BÖHLER

AEROSPACE MATERIALS

BÖHLER High Performance Materials for the aerospace industry

voestalpine BÖHLER Edelstahl GmbH & Co KG
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voestalpine
ONE STEP AHEAD.

SPECIAL
MATERIALS
AEROSPACE

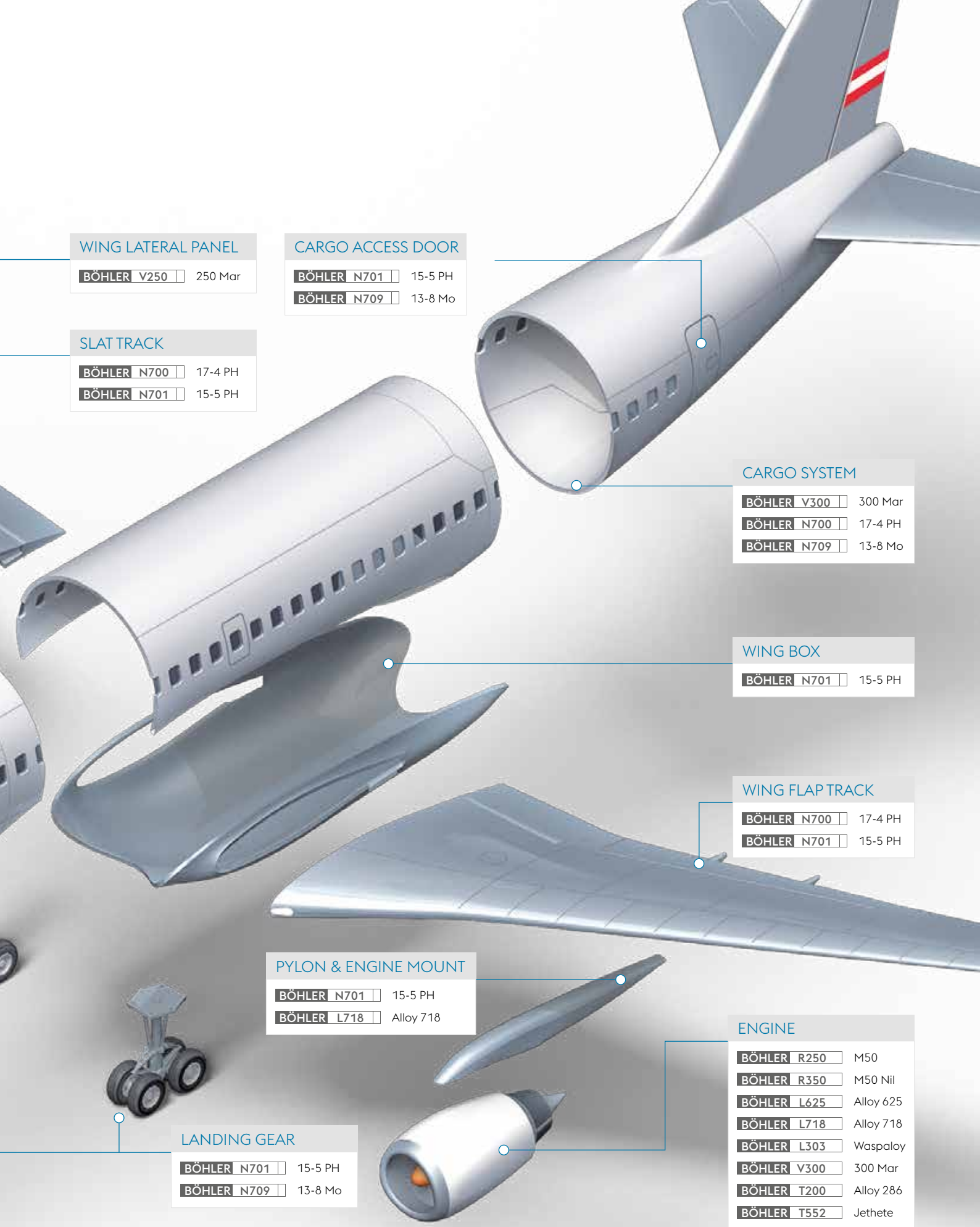
YOUR MOST RELIABLE PARTNER IN THE AEROSPACE INDUSTRY

DOOR SURROUNDS

BÖHLER N701	15-5 PH
BÖHLER N709	13-8 Mo

NOSE GEAR DOOR

BÖHLER N701	15-5 PH
BÖHLER N709	13-8 Mo



WING LATERAL PANEL

BÖHLER V250	250 Mar

SLAT TRACK

BÖHLER N700	17-4 PH
