



SPECIAL AEROSPACE MATERIALS

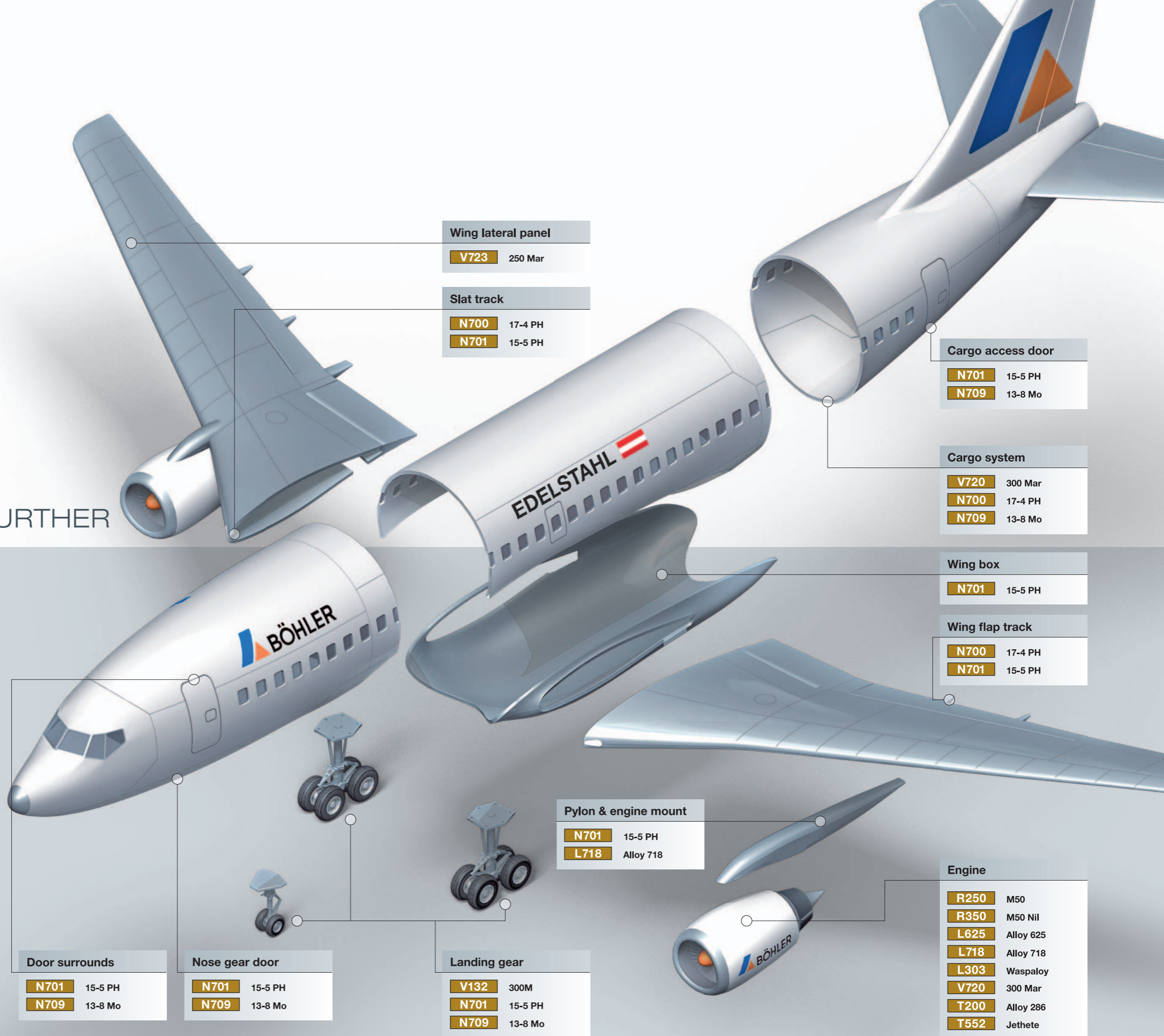


SPECIAL MATERIALS
AEROSPACE

FASTER – LIGHTER – FURTHER

「より早く、より軽く、より遠くへ」この言葉は航空機業界においては、文字通りに解釈される必要があります。そのためには全てにおいて最善が求められます。エンジニアが求める鋼種・サイズなど全ての要求に応える材料をBÖHLERは提供しています。

Faster, lighter, further are terms of our times which must be taken literally, especially in the aerospace industry. This demands the work of the best. Fulfilling these requirements demands everything of materials. BÖHLER provides the materials that aerospace engineers need – in the grade and dimension they want.



