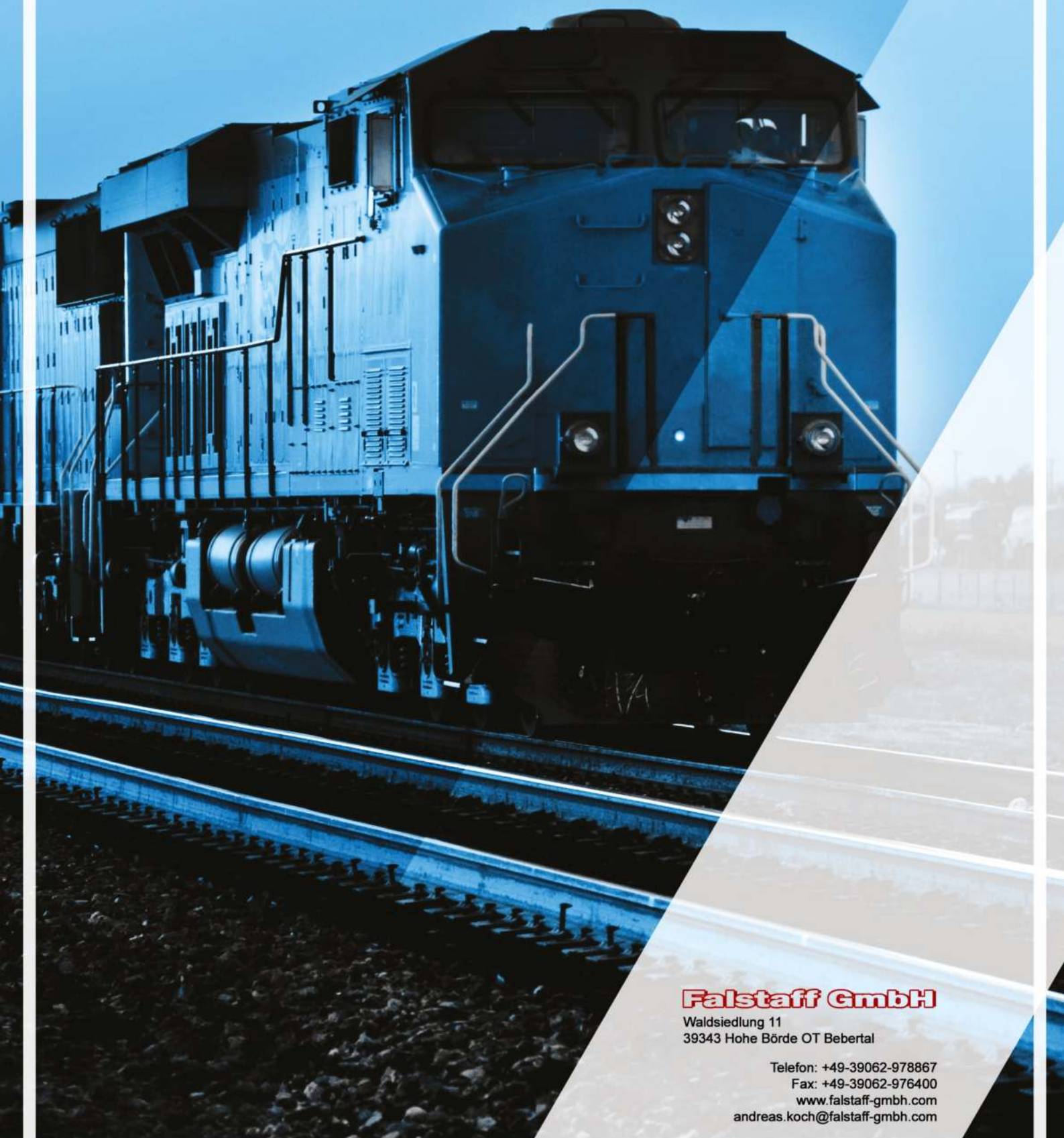


Falstaff GmbH



Falstaff GmbH

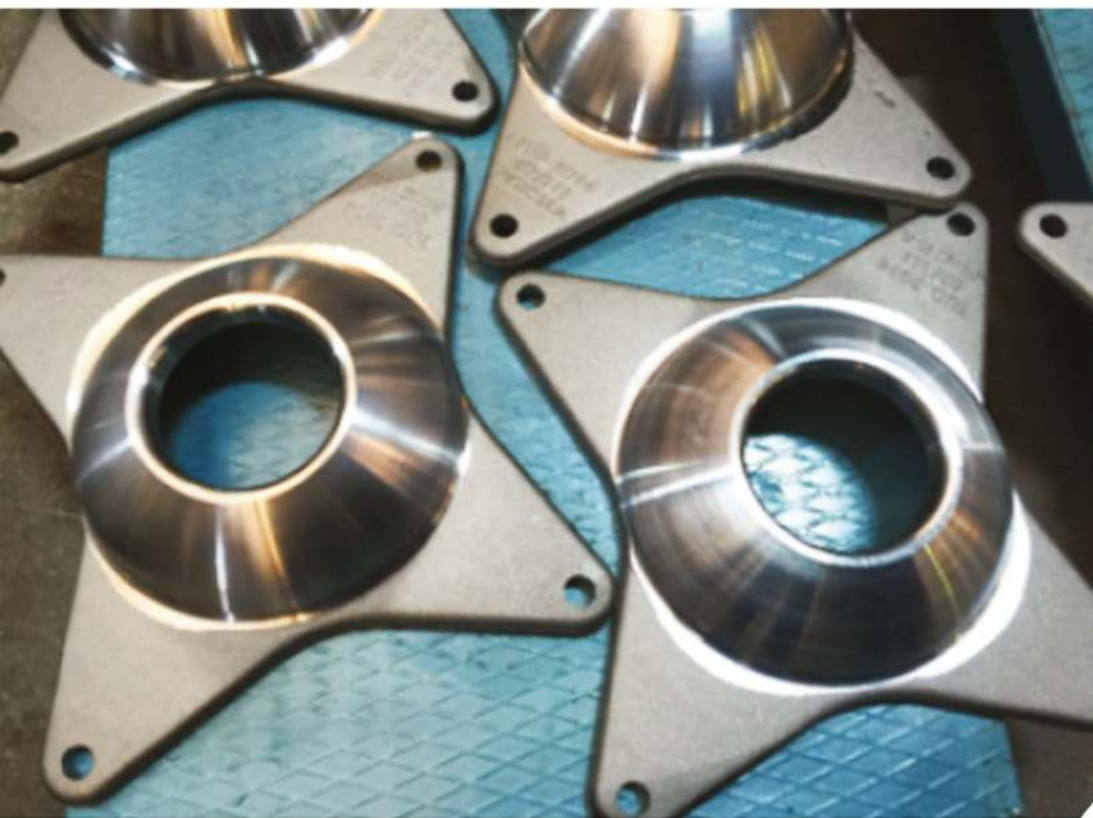
Waldsiedlung 11
39343 Hohe Börde OT Bebertal

