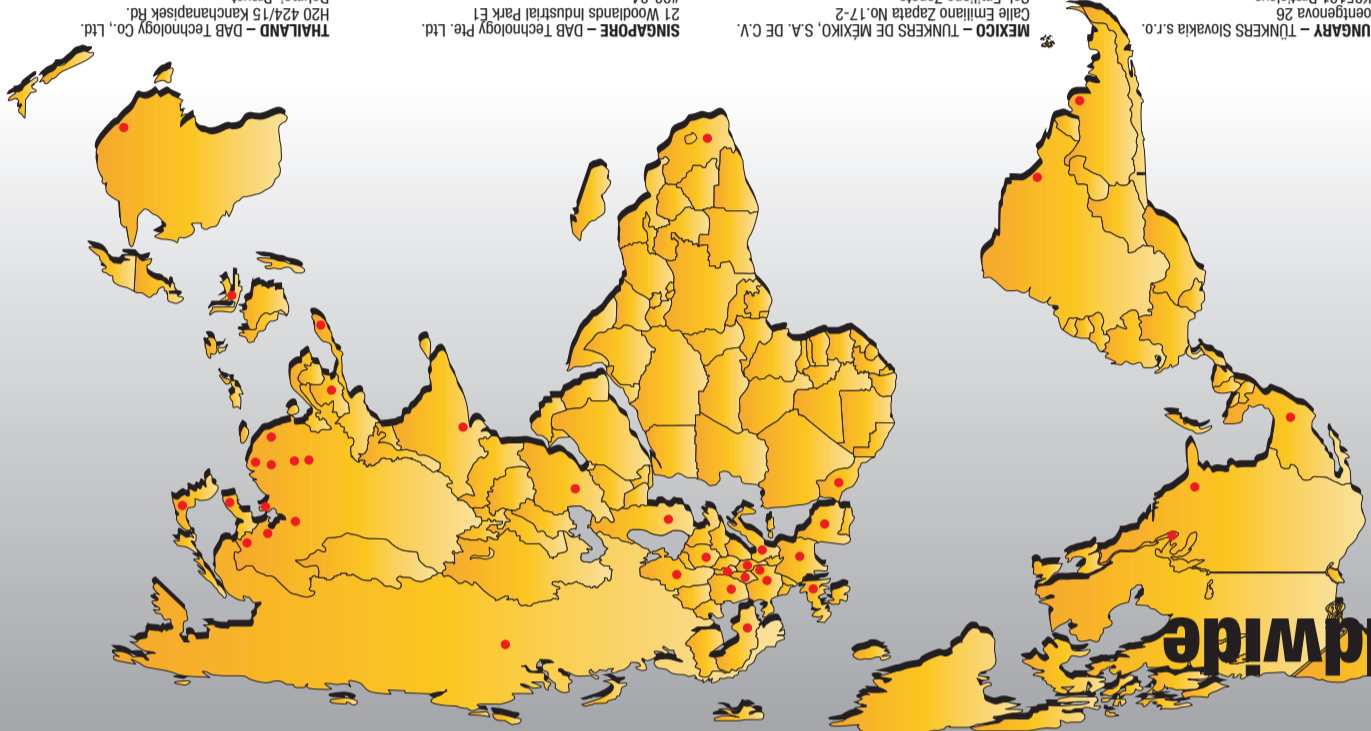


# GRIPPING

## At your service - worldwide



TÜNKERS Maschinenbau GmbH  
Am Rosenkothlen 4-12  
64653 Lorsch  
Germany  
Tel.: +49 2102 4517-0  
info@tuenkers.de  
www.tuenkers.de



HELU GmbH  
Seehorstraße 56-58  
64653 Lorsch  
Germany  
Tel.: +49 6251 592-280  
info@helu.de



EXPERT-TÜNKERS GmbH  
Seehorstraße 56-58  
64653 Lorsch  
Germany  
Tel.: +49 6251 592-0  
info@expert-tuenkers.de  
www.expert-tuenkers.de



SOPAP Automation SAS  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
France  
Tel.: +33 3 24 52 94 64  
sopap@sopap.com

ARGENTINA – TÜNKERS DE ARGENTINA S.A.  
Veloz Sarrafel 1516 – Quilmes (1879)  
Provincia de Buenos Aires  
info@tuenkers.com.ar

AUSTRALIA – Romheld Australia Pty. Ltd.  
30/15 Woodpark Rd  
Smithfield N.S.W 2164  
Tel.: +61 2 721 1799  
info@tuenkers.com.au

