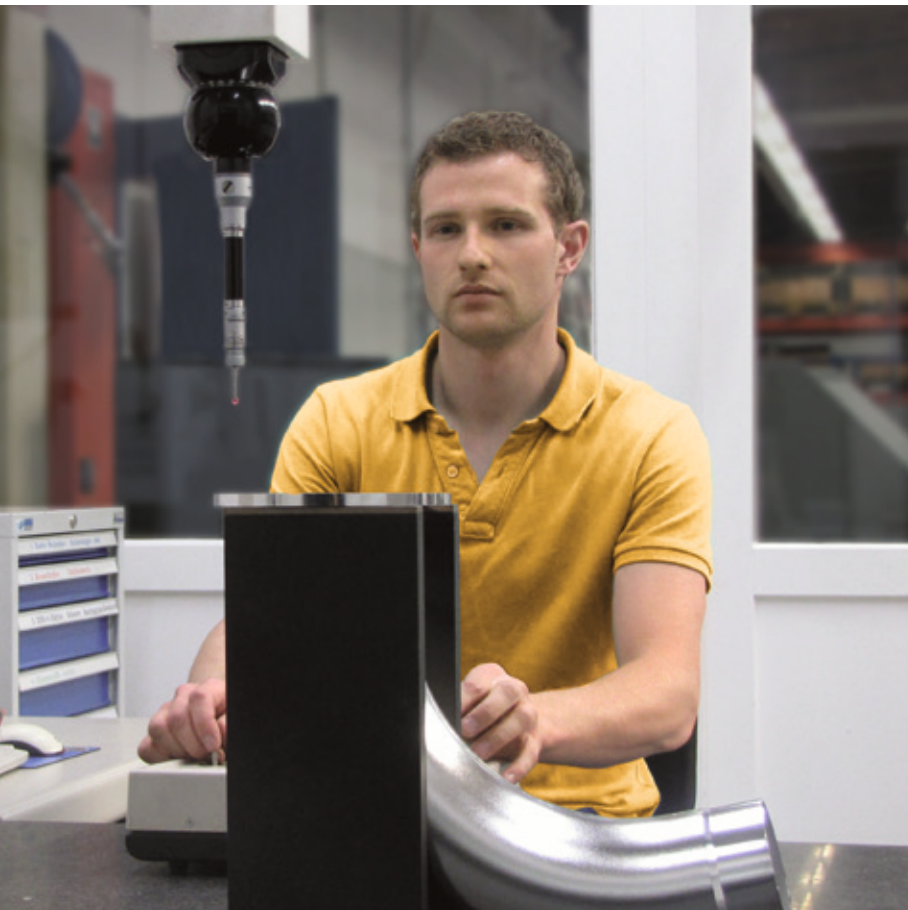
Ariane 5 EPS upper stage with BUTTING piping systems and feed lines

© ArianeGroup

## Individual product solutions

Our component production process uses only high-quality semi-finished products such as elbows, flanges and reducers. Combined with a high degree of automation, these guarantee optimum processing quality. Our expertise is shown in the precision, weld quality and dimensional accuracy of the work.

For our customer ArianeGroup, we supply piping components up to the Ariane 5 programme; for other system suppliers, BUTTING produces components in titanium grade 2 for things like waste water systems.



Welding and testing equipment for the EPS upper stage of the Ariane 5 to monitor the geometrical position of the prefabricated piping components

Measuring a piping component with a 3D measuring system

## Our production: individual, economical and advanced

BUTTING's core competences lie in material grade, forming and welding technologies. Few other companies can point to such a wealth of experience in producing corrosion resistant pipes, with such a wide range of products.

A welding process suited to the specific material is the basis for a smooth deployment of the products. We use all the established and innovative welding methods

in our production process. The execution and quality of the welds is especially crucial in the aerospace industry.

BUTTING has extensive mechanical processing options: the latest CNC equipment for milling, turning, drilling and measuring enables us to process complex components in compliance with the tightest geometric and positional tolerances.





Flushing the piping systems under clean room conditions

## Clean room for cleaning components

BUTTING produces piping components for the aerospace industry in specially equipped production areas. This allows us to satisfy the demanding welding standards with regard to possible negative environmental affects, and to ensure that the components are absolutely flawless.

This component cleaning is carried out under controlled environmental conditions (in a clean room). It complies with classification up to Class 7 under ISO 14644 Part 1.

Documentation of the required degree of cleanliness in the form of particle counts and non-volatile residue (NVR) analyses is a matter of course. This is done using particle counters and optical microscopy.

This is how we clean oxygen lines and provide evidence of cleanliness according to specific customer requirements, for example.



BUTTING – Progress by Tradition for our customers and our staff, for this and the next generation

## BUTTING – We stand for quality

Our products have to meet the most demanding standards in constant use. Quality assurance at BUTTING is carried out using various testing methods, depending on customer requirements.

In 2007, we received an award from our customer ArianeGroup (formerly EADS Astrium). For outstanding performance in the areas of quality assurance and technical knowledge in particular, we received the title of “Master Supplier”. Our laboratory has an extensive range of destructive and non-destructive material testing facilities.

Our Quality Management System is EN 9100-certified. We hold many other licences, including:

- DIN 29595 Welding in aerospace – Fusion welded metallic components – Requirements
- Accredited materials testing laboratory according to DIN EN ISO 17025



– more than pipes –

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