Telefon: +49-39062-978867

Fax: +49-39062-976400

www.falstaff-gmbh.com

andreas.koch@falstaff-gmbh.com



Railway Parts

**Falstaff
GmbH**

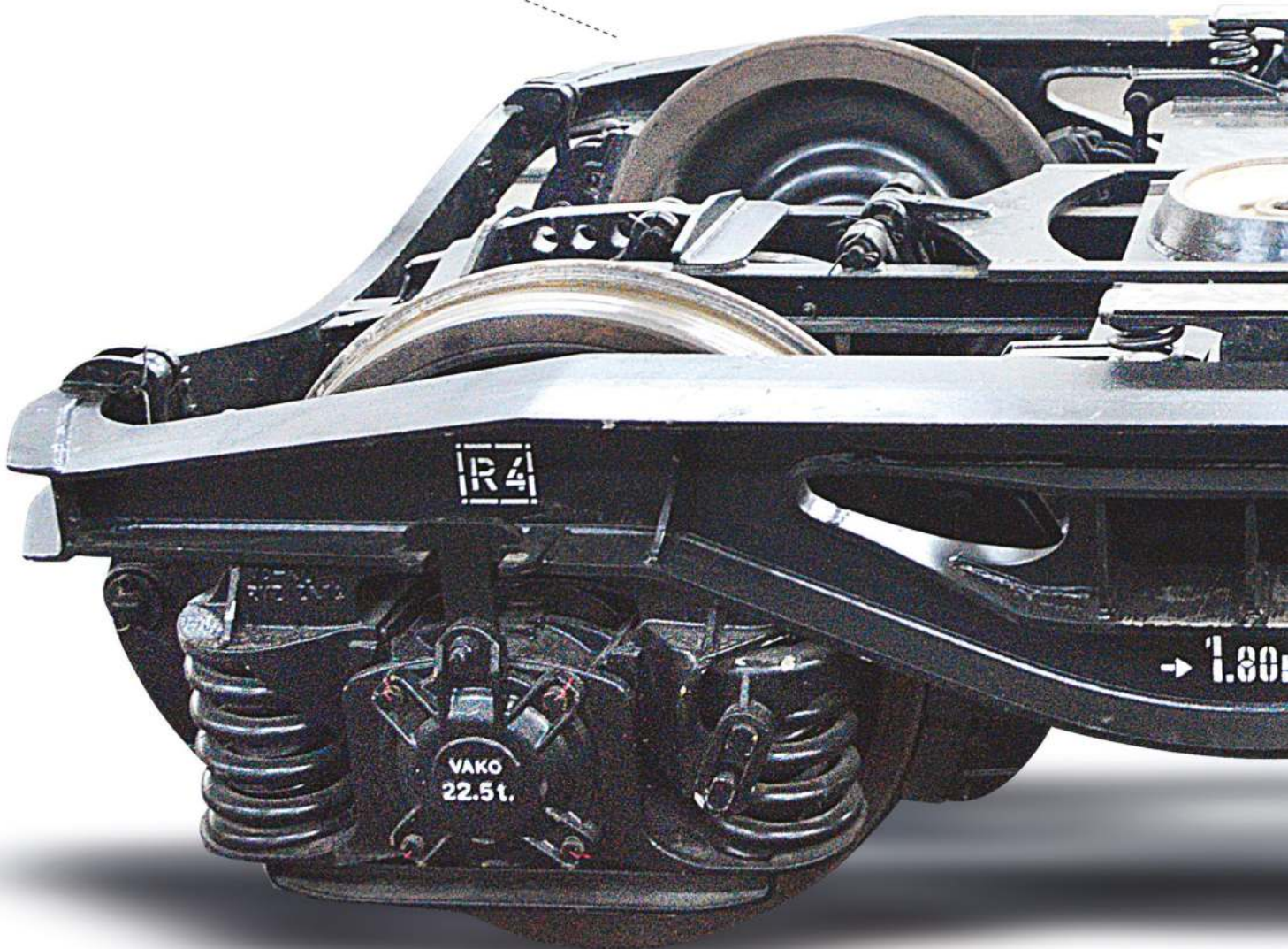


**Falstaff
GmbH**

EVERYTHING IS UNDER THE ONE ROOF

**HOT STEEL
FORGING**

**MACHINING
FACILITY**



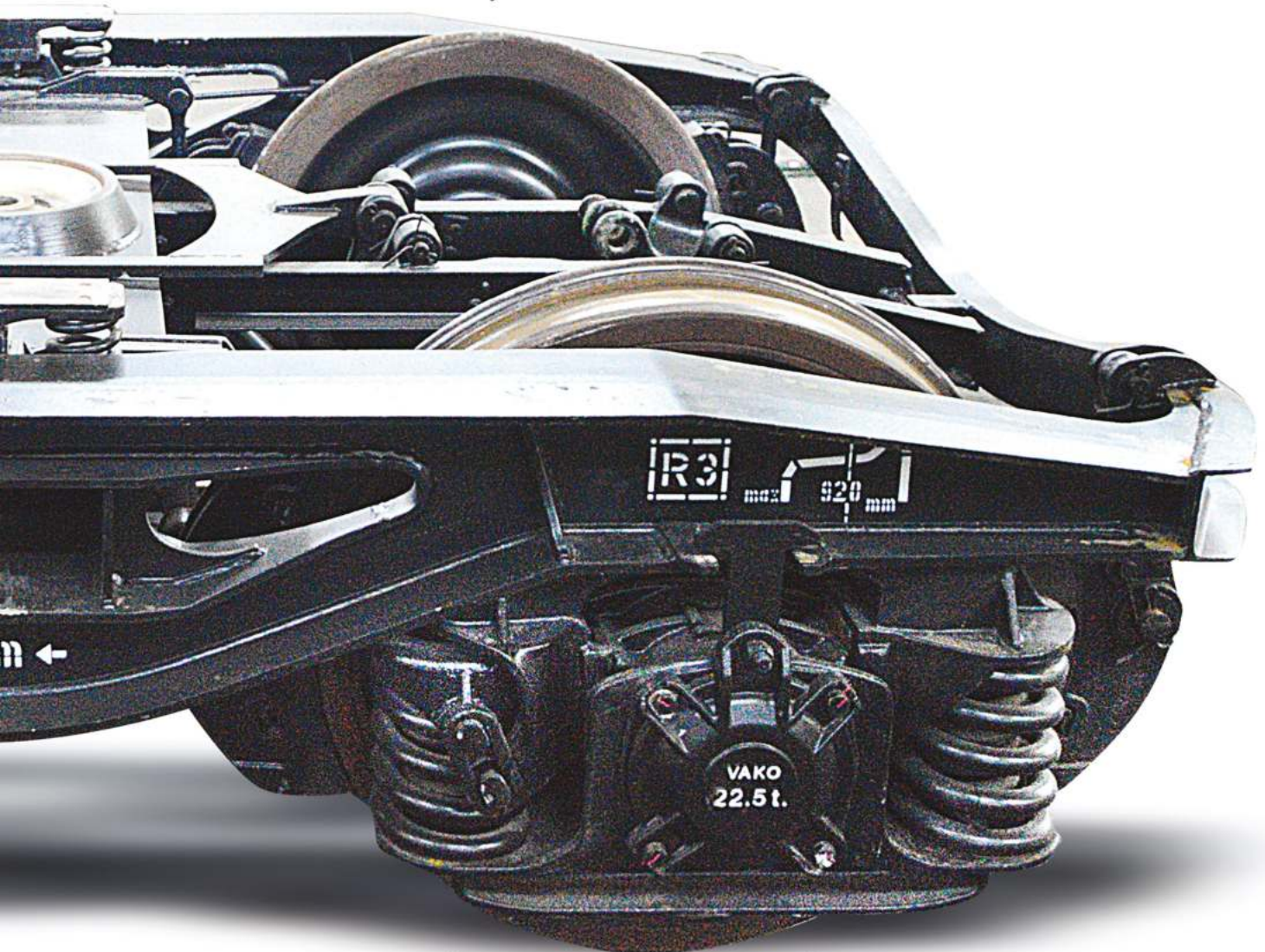
**WELDING
TECHNOLOGY**

**QUALITY
LABORATORY**

Falstaff GmbH

**R&D
CENTER**

**MOLDING
FACILITY**



**CATAPHORESIS
PAINTING**

**CHROME
PLATED**

TSI CERTIFICATE | EN 15566 STANDARD

ENAC CERTIFICATION
INTERMEDIATE STATEMENT OF VERIFICATION
EC TYPE EXAMINATION
N° 0096/8.1/CB/2020/RST/EN/005 v1.0

SGS

In accordance with:
* Directive 2008/57/CE of June 17th, and its amendments
* Technical Specification for Interoperability (TSI), related to Rolling Stock – Freight Wagons (Commission Regulation (EU) N° 321/2013, and its amendments)