BÖHLER N701	15-5 PH

CARGO ACCESS DOOR

BÖHLER N701	15-5 PH
BÖHLER N709	13-8 Mo

CARGO SYSTEM

BÖHLER V300	300 Mar
BÖHLER N700	17-4 PH
BÖHLER N709	13-8 Mo

WING BOX

BÖHLER N701	15-5 PH

WING FLAP TRACK

BÖHLER N700	17-4 PH
BÖHLER N701	15-5 PH

PYLON & ENGINE MOUNT

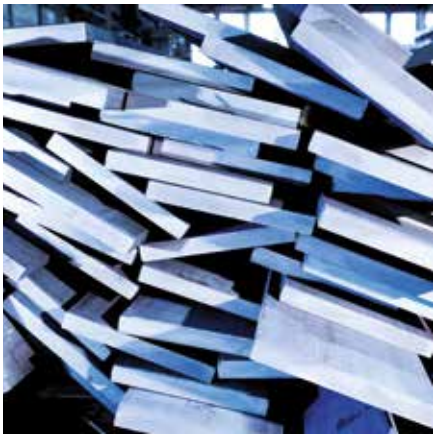
BÖHLER N701	15-5 PH
BÖHLER L718	Alloy 718

ENGINE

BÖHLER R250	M50
BÖHLER R350	M50 Nil
BÖHLER L625	Alloy 625
BÖHLER L718	Alloy 718
BÖHLER L303	Waspaloy
BÖHLER V300	300 Mar
BÖHLER T200	Alloy 286
BÖHLER T552	Jethete