AUSTRIA – B-S-D Spantechnik GmbH  
Sportplatzstrasse 31  
3385 Markersdorf  
Tel.: +43 27 49 7870-0  
office@bdsindustries.com

BALTIK STATES – Vertrebsbüro Ost  
Markt 11  
D-07426 Könnigssee  
Tel.: +49 36738 42432  
dieter.rausch@tuenkers.de

BELGIUM – SOPAP Automation SAS  
P. A. Ardennes Eméraude  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
sopap@sopap.com

BRAZIL – TÜNKERS do Brasil Ltda.  
Avenida Casa Grande, 850 – Galpão 6, 11 e 13  
09961-350 – Diadema – São Paulo  
Tel.: +55 11 4056-3100  
comercial@tuenkers.com.br

CANADA – TÜNKERS-Mastech  
38200 Mound Road  
Sterling Heights, MI 48312  
Tel.: +1 734 744 5990  
christian.heyer@tuenkers.com

ID-Nr. 427877 · 8/2017

CHINA – TÜNKERS China  
Tuenkers Machinery & Automation  
Technology Co., Ltd. Shanghai  
Building 4, No. 768 Chenxiang Road,  
Jiading District, Shanghai P.R.  
China, 201802  
Tel.: +86 21 39171070  
info@tuenkers.com.cn

CHINA – TÜNKERS  
Other Offices: Changchun, Nanjing,  
Wuhan, Guangzhou, Yantai, Shenyang  
Mumbai-Pune Bypass  
402 Supreme Head Quarters 36  
INDIA – TÜNKERS Automation India Private Ltd.  
Tel.: +91 98 60 699190  
jayesh.keskar@tuenkers.com

INDONESIA – DAB Technology Pte. Ltd.  
21 Woodlands Industrial Park Et., #03-04  
Singapore 757220  
Tel.: +65 6891 3286  
Singapore 757220  
pvt.cejka@tuenkers.sk

CZECH REPUBLIC – Kopra s. r. o.  
Vázní 891 / Rašal PŠN I  
CZ-300 03 Hradec Králové  
Tel.: +420 495 53 1210  
kopra@kopra.cz

DENMARK – Berga Maskin  
64693 Gnesta  
Info@berga-maskin.se  
Tel.: +46 158 31112  
sopap@sopap.com

FINLAND – Berga Maskin  
64693 Gnesta  
Info@berga-maskin.se  
Tel.: +46 158 31112

FRANCE – SOPAP Automation SAS  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
sopap@sopap.com

MOROCCO – SOPAP Automation SAS  
P. A. Ardennes Eméraude  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
michel.andrae@tuenkers.de

HUNGARY – TÜNKERS Slovakia s.r.o.  
Roentgenova 26  
SK85101 Bratislava  
Tel.: +421 905 564 691  
jural.rampasek@tuenkers.sk

INDIA – TÜNKERS Automation India Private Ltd.  
402 Supreme Head Quarters 36  
Mumbai-Pune Bypass  
11008 Baner-Pune  
Tel.: +91 98 60 699190  
jayesh.keskar@tuenkers.com

INDONESIA – DAB Technology Pte. Ltd.  
21 Woodlands Industrial Park Et., #03-04  
Singapore 757220  
Tel.: +65 6891 3286  
Singapore 757220  
pvt.cejka@tuenkers.sk

CZECH REPUBLIC – Kopra s. r. o.  
Vázní 891 / Rašal PŠN I  
CZ-300 03 Hradec Králové  
Tel.: +420 495 53 1210  
kopra@kopra.cz

DENMARK – Berga Maskin  
64693 Gnesta  
Info@berga-maskin.se  
Tel.: +46 158 31112

FINLAND – Berga Maskin  
64693 Gnesta  
Info@berga-maskin.se  
Tel.: +46 158 31112

FRANCE – SOPAP Automation SAS  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
sopap@sopap.com

MOROCCO – SOPAP Automation SAS  
P. A. Ardennes Eméraude  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
michel.andrae@tuenkers.de

MEXICO – TÜNKERS DE MÉXICO, S.A. DE C.V.  
Calle Emiliano Zapata No.17-2  
72810 San Andrés Cholula Puebla  
Tel.: +52 222 393 5547  
christian.volkman@tuenkers.mx

NETHERLANDS – TÜNKERS Maschinenbau GmbH  
Am Rosenkothlen 4-12  
D-40880 Rättingen  
Tel.: +49 2102 4517-0  
peter.czajkowski@tuenkers.de

POLAND – TÜNKERS Slovakia s.r.o.  
Roentgenova 26  
SK85101 Bratislava  
Tel.: +48 660 055 225  
jastslaw.rozman@tuenkers.sk