The following type:
Draw Hook 1500 kN
(RS16.00.DH.01.01_Rev.0_11.02.2020)

of Applicant and Production Location
FMC Hidrolik Sistemleri Otomotiv Mak. San. & Tic. Ltd.,
Konya Organize Sanayi Bölgesi Ulukavak Sokak No:5
Konya
Turkey

has been assessed by the Notified Body NB 0096
SGS TECNOS, S.A.
C/ Trespaderna, 29 28042 Madrid

to check conformity with the applicable requirements of the above Directives and TSI
(Appendix C.1 - Manual Coupling System – Draw Hook – EN 15566:2009+A1:2010)

The assessment results and scope are provided in detail within the attached report ref. SGS-RCB-2020-012_AR ed.1.0, 2020/06/12, which forms part of this certificate details the content of the Technical Documentation and Specified Standards. This documentation is an integral part of this certificate.

The conformity assessment has been performed by applying the CB module of Decision 2010/713/EU.

Conditions and limits of use:
1) Minimum breaking load: 1.5 MN
2) Lifecycle according to table A.3 of EN 15566:2010: 30 years

Validity (*): Start date: 2020-07-16 End date: UNLIMITED

(*) This certificate is valid for the object of assessment as mentioned above as long as the object of the assessment and the relevant technical documentation are not modified. The Certification Body must be informed about any modification without delay.

NICOLAS ESTEBAN JAVIER
37726887X
Javier Nicolás Esteban
Authorized Signatory
Date of Issue: 2020-07-16

SGS TECNOS, S.A.U.
C/ Trespaderna, 29 - 28042 Madrid
T: 91 312 80 00 www.sgs.es

ENAC CERTIFICATION
INTERMEDIATE STATEMENT OF VERIFICATION
QUALITY MANAGEMENT SYSTEM APPROVAL
N° 0096/8.4/CD/2020/RST/EN/005 v1.0

SGS

In accordance with:
* Directive 2008/57/CE of June 17th, and its amendments
* Technical Specification for Interoperability (TSI), related to Rolling Stock – Freight Wagons (Commission Regulation (EU) N° 321/2013, and its amendments)

Quality Management System for the production of the:
Draw Hook 1500 kN
(RS16.00.DH.01.01_Rev.0_11.02.2020)

EC Type Examination Certificate N°0096/8.1/CB/2020/RST/EN/005 v1.0

of Applicant and Production Location
FMC Hidrolik Sistemleri Otomotiv Mak. San. & Tic. Ltd.,
Konya Organize Sanayi Bölgesi Ulukavak Sokak No:5
Konya
Turkey

has been assessed by the Notified Body NB 0096
SGS TECNOS, S.A.
C/ Trespaderna, 29 28042 Madrid

to check conformity with the applicable requirements of the above Directives and TSI
(Appendix C.1 - Manual Coupling System – Draw Hook – EN 15566:2009+A1:2010)

The Quality Management System of the manufacturer has been audited and was shown to comply with the Assessment Requirements.

The assessment results and scope are provided in detail within the attached report ref. SGS-RCB-2020-012_AR ed.1.0, 2020/06/12, which forms part of this certificate details the content of the Technical Documentation and Specified Standards. This documentation is an integral part of this certificate.

The conformity assessment has been performed by applying the CD module of Decision 2010/713/EU.

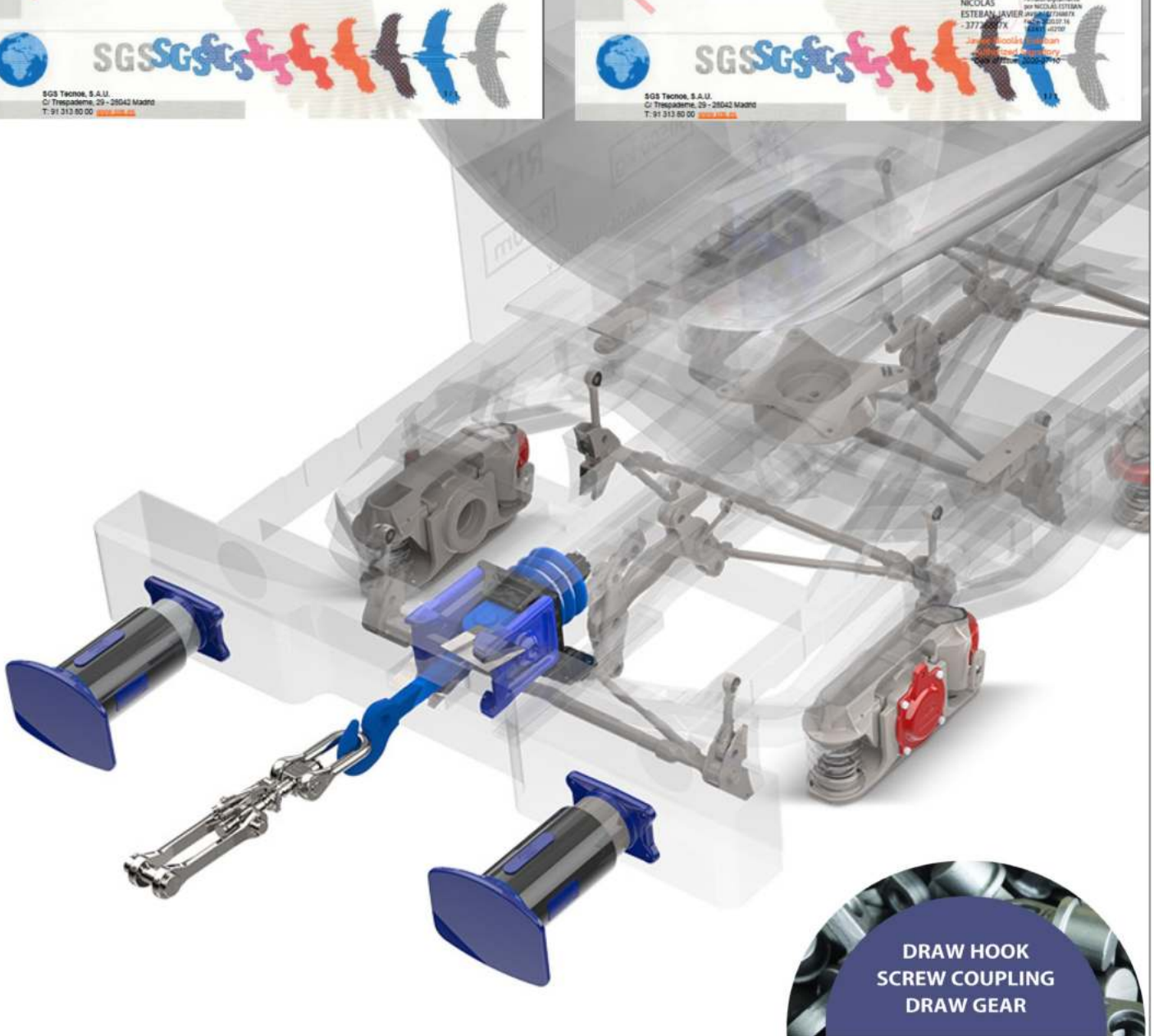
Validity (*):
Original cycle start date: --
Expiry date of previous cycle: --
Certification / Recertification Audit date: 2020-05-22
Certification / Recertification cycle start date: 2020-07-16
Expired date: 2022-07-16

(*) The validity of this Quality Management System Approval is subjected to the continued maintenance of the quality management system. This certificate is valid as long as the object of the assessment, the Quality Management System and the relevant technical documentation are not modified. This certificate is subjected to periodic surveillance. The Holdo must be informed about any modification without delay.