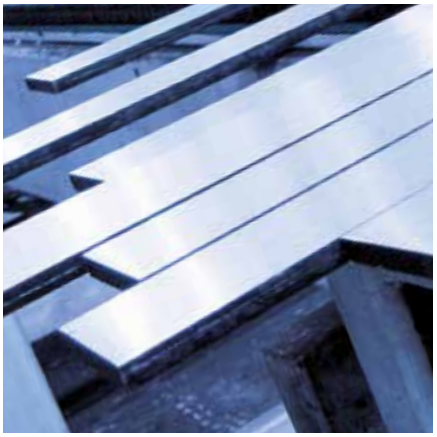
LANDING GEAR

BÖHLER N701	15-5 PH
BÖHLER N709	13-8 Mo

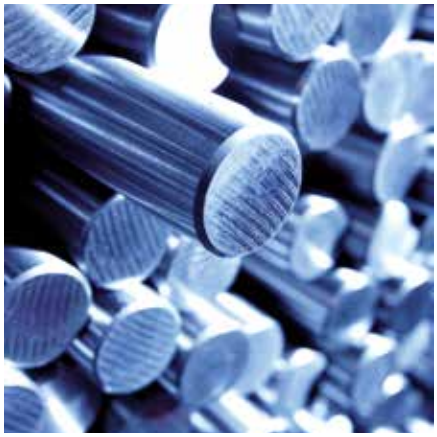


Flat steel – blasted

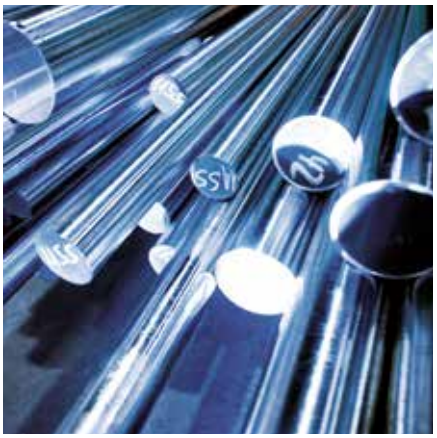
Flat steel – milled



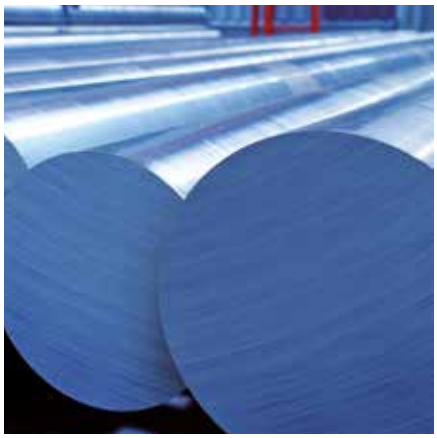
Flat steel – precision ground



Bar steel – ground with bevelled ends



Bar steel – peeled – polished



Bar steel – peeled + ground

YOUR PRODUCTS FOR THE ULTIMATE IN SAFETY

BAR STEEL rolled

round:	12.5 – 150 mm (0.49 – 5.91“)	
square:	15 – 130 mm (0.59 – 5.12“)	
flat:	width	thickness
	15 – 60 mm (0.59 – 2.36“)	5 – 41 mm (0.20 – 1.61“)
	60 – 200 mm (2.36 – 7.87“)	5 – 86 mm (0.20 – 3.39“)
	100 – 300 mm (3.94 – 11.81“)	15 – 80 mm (0.59 – 3.15“)

ROLLED WIRE

rolled (dia.)	5.0 – 13.5 mm (0.20 – 0.53“)
drawn (dia.):	1.0 – 12.0 mm (0.04 – 0.47“)
precision shaped round:	1.0 – 28.0 mm (0.04 – 1.10“)
precision shaped flat:	0.5 – 40.0 mm^2 (0.00078 – 0.062 sq.in.)

BAR STEEL forged

round:	110 – 1200 mm (4.33 – 47.24“)	
square:	90 – 1200 mm (3.54 – 47.24“)	
flat:	width	thickness
	120	50 mm (4.72 – 1.97“) minimum
	1600	1000 mm (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

SPECIAL NOTES

DFARS:
DFARS 252.225.7014: Clause c1, DFARS 225.872

Buy American:
Austria is listed as a qualified country in DFARS 225.872-1, 252.225-7012 because the United States and Austria have signed reciprocal defense procurement MoU. Austrian material may be used in „Buy America“ applications where the total value of Austrian material is less than 50% of the value of the component.
voestalpine BOHLER Edelstahl is an eligible supply source according to DFARS 252.225-7009.

SELECTION ACCORDING TO BS

BS	BÖHLER grade	Market grade	Melting route	UNS	ASTM	Others	Industry specifications
S80	BÖHLER N352S1	431	EAF			Z15Cn17-03	
S82 **S156**	BÖHLER E108		EAF or EAF-VAR			EN2767 16NCD17	**Liebherr** LAT 1-9043
S97 **S140** **S154**	BÖHLER V141		EAF				**Bombardier** EMCM-001-1013
S98 **S99**	BÖHLER V118S1		EAF			~40NiMoCr10-5	**Bombardier** EMCM-001-1013
S130	BÖHLER A750		EAF			X5CrNiNb18-10 Z6CNNb1810	**Airbus** ZBF1109, ZBF301438 **Boeing** DMS QPL 2201
S132	BÖHLER V358	E40CDV12	EAF-VAR			E40CDV12	
S151	BÖHLER T552	Jethete	EAF				**Rolls Royce** MSRR 6502 **Snecma** DMD 0235-20, DMD 0237-20
S162	BÖHLER V250AMS	Maraging250	VIM-VAR			EZ2NKD18-8-5	**Liebherr** LAT 1-9018
S162	BÖHLER V250	Maraging250	VIM-VAR			X2NiCoMo18-8-5	**Messier Dowty** MAT102

* Specific customer approval for a specific size or product range

The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer. Printed on on eco-friendly, chlorine-free bleached paper.

