

SEMI-FINISHED PRODUCTS

THINKING IN NEW DIMENSIONS WE PROVIDE THE RIGHT MATERIAL

voestalpine BÖHLER Edelstahl develops and produces special steels and superalloys for the most demanding applications.

As an internationally active company, we are committed to innovation – not only in metallurgy, but also in all other production processes. Our practiced and documented process reliability is the basis for extremely high material quality. With a product portfolio of more than 200 steel grades, we offer tailored material solutions for virtually all industries.

With our unique combination of melting and remelting plants, including EAF, VID, VIM, ESR and VAR, we set worldwide standards for metallurgy that is completed by hot forming, finishing and material testing.

This expertise, combined with high flexibility and extraordinary service awareness during and after the order process, makes us a reliable partner for customers that place high priority on the quality and reliability of semi-finished products.





P44 FORGING PRESS



ROTARY FORGING MACHINE

P52 FORGING PRESS

WE SHARE THE SAME GOALS WE FOCUS ON YOUR END PRODUCT



As a manufacturer of semi-finished products, our role within the supply chain is primarily dependent on our customers. Together, we must be able to deliver reliable products of consistently high quality – in this way, we create satisfaction and ensure risk-free investment.

Semi-finished products are used in die forging, ring rolling, hammer forging, and extrusion of seamless tubes and profiles. Wherever extremely high demands are placed on precursor materials, voestalpine BÖHLER Edelstahl is a reliable partner for you. The following business sectors are particularly noteworthy in this connection:

- » **Chemical and petrochemical industry**
- » **Oil and gas industry**
- » **Power plant engineering**
- » **Mechanical engineering**
- » **Mechanical engineering for vehicles and ships**