Wing lateral panel

V723	250 Mar
------	---------

Slat track

N700	17-4 PH
N701	15-5 PH

Cargo access door

N701	15-5 PH
N709	13-8 Mo

Cargo system

V720	300 Mar
N700	17-4 PH
N709	13-8 Mo

Wing box

N701	15-5 PH
------	---------

Wing flap track

N700	17-4 PH
N701	15-5 PH

Pylon & engine mount

N701	15-5 PH
L718	Alloy 718

Engine

R250	M50
R350	M50 Nil
L625	Alloy 625
L718	Alloy 718
L303	Waspaloy
V720	300 Mar
T200	Alloy 286
T552	Jethete

Door surrounds

N701	15-5 PH
N709	13-8 Mo

Nose gear door

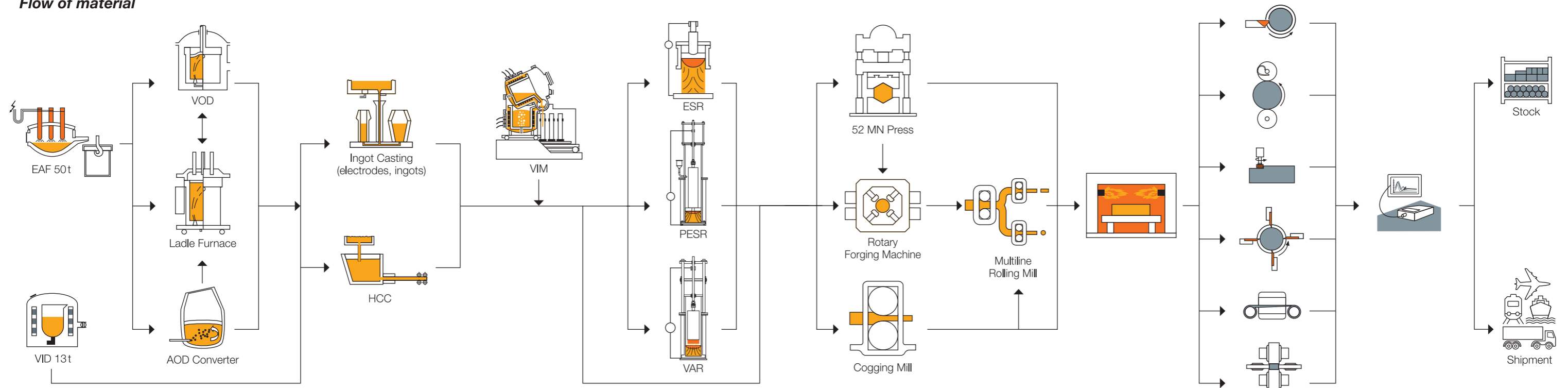
N701	15-5 PH
N709	13-8 Mo

Landing gear

V132	300M
N701	15-5 PH
N709	13-8 Mo

TRENDSETTING TECHNOLOGIES FOR METALLURGIC AL TOP PERFORMANCE

