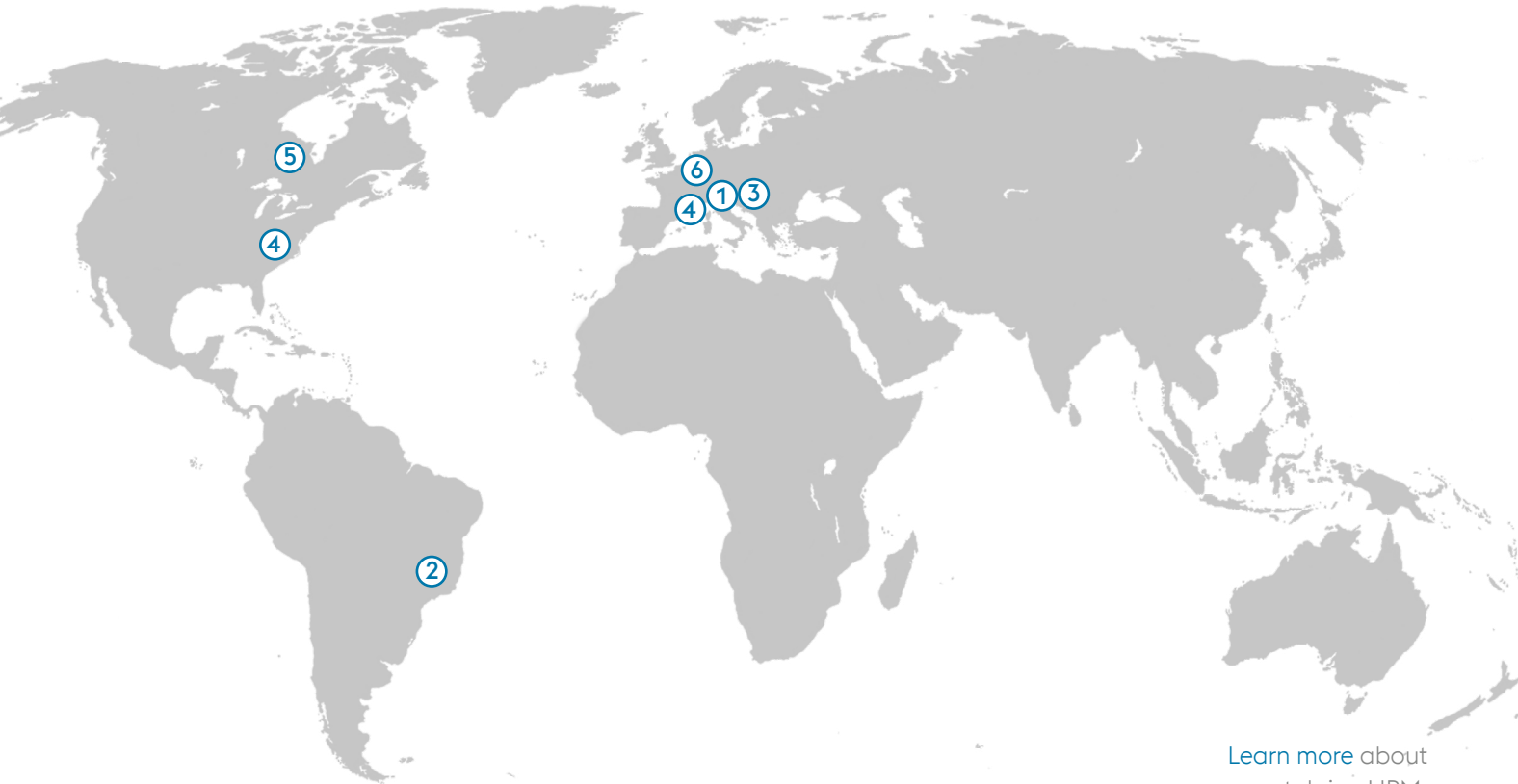




# MEDTECH

Materials for Medical Technology



Learn more about  
voestalpine HPM:



# OUR COMPANY GLOBAL AVAILABILITY

At voestalpine High Performance Metals, we deliver premium steel and non-ferrous alloys from a unified global network. With multiple production sites and over 130 sales and service locations worldwide, we ensure consistent quality and customer satisfaction across every product, service, and delivery.

