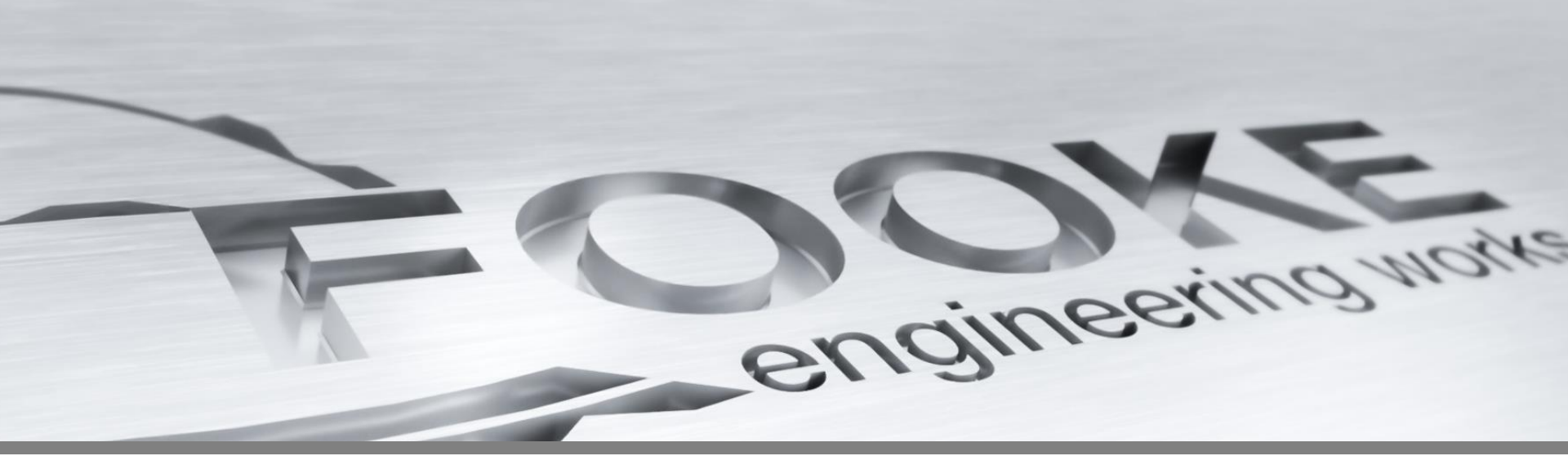


ENDURA® Milling Machines

Excellent quality of motion control

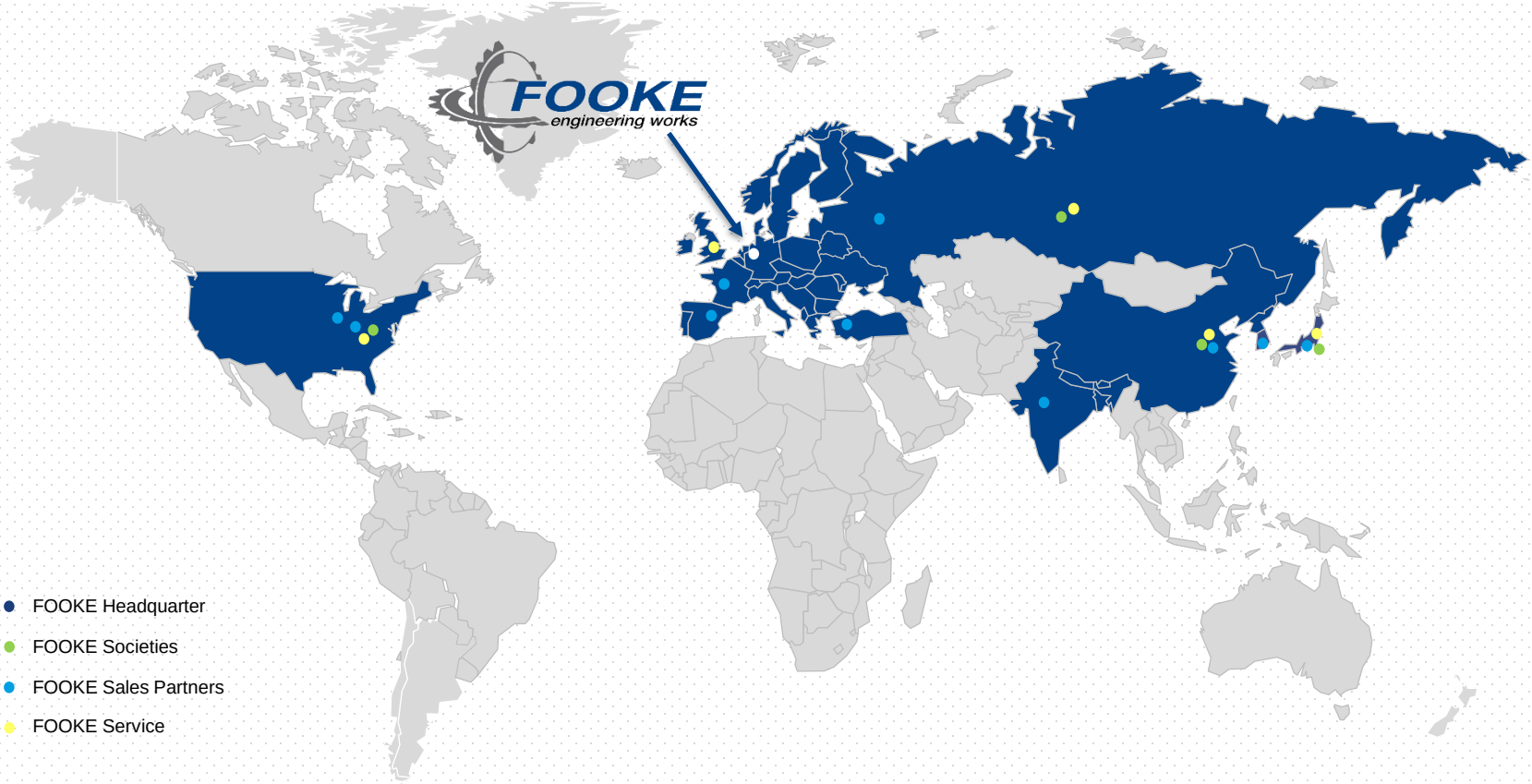
115 YEARS OF QUALITY „MADE IN GERMANY“.

JOHANNES FOOKE
Owner and Managing Director of FOOKE GmbH in 4th generation

FOOKE Headquarters in Borken l Established in 1904

200 employees l 35,000 m² plant l 18,000 m² production area l annual turnover 45 Mio. €

GLOBAL / LOCAL. Always near you.