Flow of material



溶解
Melting

二次精鍊
Secondary metallurgy

鑄造
Casting

特殊製鋼
Special Melting

再溶解
Remelting

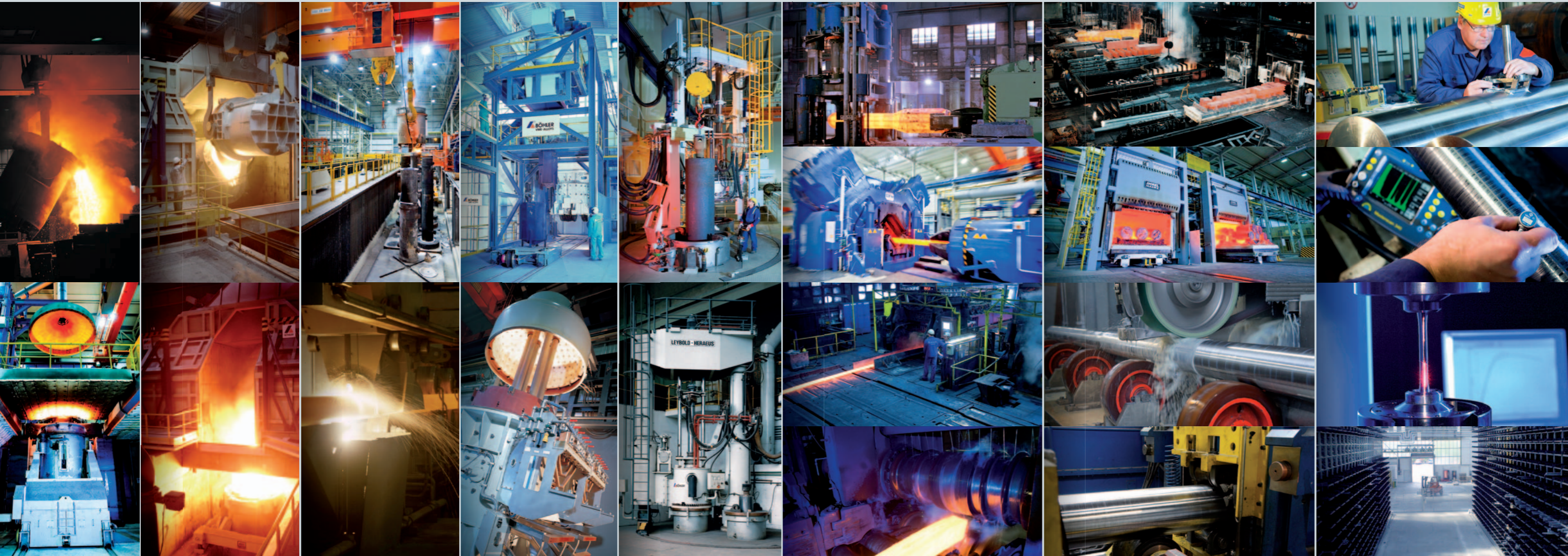
圧延と鍛造
Rolling and Forging

熱処理
Heat Treatment

機械加工
Machining

検査
Testing

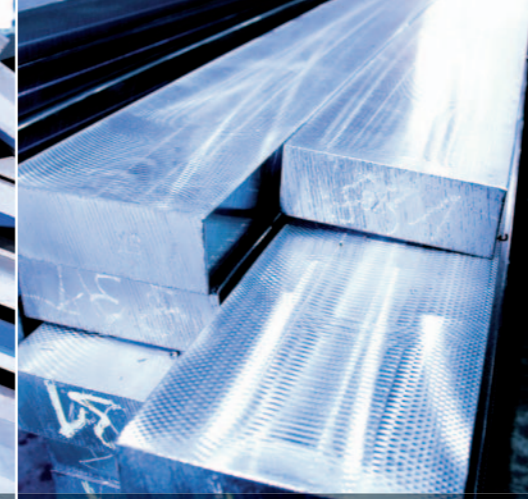
出荷
Dispatch



供給可能な材料プロファイル YOUR PRODUCTS FOR THE ULTIMATE IN SAFETY



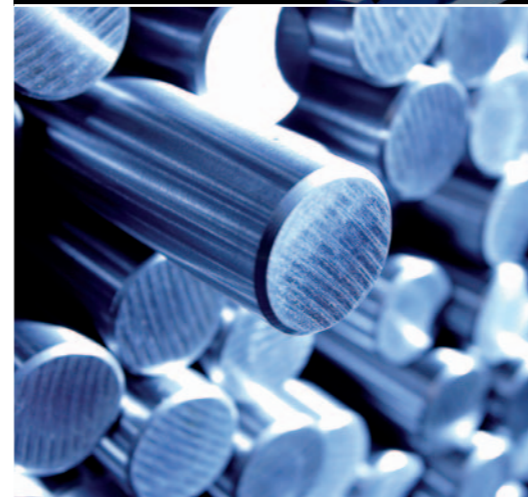
Flat steel - blasted



Flat steel - milled



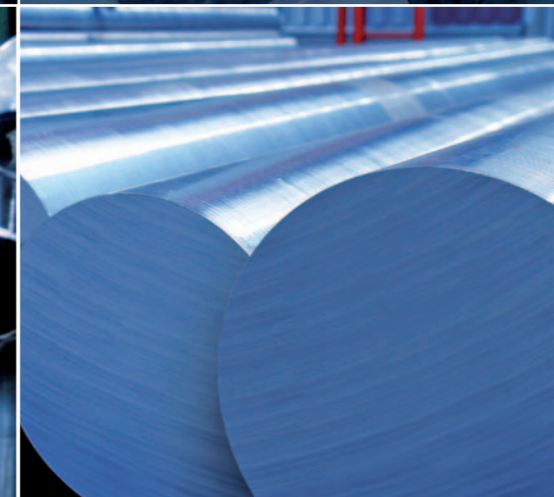
Flat steel - precision ground



Bar steel - ground with bevelled ends



Bar steel - peeled - polished



Bar steel - peeled + ground

圧延材

丸棒	12 - 150 mm		
