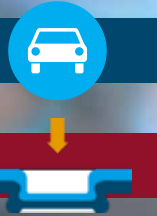


User report

For internal use only

Automotive industries



Clinching

Designation	Clinching frame	Clinching frame
Type	DFB-800	DFB-801
Ident no.	00000086451	00000086467
Manufactured	02/2012	02/2012
Order no.	584883	
Number	10 pieces	11 pieces
Other		

Customer	DAIMLER
Location	Bremen (Germany)
Model	C-class BR 205 (W, S, C, A)
Component	Bonnet
Handling	by robots and stationary
Production line	Z3
S.O.P.	02/2014
Launch	03.2014 (Limousine)

Task:

Joining a bonnet, consisting of different parts of various thicknesses including reinforcements for pneumatic spring and hinge reinforcement as well as for lock. This results in a relatively large sheet thickness mixture which is to be joint with the less different combination of clinching tools as possible. Thus, the number of tool variations shall be kept small.



Solution:

The inner part is made of various parts with planking to the complete bonnet. The numerous components build a sheet thickness mixture that is joint in 10 of 11 tasks with the same punch- / die-combination. A total of 79 clinching points is placed into the bonnet. The clinching frames are part of the servo motor-driven clinching system and they are designed for stationary as well as for mobile use on a robot. In total the clinching frames DFB-800 and DFB-801 are applied for production of the bonnet.

Customer rating:

- always on-time deliveries
- unproblematic launch and use
- easy handling of user interface
- structured software
- good training material and structured qualification
- positively rated supplier



