

# Functional assemblies made of tube



**KOHLHAGE**  
*Automotive*

# KOHLHAGE

## Automotive

### *From the bent tube to the complex assembly*

In the past, perhaps 20 years ago, **KOHLHAGE** was known for its ability to bend pipes. In the course of time **KOHLHAGE** engineers refined this production know-how continuously and well-known car manufacturers have become aware of the experts from Neuenrade. Today **KOHLHAGE** Automotive is known for its high level of consulting skills, speed in decision-making and flexibility in implementation. Here, **KOHLHAGE** technicians support the developer on the customer side in the run-up to a series product. Thanks to their experience, they can help to design the desired geometries with process reliability at an early stage in the project.

### *Fluid & oil tubes*



### *Safety related assemblies*

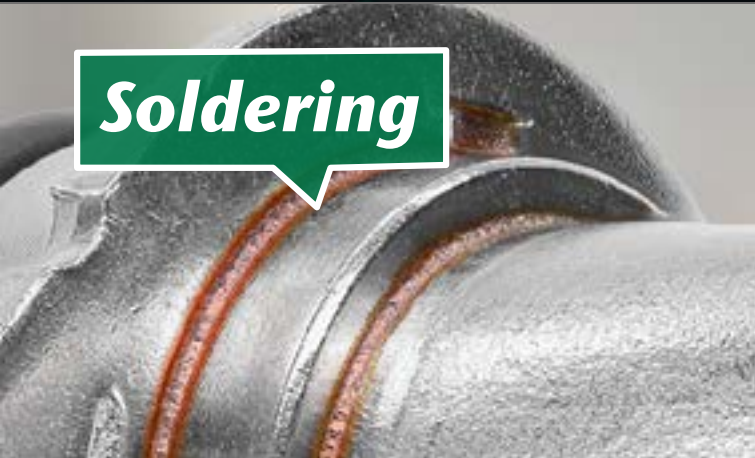


### *Valve technology*





## Soldering



## Soldered - tested - tight

Bent tubes are soldered at the ends. The heat of the soldering process can change the contour of the tube. **KOHLHAGE** designs the bending radii in order to fit 100% AFTER soldering.

Each soldering is checked. Pressure tests are carried out on request.

## Bending, upsetting, rolling

In **KOHLHAGE** production tubes are formed in many different ways. As these production processes are carried out without the addition of heat, they are called "cold forming". The spectrum of **KOHLHAGE** competences in the processing of tube ranges from bending and upsetting to expanding the pipe diameter and subsequent rolling. Especially the combination of these processes while maintaining tight customer-specific tolerances is a speciality of **KOHLHAGE Automotive**.

## Cold forming



## Checking



## Precise

For automotive products, especially for safety-relevant assemblies, compliance with high quality standards is essential. For this reason, **KOHLHAGE** technicians pay particular attention to testing concepts that accompany series production. These are defined together with the customer and implemented in our own laboratory using metallurgical and tactile processes.

**KOHLHAGE**  
Automotive





## Necks create stability

**KOHLHAGE** uses the so-called T-Drill process. First a small hole is drilled at the point where the new pipe has to be attached later. Then, when the special drill is pulled out, the edge of the drill hole is pulled upwards by means of small hooks. This creates “neckouts” to which the new pipe can later be optimally attached during soldering or welding.

**KOHLHAGE** masters this process perfectly for pipes with a diameter of 8 – 108 mm with a neck diameter of 6 – 54 mm.

## T-Drill



## ZSB – Products made of more than just one piece

Today's customers require that a supplier is able to realize ZSB assembly processes. This is also the case with **KOHLHAGE**. In addition, a trend has developed over the years which leads to manufactured assemblies becoming more and more complex.

## Assembly



## Can't - doesn't exist

**KOHLHAGE** can supply any common coating. Thanks to a network of regional and national partner companies, the company is able to respond to customer requirements quickly, flexibly and safely.

## Coating





## ***Not only clean, but pure***

As a long-standing automotive supplier, **KOHLHAGE** knows the requirements for product cleanliness and has decided to develop in-house capacities for cleaning and degreasing. With the in-house DÜRR plants, customer-specific requirements can therefore be met quickly and efficiently. The **KOHLHAGE** experts know from their many years of experience which cleaning process is best for each product – for the benefit of the customer.