角材	15 - 150 mm		
平材	幅	厚み	
	15 - 60 mm	5 - 41 mm	
	60 - 200 mm	5 - 86 mm	
	100 - 300 mm	15 - 80 mm	

圧延ワイヤー

圧延	φ 5,0 - 13,5 mm
引抜き	φ 1,0 - 12,0 mm
精密形状	φ 1,0 - 28,0 mm

BAR rolled

round:	0.47 - 5.91"		
square:	0.59 - 5.91"		
flat:	width	thickness	
	0.59 - 2.36"	0.20 - 1.61"	
	2.36 - 7.87"	0.20 - 3.39"	
	3.94 - 11.81"	0.59 - 3.15"	

ROLLED WIRE

rolled:	dia. 0.20 - 0.53"
drawn:	dia. 0.04 - 0.47"
precision shaped:	round 0.04 - 1.10"
	flat 0.00078 - 0.06200 sq.in

鍛造材

丸棒・角材	110 - 1200 mm
平材	幅 120 - 1600 mm
	厚み 100 - 1000 mm

表面仕上げ

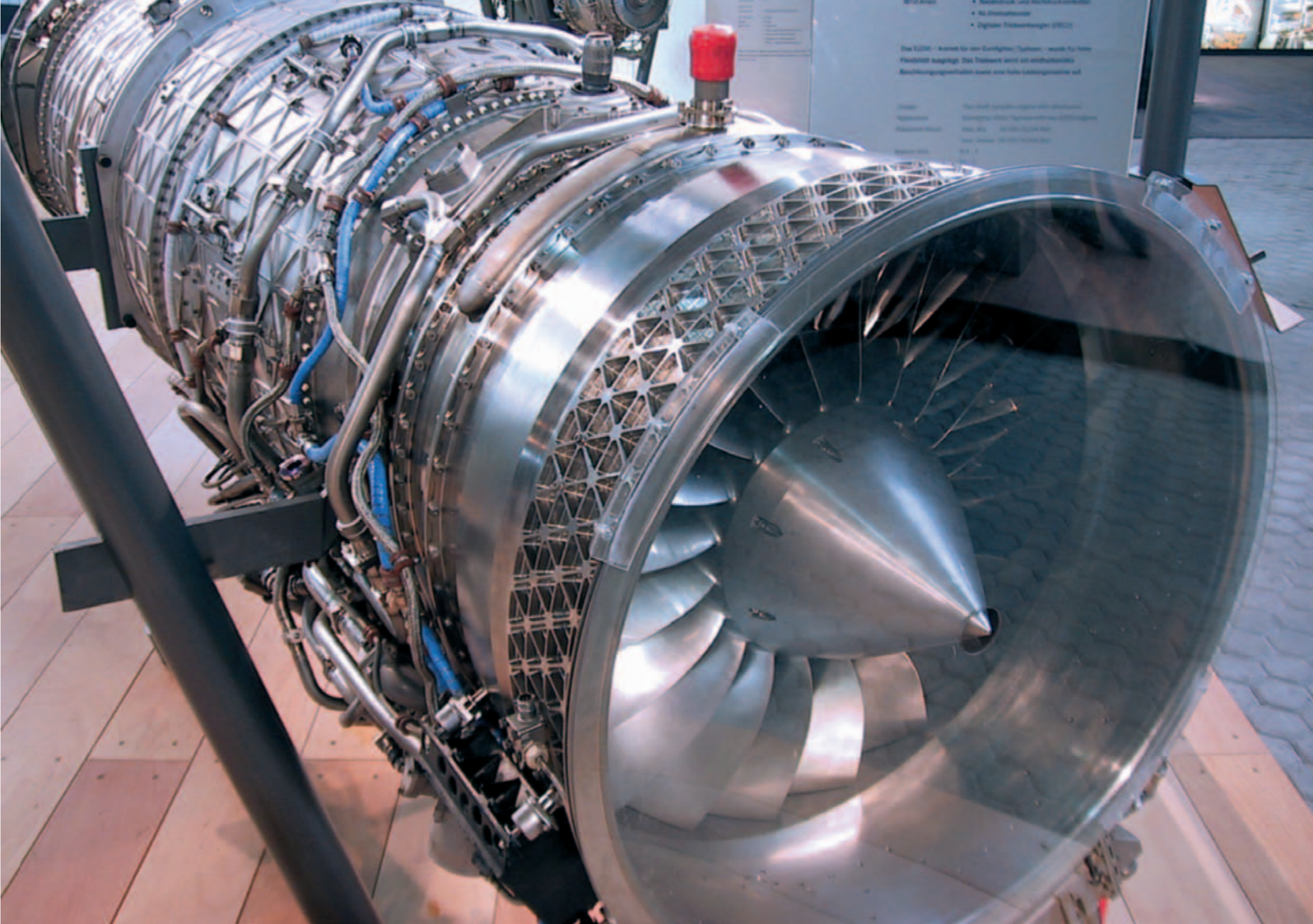
- プラスト仕上げ / ミーリング仕上げ
ピーリング仕上げ / 施盤仕上げ
- ピーリング + ポリッシュ仕上げ
- ベルト研磨仕上げ
- 研磨 + ポリッシュ仕上げ