ITALY – TÜNKERS Italia  
10043 ORBASSANO-TORINO  
Strada TORINO, 43 EUROPLACE sub. 06  
Tel.: +39 011 6471556  
s.tosco@tuenkers.it

JAPAN – TÜNKERS Japan Ltd.  
Daimyo Create Bldg. 6F  
Daimyo 1-8-20  
Chuo-ku, Fukuoka 810-0041 JAPAN  
Tel.: +81 80 83544786  
tomoo.kaku@tuenkers.de

MALAYSIA – DAB Technology Sdn.Bhd.  
No 9-2B Jalan Bandar 10, Pusat Bandar Puchong  
47100 Selangor  
Tel.: +603 8060 9448  
sales@dabtech.net

SERBIA – TÜNKERS Maschinenbau GmbH  
55068 Sibiu, Romania  
Tel.: +40-752 184 548  
trian.moga@tuenkers.sk

MOROCCO – SOPAP Automation SAS  
P. A. Ardennes Eméraude  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
michel.andrae@tuenkers.de

SINGAPORE – DAB Technology Pte. Ltd.  
#03-04  
21 Woodlands Industrial Park Et  
Tel.: +65 68913286  
enquiry@dabtech.net

NETHERLANDS – TÜNKERS Maschinenbau GmbH  
Am Rosenkothlen 4-12  
D-40880 Rättingen  
Tel.: +49 2102 4517-0  
peter.czajkowski@tuenkers.de

POLAND – TÜNKERS Slovakia s.r.o.  
Roentgenova 26  
SK85101 Bratislava  
Tel.: +48 660 055 225  
jastslaw.rozman@tuenkers.sk

ITALY – TÜNKERS Italia  
10043 ORBASSANO-TORINO  
Strada TORINO, 43 EUROPLACE sub. 06  
Tel.: +39 011 6471556  
s.tosco@tuenkers.it

JAPAN – TÜNKERS Japan Ltd.  
Daimyo Create Bldg. 6F  
Daimyo 1-8-20  
Chuo-ku, Fukuoka 810-0041 JAPAN  
Tel.: +81 80 83544786  
tomoo.kaku@tuenkers.de

MALAYSIA – DAB Technology Sdn.Bhd.  
No 9-2B Jalan Bandar 10, Pusat Bandar Puchong  
47100 Selangor  
Tel.: +603 8060 9448  
sales@dabtech.net

SERBIA – TÜNKERS Maschinenbau GmbH  
55068 Sibiu, Romania  
Tel.: +40-752 184 548  
trian.moga@tuenkers.sk

MOROCCO – SOPAP Automation SAS  
P. A. Ardennes Eméraude  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
michel.andrae@tuenkers.de

THAILAND – DAB Technology Co., Ltd.  
H20 42/415 Kanhanapisek Rd.  
Dokma, Praveh,  
Bangkok 10250  
Tel.: +66 97 072 8972  
rodchaya.jaranyamont@tuenkers.de

NETHERLANDS – TÜNKERS Maschinenbau GmbH  
Am Rosenkothlen 4-12  
D-40880 Rättingen  
Tel.: +49 2102 4517-0  
peter.czajkowski@tuenkers.de

POLAND – TÜNKERS Slovakia s.r.o.  
Roentgenova 26  
SK85101 Bratislava  
Tel.: +48 660 055 225  
jastslaw.rozman@tuenkers.sk

ITALY – TÜNKERS Italia  
10043 ORBASSANO-TORINO  
Strada TORINO, 43 EUROPLACE sub. 06  
Tel.: +39 011 6471556  
s.tosco@tuenkers.it

JAPAN – TÜNKERS Japan Ltd.  
Daimyo Create Bldg. 6F  
Daimyo 1-8-20  
Chuo-ku, Fukuoka 810-0041 JAPAN  
Tel.: +81 80 83544786  
tomoo.kaku@tuenkers.de

MALAYSIA – DAB Technology Sdn.Bhd.  
No 9-2B Jalan Bandar 10, Pusat Bandar Puchong  
47100 Selangor  
Tel.: +603 8060 9448  
sales@dabtech.net

SERBIA – TÜNKERS Maschinenbau GmbH  
55068 Sibiu, Romania  
Tel.: +40-752 184 548  
trian.moga@tuenkers.sk

MOROCCO – SOPAP Automation SAS  
P. A. Ardennes Eméraude  
Rue Henri Faure  
BP 11 09, 08090 TOURNES  
Tel.: +33 3 24 52 94 64  
michel.andrae@tuenkers.de