## ***Cleaning***

## ***End-of-line Tests***



## **KOHLHAGE** ***measurement technology***

At the end of every production process, it must be ensured that products are flawless. Such end-of-line tests range from checking for completeness and surface condition, to optical and tactile dimensional checks, to checking for leakage, especially in pipe assemblies.



**1929**

Founded as a trading company by Ernst Kohlhage

**1950**

Friedrich-Wilhelm Kohlhage takes over the management of the company

**1953**

KOHLHAGE becomes a turning shop with its own production facilities

**1970**

First production in Neuenrade Küntrop

**1986**

Division into trade (KOHLHAGE & Co. KG) and production (KOHLHAGE Verbindungstechnik GmbH)

## The KOHLHAGE Group

### Products for Automotive & Co.

**KOHLHAGE** is a medium-sized, owner-managed company, which has been successful in the market for more than 90 years and can build on this wealth of experience. More than 180 well-trained and committed employees make **KOHLHAGE** one of the first choices when it comes to finding solutions for demanding tasks in metal processing. Today **KOHLHAGE's** headquarters is still in Neuenrade. Three of the five sites are also located there. But **KOHLHAGE** operates worldwide. With the production site in Kunshan (China) founded in 2016, the purchasing office in Taiwan and the logistic and warehouse site in Mexico, the owner-managed company from the Sauerland region is a global player.

The production focus within the **KOHLHAGE** Group is still in the automotive sector. However, market developments in recent years have led to the re-organisation and repositioning of the **KOHLHAGE** Group as well. For example, the foreseeable changes with regard to e-mobility have led to the founding of **KOHLHAGE E-Tech**. However other companies in the group also serve other markets today, from the plastics industry to special machine construction.

## KOHLHAGE Fasteners

### High-Quality solutions for fastening technology

From the very beginning, dealing with fasteners was a central part of the **KOHLHAGE** business. The focus was on the sale of standard parts. Many trade contacts from that time still bear witness to this today. However, since 2007 **KOHLHAGE** Fasteners has experienced a fast-paced evolution. Since then **KOHLHAGE** Fasteners has become a sought-after specialist for complex tasks in the field of fastening technology with a special focus on application technology consulting.

**KOHLHAGE** engineers and technicians specialized in screw technology develop individual solutions together with customers from different industries whenever complex and sometimes difficult to solve problems in fastening technology are involved. The **KOHLHAGE** specialists benefit from the fact that they are familiar with all common production processes. They can recommend the most favourable and efficient production variant to the customer in addition to the solution.

**KOHLHAGE** customers appreciate this.

### Cold formed parts

### Stamped parts

### Turned parts

### Inserts

### Welding nuts, welding screws

[www.kohlhage.de](http://www.kohlhage.de)



**1997**

Complete move to  
Neuenrade  
Küntrop

**2012**

Renaming to  
KOHLHAGE Automotive  
GmbH & Co. KG and  
KOHLHAGE Fasteners  
GmbH & Co. KG

**2018**

Foundation of  
KOHLHAGE  
E-Tech GmbH

**2020**

Maximilian  
Schreiber  
(member of  
the Kohlhage  
family) joins the  
management team

**2021**

Foundation of  
KOHLHAGE Mexico  
(Special Fasteners  
Kohlhage  
S.de.R.L. DE C.V.)

**2022**

KOHLHAGE E-Tech  
produces  
stretch-bent parts  
for automotive  
lightweight  
construction

## **KOHLHAGE** **E-Tech**

### **Solutions for e-mobility**

Thanks to its experience in the reliable production of complex assemblies in series production, **KOHLHAGE E-Tech** can develop viable solutions for electrically powered vehicles. Core products are structural components and individually developed unit carriers to accommodate electric motors and their attachments.