BAR forged

round, square:	4.33 - 47.24"
flat:	width thickness
	4.72" 3.94" minimum
	62.99" 39.37" maximum
Ratio width/thickness maximum 10:1	

Surface condition

- blasted / milled / peeled / turned
- peeled and polished
- belt grinded
- ground and polished



MATERIALS

下記の材料一覧は航空機向けの一般的な概要です。
最新の仕様・規格に則した材料を供給いたします。

*Below is a survey of our conventional materials for the
aircraft industry. We supply materials according to the current
specifications and standards.*

BÖHLER grade	Market grade	Melting process					AMS	Standards W Nr./UNS	BS	Others	Industry specifications	BÖHLER grade
		EAF	EAF ESR	EAF VAR	VIM ESR	VIM VAR						
Premium melted – Ni-based alloys												
BÖHLER L718	Alloy 718	–	–	–	–	■	5662, 5663	2.4668 / N07718	B637	NiCr19NbMo	Snecma DMD 424-22* GE AE B50TF15 A/D/E, C50TF6 P&W PWA-S-5662 Cl.2, PWA-S-5663 Cl.2 MTU MTS-1424-1*, MTS-1424-3* Goodrich AMS5662* Boeing D1 4426(PC694, PC696)*	BÖHLER L718
BÖHLER L303	Waspaloy	–	–	–	–	■	5704, 5706, 5707	2.4654 / N07001	B637	–	Snecma DMD 426-23*	BÖHLER L303
BÖHLER L625	Alloy 625	–	–	–	■	–	5666	2.4856 / N06625	B446 G1 B564	NiCr22Mo9Nb	Snecma DMD 436-22* Honeywell EMS 55425P cond B	BÖHLER L625
BÖHLER LHX	Alloy X	–	–	–	■	–	5754	2.4665 / N06002	B572	–	Snecma DMD 491-22* GE AE B50TF31-A	BÖHLER LHX
BÖHLER L090	Alloy 90	–	–	–	–	■	5829	2.4632 / N07090	B637	–	MTU MTS 1042-2*	BÖHLER L090
BÖHLER T200	A286	–	■	–	–	–	5731, 5732	1.4943 1.4944 S66286	–	Z6NCT25	Snecma DMD 274-22* Turbomeca AMS 5732* Rolls Royce MSRR 6531, MSRR 6532	BÖHLER T200