SELECTION ACCORDING TO DIN

WL	BÖHLER grade	Market grade	Melting route	UNS	ASTM	Others	Industry specifications
1.3544 **1.4125**	BÖHLER N695	440C	EAF or EAF-VAR	S44004		X105CrMo17 X102CrMo17 Z100CD17	
1.3551 ~	BÖHLER R250	M50	VIM-VAR			E80DCV40	**GE** C50TF56* **P&W** PWA793*,CPW 378* **Snecma** DMD119-20*
1.4044	BÖHLER N352	431	EAF			Z15Cn17-03	**Airbus** ZBF1109 ; IPSWL1.4044.6 **Liebherr** LAT1-9070 Cl.A Cond.2
1.4108	BÖHLER N360	X30	EAF-ESR			X30CrMoN15-1	**FAG** FL-LA2486 1SX
1.4534	BÖHLER N709	13-8 Mo	VIM-VAR	S13800	A564	EZ3CNDA 13-8 X3CrNiMoAl13-8-2 EN 3357 EN 3358	**Airbus** ZBF1109, ZBF301438, IPSWL1.4534.4-01, ABS 5442C, ABS 5259A, IPS 01-04-004 **Bombardier** EMCM-001-1013 **Liebherr** LAT1-9048
1.4542	BÖHLER N700	17-4 PH	EAF	S17400	A564	Z6CNU17.04 X5CrNiCuNb17 4 4	**Boeing** DMS QPL 2201, AMS 5643 **P&W** CPW-S-5643 **Snecma** DMD 229-20*
1.4545	BÖHLER N701	15-5 PH	EAF-VAR	S15500	A564	EZ5CNU15.15 X5CrNiCu15.05 EN 2815 EN 2817	**Airbus/Eurocopter** ASNA 3294, ASNA 3297, ASNA 6116, ABS 5750*, ABS 5455*, IPS 01-04-003-02* **Aircelle** HMDM0022 **Boeing** D1 4426 (PC660)* **Bombardier** EMCM-001-1013 **Goodrich**_AMS5659* **Liebherr** LAT 1-9037
1.4546	BÖHLER A750		EAF			X5CrNiNb18-10 Z6CNNb1810	**Airbus** ZBF1109, ZBF301438 **Boeing** DMS QPL 2201
1.4548	BÖHLER N700	17-4 PH	EAF-VAR		A564	EZ6CNU17.04 X5CrNiCuNb17 4 4	**Airbus** ZBF1109, ZBF301438 ; IPSWL1.4548 **Alenia** P19X316
1.4594	BÖHLER T670	520B	EAF	S45000		S143, S144	
1.4939	BÖHLER T552	Jethete	EAF or EAF-ESR	S64152		Z12CNDV12	**GE** C50TF68 **Snecma** DMD 0242-20 **Turbomeca** AMS5719*
1.4943 **1.4944**	BÖHLER T200SA	A286	EAF-ESR	S66286		EnZ6NCT25 EN2303	**Rolls Royce** MSRR 6532
1.4944	BÖHLER T200	A286	EAF-ESR	S66286		EnZ6NCT25 EN2303	**Snecma** DMD 0274-22 **Turbomeca** AMS 5732*, MSRR 6688* **Rolls Royce** MSRR 6531
1.6354	BÖHLER V300	Maraging 300	VIM-VAR			EZ2NKD18 ~X2NiCoMo18-9-5	
1.6359	BÖHLER V250	Maraging 250	VIM-VAR			X2NiCoMo18-8-5	**Messier Dowty** MAT102
1.6604	BÖHLER V145	30CND8	EAF			30CND8 30CrNiMo8	**Airbus** ZBF1109, ZBF301438
1.6722	BÖHLER E108		EAF or EAF-VAR			EN2767 16NCD17	**Liebherr** LAT 1-9043
1.6745	BÖHLER V118S1		EAF			~40NiMoCr10-5	**Bombardier** EMCM-001-1013
1.7734 **1.7736**	BÖHLER V354	15CDV6	EAF or EAF-ESR			E 15CDV6 ~14CrMoV6 9	**Airbus** ZBF1109, ZBF301438
1.7765 ~	BÖHLER V361	E32CDV13	VIM-VAR			E32CDV13	**Eurocopter** ASNA 6128*, ANSA6123*
1.8523	BÖHLER V358	E40CDV12	EAF-VAR			E40CDV12	
2.4632	BÖHLER L090	Alloy 90	VIM-VAR	N07090	B637	NCK20TA NiCr20Co18Ti	**MTU** MTS 1042-2*
2.4654	BÖHLER L303	Waspaloy	VIM-VAR	N07001	B637	NC20K14 NiCr19Co14MoTi	**Snecma** DMD 0426-22** on request
2.4665	BÖHLER LHX	Alloy X	VIM-ESR	N06002	B572	NC22FeD	**GE** B50TF31-A **Snecma** DMD 491-23 ** on request
2.4668	BÖHLER L718	Alloy 718	VIM-VAR	N07718	B637	NiCr19NbMo NC19FCNb	**Boeing** D1 4426 (PC696)* **GE** B50TF15 A/D/E; C50TF6 only melting process and chemistry, spec is for forged parts; B50A809* **Goodrich** AMS5662* **MTU** MTS 1424-1*, MTS 1424-3* **P&W** PWA-S-5662 Cl.2, PWA-S-5663 Cl.2 **Snecma** DMD 424-22 ** on request
2.4856	BÖHLER L625	Alloy 625	VIM-ESR	N06002	B446-03 G1 B564-06A	NiCr22Mo9Nb NC22DNb	**Honeywell** EMS 55425P cond B **Snecma** DMD 491-23 ** on request

