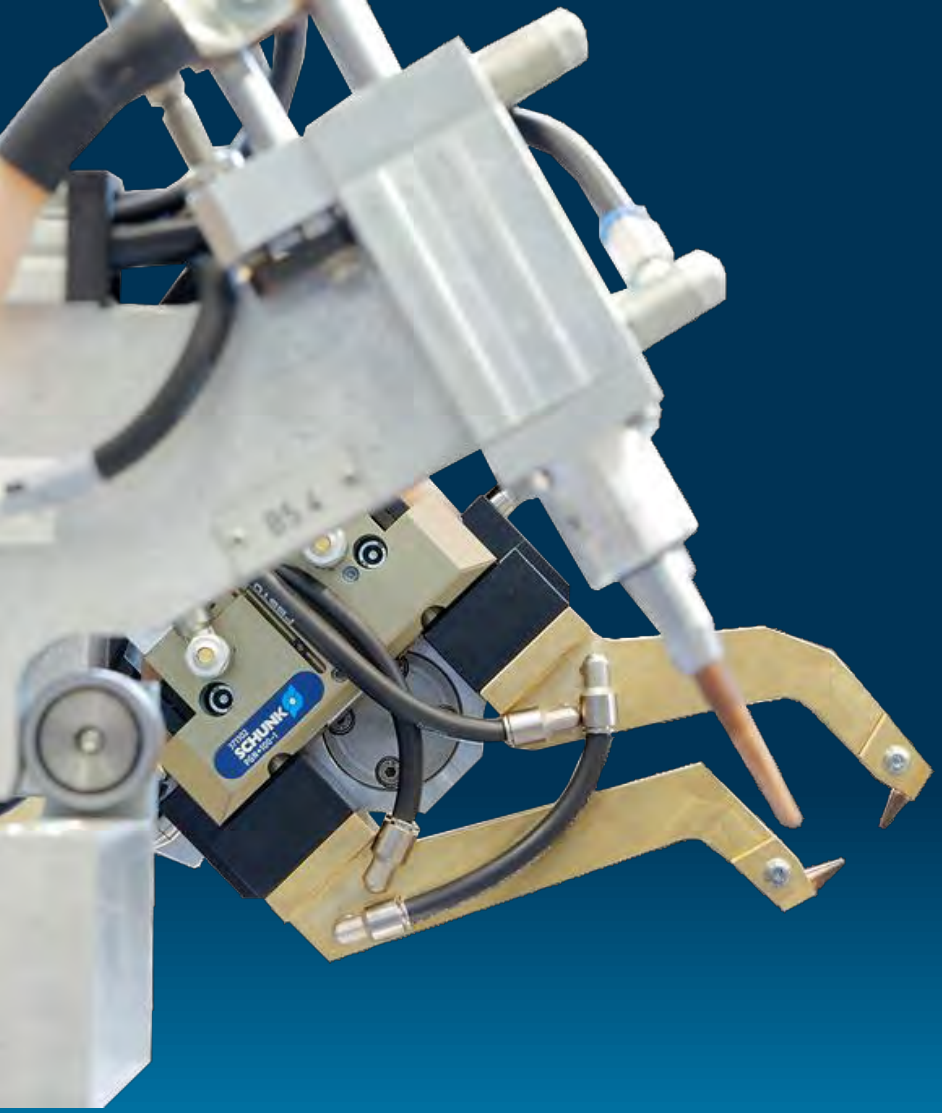

DALEX
AUTOMATION & WELDING



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Micro Welding Guns and Push spot welder