### **Structural components**



### **Aggregate carrier**

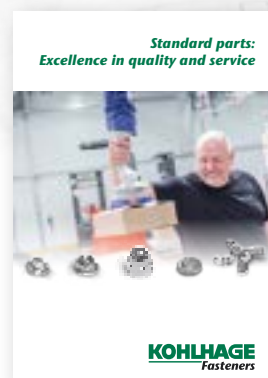
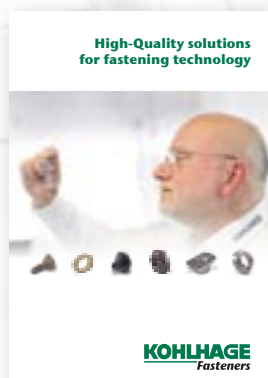
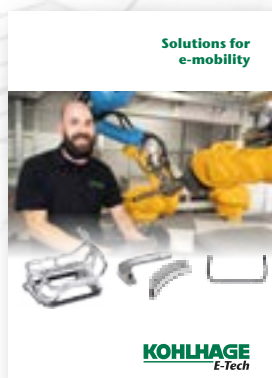
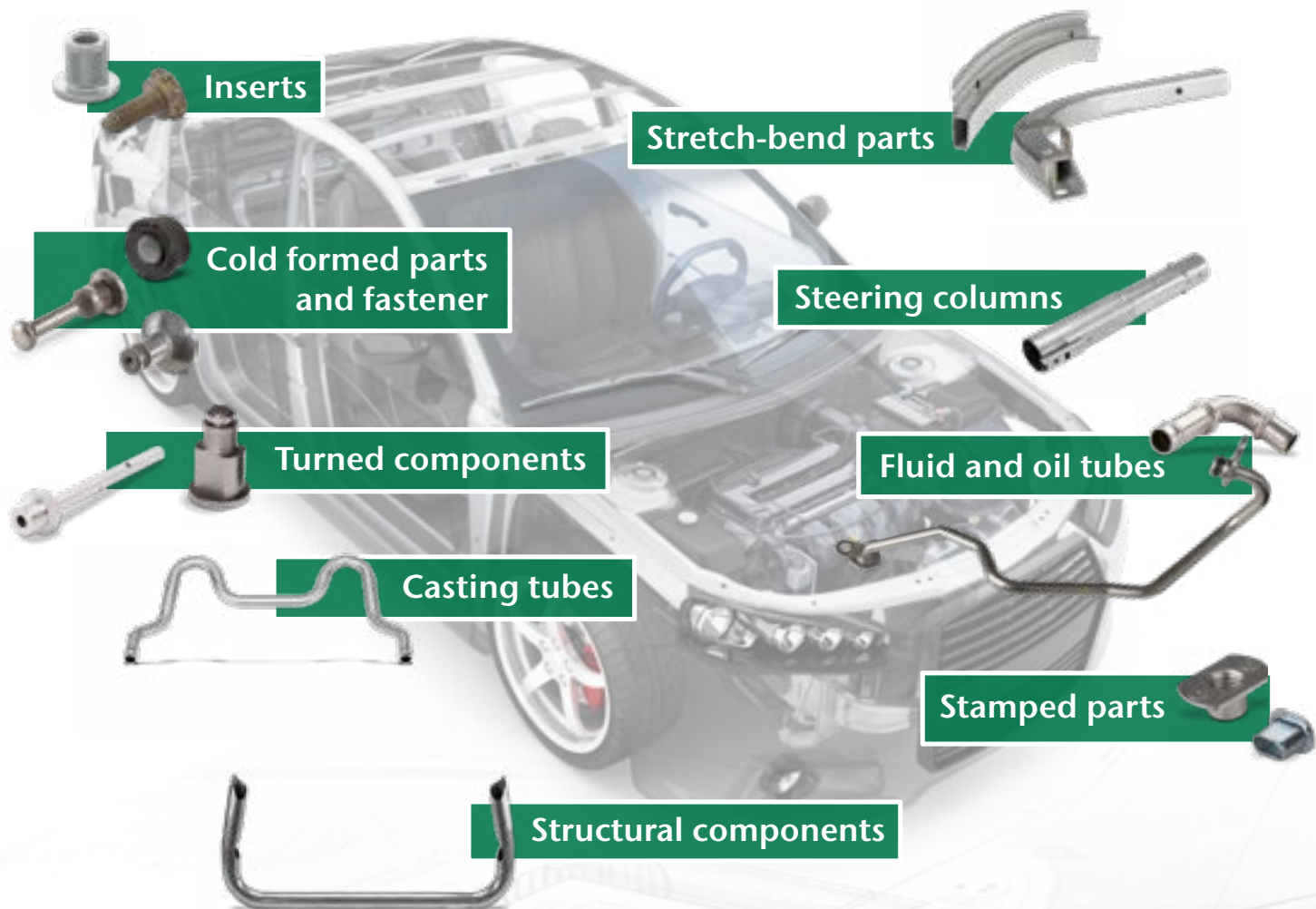


### **Stretch bending parts**



**KOHLHAGE**





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