Within the validity duration of this QMS Approval the applicant can perform production/installation and final product/installation inspection of the object of the assessment. This validity duration may be extended on the basis of future auditing.

NICOLAS ESTEBAN JAVIER
37726887X
Javier Nicolás Esteban
Authorized Signatory
Date of Issue: 2020-07-16

SGS TECNOS, S.A.U.
C/ Trespaderna, 29 - 28042 Madrid
T: 91 312 80 00 www.sgs.es



DRAW HOOK
SCREW COUPLING
DRAW GEAR

Railcar Parts

SCREW COUPLER



Main Product Types

1350 kN Screw Coupling
 1000 kN Screw Coupling
 850 kN Screw Coupling

STANDARD: UIC/ERRI UIC 826, UIC 583, UIC 520, EN 15566 and TSI.

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

Cutting on conventional and CNC machines
 Cutting on single-purpose machines thread rolling

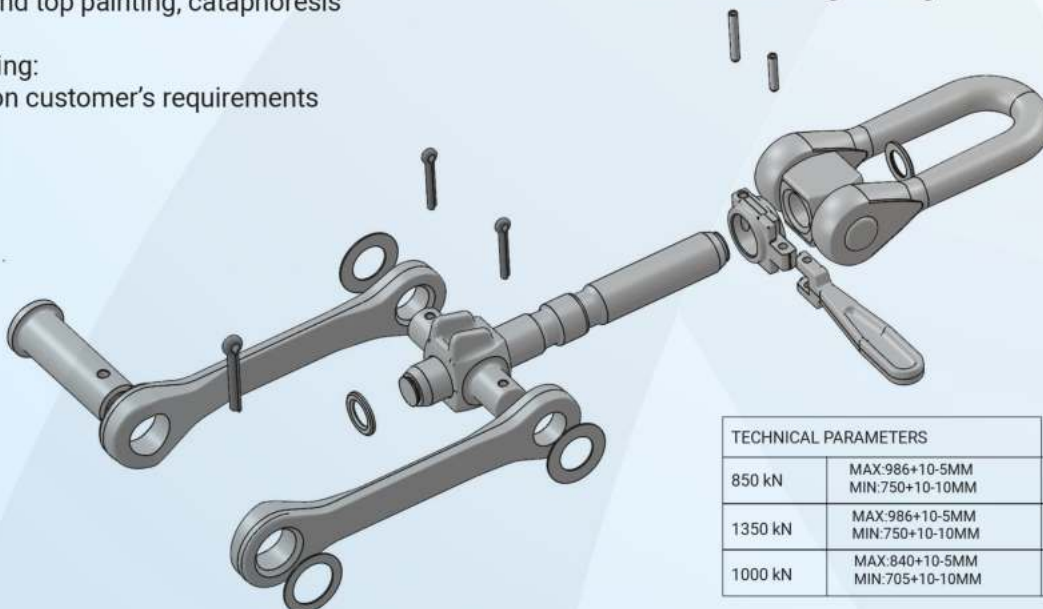
Surface treatment:

Blasting
 Sand blasting
 Prime and top painting, cataphoresis

Packaging:

Based on customer's requirements

- Screw coupling parts are made by die forging and subsequent heat treatment.
- Fabrication of individual parts is done on conventional and single-purpose machines
- Thread on spindle is made by machining.
- Testing is performed in company mechanical and metallographic test room.
- Painting: based on customers requirements, cataphoresis
- Packaging: based on customers requirements
- Manufacturing and testing inspected by quality control system certified according to **EN ISO 9001:2015**
- Obtained certificates: **EN-15566 (TSI), ÖBB, SNCF, TULOMSAS, TUDEMSAS**
- There is no welding process by washer and lock washer cold press fitting is implemented.
- NDT Material Engineering-UT Level-2



TECHNICAL PARAMETERS

850 kN	MAX:986+10-5MM MIN:750+10-10MM	36 KG
1350 kN	MAX:986+10-5MM MIN:750+10-10MM	37,5 KG
1000 kN	MAX:840+10-5MM MIN:705+10-10MM	35 KG

Railcar Parts

SIDE BEARER LOWER/UPPER PARTS



Lower Part



Upper Part



Side Bearer

Main Product Types

Die forgings
Hot stampings
Cold stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

Cutting on conventional and CNC machines
Cutting on single-purpose machines thread rolling

Surface treatment:

Blasting
Sand blasting
Prime and top painting, cathoresis

Packaging:

Based on customer's requirements

QUALITY CONTROL

Quality control system certified according to EN ISO 9001:2015

Purchase of materials from certified manufacturers
Material receiving inspection
Product in-process inspection

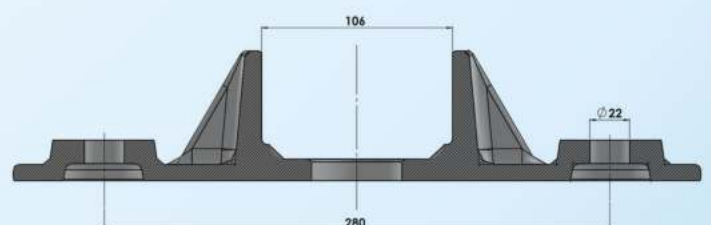
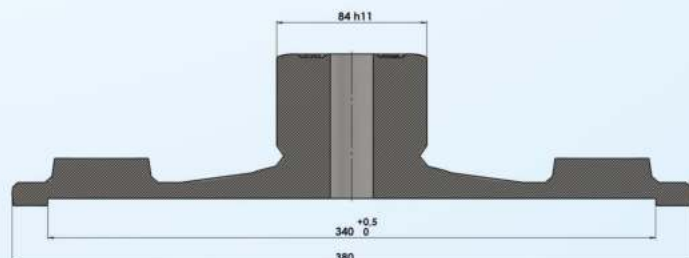
Mechanical tests performed in company test room

Hardness HB, HV, HRC
Tensile test
Impact test
Non-destructive tests

Metallographic tests in company test room

Macrostructure evaluation
Microstructure evaluation
Grain

- Surface defect inspection by magnetoflux, die penetrant methods
- Material substitution inspection, chemical composition analysis (22 elements)
- Final inspection according to EN standards
- Statistical acceptance
- Obtained certificates: **OBB, SNCF, TULOMSAS, TUDEMSAS**