„Small and flexible “
for good accessibility

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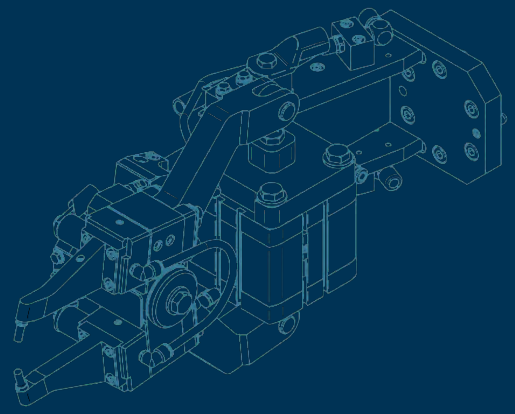
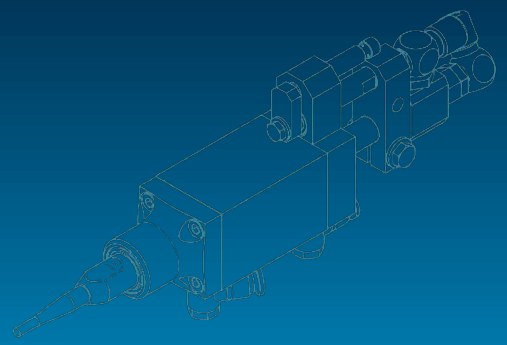
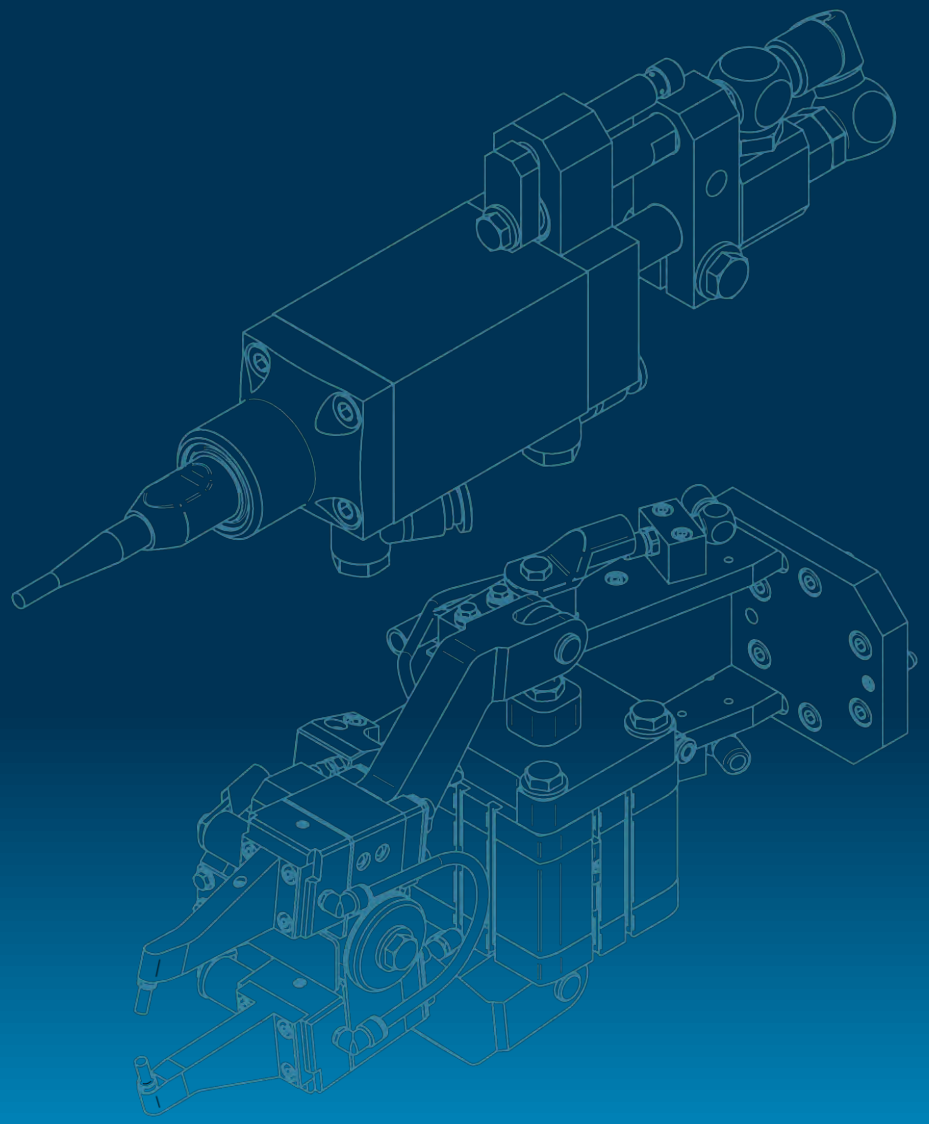




Application

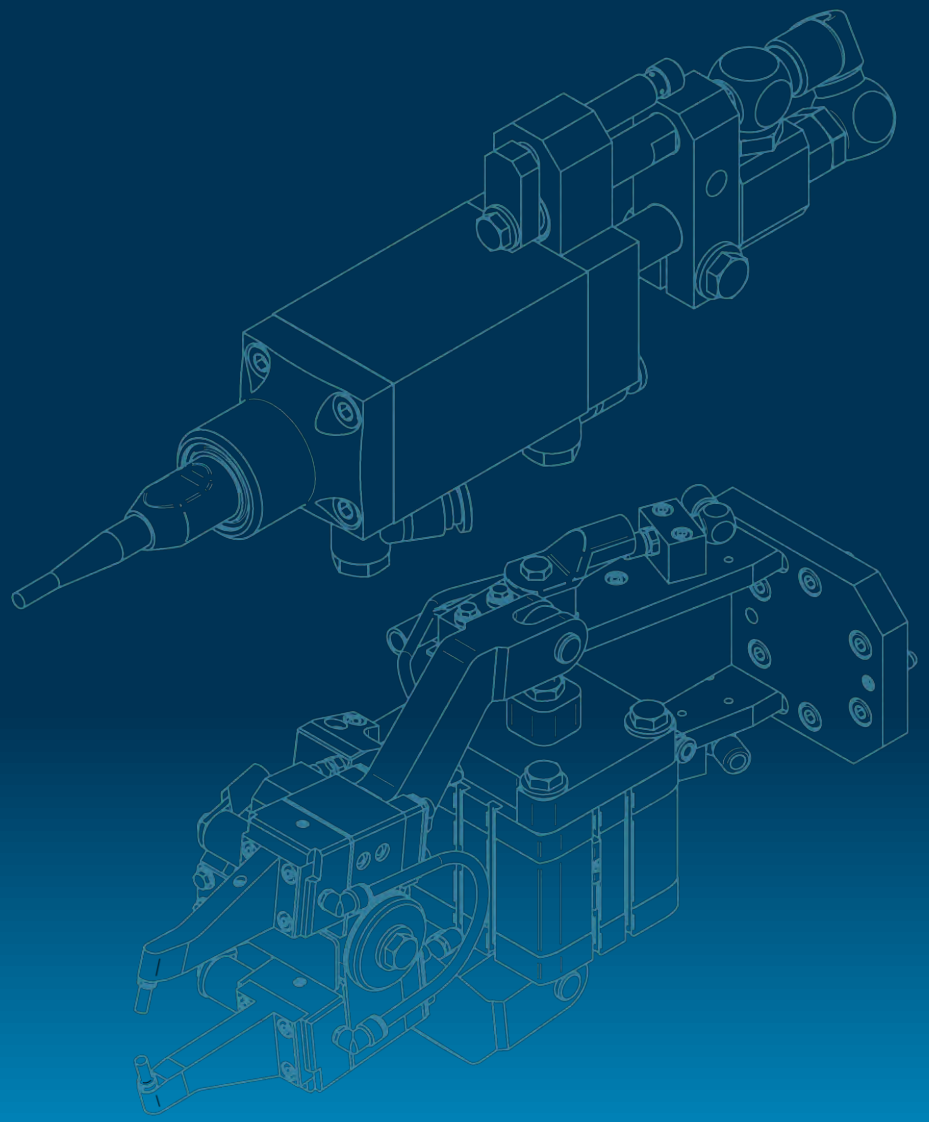
- **Micro welding gun for double-sided welding**
- **Push spot welder for one-sided welding**