TRENDSETTING TECHNOLOGIES FOR METALLURGICAL TOP PERFORMANCE

FLOW OF MATERIAL

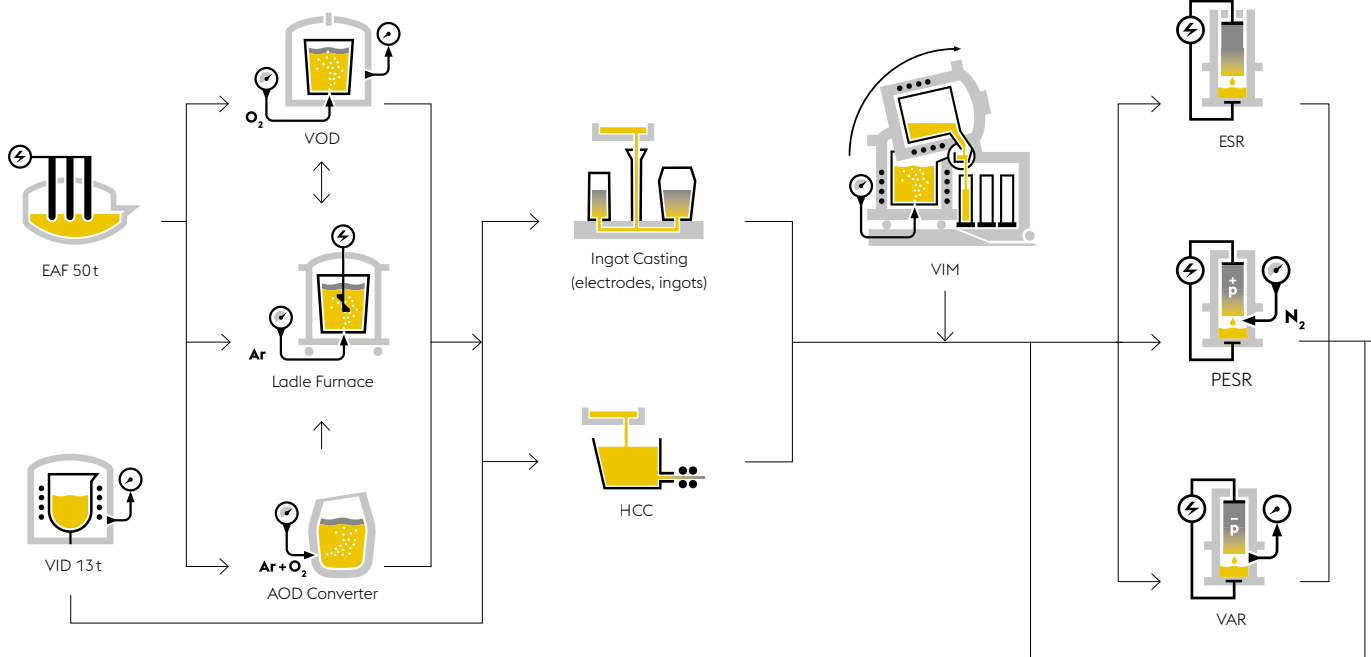
MELTING

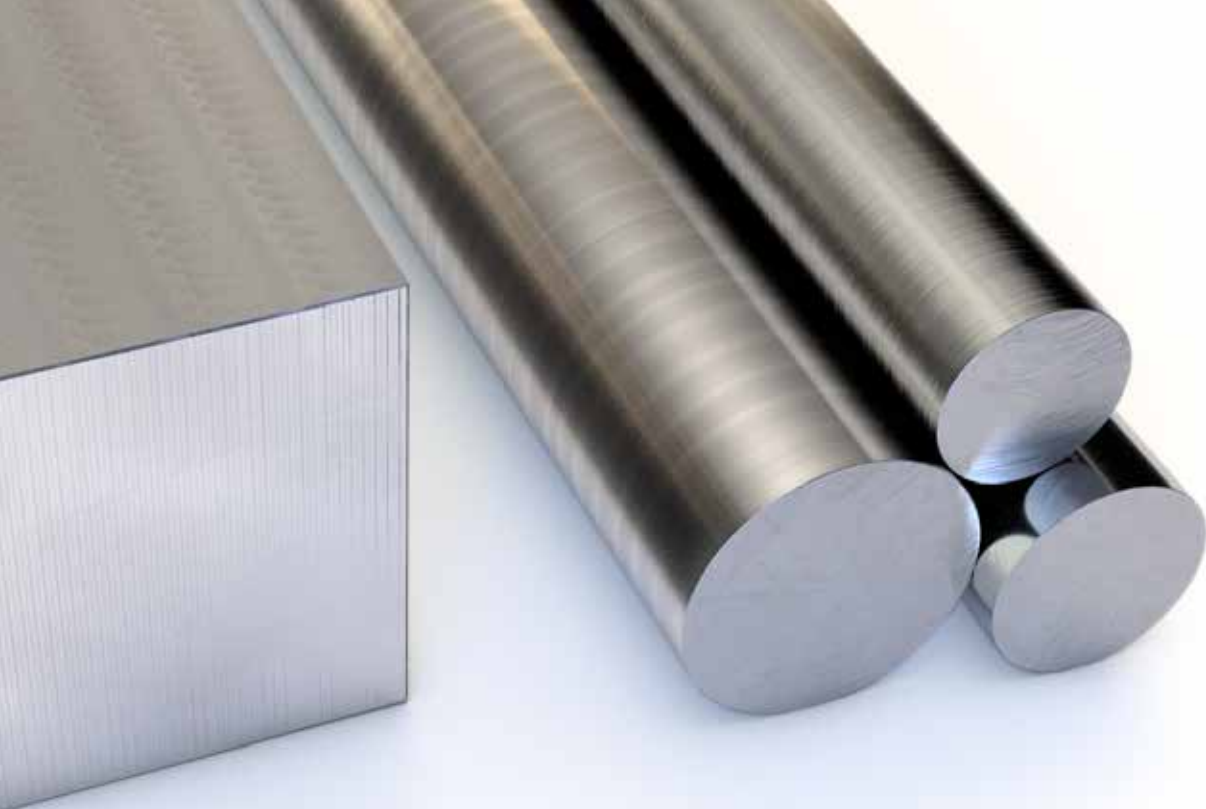
SECONDARY METALLURGY

CASTING

SPECIAL MELTING

REMELTING





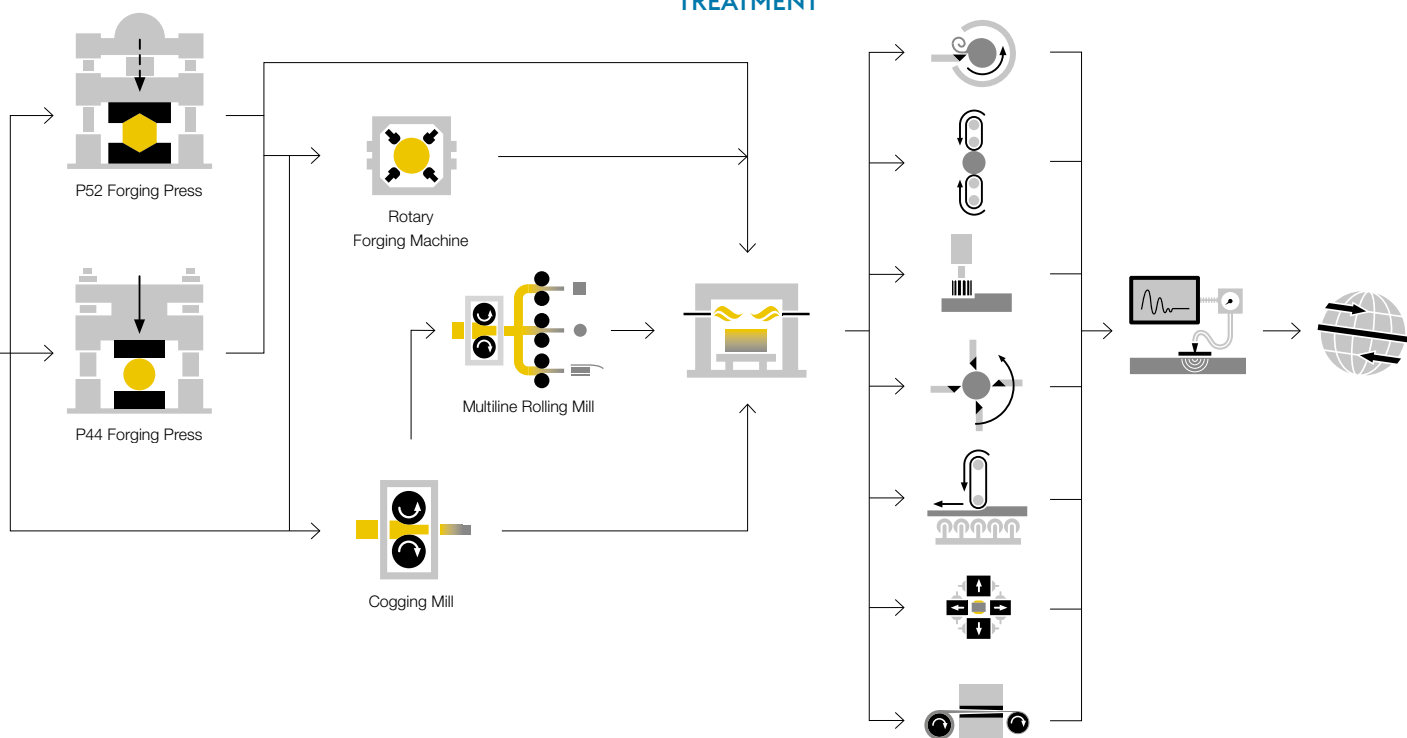
ROLLING AND FORGING

HEAT TREATMENT

MACHINING

TESTING

DISPATCH



















YOUR MATERIALS FOR YOUR APPLICATIONS


















BILLET BUSINESS – PRODUCTION PROGRAM

AISI / ASTM others	BÖHLER grade	Process	Minimum order quantity	Surface condition	Size range in mm	Standards
Duplex						
F51	BÖHLER A903	EAF	Yield of one ingot	machined	DIA 55-650 RCS 60-590	EN 10088 - 1.4462 - X2CrNiMoN 22-5-3 / ASTM A182, A276, A479 - S31803 - S32205
Super-Duplex						
F55	BÖHLER A911SA	EAF	Yield of one ingot	machined	DIA 15-500 RCS 60-380	EN 10088 - 1.4501 - X2CrNiMoCuWN 25-7-4 / ASTM A182, A276, A479 - S32760
F53	BÖHLER A913	EAF	Yield of one ingot	machined	DIA 15-500 RCS 60-380	EN 10088 - 1.4410 - X2CrNiMoN 25-7-4 / ASTM A182, A276, A479 - S32750
F61	BÖHLER A930	EAF	30-35 to	machined	DIA 15-500 RCS 60-380	EN 10088 - 1.4507 - X2CrNiMoCuN 25-6-3 / ASTM A182, A276, A479 - S32550
Austenitic						
1.3964	BÖHLER P501	VID EAF	6-8 to 30-35 to	machined	DIA 15-550 RCS 65-450	EN 10204 - 1.3964 - X2CrNiMnMoNnb 21-16-5-3 / SEW 390