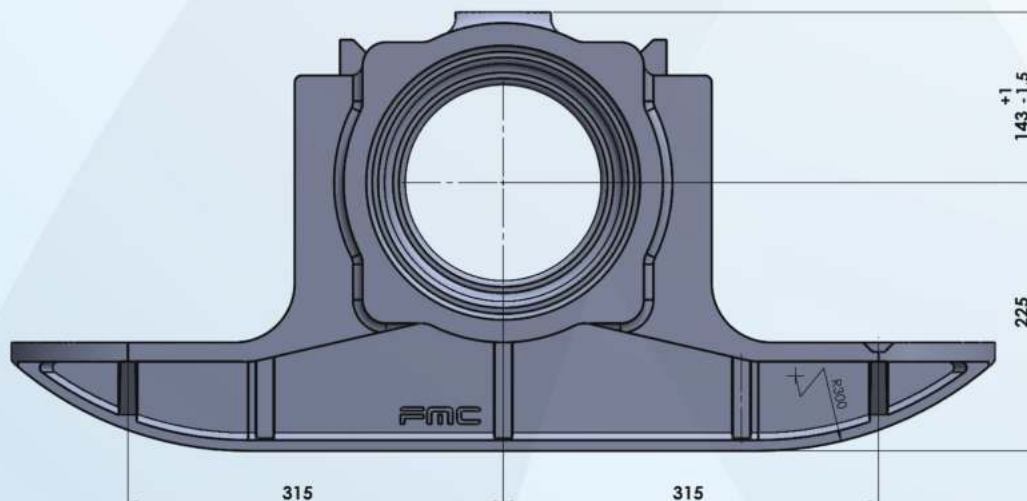


Rail Car Parts

AXLE BOX



- Used for freight wagons, locomotives and special vehicles and bogies.
- The part is supplied as an assembly of machined casting with encased apertures, including wheel key and spring pin for one or two cast-iron or composite brake blocks.
- The part is supplied and tested in accordance with UIC 583, DIN 5651, BN 918 440
- Manufacture is controlled by the quality management system certified according to EN ISO 9001:2015
- Painting: based on customer's requirement, blasted, primed and top coated to ensure a cataphoresis.
- Packaging: based on customer's requirement
- Obtained certificates: **SNCF, TULOMSAS, TUDEMSAS**
- The part is supplied as an assembly of machined casting with encased apertures, including Labyrinthring, spring guide, manganese plate, bolt M16x40 ISO 4017, washer, seal ring.



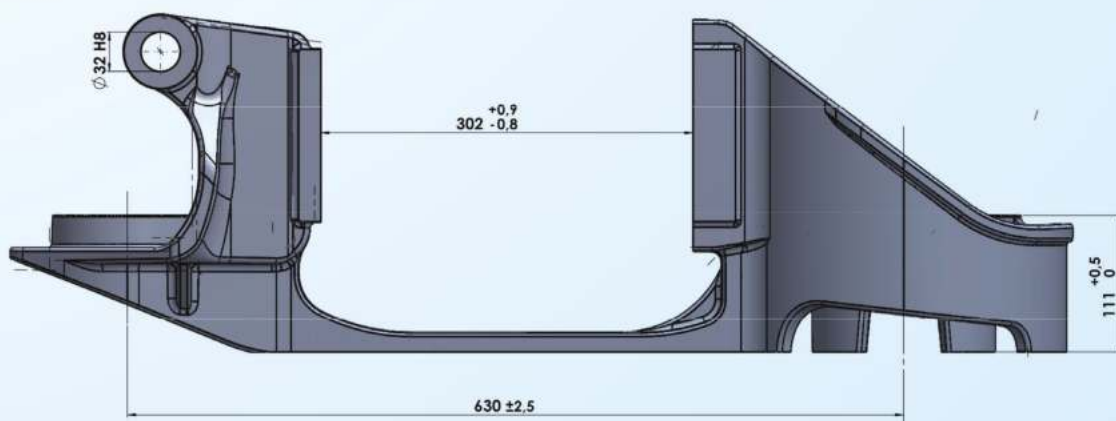
Rail Car Parts

SPRING BEARER | Guiding Systems



- The part is supplied and tested in accordance with UIC 583, DIN 5651, BN 918 440
- Manufacture is controlled by the quality management system certified according to EN ISO 9001:2015
- Painting: based on customer's requirement, blasted, primed and top coated to ensure a cataphoresis.
- Packaging: based on customer's requirement
- Obtained certificates: **SNCF, TULOMSAS, TUDEMSAS**

The part is supplied as an assembly of machined casting with encased apertures, including Pin,Bush,Inner Spring Guide,Outer Spring Guide, Side Plate, Front Plate



Railcar Parts

DRAW BAR



Main Product Types

Die forgings
Hot stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-50 kg

Machining:

Cutting on conventional and CNC machines
Cutting on single-purpose machines thread rolling

Surface treatment:

Blasting
Sand blasting
Prime and top painting, cataphoresis

Packaging:

Based on customer's requirements

QUALITY CONTROL

Quality control system certified according to EN ISO 9001:2015
Purchase of materials from certified manufacturers
Material receiving inspection
Product in-process inspection

Mechanical tests performed in company test room

Hardness HB, HV, HRC

Tensile test

Impact test

Non-destructive tests

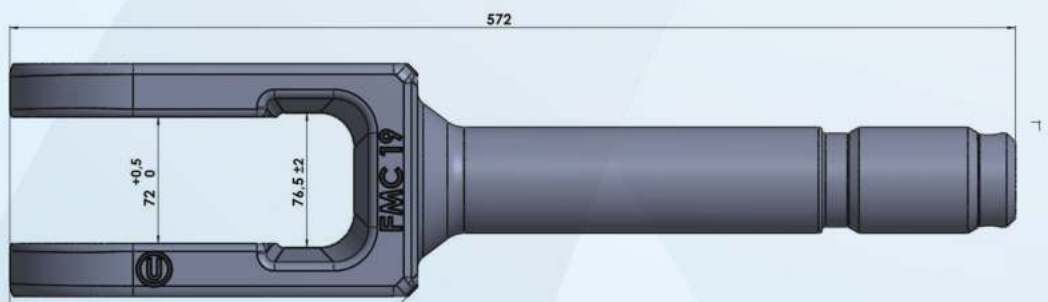
Metallographic tests in company test room

Macrostructure evaluation

Microstructure evaluation

Grain

- Surface defect inspection by magnetoflux, die penetrant methods
- Material substitution inspection, chemical composition analysis (22 elements)
- Final inspection according to EN standards
- Statistical acceptance
- Obtained certificates : OBB, SNCF, TULOMSAS, TUDEMSAS



Rail Car

DRAW HOOK - DRAW GEAR



Draw Hook With Eye - UIC/ERRI Type

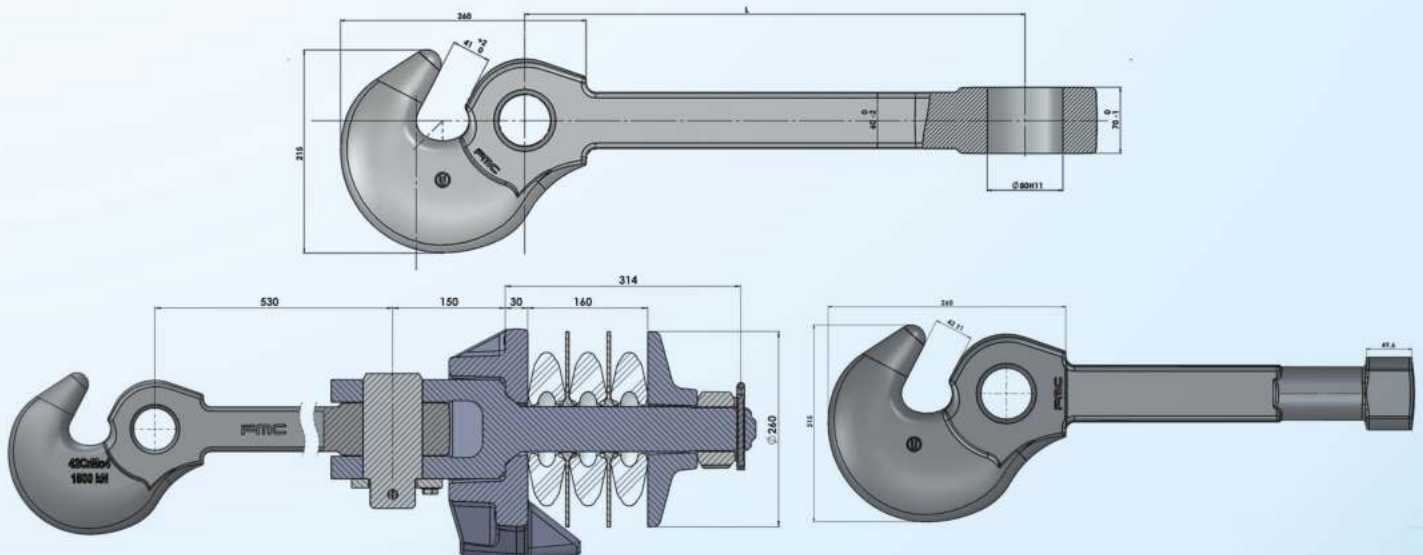
Material, manufacture, heat treatment, testing, acceptance and delivery comply with UIC 825, UIC 583, UIC 520, TL 918272.