Combination in alternation depending on accessibility



Features › Advantages

- ***Low weight***
  -> optimal for use on small robots
- ***Space-saving***
  -> small space requirement for system
- ***Accessibility***
  -> all welding points on the workpiece can be on the workpiece can be approached



Features › Advantages

- ***Flexible adaptation of the value geometry***
  -> adaptable for any component geometry
- ***Easy exchange***
  -> quick and easy to adapt to diffrent components/welding tasks
- ***Fine Fittings***
  -> ideal for thin-walled material and foils

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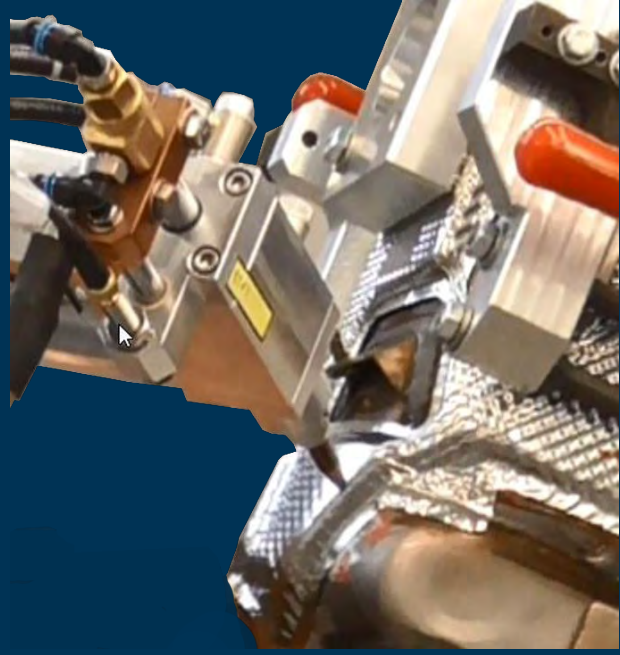
Areas of application

Thin-walled material, e.g. insulating material, foils
Exhaust technology (exhaust manifolds, turbochargers, catalytic converters, exhaust pipes) and electrical engineering (contact lugs, cable connections)



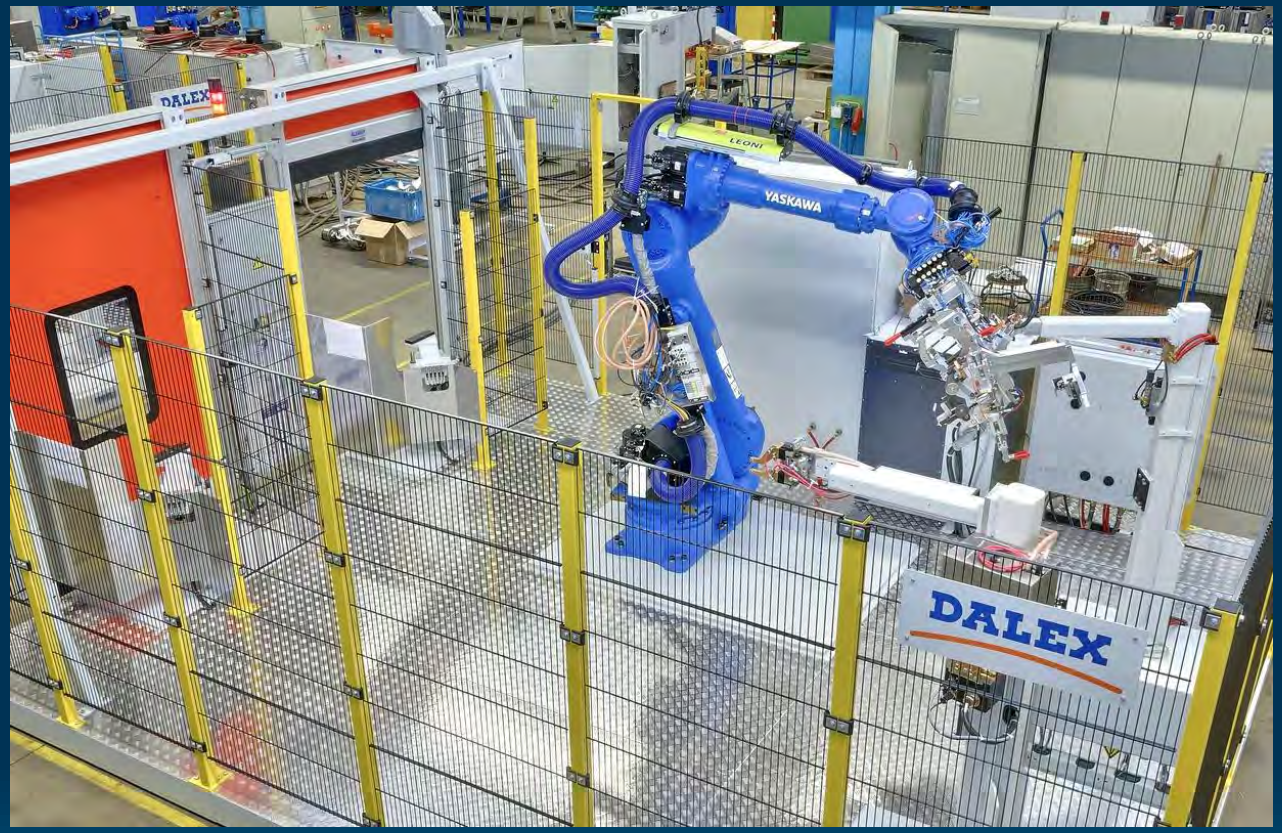
Welding tasks:
- Joining of insulation shells to each other at the parting lines via micro guns (double-sided welding)
- Insulation shells to the base body of the exhaust gas train with push spot welder (one-sided welding)