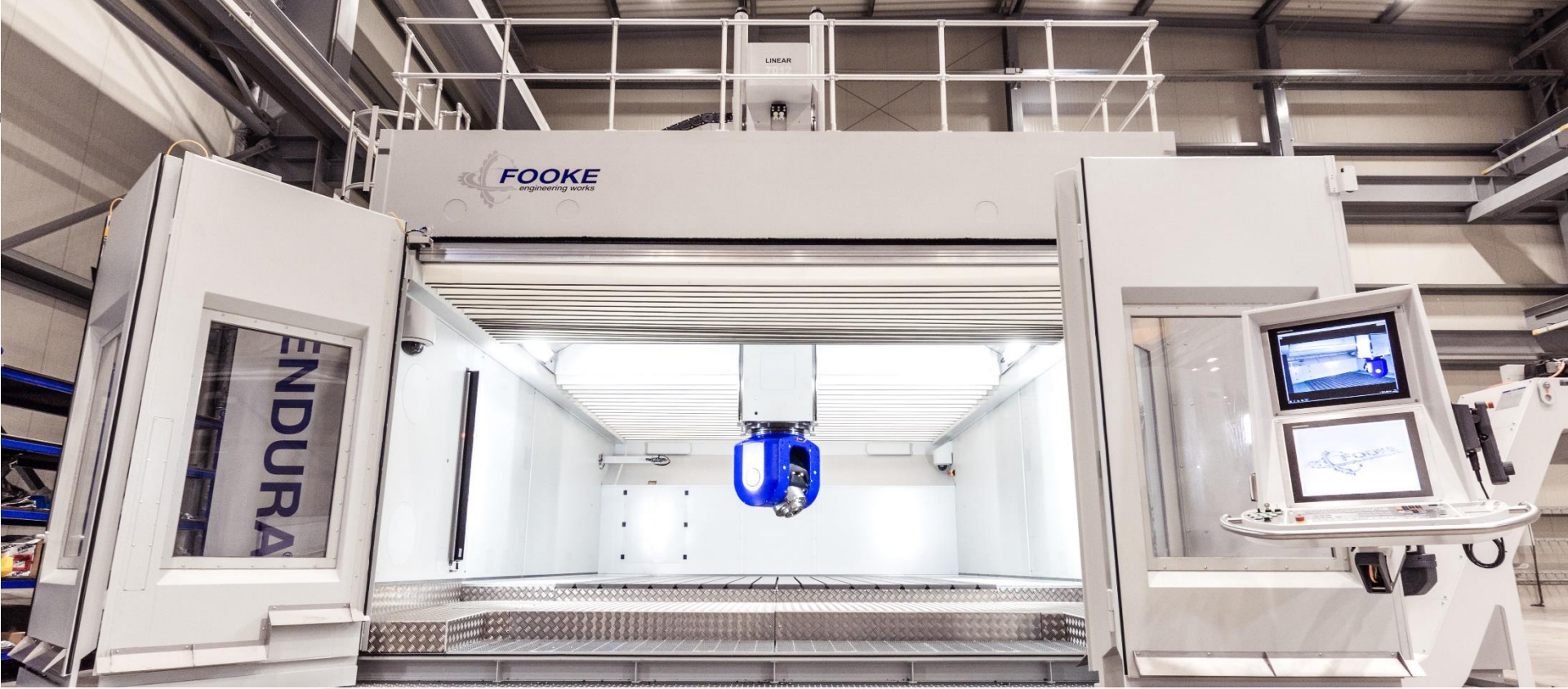


MECHANICAL ENGINEERING IN PERFECTION

From the production of fundamental machine structure components…

… TO FINAL ASSEMBLY

and handover ready for operation.