*The manufacturer provides 2-year guarantee.

Hook head : According to drawing UIC/ERR1100 M 3211

Minimum strength equal to force at fracture : 1000 kN – 1200 kN – 1500 kN

- Draw hook with eye of UIC/ERRI type is made by die forging and subsequent heat treatment.
- Fabrication is done on conventional machines.
- Testing is performed in company mechanical and metallographic test room.
- Painting: based on customer's requirements, cathaphoresis.
- Packaging: based on customer's requirements
- Manufacturing and testing inspected by quality control system certified according to EN ISO 9001:2015
- Obtained certificates: **EN-15566 (TSI), OBB, SNCF, TULOMSAS, TUDEMSAS**
NDT Material Engineering UT (Level 2)



Rail Car Parts

TWIN AXLE BOGIE PARTS

Main Product Types

Die forgings
Hot stampings
Cold stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

cutting on conventional and CNC machines

Surface treatment:

Blasting
Sand blasting
Prime and top painting, cathoporesis

Packaging:

Based on customer's requirements

QUALITY CONTROL

- Quality control system certified according to EN ISO 9001:2015
- Purchase of materials from certified manufacturers
- Material receiving inspection
- Product in-process inspection

Mechanical tests performed in company test room

Hardness HB, HV, HRC

Tensile, yield test

Impact test -20°/+20 min 27j

Non-destructive tests (MT) Level 2

- Metallographic tests in company test room
- macrostructure evaluation
- microstructure evaluation
- grain

- Surface defect inspection by magnetoflux, die penetrant methods
- Material substitution inspection, chemical composition analysis (22 elements)
- Final inspection according to EN standards
- Statistical acceptance

- Obtained certificates:

OBB,SNCF,TULOMSAS,TUEMSAS

Lower Pivot



Back-Up Ring



Support



Upper Pivot



Rail Car Parts

BRAKE TRIANGLE

Main Product Types

Die forgings
Hot stampings
Cold stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

cutting on conventional and CNC machines

Surface treatment:

Blasting
Sand blasting
Prime and top painting, cataphoresis

Packaging:

Based on customer's requirements

QUALITY CONTROL

- Quality control system certified according to EN ISO 9001:2015
- Purchase of materials from certified manufacturers
- Material receiving inspection
- Product in-process inspection

Mechanical tests performed in company test room

Hardness HB, HV, HRC

Tensile, yield test

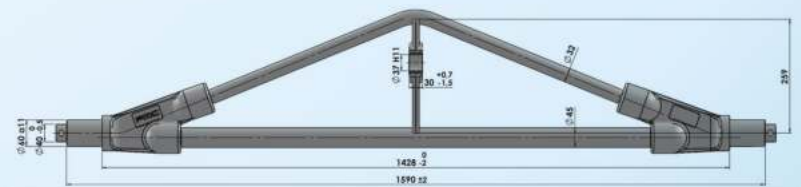
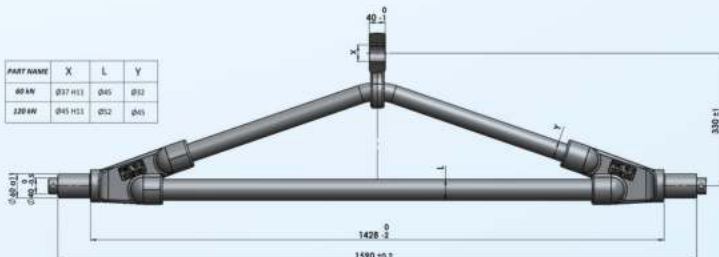
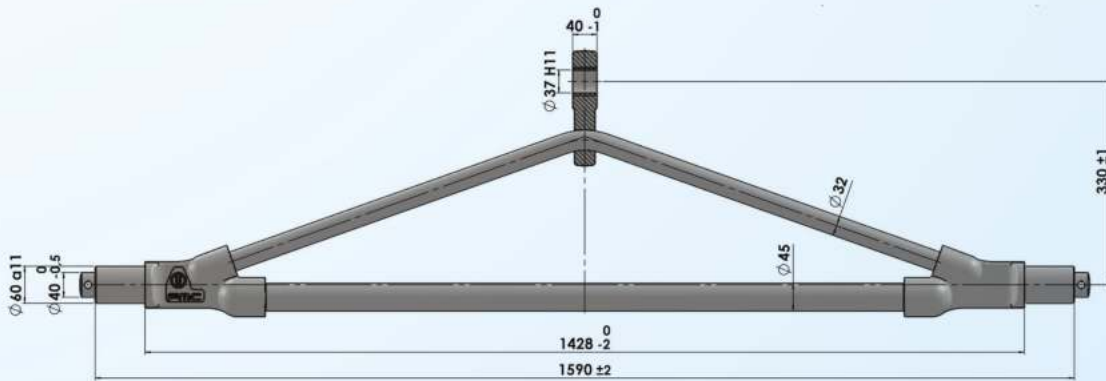
Impact test

Non-destructive tests (MT) Level 2

- Metallographic tests in company test room
- macrostructure evaluation
- microstructure evaluation
- grain

- Surface defect inspection by magnetoflux, die penetrant methods
- Material substitution inspection, chemical composition analysis (22 elements)
- Final inspection according to EN standards
- Statistical acceptance

- Obtained certificates: **TULOMSAS, TUDEMSAS**

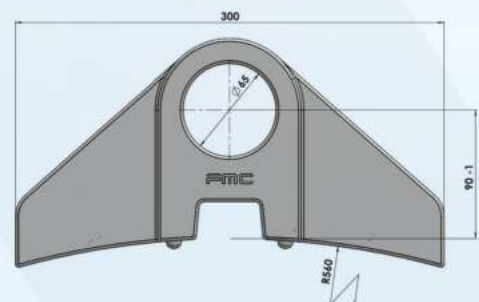
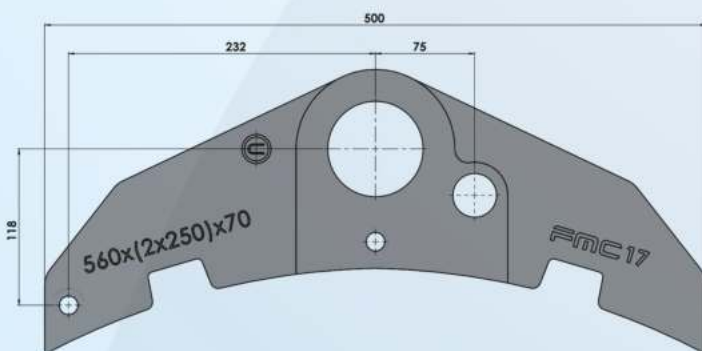