Challenge:
To reach all welding spots of the most different of different component geometries

Flexible robot welding cell

Task:
Spot welding of components for exhaust gas aftertreatment

- **3 insertion stations for manual loading**
- **Handling robot to pick up the loaded clamping fixtures**
- **Welding robot for alternating of welding fixtures adapted to the component adapted push spot welder or micro welding gun**



Robot cell with 2 spot welding stations

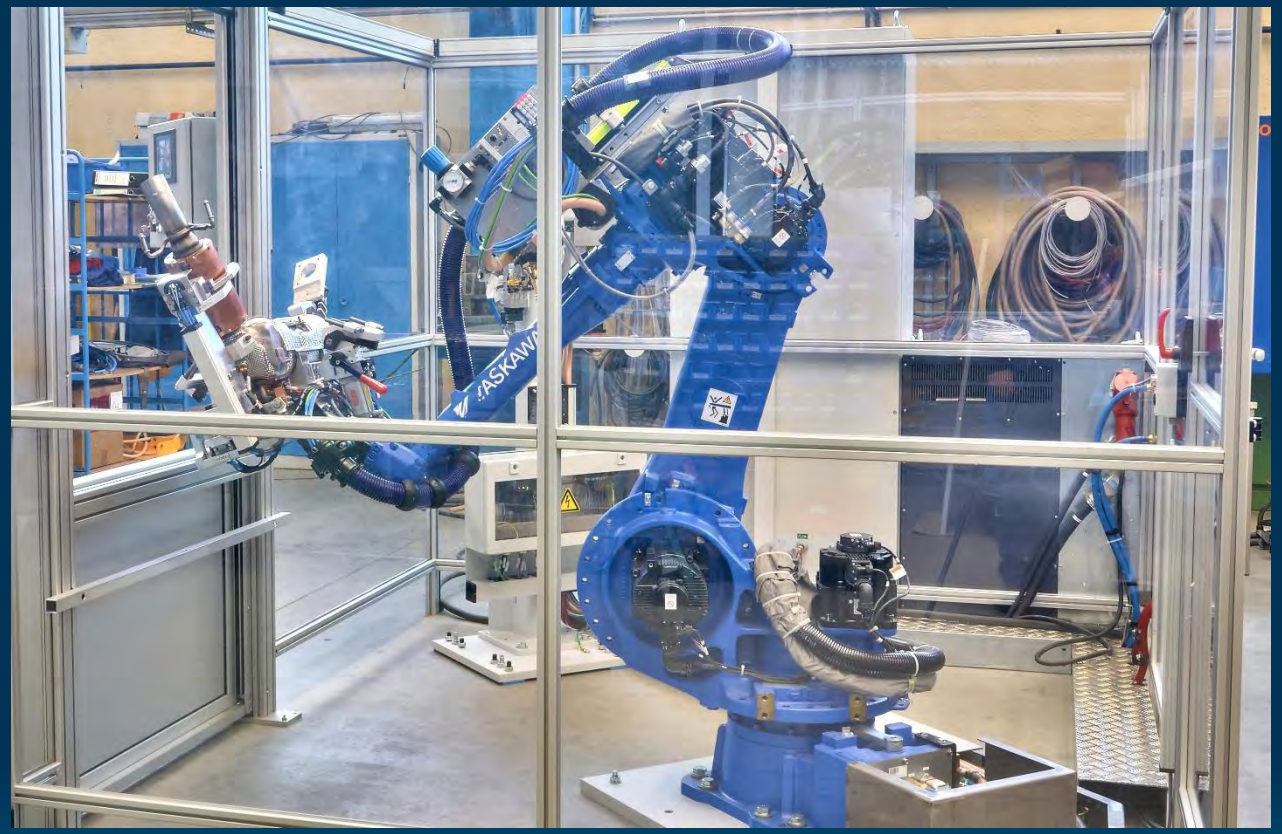
Task:
Spot welding of components for exhaust gas aftertreatment