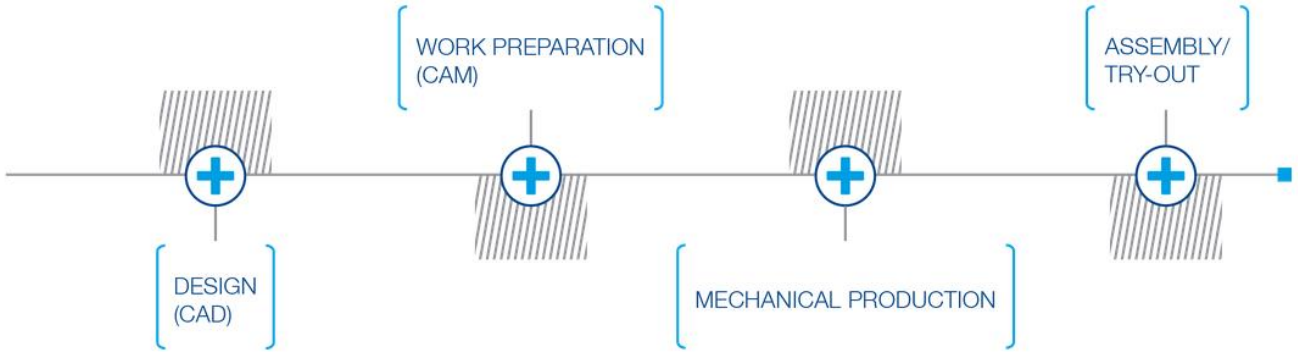
THE RIGHT ENDURA® MILLING MACHINE FOR EVERY APPLICATION

LARGE – PRECISE – HIGHLY DYNAMIC

YOUR REQUIREMENT IS OUR INCENTIVE

ENDURA® Machines. Fascinating solutions for your machining task

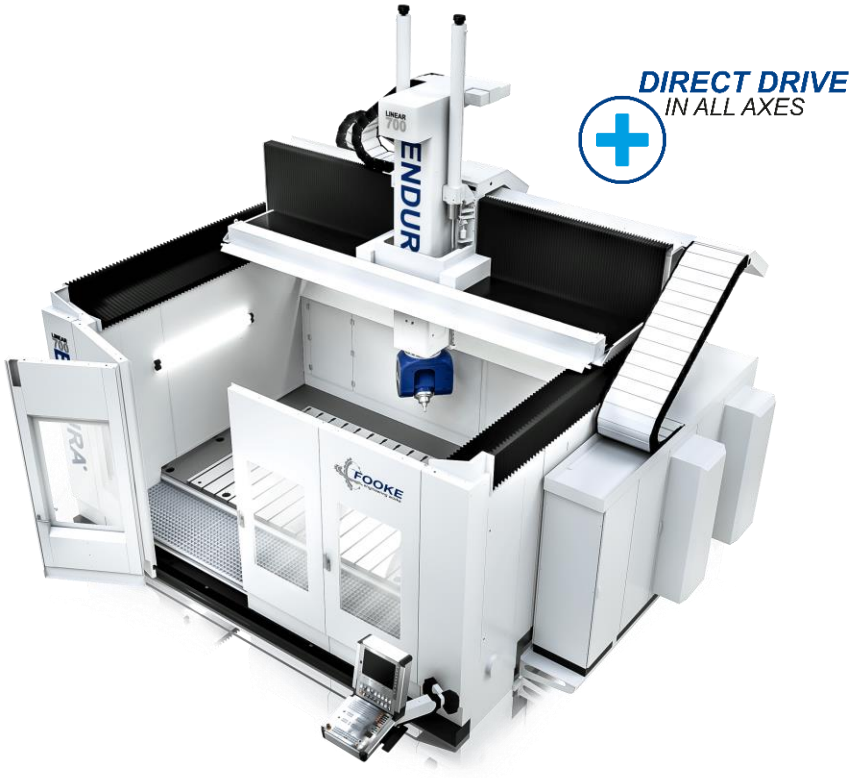
- Selection of suitable machine series based on workpiece size and material
- Milling strategy and programming
- Selection of tools and workpiece clamping systems
- Definition of specific HSC roughing and finishing parameters
- Definition of required additional equipment (tool changer, measuring systems, coolant systems, etc.)
- The result is the configuration of an ENDURA® optimally suited to your process.



Compact Gantry Milling Machine ENDURA® 700LINEAR

⊕ LARGE MACHINING AREA , SMALL FOOTPRINT, FOUNDATIONLESS INSTALATION

- Fits best for: plastic, CFRP/GFRP, model building block material, aluminum, cast iron, steel
- High structural rigidity, highest dynamics and high accuracies
- Traverse paths of up to 5,500 x 3,500 x 1,500 mm



GANTRY MILLING MACHINE ENDURA® 600LINEAR

- MEDIUM WEIGHT OVERHEAD GANTRY MILLING MACHINE
- VERY LARGE MACHINING AREA
  - Loading at ground level
  - Fits best for: plastic, CFRP/GFRP, model building block material, aluminu
  - Optimum dust extraction and chip conveyor concepts
  - Traverse paths of up to 30,000 x 3,500 x 2,000 mm

