

## construction

|                          |   |
|--------------------------|---|
| <b>own</b>               | 12 CAD-work stations Solidworks 3D  |
| <b>design department</b> | product development, preparation of suitable data for machine programming |

## blanking

|                                  |   |
|----------------------------------|---|
| <b>TRUMPF</b>                    | punching and combined processing<br>working range 3000x1500mm<br>laser cutting<br>working range 4000x2000mm<br>max. thickness: Steel up to 25mm, Stainless steel up to 25mm,<br>Aluminium up to 20mm<br>3-D-laser cutting working range 4000x1500x750mm |
| <b>mechanical bar processing</b> | Elumatec SBZ 122, bar length up to 4 m  |

## bending and folding

|                      |  |
|----------------------|--|
| <b>folding</b>       | press brakes for high-precision bending 4420 mm with complicated bendings with pressure up to 3200KN, Multibend centre for automated bending of laminary parts |
| <b>plate rolling</b> | 4-roll bending roll for diameters $\geq 220$ mm<br>thickness up to 3 mm and maximum length of 2,5 m  |

## welding and soldering

|                               |  |
|-------------------------------|--|
| <b>certifications</b>         | Quality standard ISO 3834-2(2006)<br>CL1 / CL2 DIN15085-2 rail vehicle comonets<br>Q1 / Q2 / Q3 DIN2303 defence products |
| <b>MIG / MAG/ TIG methods</b> | 13 welding work station for steel, stainless steel and aluminium<br>QIROX welding robot Cloos (TIG und MSG)              |
| <b>3-D-laser welding</b>      | Trumpf working range 4000x1500x750mm   |
| <b>spot welding</b>           | Stationary machine for thin sheets, up to 90kVA  |
| <b>gas-shielded soldering</b> |  |

## blasting

Klefler blasting cabin 8000x4000x3285 (steel granulate)

## joining and straightening

|                                 |   |
|---------------------------------|---|
| <b>Haeger 824 Window Touch</b>  | advanced technolgy for setting bolts and nuts |
| <b>OMCN straightening press</b> | 100 t press                                   |

## messuring

|                            |  |
|----------------------------|--|
| <b>German Mechatronics</b> | 2D messuring machine Visual Quality Control                              |
| <b>VQC 12/20</b>           | working range 1250 x 2000mm accuracy + 0,05 mm                           |
| <b>3D-messuring arm</b>    | working range: $\leq 2,4$ m  |
| <b>FaroArm Fusion</b>      | accuracy: 0.043 mm [single point acuracy]<br>$\pm 0,061$ mm [volumetric] |

## colouring

|                       |   |
|-----------------------|---|
| <b>powder coating</b> | application of tricationzincphosphating<br>excellent corrosion protction in steel<br>chromium-free passivation<br>excellent corrosion protction in aluminium<br>6000 x 2000 x 1000 mm |
| <b>wet lacquering</b> | 6000 x 3000 x 3000 mm   |