1.3974	BÖHLER P503	VID EAF	6-8 to 30-35 to	machined	DIA 15-500 RCS 65-450	EN 10204 - 1.3974 - X2CrNiMnMoNnb 23-17-6-3 / SEW 390
Nitronic 50	BÖHLER P511	VID EAF	Yield of one ingot	machined	DIA 15-550 RCS 65-450	ASTM A182, A276, A479 - S20910 - XM19
Nitronic 60	BÖHLER P513	EAF VID	Yield of one ingot	machined	DIA 110-305 RCS 110-270	ASTM A276, A314, A479, A484 - S21800
660	BÖHLER T200	EAF+ESR	Yield of one ingot	machined	DIA 15-600 RCS 60-300	EN 10088, 10269 - 1.4980, 1.4944 - X6NiCrTiMoVB 25-15-2 / AMS 5731, 5732 - S66286 - A286
316 LN	BÖHLER T249	VID EAF	6-8 to 30-35 to	machined	DIA 15-400 RCS 60-270	EN 10269, - 1.4910 - X3CrNiMoBN 17-13-3 / ASTM B462, B473 - S31653 - AISI 316 LN
Super-Austenitics						
904L	BÖHLER A962RC	VID EAF	6-8 to 30-35 to	machined	DIA 15-300 RCS 60-270	EN 10088 - 1.4539 - X1NiCrMoCu 25-20-5 / ASTM A182 - N08904
Alloy 31	BÖHLER A952	VID EAF	6-8 to 30-35 to	machined	DIA 110-400 RCS 110-360	EN 10088 - 1.4562 - ASTM B564, B649 - N08031
F44	BÖHLER A965SA	VID EAF	6-8 to 30-35 to	machined	DIA 15-300 RCS 60-282	EN 10088 - 1.4547 - X1CrNiMoCuN 20-18-7 / ASTM A182, A276, A479 - S31254
AISI 310 MoLN	BÖHLER A405RA	EAF	30-35 to	machined	DIA 15-325 RCS 60-270	EN 10088, 1.4466 - X1CrNiMoN25-22-2 - F310MoLN, ASTM A182 - S31050
Alloy 28	BÖHLER A959	VID EAF	6-8 to 30-35 to	machined	DIA 15-350 RCS 60-270	EN 10088, 1.4563 - X1NiCrMoCu31-27-4 - ASTM B668 - N08028