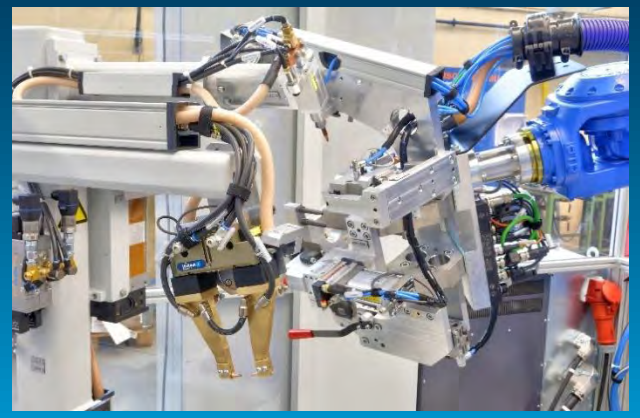
- **2 insertion stations for manual loading**
- **Handling robot to pick up the loaded clamping fixtures**
- **fixed station 1 -> spot welder**
  fixed station 2 -> micro welding gun

Robot welding machine with Rotary table

Task:
Spot welding of insulation cover on exhaust gas lines

- **Placement in a workpiece carrier of the rotary indexing table**
- **Robot equipped with a micro pliers and a push point tester**
- **Parallel to the insertion process spot welding and butt dotting in the second workpiece carrier**

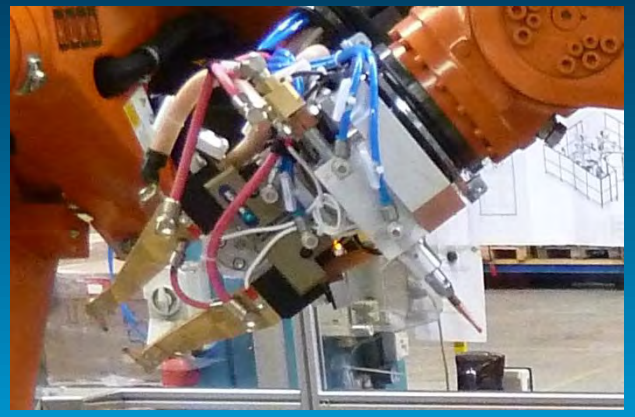




Robot welding machine with mirco welding gun / push spot welder

Task:
Spot welding of insulating cover on exhaust gas lines

- **Loading into a workpiece carrier at the robot**
- **Approach of the stationary welding stations equipped with micro welding gun and push spot welder**



6-station rotary welding system

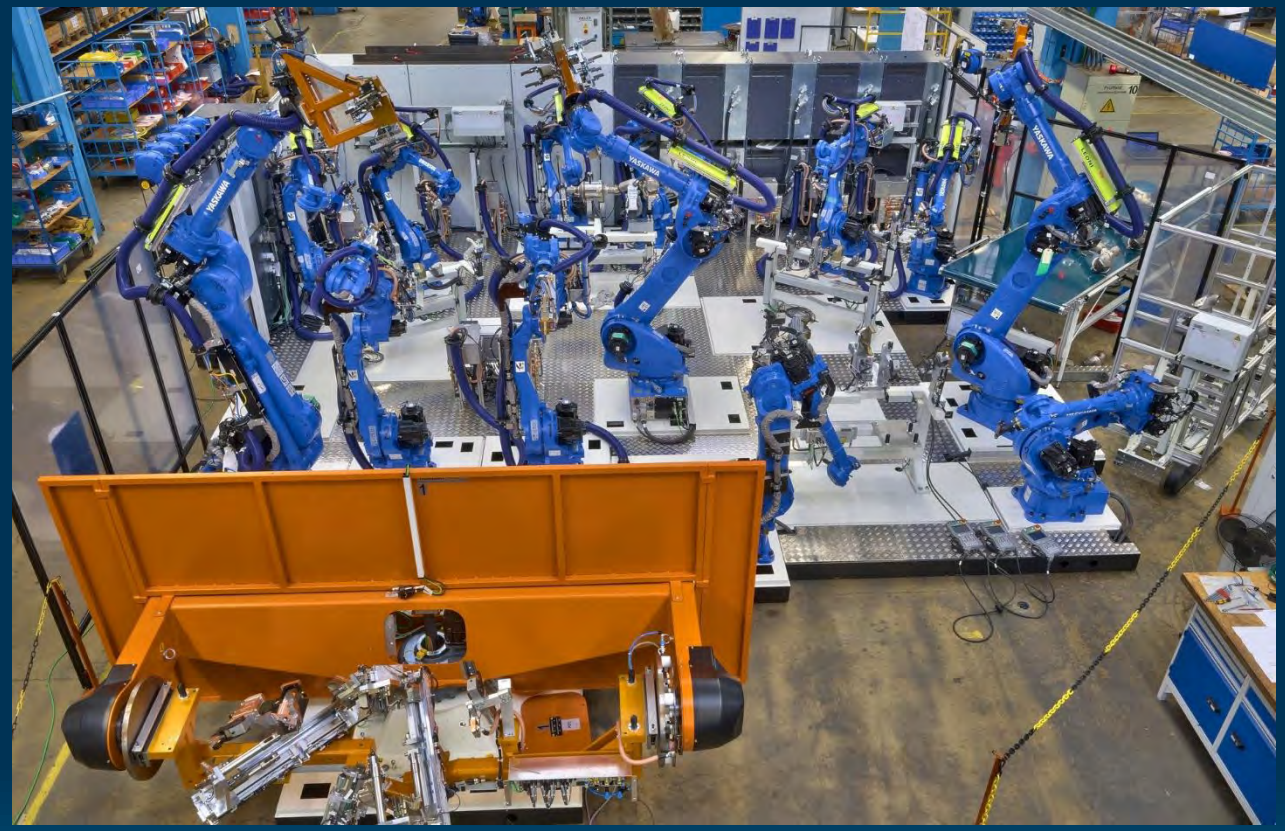
Task:
Flanging and spot welding of components for exhaust gas aftertreatment