* 特定の需要家の特定の寸法、製造範囲への認定である事を記しております。

* Specific customer approval for a specific size or product range



MATERIALS

BÖHLER grade	Market grade	Melting process					AMS	Standards		BS	Others	Industry specifications	BÖHLER grade
		EAF	EAF ESR	EAF VAR	VIM ESR	VIM VAR		W Nr./UNS					
PH grades													
BÖHLER N700	17-4 PH	■	-	■	-	-	5622, 5643	1.4542 / 1.4548 / S17400	-	EZ6CNU17.04 X5CrNiCuNb17 4 4	Snecma DMD 229-20* P&W CPW-S-5643 Airbus ZBF1109, ZBF301438, IPSWL1.4548.4-02 Alenia P19X316	BÖHLER N700	
BÖHLER N701	15-5 PH	-	■	■	-	-	5659	1.4545 / S15500	-	EZ5CNU15.05 X5CrNiCu15.05	Airbus / Eurocopter ASNA 3294, ASNA 3297, ASNA 6116, ABS 5750, ABS 5455, IPS01-04-003-01 Boeing D1 4426 (PC660)* Bombardier EMCM-001-1013 Goodrich AMS5659* Liebherr LAT 1-9037	BÖHLER N701	
BÖHLER N709	13-8Mo	-	-	-	-	■	5629	1.4534 / S13800	-	EZ3CND13-8 X3CrNiMoAl13-8-2	Airbus ZBF1109, ZBF301438, ABS 5442C, ABS 5259, IPS01-04-004-01, IPSWL1.4534.4-01 Liebherr LAT 1-9048	BÖHLER N709	
BÖHLER T670	-	■	-	-	-	-	-	1.4594 / S45000	S143	-	-	BÖHLER T670	
Aerospace bearing and gear steels													
BÖHLER E105	9310	-	-	■	-	■	6265	~1.6657	-	AISI 9310	Agusta 199-20-005	BÖHLER E105	
BÖHLER N360	X30	-	■	-	-	-	5898	1.4108	-	X30CrMoN15-1	FAG FL-LA2486.1SX	BÖHLER N360	
BÖHLER N695	440C	■	■	■	-	-	5618, 5630	1.3544, 1.4125 / S44004	-	X105CrMo17, X102CrMo17	Liebherr LAT 1-9123	BÖHLER N695	
BÖHLER R100	52100	-	-	■	-	■	6444	-	-	100Cr6	-	BÖHLER R100	
BÖHLER R250	M50	-	-	-	-	■	6491	~1.3551	-	-	Snecma DMD 119-20* GE AE C50TF56* P&W PWA793*, CPW 378*	BÖHLER R250	
BÖHLER R350	M50 Nil	-	-	-	-	■	6278	-	-	-	GE AE B50TF211*	BÖHLER R350	
Maraging steels													
BÖHLER V720	Maraging 300	-	-	-	-	■	6514	1.6354	-	EZ2NKD18, ~X2NiCoMo18 9 5	-	BÖHLER V720	
BÖHLER V723	Maraging 250	-	-	-	-	■	-	1.6359	S162	-	Liebherr LAT 1-9018 Messier Dowty MAT102	BÖHLER V723	