Rail Car Sub-Assembly Parts

BRAKE BLOCK HOLDER



- Brake Shoe Holder: After the brake blocks are secured with keys in the brake shoe holder, the brake shoe transmits braking force to the freight car wheels.
- The part is supplied as an assembly of machined casting with encased apertures, including wheel key and spring pin for one or two cast-iron or composite brake blocks.
- The part is supplied and tested in accordance with UIC 583, DIN 5651, BN 918 440
- Manufacture is controlled by the quality management system certified according to EN ISO 9001:2015
- Painting: based on customer's requirement, blasted, primed and top coated to ensure a cataphoresis.
- Packaging: based on customer's requirement
- Casting-weight:13 kg
- Obtained certificates:**SNCF, TULOMSAS, TUDEMSAS**



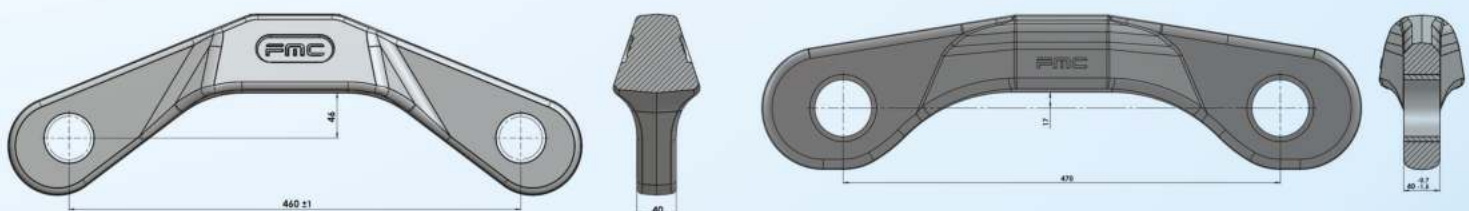
Railcar Subassembly Parts

BRAKE LEVER BRIDGE



For Y25 (BA 628/629) bogies are used different types of connection bars on brake riggings are used:

- Type UIC according the drawing 100 M3321 0019, having the vertical distance between the holes axis and bottom surface of 17 mm/46 mm.
- The connection bar 17/46 mm could be used in all bogie types Y25
- Obtained certificates: **SNCF, TULOMSAS, TUDEMSAS**



Rail Car Parts

BRAKE LEVER AND BRAKE BLOCK HANGER



Main Product Types

Die forgings
Hot stampings
Cold stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

- cutting on conventional and CNC machines
- cutting on single-purpose machines
- thread rolling

Surface treatment:

- blasting
- sand blasting
- prime and top painting, cataphoresis

Packaging:

- based on customer's requirements

QUALITY CONTROL

- Quality control system certified according to EN ISO 9001:2015
- Purchase of materials from certified manufacturers
- Material receiving inspection
- Product in-process inspection

Mechanical tests performed in company test room

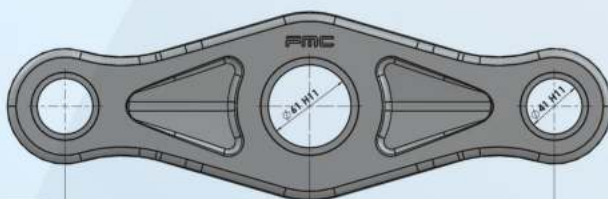
hardness HB, HV, HRC
tensile test
impact test
non-destructive tests

- Metallographic tests in company test room
- Macrostructure evaluation
- Microstructure evaluation
- Grain

- Surface defect inspection by magnetoflux, die penetrant methods
- Material substitution inspection, chemical composition analysis (22 elements)
- Final inspection according to EN standards
- Statistical acceptance

Obtained certificates:

SNCF, TULOMSAS, TUDEMSAS



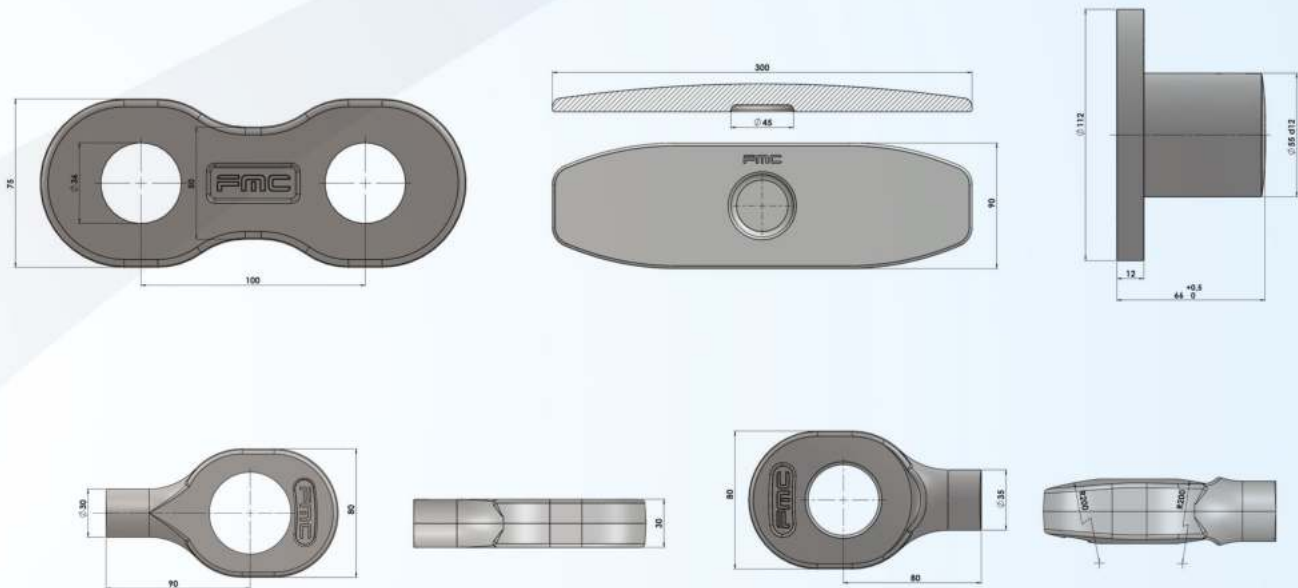
NAME	L
SMALL	250mm
BIG	220mm



NAME	L	W
SMALL	220	40/45
BIG	220	40/45

Rail Car Parts

ROD EYES - PUSH BUTTON - PLATE



Main Product Types

Die forgings
Hot stampings
Cold stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

cutting on conventional and CNC machines
cutting on single-purpose machines thread rolling

Surface treatment:

Blasting
Sand blasting
Prime and top painting, cataphoresis

Packaging:

Based on customer's requirements

QUALITY CONTROL

Quality control system certified according to EN ISO 9001:2015
Purchase of materials from certified manufacturers
Material receiving inspection
Product in-process inspection

Mechanical tests performed in company test room

Hardness HB, HV, HRC
Tensile test
Impact test
Non-destructive tests

Metallographic tests in company test room

Macrostructure evaluation
Microstructure evaluation
Grain

- Surface defect inspection by magnetoflux, die penetrant methods
- Material substitution inspection, chemical composition analysis (22 elements)
- Final inspection according to EN standards
- Statistical acceptance
- Obtained certificates: **SNCF, TULOMSAS, TUDEMSAS**

Rail Car Parts

Twin Axle Bogie Parts

Main Product Types

Die forgings
Hot stampings
Cold stampings
Machined parts
Assemblies

Manufacturing Potential

Weight range : 0,5-60 kg

Machining:

cutting on conventional and CNC machines
cutting on single-purpose machines
thread rolling

Surface treatment:

blasting
sand blasting
prime and top painting, cataphoresis

Packaging:

based on customer's requirements

QUALITY CONTROL

Quality control system certified according to EN ISO 9001:2015

Purchase of materials from certified manufacturers
Material receiving inspection
Product in-process inspection