- **Rotary table with 6 stations for receiving of the components**
- **2 x robots equipped with 1 x micro welding gun and 1 x with micro welding gun and push spot welder**
- **Welded joints are made, depending on depending on the accessibility of the welds by means of micro welding gun or push spot welder**

Robot spot welding cell with micro welding gun / push spot welder

Task:
Spot welding of components for exhaust gas aftertreatment

- **Insertion station with clamping device**
- **Handling robot picks up clamping device with workpiece guides it for welding to the fixed station equipped with mirco welding gun and push spot welder**
- **Afterwards the workpiece is deposited on the insertion place for removal and reloading**



Robot welding cell with 13 robot stations

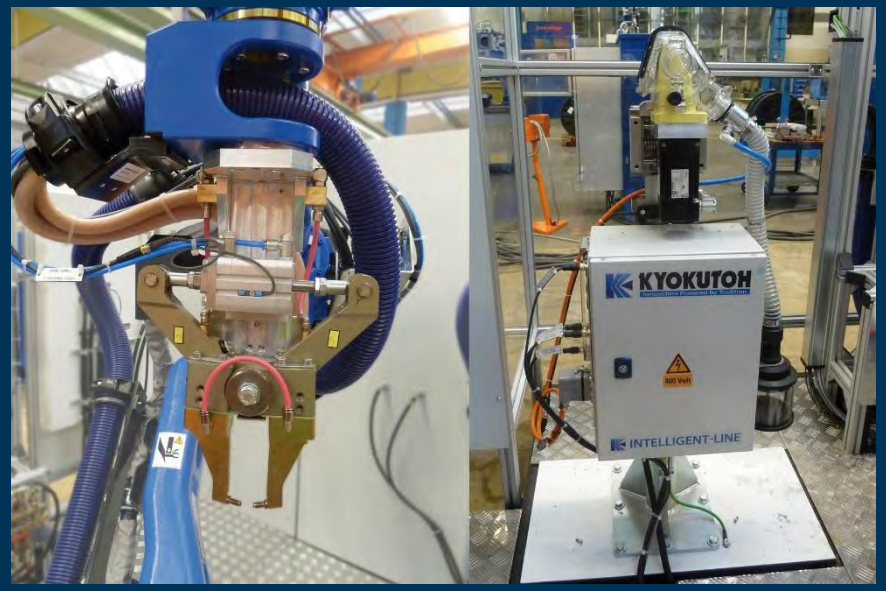
Task:
Spot welding and flanging of preformed stainless steel shell plates on exhaust systems

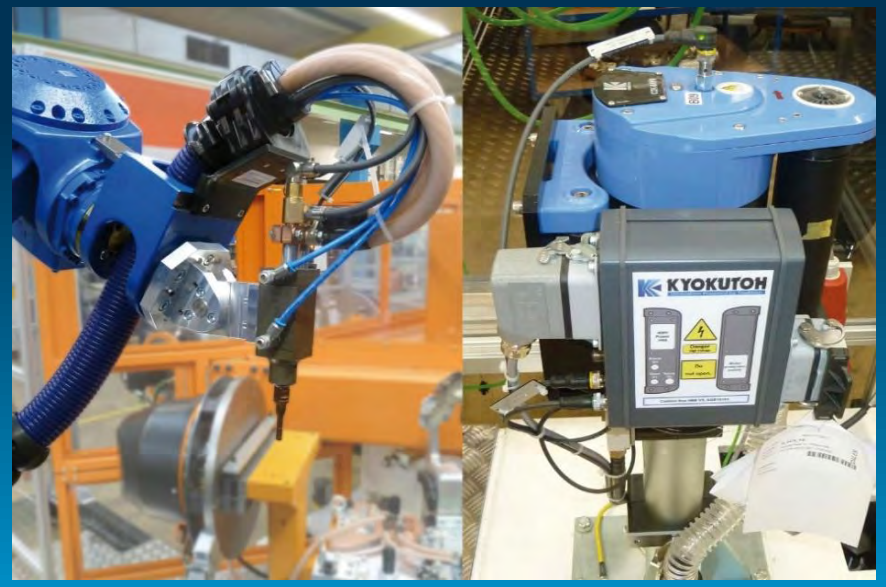
- **Insertion station (clamping device) on a tilt-rotary positioner for component and insulating shells**
- **Welding by means of robot depending on accessibility with micro welding gun or push spot welder**
- **The component is placed into a total of 4 part fixtures and the welding is continued continuously**
- **Afterwards the flanging the transfer of the component to the assembly line takes place**