AISI/ASTM others	BÖHLER grade	Process	Minimum order quantity	Surface condition	Size range in mm	Standards
Heat Resisting Steels						
800/800H/ 800HT	BÖHLER H500*	VID EAF	6-8 to 30-35 to	machined	DIA 15-400 RCS 60-250	EN 10095 - 1.4876 - X10NiCrAlTi 32-21/ ASTM B564
Type 314	BÖHLER H525	VID EAF	6-8 to 30-35 to	machined	DIA 15-570 RCS 60-520	EN 10095 - 1.4841 - X15CrNiSi25-21 / ASTM A276, A314 - S31400
Nickel-Martensitic						
F6NM	BÖHLER N400	EAF	Yield of one ingot	machined	DIA 15-1,110 RCS 60-984	EN 10088 - 1.4313 - X3CrNiMo 13-4 / ASTM A182 - S41500
1.4418	BÖHLER N404	EAF	Yield of one ingot	machined	DIA 15-510 RCS 60-460	EN 10088 X4CrNiMo 16-5-1
PH-Grades						
17-4 PH	BÖHLER N700SA	EAF	Yield of one ingot	machined	DIA 15-415 RCS 60-310	EN 10088 - 1.4548 - 1.4542 - X5CrNiCuNb 17-4 / ASTM A564 - S17400 - Type 630
17-4 PH	BÖHLER N700	EAF+ESR	Yield of one ingot	machined	DIA 15-650 RCS 60-450	EN 10088 - 1.4548 - 1.4542 - X5CrNiCuNb 17-4 / ASTM A564 - S17400 - Type 630
17-4 PH	BÖHLER N700	EAF+VAR	Yield of one ingot	machined	DIA 15-350 RCS 60-310	EN 10088 - 1.4548 - 1.4542 - X5CrNiCuNb 17-4 / ASTM A564 - S17400 - Type 630
15-5 PH	BÖHLER N701SD	EAF+ESR	30-35 to	machined	DIA 15-600 RCS 60-450	1.4545 - X5CrNiCuNb 15-5 / ASTM A564 - XM12 - S15500
15-5 PH	BÖHLER N701	EAF+VAR	Yield of one ingot	machined	DIA 15-350 RCS 60-340	1.4545 - X5CrNiCuNb 15-5 / ASTM A564 - XM12 - S15500