# GRIPPING

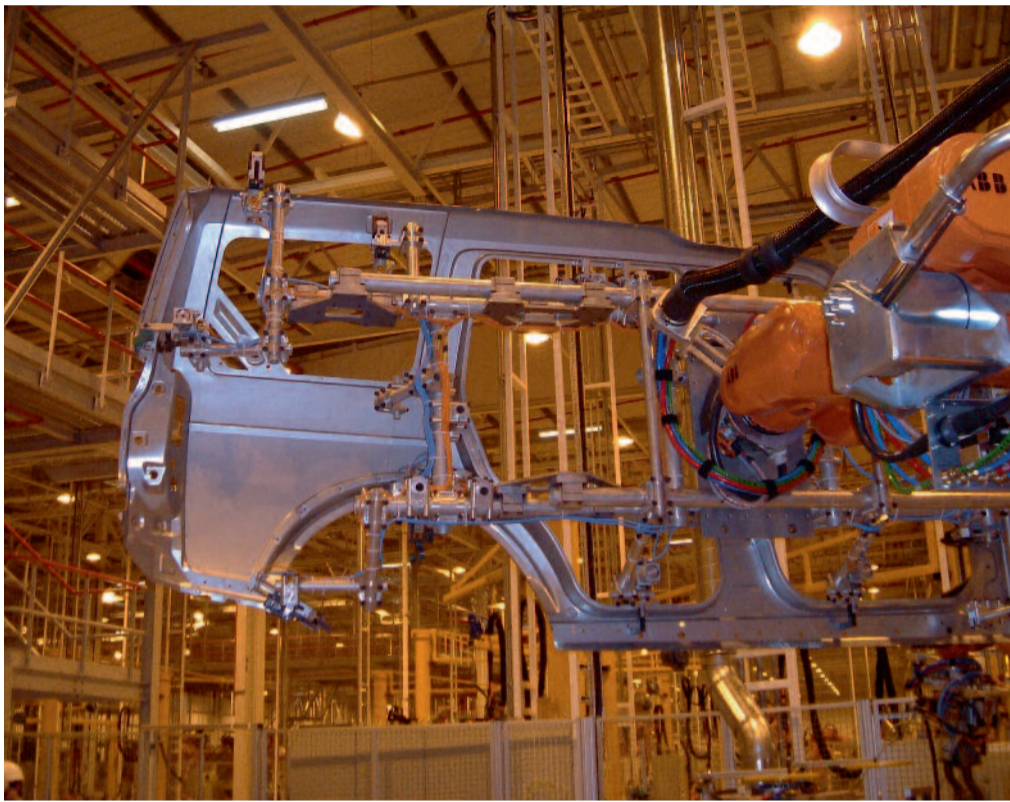
## Gripper systems – the arms and hands of the industrial robot

Robotic gripper systems have become a standard in today's automotive body assembly lines. With increased performance, robotic handling has replaced conventional transport systems like shuttle and conveyor systems.

They do not only move small and add-on parts, but also side panels, complete underbody groups and - for the first time now - even entire car bodies.

In special designs, robotic grippers are now also used for processes including handling procedures using welding guns, glueing or clinching units and in some cases, they even have geometric functions.

While until a couple of years ago, steel welding frames used to be the backbone of robotic grippers, modular systems are the state of the art now.



## Why modular gripper systems?

### Maintenance:

- No need for replacement systems as those commonly used for welded gripper systems
- Quick replacement of components

### Weight:

- Lightweight precision circular tubes made from aluminium, thin-walled steel semi-finished products or carbon
- Gripper weight optimised with a view to the robot class

### Flexibility:

- Quick adaptation of component modifications at short notice
- Combination of the various circular tube gripper systems possible → same tube diameter and offsets of the clips

### Delivery times:

- Worldwide availability
- Low number of parts

### Optimisation:

- Weight optimisation thanks to carbon components
- Braces and supplements may be retrofitted easily

### Costs:

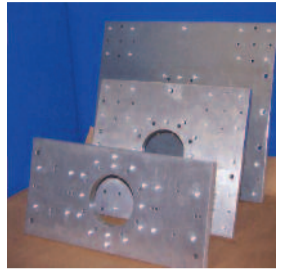
- Standardised 3D-CAD libraries - design is merely a «composition»
- Low number of special parts required
- Series production with a high number of items at low prices

## Assemblies in modular gripper systems

Series production with a high number of items at low prices

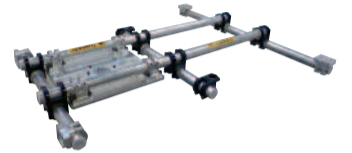
### 1. Robot adapter plate

Aluminium or composite plate in various material thicknesses and dimensions, adapted to the gripper size