SELECTION ACCORDING TO AMS

AMS	BÖHLER grade	Market grade	Melting route	UNS	ASTM	Others	Industry specifications
5629	BÖHLER N709	13-8 Mo	VIM-VAR	S13800	A564	EZ3CNDA 13-8 X3CrNiMoAl13-8-2 EN 3357 EN 3358	**Airbus** ZBF1109, ZBF301438, IPSWL1.4534.4-01, ABS 5442C, ABS 5259A, IPS 01-04-004 **Bombardier** EMCM-001-1013 **Liebherr** LAT1-9048
5643	BÖHLER N700	17-4 PH	EAF	S17400	A564	Z6CNU17.04 X5CrNiCuNb17 4 4	**Boeing** DMS QPL 2201, AMS 5643 **P&W** CPW-S-5643 **Snecma** DMD 229-20*
5646	BÖHLER A750		EAF			X5CrNiNb18-10 Z6CNNb1810	**Airbus** ZBF1109, ZBF301438 **Boeing** DMS QPL 2201
5659	BÖHLER N701	15-5 PH	EAF-VAR	S15500	A564	EZ5CNU15.15 X5CrNiCu15.05 EN 2815 EN 2817	**Airbus/Eurocopter** ASNA 3294, ASNA 3297, ASNA 6116, ABS 5750*, ABS 5455*, IPS 01-04-003-02* **Aircelle** HMDM0022 **Boeing** D1 4426 (PC660)* **Bombardier** EMCM-001-1013 **Goodrich**_AMS5659* **Liebherr** LAT 1-9037
5659	BÖHLER N701AMS	15-5 PH	EAF-VAR		A564	EZ5CNU15.15 X5CrNiCu15.05	**Liebherr** LAT 1-9037 Cond A; only AMS5659
5666	BÖHLER L625	Alloy 625	VIM-ESR	N06002	B446-03 G1 B564-06a	NiCr22Mo9Nb NC22DNb	**Honeywell** EMS 55425P cond B **Snecma** DMD 491-23 ** on request
5719	BÖHLER T552	Jethete	EAF or EAF-ESR	S64152		Z12CNDV12	**GE** C50TF68 **Snecma** DMD 0242-20 **Turbomeca** AMS5719*
5754	BÖHLER LHX	Alloy X	VIM-ESR	N06002	B572	NC22FeD	**GE** B50TF31-A **Snecma** DMD 491-23 ** on request
5773	BÖHLER T671SB	Custom 450	EAF-ESR				
5829	BÖHLER L090	Alloy 90	VIM-VAR	N07090	B637	NCK20TA NiCr20Co18Ti	**MTU** MTS 1042-2*
5898	BÖHLER N360	X30	EAF-ESR			X30CrMoN15-1	**FAG** FL-LA2486 1SX
6265	BÖHLER E105	9310	EAF-VAR or VIM-VAR			AISI 9310	**Agusta** 199-20-005
6278	BÖHLER R350	M50 Nil	VIM-VAR			E13DCNV40	**GE** B50TF211*
6414	BÖHLER V124SC	4340	EAF-ESR or EAF-VAR	G43400		SAE 4340 ~40NiCrMo6 ~E40NCD7	**Agusta** 199-20-007 **Bombardier** EMCM-001-1013
6444	BÖHLER R100	52100	EAF-VAR or VIM-VAR			100Cr6 E100C6	
6481	BÖHLER V361	E32CDV13	VIM-VAR			E32CDV13	**Eurocopter** ASNA 6128*, ANSA6123*
6491	BÖHLER R250	M50	VIM-VAR			E80DCV40	**GE** C50TF56* **P&W** PWA793*,CPW 378* **Snecma** DMD119-20*
6512	BÖHLER V250AMS	Maraging 250	VIM-VAR			EZ2NKD18-8-5	**Liebherr** LAT 1-9018
6514	BÖHLER V300	Maraging 300	VIM-VAR			EZ2NKD18 ~X2NiCoMo18-9-5	
5618 **5630**	BÖHLER N695	440C	EAF or EAF-VAR	S44004		X105CrMo17 X102CrMo17 Z100CD17	
5622 **5643**	BÖHLER N700	17-4 PH	EAF-VAR		A564	EZ6CNU17.04 X5CrNiCuNb17 4 4	**Airbus** ZBF1109, ZBF301438 ; IPSWL1.4548 **Alenia** P19X316
5662 **5663**	BÖHLER L718	Alloy 718	VIM-VAR	N07718	B637	NiCr19NbMo NC19FCNb	**Boeing** D1 4426 (PC696)* **GE** B50TF15 A/D/E; C50TF6 only melting process and chemistry, spec is for forged parts; B50A809* **Goodrich** AMS5662* **MTU** MTS 1424-1*, MTS 1424-3* **P&W** PWA-S-5662 Cl.2, PWA-S-5663 Cl.2, **Snecma** DMD 424-22 ** on request
5704 **5706** **5707**	BÖHLER L303	Waspaloy	VIM-VAR	N07001	B637	NC20K14 NiCr19Co14MoTi	**Snecma** DMD 0426-22** on request
5731 **5732**	BÖHLER T200	A286	EAF-ESR	S66286	B637	EnZ6NCT25 EN2303	**Snecma** DMD 0274-22 **Turbomeca** AMS 5732*, MSRR 6688* **Rolls Royce** MSRR 6531