BILLET BUSINESS – PRODUCTION PROGRAM

AISI / ASTM others	BÖHLER grade	Process	Minimum order quantity	Surface condition	Size range in mm	Standards
Creep-Resisting Steels						
X22		EAF	Yield of one ingot	machined	DIA 15-700 RCS 60-590	EN 10302, 10222 - 1.4922 - 1.4923 - 1.4926 / X20CrMoV 12-1, 11-1
X22		EAF+ESR	30-35 to	machined	DIA 15-890 RCS 60-835	EN 10302, 10222 - 1.4922 - 1.4923 - 1.4926 / X20CrMoV 12-1, 11-1
XM-32		EAF	Yield of one ingot	machined	DIA 15-350 RCS 60 -300	EN 10088 - 1.4021 / X20Cr13 / ASTM A276 - S42000 - AISI 420
XM-32		EAF+ESR	Yield of one ingot	machined	DIA 15-800 RCS 60-700	EN 10088 - 1.4021 / X20Cr13 / ASTM A276 - S42000 - AISI 420
AISI 420		EAF	Yield of one ingot	machined	DIA 15-250 RCS 60 - 220	EN 10088 - 1.4021 / X20Cr13 / ASTM A276 - S42000 - AISI 420
AISI 422		EAF+ESR	Yield of one ingot	machined	DIA 15-500 RCS 60-450	ASTM A565 - S42200 - AISI 422
P91		EAF	30-35 to	machined	DIA 15-700 RCS 60-625	EN 10302 - 1.4903 / X10CrMoVNB 9-1 / ASTM A 182 - K91560 - P91
P92		EAF	30-35 to	machined	DIA 15-700 RCS 60-650	EN 10216-2 - 1.4901 / X10CrWMoVNB 9-2 / ASTM A182 - K92460 - P92
1.4906		EAF	30-35 to	machined	DIA 15-350 RCS 60-300	1.4906 / X12CrMoWVNbN10-1-1 / SEW 555
1.4906		EAF+ESR	30-35 to	machined	DIA 15-800 RCS 60-700	1.4906 / X12CrMoWVNbN10-1-1 / SEW 555
1.4913		EAF	30-35 to	machined	DIA 15-250 RCS 60-220	EN 10269 - 1.4913 / X19CrMoNbVN 11-1
AISI 403/410		EAF	30-35 to	machined	DIA 15-250 RCS 60-220	EN 10088-3 - 1.4006 / X12Cr13 / ASTM A182 - S41000 - AISI 403/410
AISI 403/410		EAF+ESR	Yield of one ingot	machined	DIA 15-500 RCS 60-450	EN 10088-3 - 1.4006 / X12Cr13 / ASTM A182 - S41000 - AISI 403/410
1.4594		EAF	Yield of one ingot	machined	DIA 15-350 RCS 60-220	EN 10088-3 - 1.4594 / X5CrNiMoCuNb14-5
1.4594		EAF+ESR	Yield of one ingot	machined	DIA 15-350 RCS 60-220	EN 10088-3 - 1.4594 / X5CrNiMoCuNb14-5
XM-25		EAF+ESR	Yield of one ingot	machined	DIA 15-250 RCS 60-220	ASTM A564 - S45000 - XM-25