### 2. Modular base frame

Responsible for the overall rigidity of the system. Available as circular tube, square tube or profile system



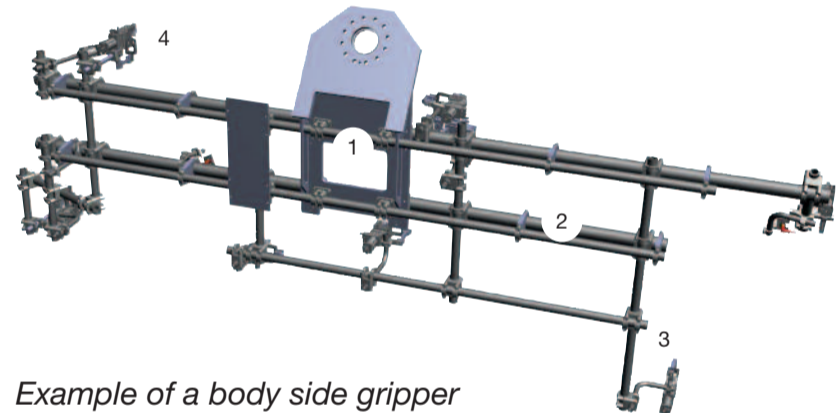
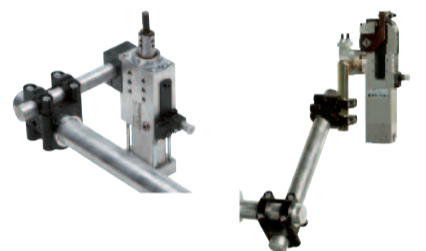
### 3. Connections

Extensions / gripper arms for connecting actors and pins to the base frame



### 4. Functional assemblies

Lightweight Tünklers actuators provide for a dynamic approach



Example of a body side gripper

## Why modular gripper systems from Tünklers?

With a total of five production plants for grippers worldwide and about 14,000 gripper systems produced so far, TÜNKERS is a strong partner!

## Service offer

- We support you in the implementation of your projects
- Consulting with regard to choosing the right gripper system
- Constructive support for new grippers or with regard to an optimised structure
- Development of gripper components

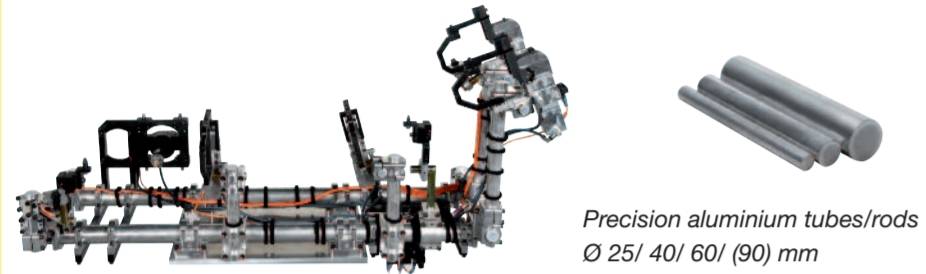
For an initial contact, please send an e-mail to :

[gripper@tuenkers.de](mailto:gripper@tuenkers.de)

# GRIPPING

## Modular circular tube system

- Basic system is composed of precision aluminium tubes/rods with diameters of 25/ 40/ 60/ (90) mm
- High geometric flexibility → Optimum accessibility of components → Positioning in all directions possible
- Same offset between aluminium and carbon clips
- Safety in case of a crash → Twisting of clips without destruction of the individual elements
- Reproducibility → Scale on GSK clips or optional reference borings



Precision aluminium tubes/rods  
Ø 25/ 40/ 60/ (90) mm



Aluminium cross clips - GSK series



Nonius for precise angle adjustment



Circular tube gripper for side panel handling

## Modular carbon tube system

- System is based on precision carbon tubes with diameters of 25/ 40/ 60 mm
- Combination with and integration into existing gripper systems possible → identical offset between aluminium and carbon clips
- Saves weight → Utilisation of a lower robot class
- Compared to the aluminium system: weight reduction -40%, price difference +30%