Robot cell with 3-stationPositioner

Task:
Flanging and spot welding of heat protectionsheets on component

- **Rotary clamping tool as insertion station 3- station positioner rotates to**
- **Welding robot 1 equipped with push spot welder - 7 points are set one after the other**
- **After that 4 welding spots are set by the welding robot 2 with micro welding guns**
- **Handling robot handles the component from the welding device to the conveyor station**

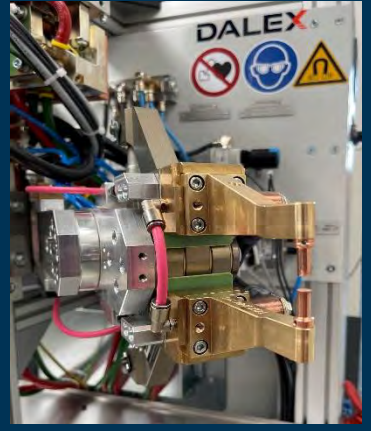


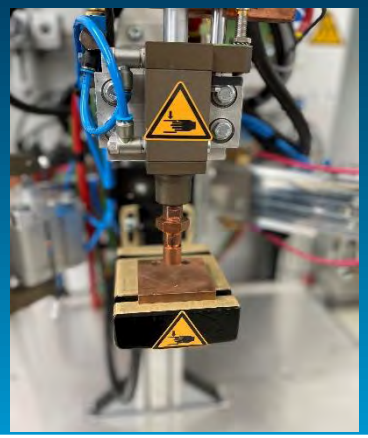


Reduced non-productive time through automation solution

Further development of micro welding gun adapted to cap cutters

- **Fully automated post-processing units for milling the micro-welding electrodes and the push spot welder**
- **Compenents perfectly matched to each other**
  -> Further development of double-stroke guns, which can pneumatically move to 3 positions in order to open wide enough for milling and to maintain the short path for fast welding
- **Robot-guided gun open, move over the running cap cutter, closes and the electrodes are reworked within seconds, then the welding process is continued immediately**
- **Significantly reduced non-productive time / Sustainable and resource-savi**





Micro welding gun module

The DALEX T-Center is equipped with a *MICROGUNMODULE* for tests welds

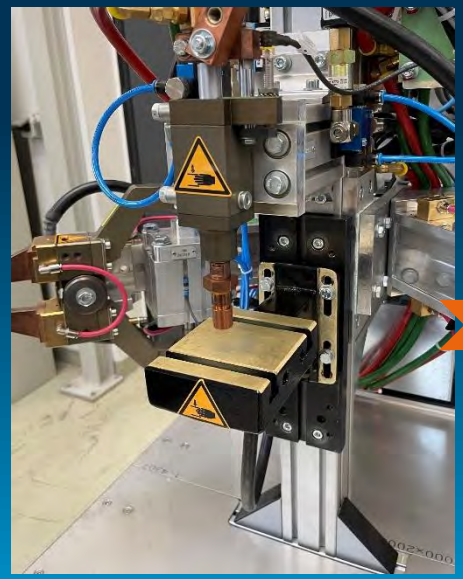
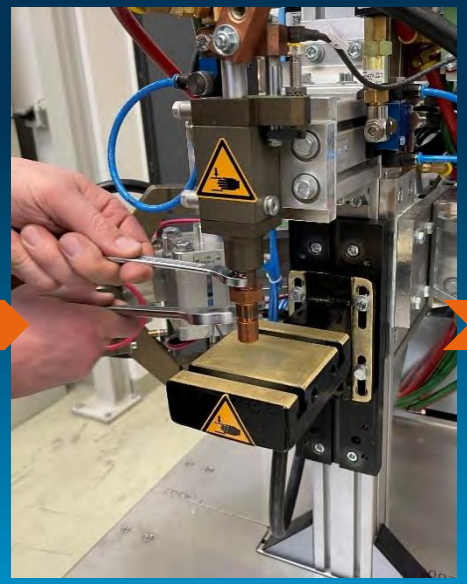
equipped with:

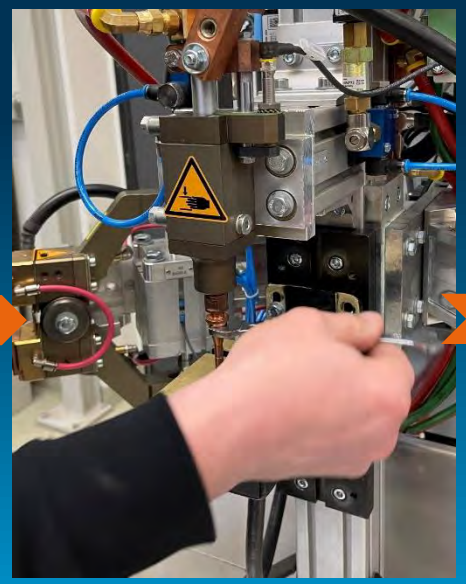
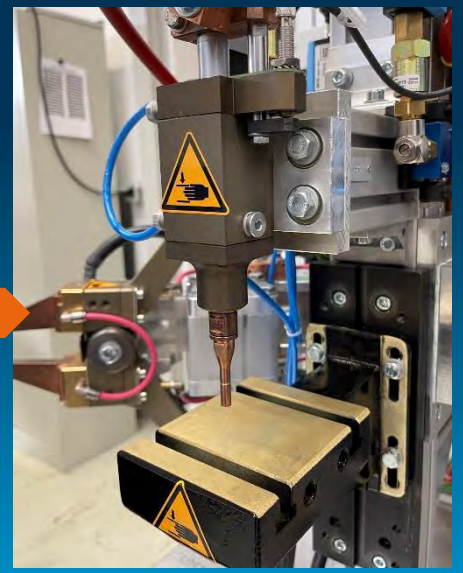
- ***MICRO GUN 1*** **electrode force 0 – 300 daN**
- ***MICRO GUN 2*** **electrode force 8 – 48 daN**
- ***SPOT WELDER*** **electrode force 8 – 48 daN**