Mechanical tests performed in company test room
hardness HB, HV, HRC

tensile test
impact test
non-destructive tests

Metallographic tests in company test room
macrostructure evaluation
microstructure evaluation
grain

☒ Surface defect inspection by magnetoflux, die penetrant methods

☒ Material substitution inspection, chemical composition analysis (22 elements)

☒ Final inspection according to EN standards

☒ Statistical acceptance

☒ Obtained certificates: OBB, SNCF, TULOMSAS, TUDEM-SAS

Link



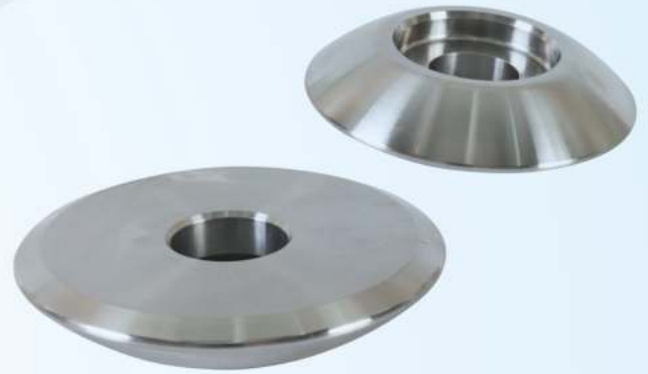
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B	RS18.00.HMD.00.02	25	160	62	6
C	RS18.00.HMD.00.03	25	171	62	6
D	RS18.00.HMD.00.04	25	224	67	6
E	RS18.00.HMD.00.05	25	210	67	6
F	RS18.00.HMD.00.06	25	224	62	6
G	RS18.00.HMD.00.07	25	292	62	6
H	RS18.00.HMD.00.08	30	205	50	6
I	RS18.00.HMD.00.09	25	286	62	6
J	RS18.00.HMD.00.10	26	325	62	6

Pos.	Drawing No.	D±0,5	L	A	R
A	RS18.00.HMK.00.01	16	103	31	12,5
B	RS18.00.HMK.00.02	12	95	25	12,5

Schakle



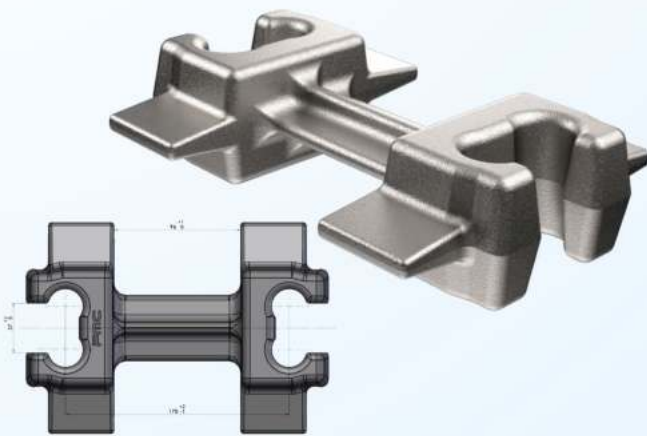
Liner



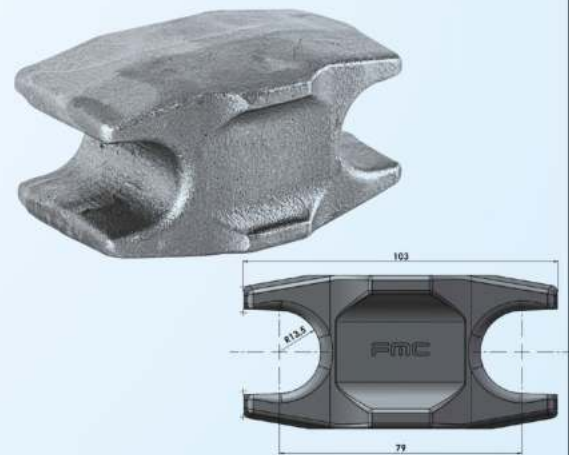
Rod-Eye



Intermediate Stone



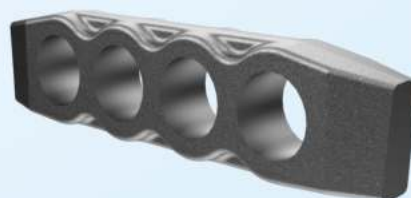
Bearing Stone



Piston Arm



Kotevnik



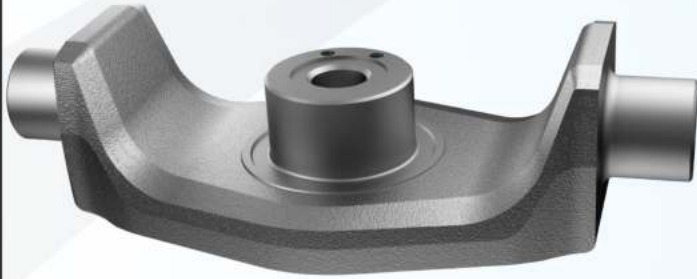
Tamping Tine



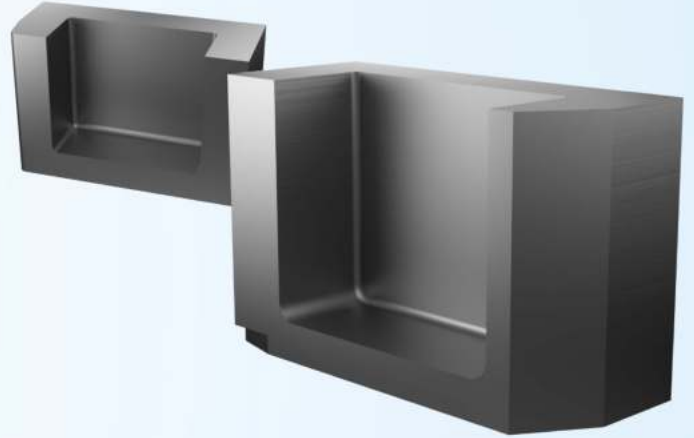
Rail Car Parts

Twin Axle Bogie Parts

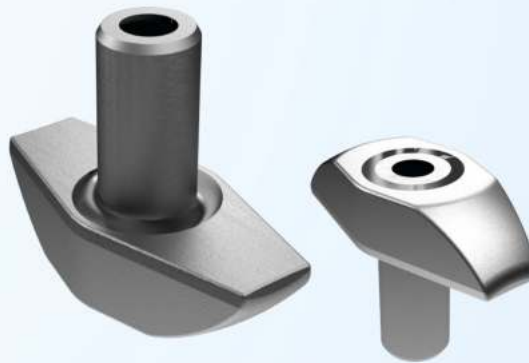
Joint Pin



Left / Right Bearings



Hammer



Retain Socket



Labyrinthring



SINCE 1975

1975'DEN BU YANA



Almanya	Germany
Fransa	France
Polonya	Poland
Avusturya	Austria
Slovakya	Slovakia
Macaristan	Hungary
Bosna Hersek	Bosnia
Hrvatistan	Croatia
Romanya	Romania
Danimarka	Denmark
Amerika	U.S.A.
İsviçre	Switzerland
Portekiz	Portugal
İspanya	Spain
İngiltere	England



KNORR-BREMSE

THE GREENBRIER COMPANIES



HAINZL

TECHNOLOGIE FÜR HÖCHSTE ANSPRÜCHE

PSA

GRUPE



Falstaff GmbH



www.falstaff-gmbh.com

Waldsiedlung 11
39343 Hohe Börde OT Bebertal

Telefon: +49-39062-978867
Fax: +49-39062-976400

andreas.koch@falstaff-gmbh.com