"Stingray" - The carbon lightweight bracket  
Weight: 6 kg



Carbon gripper for side panel handling



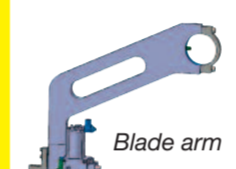
Carbon tubes - GRC 25/ 40/ 60 mm



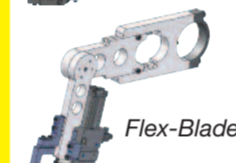
Carbon clips - GKC

## Blade gripper system

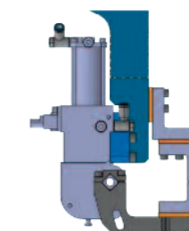
- Based on a grid aluminium tube Ø 90 mm
- Integrated hole pattern for reproducible position
- Narrow "blade" connections for clamps



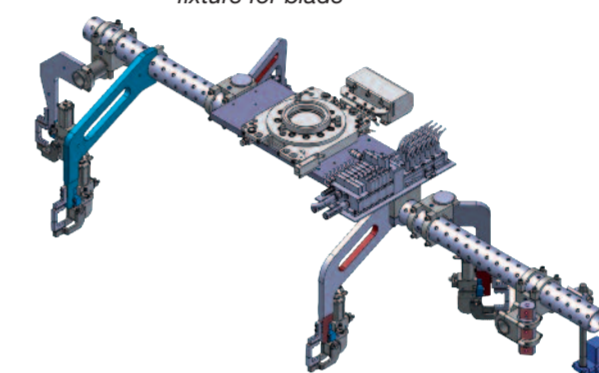
Blade arm



Flex-Blade



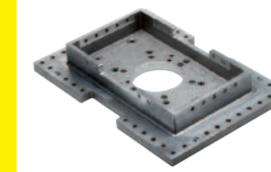
New gripper clamp with U-shaped fixture for blade



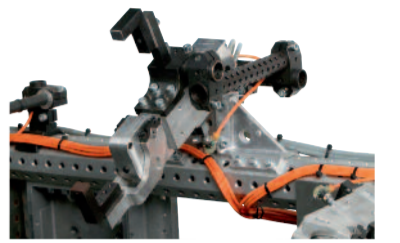
System Design Blade-Gripper System

## EURO gripper system

- TÜNKERS is a licensed supplier of EGT components and manufacturer of complete EGT gripper systems.
- The system is based on octagonal aluminium profiles SW 80/50 with hole pattern
- The connections are fixed using blind rivet nuts and screws
- Reproducibility in case of a crash thanks to locator pin borings



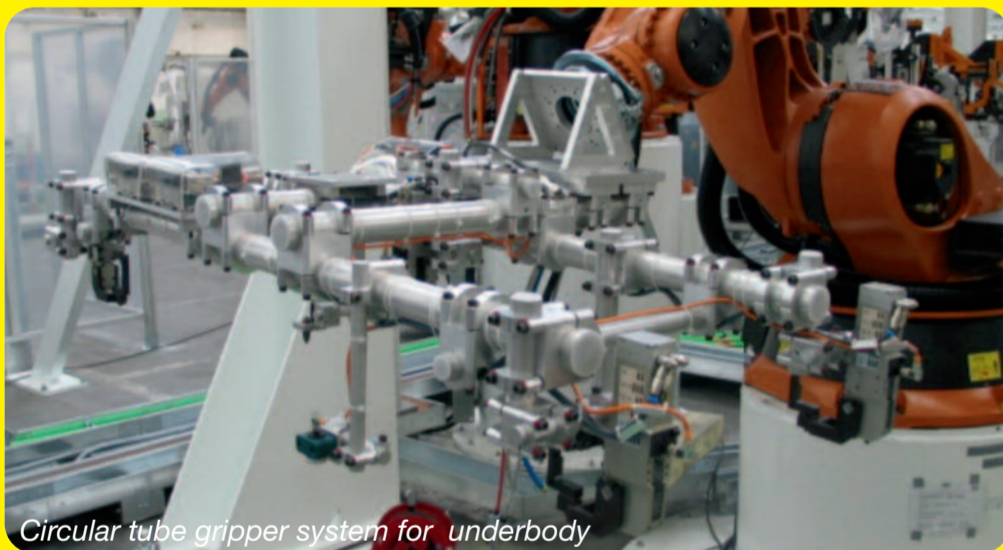
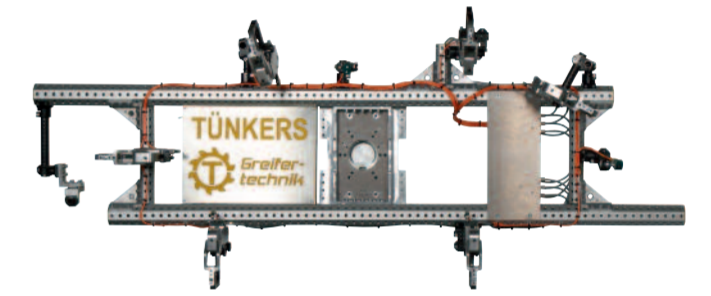
Base plate