AISI / ASTM others	BÖHLER grade	Process	Minimum order quantity	Surface condition	Size range in mm	Standards
Nickel-Base-Alloys						
Alloy 625		VIM+ESR VIM+VAR	Yield of one ingot	black or machined	DIA 15-650* RCS 60-122 + RCS 150	2.4856 - N06625
Alloy 725		VIM+VAR	Yield of one ingot	black or machined	DIA 15-300	API6ACRA, ASTM B637, ASTM B805 – N07725
Alloy 718API		VIM+VAR	Yield of one ingot	black or machined	DIA 15-650*	API6ACRA, ASTM B637 - N07718
Alloy 718AMS		VIM+VAR	Yield of one ingot	black or machined	DIA 15-480	2.4668 - N07718
Alloy 925		VIM+VAR	Yield of one ingot	black or machined	DIA 15-400	API6ACRA, ASTM B637 - N09925
Alloy 59		VIM+VAR	Yield of one melt	black or machined	DIA 15-450 RCS 60-122 + RCS 150	2.4605 - N06059
Alloy C22		VID/VIM+ESR VIM+VAR	Yield of one ingot	black or machined	DIA 15-650* RCS 60-122 + RCS 150	2.4602 - N06022
Alloy C276		VID/VIM+ESR VIM+VAR	Yield of one ingot	black or machined	DIA 15-650* RCS 60-122 + RCS 150	2.4819 - N10276
Alloy C4		VID/VIM+ESR VIM+VAR	Yield of one ingot	black or machined	DIA 15-650* RCS 60-122 + RCS 150	2.4610 - N06455
Alloy X750		VIM+VAR	Yield of one melt	black or machined	DIA 15-300	ASTM B637 – N07750
Alloy G3		VID+ESR	Yield of one melt	black or machined	DIA 15-450 RCS 60-122 + RCS 150	2.4619 – N06985
Alloy 600		EAF/VID	Yield of one ingot	black or machined	DIA 15-500* RCS 60-122 + RCS 150	2.4816 - N06600
Alloy 825		EAF/VID	Yield of one ingot	black or machined	DIA 15-500* RCS 60-122 + RCS 150	2.4858 – N08825
Alloy 80A		VIM+VAR	Yield of one ingot	black or machined	DIA 15-400	2.4952 - N07080
Alloy 90		VIM+VAR	Yield of one melt	black or machined	DIA 15-400	2.4632 - N07090
Alloy 901		VIM+VAR	Yield of one melt	black or machined	DIA 15-300	2.4662 - N09901
Alloy 617		VID/VIM+ESR VIM+VAR	Yield of one ingot	black or machined	DIA 15-650* RCS 60-122 + RCS 150	2.4663 - N06617

* bigger diameters are in principle possible – please contact us for corresponding demands

CONDITIONS

Perfect initial condition for further processing:

- » **Rolled or forged**
- » **Degree of deformation $\geq 4:1$**
- » **Several surface finishes are possible**
- » **Ends are cut**



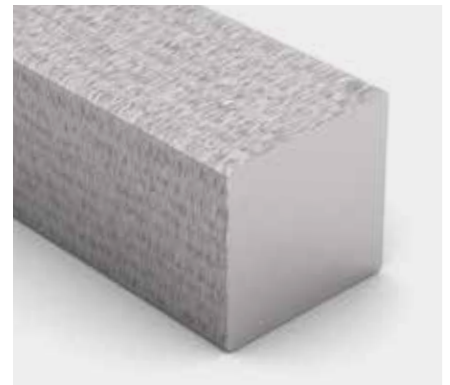
Forged billets peeled



Forged billets turned



Forged billets black



Forged billets bright ground



QUALITY

It goes without saying that all planning, production and test activities for the manufacture of semi-finished products are integrated in our quality assurance system. In conformance with national and international standards, we hold certifications from renowned auditing organizations, such as ISO 9001 and EN 29001. We deliver safety together with our products.

„NORSOK and VdTÜV approvals are available at voestalpine BÖHLER Edelstahl for specific steel bar dimensions, which must be agreed in detail with voestalpine BÖHLER Edelstahl within the order framework. Under certain conditions to be agreed on in detail, semi-finished products of these grades are also suitable for fulfilling the specifications of these VdTÜV or NORSOK data sheets after corresponding and proper further processing. These assurances can only be provided in agreement with voestalpine BÖHLER Edelstahl in the framework of the order.”

ALWAYS THE FIRST CHOICE

- » Worldwide known supplier of supreme quality material
- » State-of-the-art equipment in all shops
- » Cutting edge technology
- » We offer all known melting & remelting processes an routes – EAF, VID, VIM, ESR, PESR, VAR ...
- » Preferred partner of new products and product development
- » Attractive and reliable delivery times
- » Ongoing investments in advanced production facilities and technologies



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voestalpine

ONE STEP AHEAD.