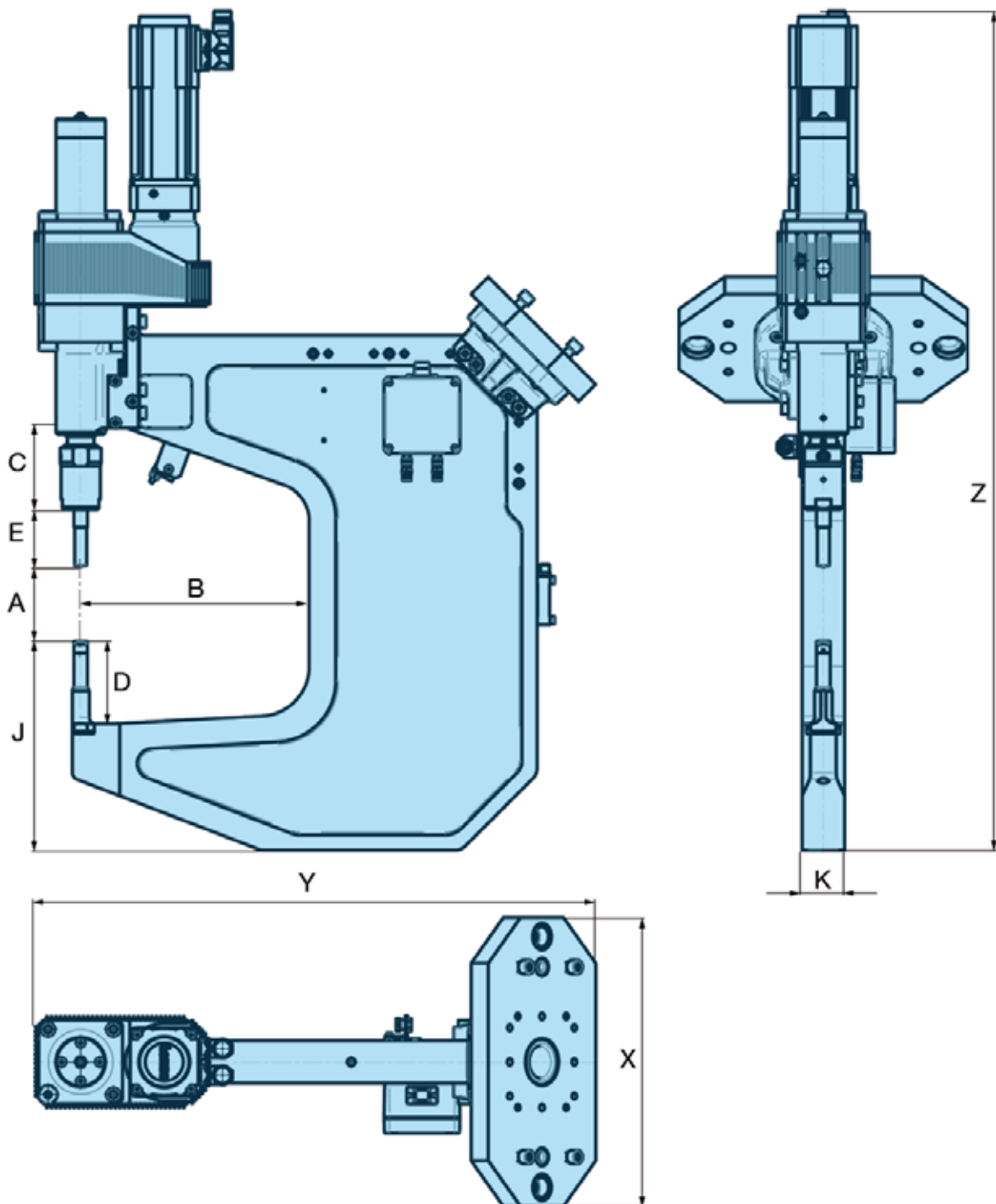
DFB-800



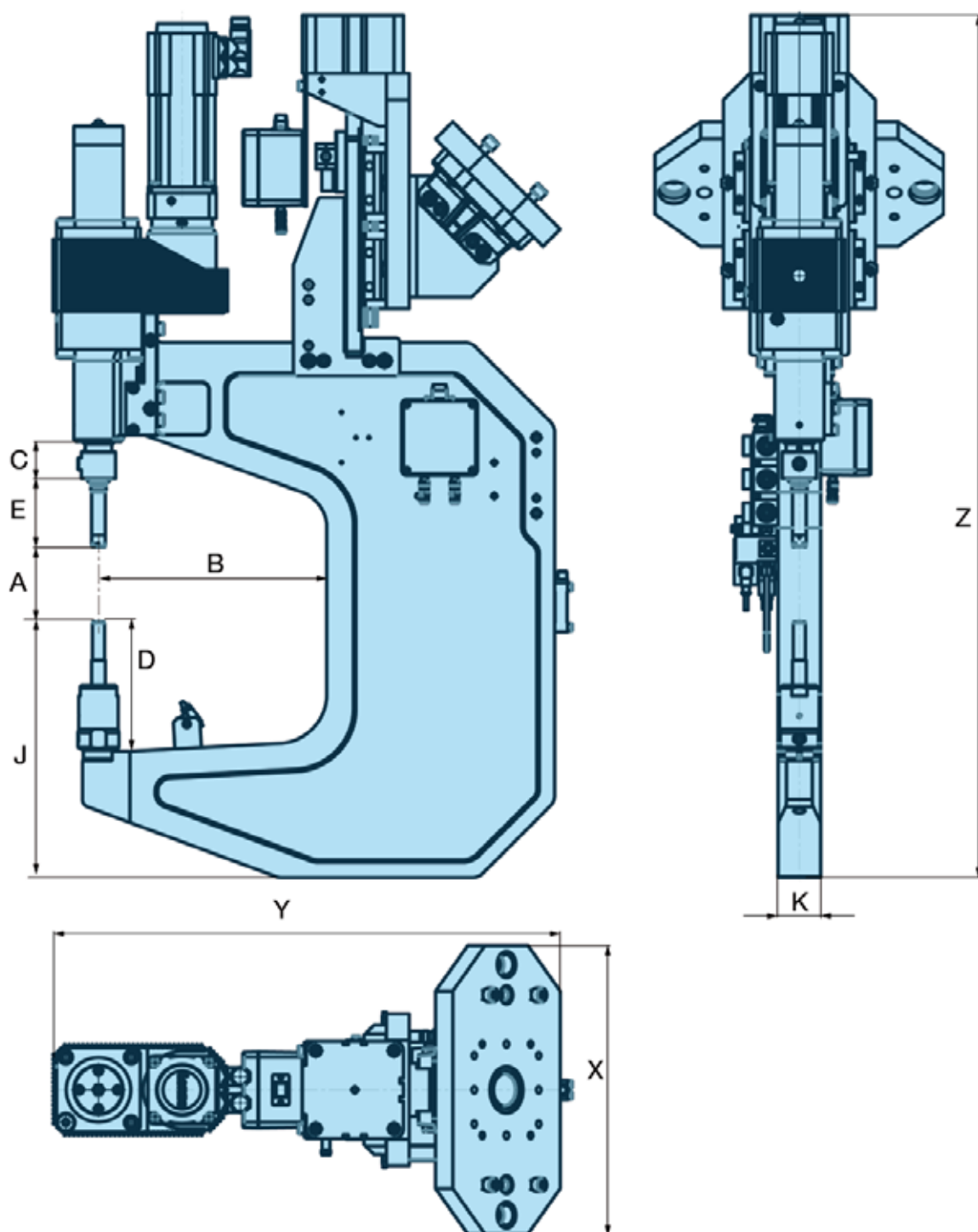
DFB-801

Name	Clinching frame
Type	DFB-800
Ident no.	0000086451
Drive	servomotorisch
Pressure force	max. 80 kN
Stroke length	100 mm
Pneumatic pressure	min. / max. 5 / 6 bar
Weight	144 kg

Opening width	[A]	[mm]	97,9
Throat depth, horizontal	[B]	[mm]	300,5
	[C]	[mm]	121,5
Tool holder protrusion at frame end	[D]	[mm]	109
Tool holder protrusion, ram side	[E]	[mm]	74,5
Frame end height	[J]	[mm]	275,5
C-frame width	[K]	[mm]	56
Width	[X]	[mm]	380
Length	[Y]	[mm]	738
Height	[Z]	[mm]	1105



Name	Clinching frame	Opening width	[A] [mm]	97,9
Type	DFB-801	Throat depth, horizontal	[B] [mm]	300,5
Ident no.	00000086467		[C] [mm]	48,5
Drive	servo motor	Tool holder protrusion at frame end	[D] [mm]	171
Pressure force	max. 80 kN	Tool holder protrusion, ram side	[E] [mm]	89,9
Stroke length	100 mm	Frame end height	[J] [mm]	337,5
Pneumatic pressure	min. / max. 5 / 6 bar	C-frame width	[K] [mm]	56
Weight	186 kg	Width	[X] [mm]	380
		Length	[Y] [mm]	583,5
		Height	[Z] [mm]	1135