* Specific customer approval for a specific size or product range

EXPERTISE IN ALL MATERIAL MATTERS

Main System Approvals

» TÜV Süd	EN 9100:2016, AS 9100D
Jet Engines	
» GE Aviation	S1000
» ITP	AS9100
» MTU	MTV
» NHBB	AS9100
» Pratt & Whitney	LCS/MCS
» Rolls Royce	SABRE
» SAFRAN	QDR-01 / GRP-0125
» SKF Aeroengines	IHA-0064
Air Frame	
» Leonardo	AQM-002, A/0698
» Airbus Germany	QVA-V06-02-00
» Airbus UK Ltd.	AUK/SA/001-3 / 228415
» BAE Systems (operations) Ltd.	BAE/AG/QC/SC1 Parts 1 to 7
» BAE Systems Regional Aircraft	RALOA/00503/3 Appendix 1
» BOEING	D1-4426
» Bombardier Aerospace	EMCM001, Code 1013
» Gulfstream	SQAR - 0003
» United Technologies	ASQR-01
» Hawker Beechcraft Corp.	Code HBIFSAS/Part3/0815
» Korean Air	KQMSS-A-05-022
» Safran Landing Systems	GRP 0087
» Westland Helicopters	code V08122
» Spirit Aerosystems (Europe)	AERO-ALL-QU-SC-ALL-125