GANTRY MILLING MACHINE ENDURA® 900LINEAR

- HEAVY OVERHEAD GANTRY MACHINE
- HIGHLY DYNAMIC, FOR UNIVESAL APPLICATIONS

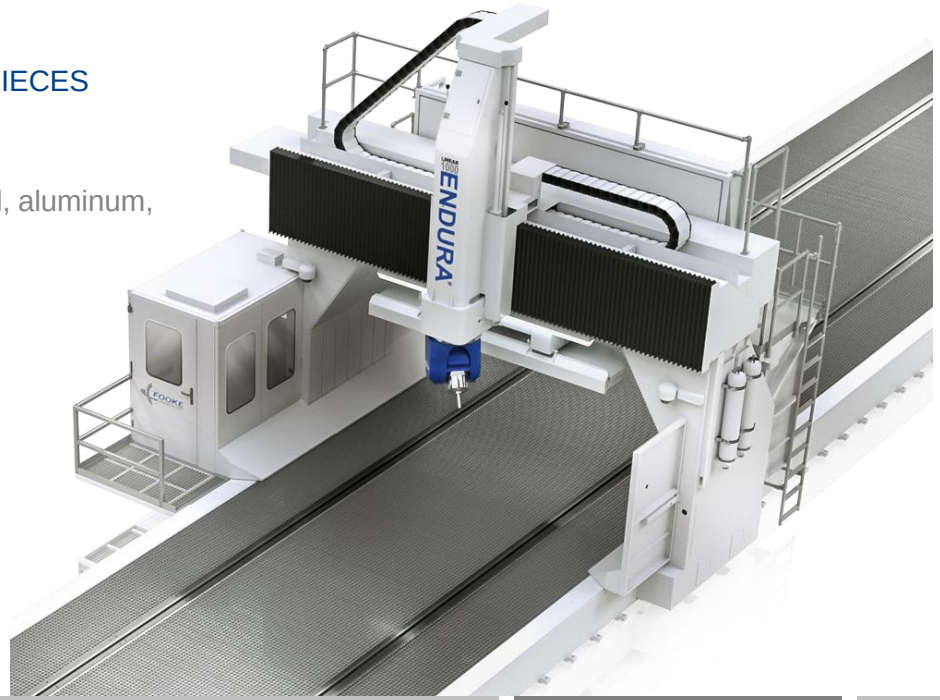
- Fits best for: plastic, CFRP/GFRP, model building block material, aluminum, cast iron, steel
- Best structural rigidity, highest dynamics and high accuracies
- Traverse paths of up to 30,000 x 4,000 x 3,000 mm