Clamp connection



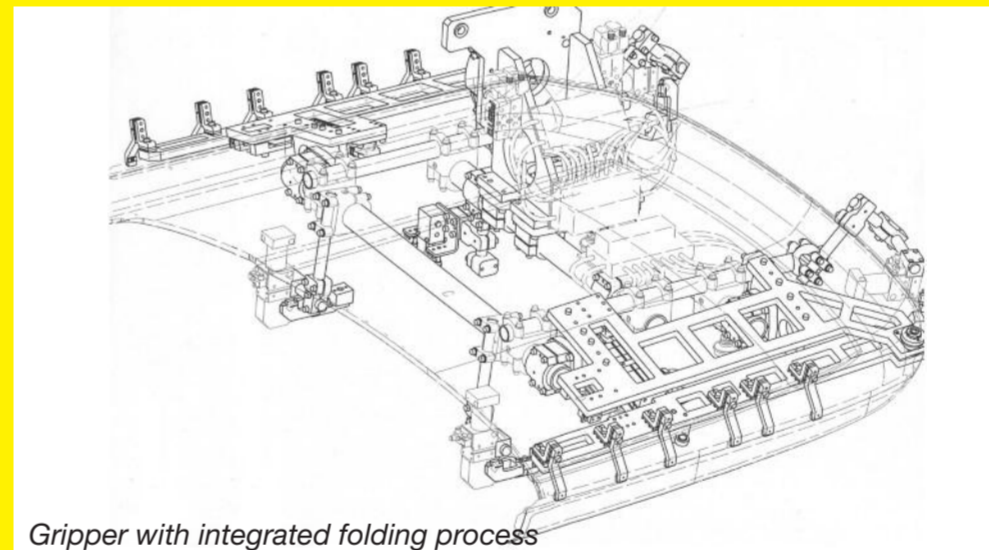
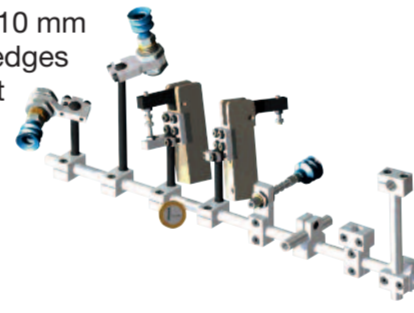
Profile of Euro-Gripper System



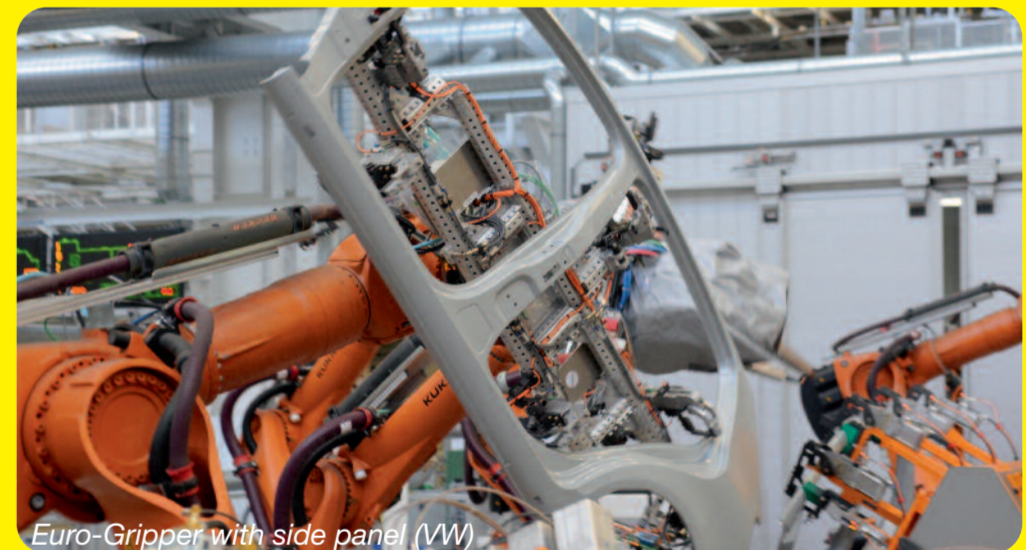
Circular tube gripper system for underbody