- 1 **voestalpine Böhler Edelstahl – Kapfenberg, Austria:** One of the world's leading suppliers of high-speed steels, tool steels & specialty material.
- 2 **Villares Metals Brazil – Sumaré, Brazil:** Specializes in steel and specialty alloys that combine reliability, strength and customization.
- 3 **voestalpine Böhler Bleche – Mürtzzuschlag, Austria:** Delivers cross-rolled sheets and plates as well as products with exceptional uniformity in mechanical and physical properties.
- 4 **voestalpine HPM Switzerland – Pieterlen, Switzerland & voestalpine HPM USA- South Boston, Virginia:** They specialize in drawing and grinding services along with the rolling of special profiles.
- 5 **voestalpine HPM Canada – Toronto, Canada:** Focuses on designing and manufacturing custom 3D printed components.
- 6 **voestalpine eifeler Coating – Dusseldorf, Germany:** Develops and offers PVD and CVD coatings and runs service centers all over the world.

# MEDTECH APPLICATIONS

## STOMATOLOGY

With our possibilities in the field of bright steel, with the tightest tolerances up to h5, we serve a wide range of applications in the dental sector.



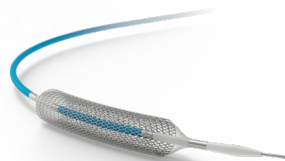
## SURGERY

With our portfolio of martensitic materials, but above all our precipitation-hardenable steels such as 17-4PH, Alloy 455 or Alloy 465, we cover everything that is needed in the field of high-alloy instruments in the MedTech sector.



## CARDIOLOGY

From small diameters in bright steel or the finest wires in round and flat, to stainless steel or a nickel-cobalt alloy, we offer a complete product range in the field of cardiology.



## ORTHOPEDICS

Thanks to our top grades CoCrMo and Hi-Nitrogen (1.4472) as well as our remelting possibilities in ESR, VIM/VAR or even double VAR, we offer the full package for the orthopedic field.



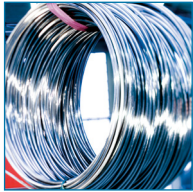
# OUR PRODUCTS

	voestalpine Solution		Material Code			Standards	
	BÖHLER	Villares	DIN	AISI	UNS	ASTM	ISO
Austenitic Steel	A220SC	-	1.4441	~ 316L	S31673	F138/F139	5832-1
	-	VI138	1.4441	~ 316L	S31673	F138/F139	5832-1
	P504	-	1.4472	-	S31675	F1586	5832-9
	-	VI58329	1.4472	-	S31675	F1586	5832-9
	P558	-	1.3808	-	S29225	F2581	-
	P511	-	-	-	S20910	F1314	-
	P513	-	-	-	S21800	F899	-
	A501	-	1.4301	304V	S30400	A313	-
	-	-	1.4310	-	S30117	F899	-
Martensitic Steel	N320	-	1.4021	420A	S42000	F899	-
	N324	-	1.4197	420F mod.	-	F899	-
	N530SE	-	1.4028	420B	S42000	F899	-
	N540	-	1.4034	420C	S42000	F899	-
	-	-	1.4035	420F	S42020	F899	-
	-	-	1.4105	430F	S43020	F899	-
	N360	-	1.4108	-	S42027	F899	-
	N664	-	-	440A	S44002	F899	-
	N685	-	1.4112	-	-	-	-
	N695	-	1.4125	440C	S44004	F899	-
PH-Grades	N700SA	V630	1.4542	630	S17400	F899	-
	N700	-	1.4542	630	S17400	F899	-
	N709	N4534	1.4534	-	S13800	F899	-
	N713	-	1.4543	-	S45500	F899	-
	N765	-	1.4614	-	S46500	F899	-
NiCo-Alloy/ Co-Alloy	L035	VF 562QI	2.4999	-	R30035	F562	5832-6
	L605	-	2.4964	-	R30605	F90	5832-5
	L135	-	-	-	R31537	F1537	5832-12
	L140	-	-	-	-	-	-
	L150	-	-	-	-	-	-
	-	VMPF126Cr	-	-	R30075	cap. to meet F75	-
Titanium Alloy	L512	-	3.7035	-	R50400	B265/F67	5832-2
	L514	-	3.7065	-	R50700	B265/F67	5832-2
	L533	-	3.7165	-	R56407	B265/F136	5832-3
AM Powder	L175 AMPO	-	-	-	R30075	F75 (chem.)	-
	M789 AMPO	-	BÖHLER patent	-	-	-	-
	N700 AMPO	-	1.4542	-	-	-	-