Laboratory Approvals

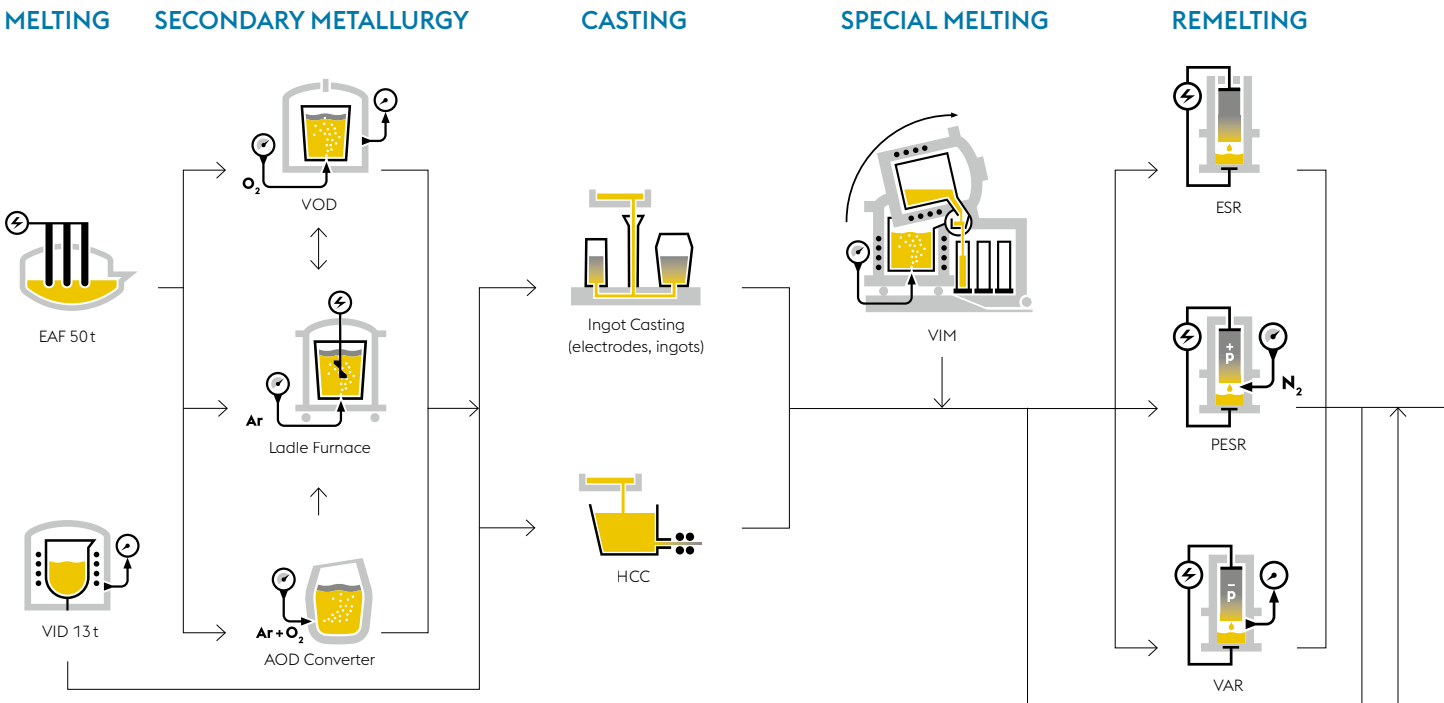
» NADCAP	Chemical, Mechanical, Corrosion Testing, Metallography and Hardness, Heat treatment
» GE Aviation	S400
» Pratt & Whitney	LCS/MCS MCL F17
» SAFRAN	FAL n°310 acc. PRO 0430
» Rolls Royce	MSRR 9951
» Airbus France	MM 049
» BOEING	D1-4426

NDT Approvals

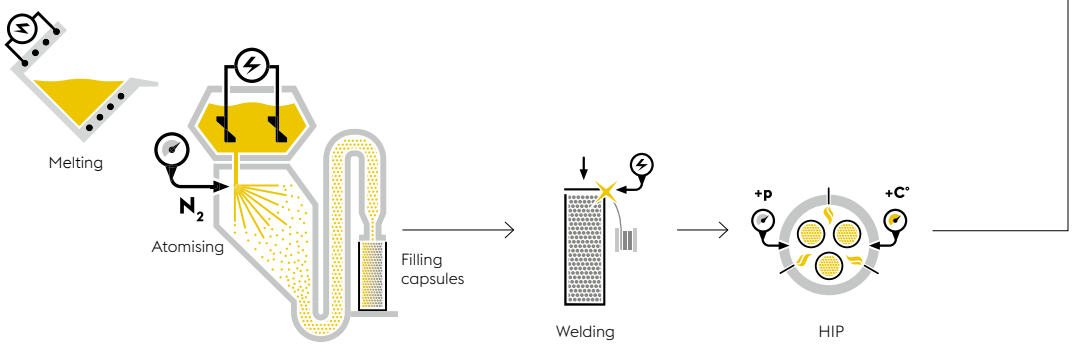
» NADCAP	AMS-STD 2154
» GE Aviation	P3TF34, P3TF15
» Pratt & Whitney	SIM 14, SIS 45
» Pratt & Whitney, Canada	CPW 382
» SAFRAN	DMC0022 / Pr-5125
» Rolls Royce	RRP 58002
» Gulfstream	GAMPS 9102
» BOEING	D1-4426