## Mini gripper system

- For small and lightweight components in the field of electronics and plastics
- Based on a precision aluminium tube Ø10 mm
- Design optimised to reduce disrupting edges
- Ball head connection for easy alignment of clamping technology and vacuum exhausters
- Numerous connection options with low number of components



Gripper with integrated folding process



Euro-Gripper with side panel (VW)

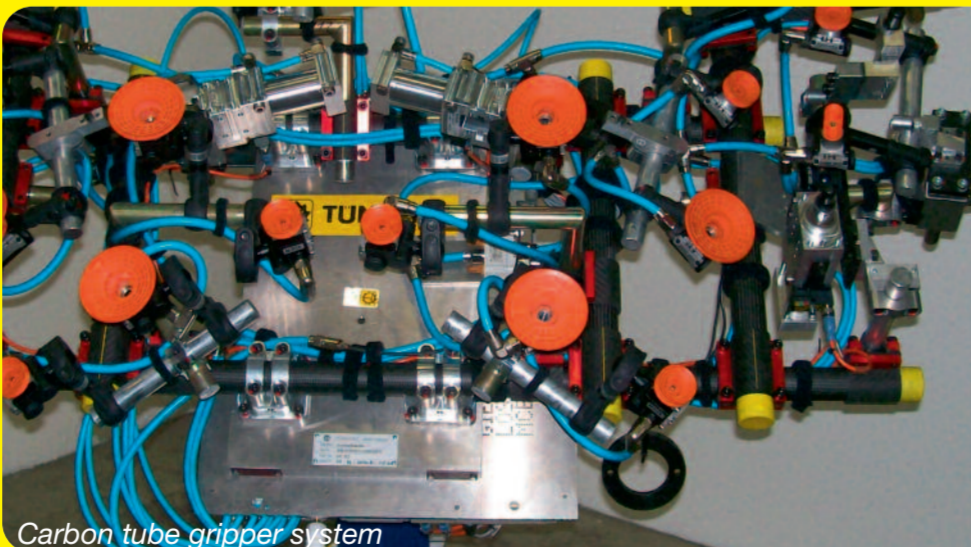
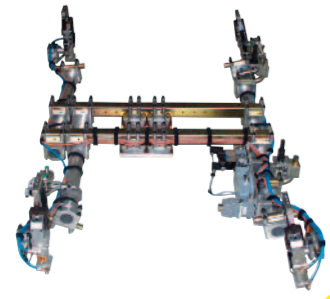
## Square profile gripper system

- Base frame consisting of a square steel profile □ 50 mm
- Integrated hole pattern for defined locating
- High rigidity in the base frame (Level 1)
- To be combined with Tünkers circular tube system using clips
- Numerous connection options



Steel profiles

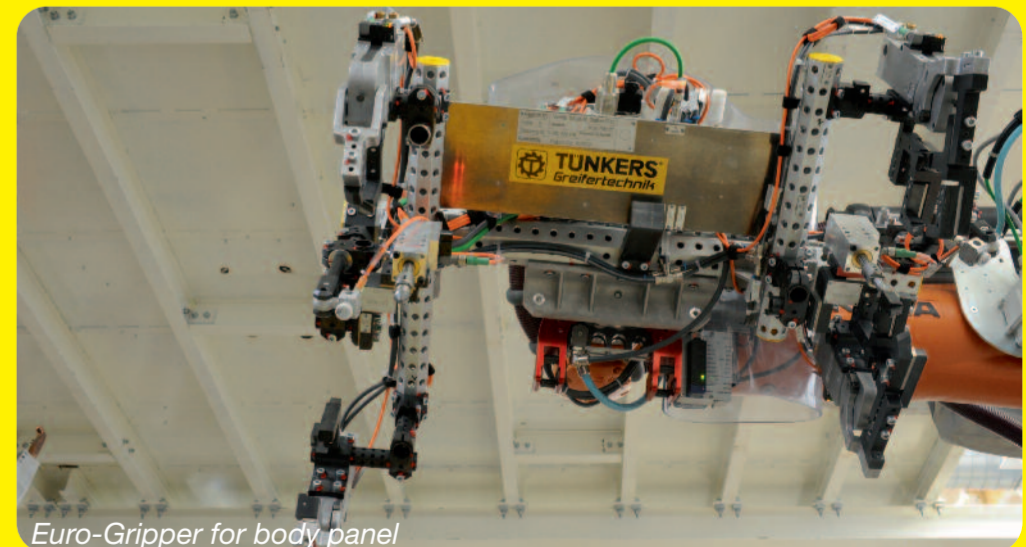
Square clip



Carbon tube gripper system



Circular tube gripper system in extractor



Euro-Gripper for body panel