TRAVELLING COLUMN MILLING MACHINE ENDURA® 1000LINEAR

MOVING PORTAL

SPECIALIST FOR THE PRODUCTION OF LARGEST WORKPIECES

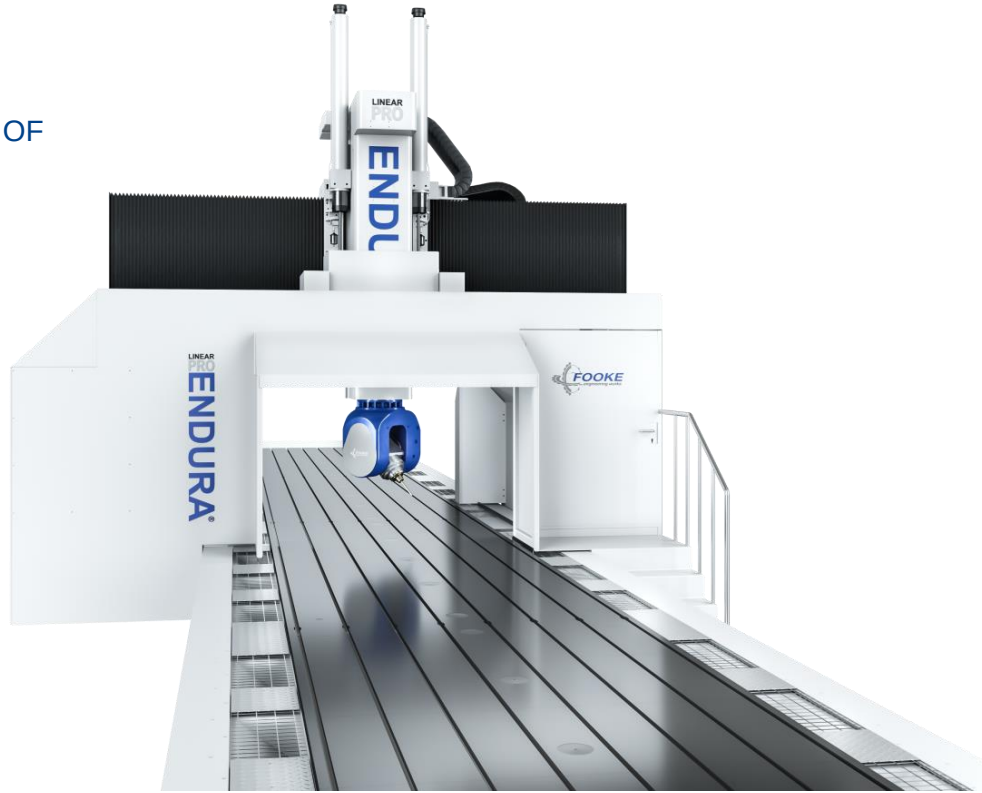
- Ergonomically loadable
- Fits best for: plastics, CFRP/GFRP, model building block material, aluminum, cast iron, steel
- Operator cabin on board for best possible process monitoring
- Traverse paths of up to 60,000 x 5,000 x 2,000 mm



LONG BED MILLING MACHINE ENDURA® PRO LINEAR

SPECIALIST FOR HIGHLY DYNAMIC 5-AXIS MACHINING OF LONG WORKPIECES

- Fits best for: aluminum & composites (CFRP/GFRP)
- Ergonomically loadable
- Material removal rates of up to 11.0 l/min
- Flexible workpiece clamping systems
- Traverse paths of up to 60,000 x 3,500 x 1,500 mm



GANTRY MILLING MACHINE ENDURA® 7000LINEAR

FOR HIGH-PERFORMANCE HEAVY-DUTY MACHINING OF HIGH-STRENGTH MATERIALS

- Large machining area, small footprint, installation without foundations
- Fits best for: aluminum, cast iron and steel
- Traverse paths of up to 6,300 x 3,500 x 1,500 mm

PLATE MILLING MACHINE ENDURA® 800

SURFACE MILLING MACHINE FOR LARGE ROLLED OR MILLED ALUMINUM PLATES

- Finish machining in one milling operation
- Ergonomically loadable
- Surface quality < 0,4 µm
- Milling tool up to Ø 3,100 mm

REFERENCES AUTOMOTIVE INDUSTRY

MODEL- AND PROTOTYPE CONSTRUCTION | TOOL- AND MOLD CONSTRUCTION

ALCO | AUDI | BMW | BERTRANDT | CARBO-MILL | CIMFORM | DAIMLER |

EDAG | FORD | FRIMO | GIGGEL | GRUNEWALD | HONDA | KLOCKE |

KOLLER | KRAUSSMAFFEI | MEISSNER | MERCEDES BENZ FORMULA 1 | MODELLBAU ROTH | PMT | PORSCHE |

PROCEDA | PROSPECT MOLD | REUTHER MOLD | SAUBER MOTORSPORT | SCHÄFER | SIEBENWURST |

SILBERFORM | TECHNOTOOLS | TROY DESIGN | VOLKE | VOLKSWAGEN | WEISCHER | WEISS |

COMPACT MILLING MACHINE ENDURA® 711LINEAR

For the machining of design models made of clay and model making block material.

GANTRY MILLING MACHINE ENDURA® 611LINEAR

For the machining of design models.

GANTRY MILLING MACHINE ENDURA® 904LINEAR

For the machining of models and prototypes.

COMPACT MILLING MACHINE ENDURA® 704LINEAR

For the machining of moulds and tools.