* 特定の需要家の特定の寸法、製造範囲への認定である事を記しております。

* Specific customer approval for a specific size or product range

MATERIALS



BÖHLER grade	Market grade	Melting process					AMS	Standards		Others	Industry specifications	BÖHLER grade
		EAF	EAF ESR	EAF VAR	VIM ESR	VIM VAR		W Nr./UNS	BS			
High performance aerospace steels												
BÖHLER A750		■	-	-	-	-	5646	1.4546	S130	X5CrNiNb18-10	Airbus ZBF1109, ZBF301438	BÖHLER A750
BÖHLER E108		■	-	■	-	-	-	1.6722	S82 S156	-	Liebherr LAT 1-9043	BÖHLER E108
BÖHLER N352 BÖHLER N352S1		■	-	-	-	-	-	1.4044	- S80	Z15CN16-02	Airbus ZBF1109, IPSWL1.4044.6-01	BÖHLER N352 BÖHLER N352S1
BÖHLER T552	Jethete M152	■	■	-	-	-	5719	1.4939 S64152	- S151	Z12CNDV12	GE AE C50TF68 Rolls Royce MSRR 6502 Snecma DMD 235-20* Snecma DMD 237-20* Snecma DMD 242-20* Turbomeca AMS5719*	BÖHLER T552
High performance heat treatable steels												
BÖHLER V118S1		■	-	-	-	-	-	1.6745	S98, S99	~40NiMoCr10-5	Bombardier EMCM-001-1013	BÖHLER V118S1
BÖHLER V124SC	4340	-	■	■	-	-	6414	1.6944 / G43400	-	SAE 4340 ~40NiCrMo6	Agusta 199-20-007 Bombardier EMCM-001-1013	BÖHLER V124SC
BÖHLER V132	300M	-	-	■	-	-	6257, 6419	-	S155	SAE 4340M	Liebherr LAT 1-9042	BÖHLER V132
BÖHLER V141		■	-	-	-	-	-	-	S97, S140, S154	-	Bombardier EMCM-001-1013	BÖHLER V141
BÖHLER V145	30CND8	■	-	-	-	-	-	1.6604	-	30CND8, 30CrNiMo8	Airbus ZBF1109, ZBF301438	BÖHLER V145
BÖHLER V354	15CDV6	■	■	-	-	-	-	1.7734, 1.7736	-	E 15CDV6, ~14CrMoV6 9	Airbus ZBF1109, ZBF301438	BÖHLER V354
BÖHLER V358	E40CDV12	-	-	■	-	■	-	1.8523	S132	E40CDV12	-	BÖHLER V358
BÖHLER V361	E32CDV13	-	-	-	-	■	6481	~1.7765	-	E32CDV13	Eurocopter ASNA 6128* Agusta AMS6481*	BÖHLER V361

* 特定の需要家の特定の寸法、製造範囲への認定である事を記しております。

* Specific customer approval for a specific size or product range



認定及び品質管理管理体制 EXPERTISE IN ALL MATERIAL MATTERS



主な品質システム認定 Main system approvals

- AS9100, ISO9001
- GE AE S1000
- PWA 300
- Rolls Royce SABRE
- Snecma
- MTU
- ITP
- Agusta (acc. AQM-002)
- Airbus Germany (acc. QVA-V06-02-00)
- Airbus UK Ltd. (acc. AUK/SA/001-3)
- BAE Systems (operations) Ltd.
- BAE Systems Regional Aircraft (RALOA/00503/3)
- Böhler Schmiedetechnik
- Boeing (D1-4426)
- Bombardier Aerospace (Code 1013)
- Hawker Beechcraft Corp. (Code QCOO Rev.F)
- Korean Air
- Messier Dowty (SAFRAN Group)
- NHBB
- Westland Helicopters
- SKF Aeroengines France (SNFA)
- GKN Aerospace
- Goodrich Aerostructures

主な試験ラボ認定 Main Laboratory Approvals

- NADCAP Chemisch, mechanisch, Korrosionsprüfungen, Metallografie und Härte, Wärmebehandlung /
Chemical, Mechanical, Corrosion Testing, Metallography and Hardness, Heat treatment
- GE Aero Engines S400
- Pratt & Whitney LCS/MCS MCL F17
- Snecma Moteurs FAL n°310 acc. PRO 0430
- Rolls Royce MSRR 9951
- Airbus France MM 049
- Boeing D1-4426

主な非破壊検査認定 Main NDT Approvals

- NADCAP AMS-STD 2154
- GE Aero Engines P3TF34
- Pratt & Whitney SIM 14, SIS 45
- Snecma Moteurs DMC 0022
- Rolls Royce RRP58002
- Airbus UK APB 6-5232
- Boeing D1-4426

お客様へのアフターフォローは当社の最優先事項です。Böhlerは革新的な技術を提供するだけでなく、先進的なITネットワークを活用することによりお客様一人ひとりの要求に応えています。当社にはお客様の材料に関する全ての要求を満たす専門家が揃っております。

品質管理

製品の品質を保証し文書化する完璧な品質管理体制は航空・宇宙産業が求める最も重要な前提条件です。

その本質は私たちの品質保証マニュアルに記載されております。「Böhlerの品質管理体制」は私たちの全ての活動領域の中で確立されており、需要家、検査機関の皆様にも同様のご認識をいただいております。