TRENDSETTING TECHNOLOGIES FOR HIGHEST METALLURGICAL PERFORMANCE

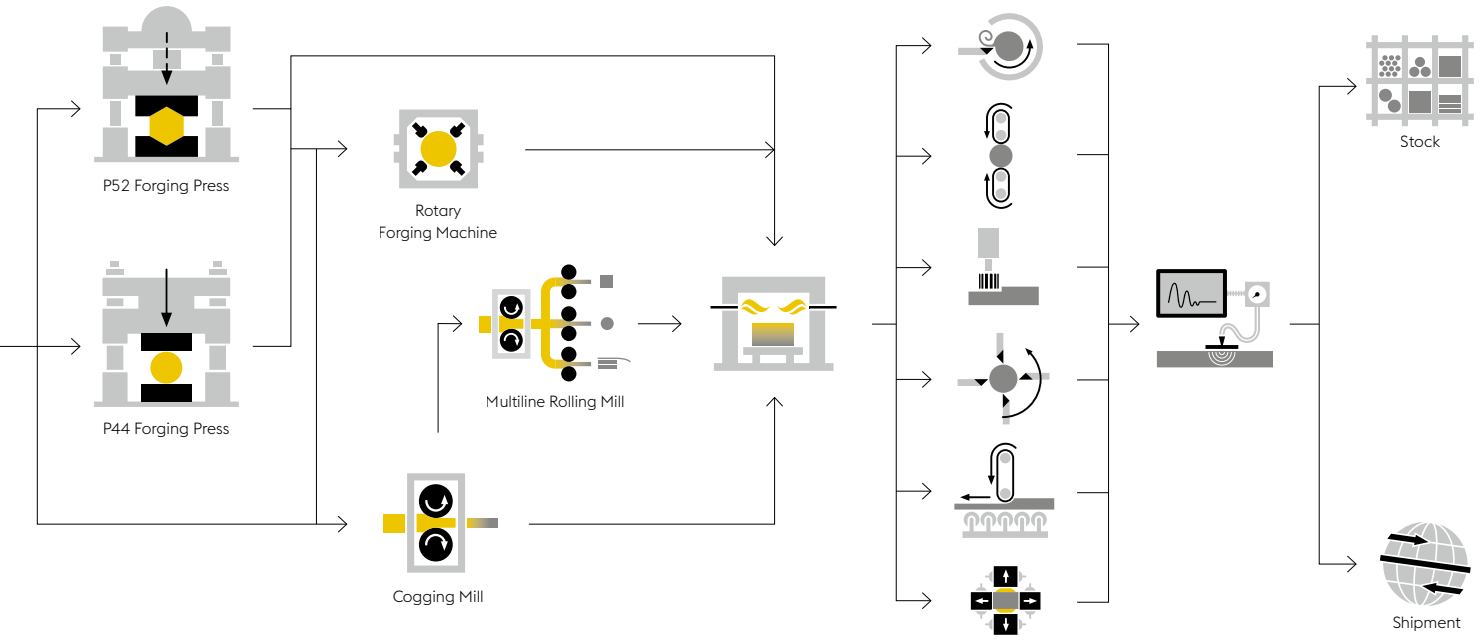
FLOW OF MATERIAL



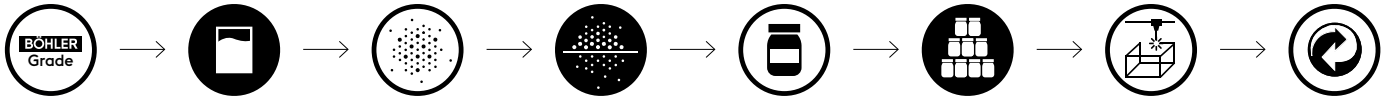
POWDER METALLURGY



ROLLING AND FORGING | HEAT TREATMENT | MACHINING | TESTING | DISPATCH



AMPO



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ONE STEP AHEAD.

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