COMPACT MILLING MACHINE ENDURA® 7012LINEAR

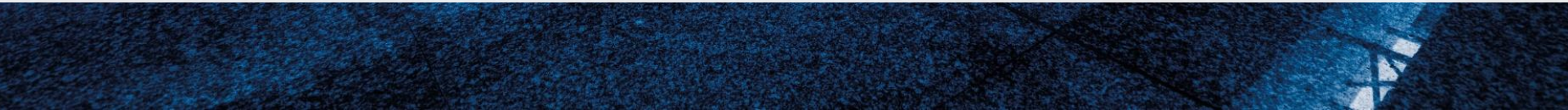
For the machining of moulds and tools.

REFERENCES RAILWAY

AQUATEC | BOMBARDIER | BYD – BUILD YOUR DREAMS |

CHENGDU XINZHU ROAD & BRIDGE MACHINERY | CHANGCHUN RAILWAY VEHICLES |

CNR DALIAN LOCOMOTIVE | CSR QINGDAO SIFANG | GUANGDONG CSR JIANGMEN CITY | HAI HAMMERER ALUMINIUM INDUSTRIES | JILIN MIDAS ALUMINIUM INDUSTRIES | LIAONING ZHONGWANG GROUP | NANNING CSR ALUMINIUM PRECISION MACHINING | NSLE NANCHE SIFANG LOCOMOTIVE ENGINE | SIEMENS | STEP G EXTRUDET PRODUCTS | STADLER | TANGSHAN ROLLING STOCKS | ZHENGZHOU MINGTAI TRANSPORTATION | ZHUZHOU ELECTRIC |



TRAVELLING COLUMN MILLING MACHINE ENDURA® 1006LINEAR WITH TWO GANTRIES

For the maching of large aluminum profiles.

TRAVELLING COLUMN MILLING MACHINE ENDURA® 1003

For the machining of large aluminum components.

OVERHEAD MILLING MACHINE ENDURA® 500

For the machining of rail vehicles.

REFERENCES AVIATION

AIRBUS | AITS | COMPOSITE HORIZONS | COTESA |

DUTCH-SHAPE | EUROCOPTER | EURO-COMPOSITES | EXELIS | GKN FOKKER |

GRUNEWALD | FLOW | HARBIN | HELLENIC | HIZE AERO | IRKUT | JCM | KNAAPO |

LO-CAT-Systems | NAPO | PREMIUM AEROTEC | PROSPECT MOLD | ROTH | SHANGHAI AIRCRAFT | SPACE X | SPS |

SUKHOI | TSAGI | ULAN-UDE | VORONEZH |

GANTRY MILLING MACHINE ENDURA® 611LINEAR

For the machining of CFRP workpieces.

GANTRY MILLING MACHINE ENDURA® 907LINEAR

For the machining of CFRP workpieces.

TRAVELLING COLUMN MILLING MACHINE ENDURA® 1004LINEAR

For the machining of aluminum workpieces.

DRILLING STATION WITH CLAMPING DEVICE

for clamping, aligning and boring vertical tails.

NEW // FOOKE FSW MACHINES

Process consulting and development | Machine concept | Clamping technologies | Tools | Process integration and monitoring

APPLICATIONS //

RAILWAYS
Engine stems | Panels | Main longitudinal members|
Base assemblies | Side panels

AUTOMOTIVE
Battery floors | Battery cells | Gearbox housings | Bearing housings
Core constructions | Base plates | Side panels| Rims

AVIATION
Connection consoles | Freight carriers | Boosters | Tank systems

SHIPBUILDING
Ship decks | Side walls | Elevator shafts | Modules
and stair tower walls | Cargo tanks | Offshore modules |
yacht superstructures

FURTHER INDUSTRIES
Crane components | Silos | Heat sinks | Façade panels | Scaffolding