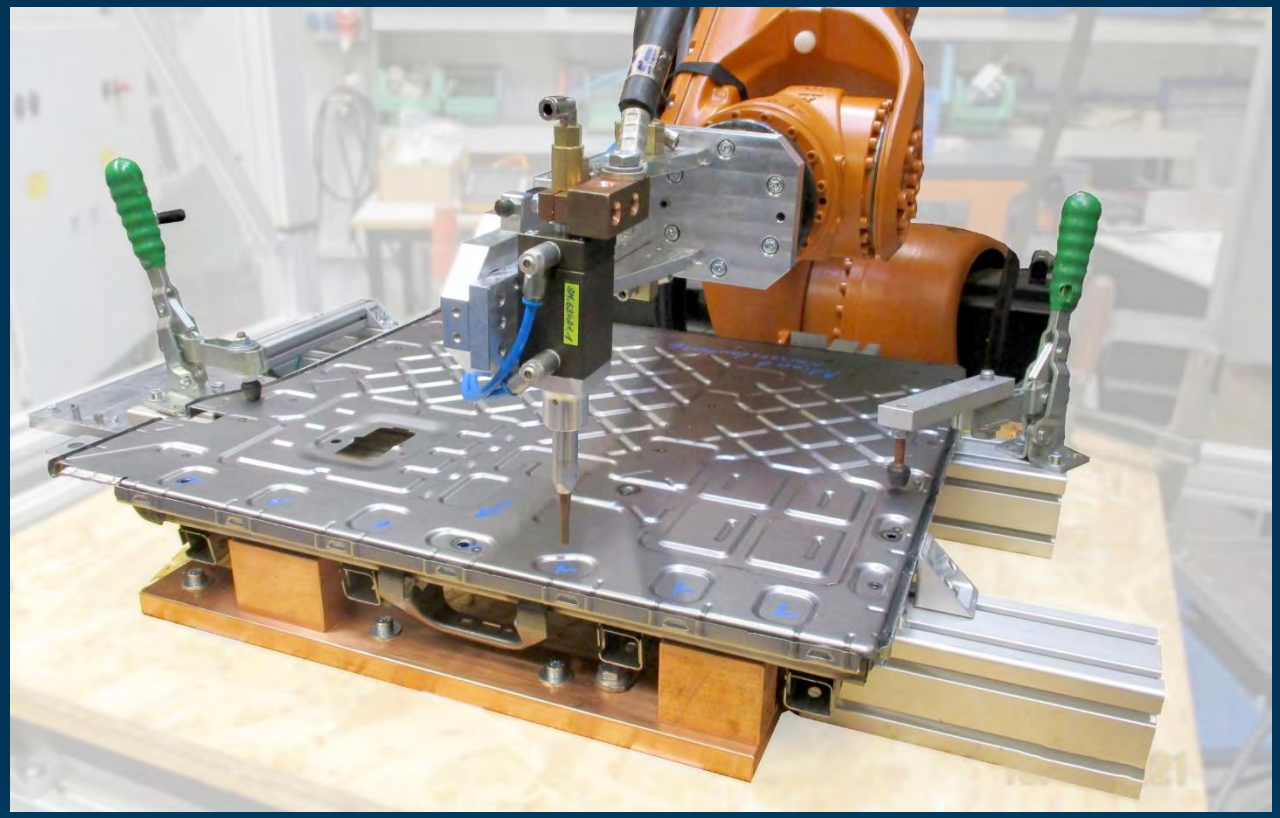
Flexible application possibilities

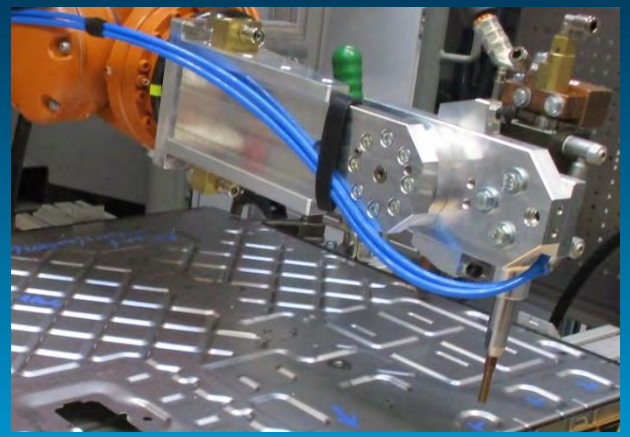
Further development push spot welder

- **with adjustable holder for robot use**
- **with adapter for quick electrode cap change**





Robot equipped with optimized Push spot welder

Task:
Reinforcing plate on frame (rear seat backrest)

- **Inserting the frame and the reinforcing plate into a clamping frame**
- **Push spot welder with special electrode cap, mounted on an adjustable robot holder, successively sets 7 welding points**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