BÖHLERには需要家の皆様にもご利用いただける独立した認定検査ラボラトリーがございます。

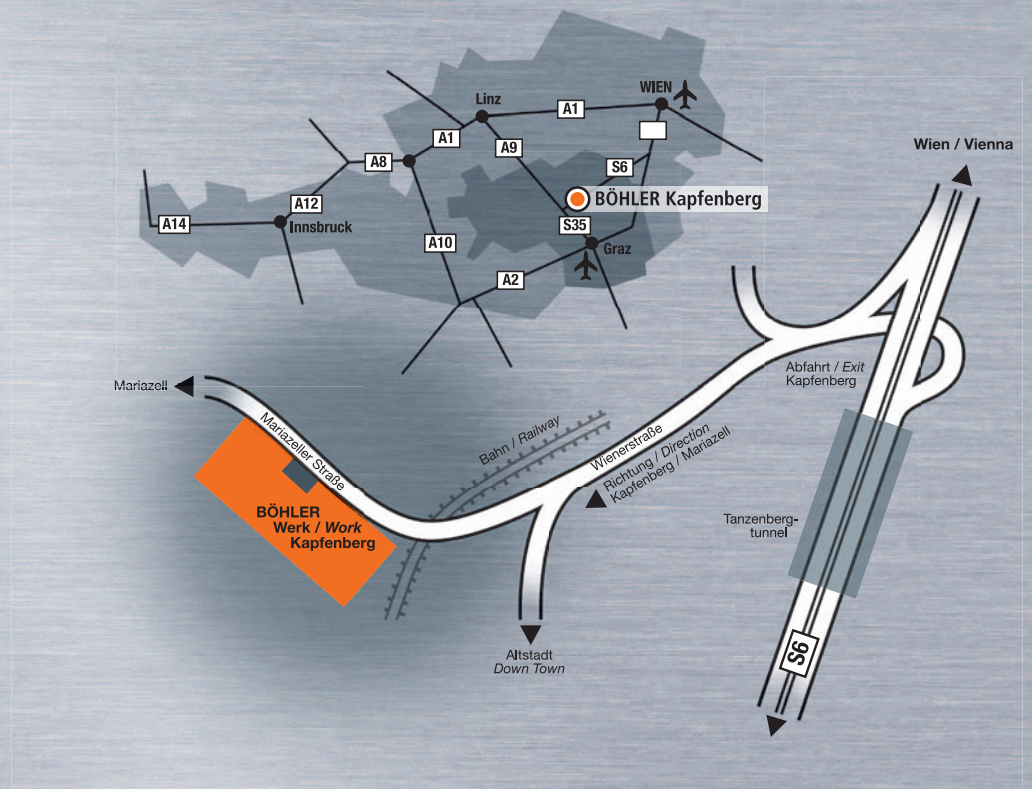
Naturally, looking after our customers is one of our top priorities. At BÖHLER not even innovative technology and the most modern communication network can take the place of personally taking care of our customers. Our qualified specialists are here for you as expert and competent partners for all your material needs.

QM – for BÖHLER this is self-evident.

A perfect quality management system to guarantee and document the highest product quality is one of the most important prerequisites in the aeronautics and aerospace industries.

The essentials are described in our quality assurance manuals. The BÖHLER quality management system has completely established itself in all fields of activity at BÖHLER and is recognized by customers and inspection institutions alike.

BÖHLER has independent, accredited testing laboratories at its disposal which may also be used by external customers.



 **BÖHLER**
EDELSTAHL

Your partner:

BÖHLER Edelstahl GmbH & Co KG
 Mariazeller Straße 25
 A-8605 Kapfenberg/Austria
www.boehler-edelstahl.com



ボーラー・ウッドホルム株式会社
 ボーラー営業部
 〒102-0085 東京都千代田区六番町2-8
 Phone: 03-5226-3775
 Fax: 03-5226-6109
www.boehler.jp

本カタログにおけるデータは一般的な情報にすぎず、なんら拘束力を持つものではありません、これらのデータは、当社と結ばれた契約書に明記されたときに初めて拘束力を持つものとします。当社の製造工程では、健康を害する物質やオゾン層を破壊する物質は使用しておりません。

BW 100 DE - 03.2016 - 1.000 CD - NOS