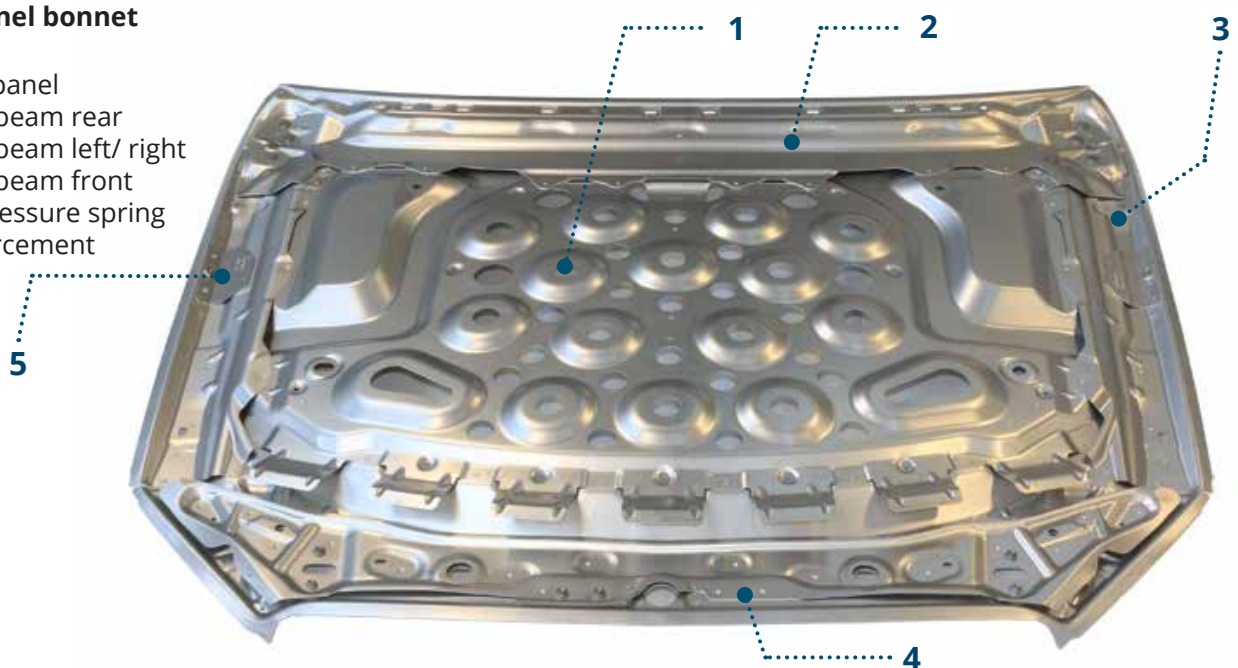
Joining task		1	2
Clinching variant		R-DF 8	R-DF 8
Component	t_1	cross beam rear	Gas pressure spring reinforcement
Material	t_1	Al	Al
Punch side layer thickness	t_1	0,9 mm	1,75
Intermediate layer		none	none
Component	t_2	inner panel	cross beam left/right
Material	t_2	Al	Al
Die side layer thickness	t_2	0,7 mm	0,9 mm
No. of clinching points			79

Remark:

In total the clinching frames DFB-800 and DFB-801 are applied for production of the bonnet. Overall 11 different joining tasks are realised, 10 of them with the same punch-/die-combination. Illustrated are the joining tasks with the thinnest and thickest total sheet thickness.

Inner panel bonnet

- 1 Inner panel
- 2 Cross beam rear
- 3 Cross beam left/ right
- 4 Cross beam front
- 5 Gas pressure spring reinforcement



Bonnet, complete with inner panel



Servo motor-driven clinching system:

Overview and Setup:

- 1 **Clinching frame** for robot integration with servo motor drive and clinching tools (punch and die)
- 2 **Micro spray system** (optional accessory)
- 3 **Control cabinet** with servo regulator for drive unit and integrated process monitoring system, Visualisation software
- 4 **Cable set** for connection between control cabinet and clinching frame (in stationary design) and between control cabinet and robot base (when handling by robot)

Optional accessories:

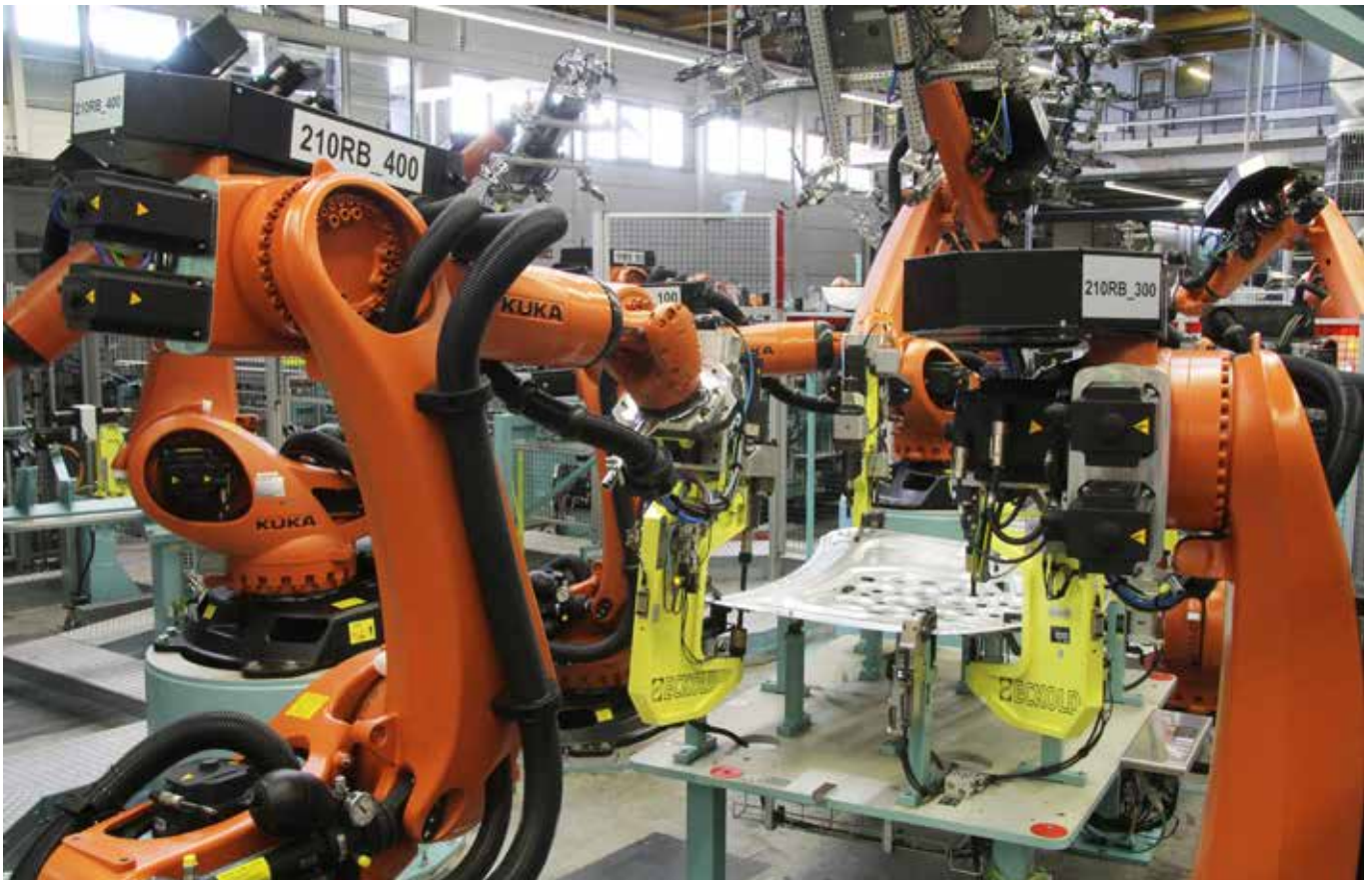
- Micro spray system
- Floating mounting at clinching frame

(The illustrated components serve only as example and may differ in design and dimension.)