FRICTION STIR WELDING MACHINE FOOKE FSW 35

- STAND-ALONE RETROFITTING SOLUTION
- MAXIMUM AXIAL FORCE OF UP TO 35KN

- Welding penetration depth of up to 12mm (6xxx)
- Welding speeds of up to 3,000 mm/min
- 5 axis simultaneous operation in FSW process
- Load and temperature symmetric design
- "Stand alone" system or as retrofit solution for machine type ENDURA® 1000
- Traverse paths of up to 60.000 x 4.500 x 1.000 mm

FRICTION STIR WELDING MACHINE FOOKE FSW 60

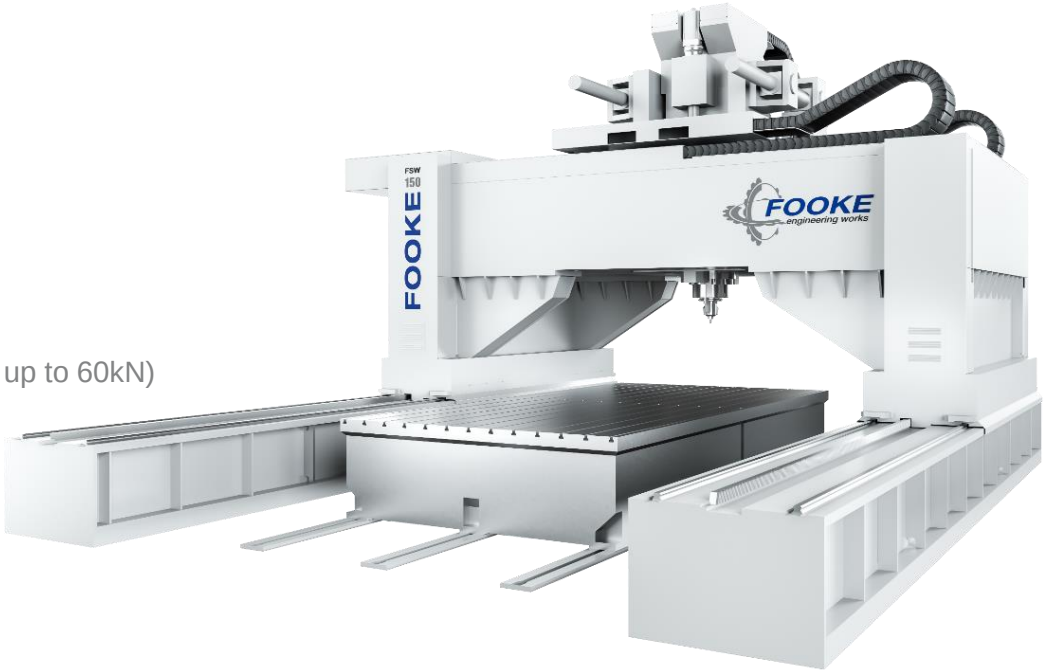
- SPECIALIST FOR FRICTION STIR WELDING AND MILLING OF LARGE VOLUME COMPONENTS
- MAXIMUM AXIAL FORCE OF 60KN

- Welding depht of up to 20mm (6xxx)
- Welding speeds up to 3.000 mm/min
- Feed speed up to 40 m/min
- 5-axis simultaneous operation during FSW process
- Load and temperature symmetric design
- Position controlled process
- Force controlled process

FRICTION STIR WELDING MACHINE FOOKE FSW 150

- SPECIALIST FOR FRICTION STIR WELDING
- MAXIMUM AXIAL FORCE OF 150KN

- Welding depht of up to 50mm (6xxx)
- Welding speeds up to bis zu 3.000 mm/min
- Feed speed up to 20 m/min
- 3+1-axis operation (4-axis simultaneous operation up to 60kN)
- Load and temperature symmetric design
- Position controlled process
- Force controlled process



FRICTION STIR WELDING MACHINE FOOKE FSW 35

Maximum axial force of up to 35 KN.

FRICTION STIR WELDING MACHINE FOOKE FSW 60

Maximum axial force of up to 60 KN.

FRICTION STIR WELDING MACHINE FOOKE FSW 150

Maximum axial force of up to 150 KN.

Many thanks for your attention!

FOOKE GmbH