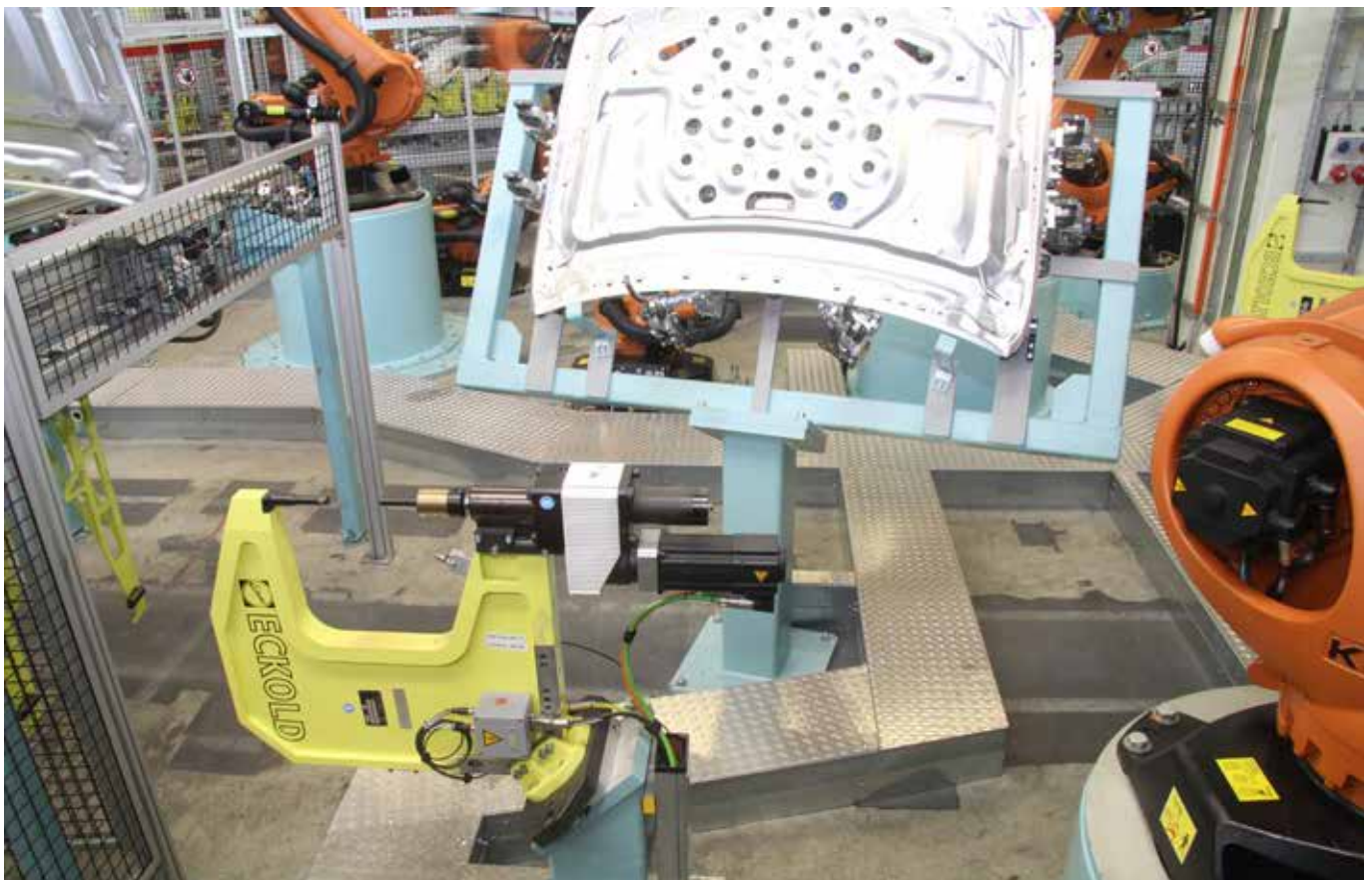
Production location Bremen:

Manufacturing bonnet



Production location Bremen:

Manufacturing bonnet



ECKOLD technics GmbH & Co. KG

Trading successful for over 85 years

Since our company was established in 1936 by Walter Eckold, the only aspect of our business not to change from that year to this has been our commitment to our customers. Our priority remains to provide our customers with economical and environmentally viable cutting edge technological solutions to their ever changing manufacturing processes.

During our 80 years of trading we have amassed a knowledgeable highly skilled engineering workforce in our specialist areas of shaping and joining sheet metal. These specialist skills enable us to quote from one off standard pieces of equipment to fully tailor-made automated robotic systems. A full range of all our specialist techniques can be found in all sheet metal, craft and industry work-places. Join with us, the successful sheet metal experts, to shape your future metalworking solutions.

Service von A-Z

- Tests and analyses for our customers
- Creation of sample sheets/components
- Preparation of feasibility studies for the design of moulds
- Concept development and constructive realisation of the technical solution
- Production in our own factory
- Commissioning at the customer's premises
- Carrying out regular maintenance
- Support with optimisations in the customer's process
 - Support with the robot position teaching process
 - Creation of micrographs / evaluation of clinching point quality
 - Online support

Start-up support after commissioning up to SOP
Training of system operators/maintenance staff/experts

Data and facts

- Founded in 1936
- Products in use in over 100 countries
- Over 25 sales partners worldwide
- Sales companies in Great Britain, Hungary, USA
- Certified according to ISO 9001:2015
- Certified according to ISO 14001:2015



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