Other	Melting	Typical Application		Contact Duration	
		Implant	Instrument	A: limited (<24h)	C: long-term (>30d)
-	Airmelted + ESR	●	●	●	●
-	Airmelted + ESR	●	●	●	●
REX 734	Airmelted + ESR	●	-	-	●
REX 734	Airmelted + ESR	●	-	-	●
-	Airmelted + ESR	●	●	●	●
Nitronic 50/XM19	Airmelted + ESR	●	●	●	●
Nitronic 60	Airmelted	●	●	●	●
-	Airmelted + VAR	●	●	●	●
-	Airmelted	-	●	●	-
-	Airmelted	-	●	●	-
-	Airmelted	-	●	●	-
-	Airmelted	-	●	●	-
-	Airmelted	-	●	●	-
-	Airmelted	-	●	●	-
-	Airmelted + ESR	●	●	●	●
-	Airmelted	-	●	●	-
-	Airmelted + ESR	-	●	●	-
-	Airmelted + ESR	-	●	●	-
17-4PH	Airmelted	-	●	●	-
17-4PH	Airmelted + ESR	-	●	●	-
13-8Mo/XM13	VIM + VAR	-	●	●	-
455	Airmelted + ESR	-	●	●	-
465	VIM + VAR	-	●	●	-
MP35N	VIM + VAR	●	●	●	●
L-605	Airmelted + ESR	●	●	●	●
CoCrMo	Airmelted + ESR	●	●	●	●
CoCrWo	Airmelted + ESR	-	●	-	●
CoCrMo	Airmelted + ESR	-	●	-	●
CoCrMo	Airmelted + ESR	-	●	-	●
Ti-Gr. 2	EBCH + VAR	●	-	-	●
Ti-Gr. 4	EBCH + VAR	●	-	-	●
TiAl6V4/Ti-Gr. 23	EBCH + VAR	●	-	-	●
CoCrMo	VIGA	●	-	-	●
-	VIGA	-	●	●	-
17-4PH	VIGA	-	●	●	-

# PRODUCT VERSIONS AND DELIVERY SIZES

## WIRE ROD



- » Ø 5 – 15.5mm
- » pickled
- » blasted & pickled
- » hot rolled
- » in various executions

## HIGH-PRECISION WIRE



- » Ø 0.7 – 12mm
- » on coils
- » flat profiles 0.5 – 40mm<sup>2</sup> cross-sectional area

## BRIGHT STEEL



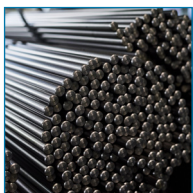
- » Ø 0.7 – 100mm
- » cold drawn/ ground
- » peeled/ ground
- » tolerances: h9 – h6 & special tolerances

## FLAT BAR



- » hot rolled
- » blasted
- » pickled
- » surfaces ground
- » dimensions on request

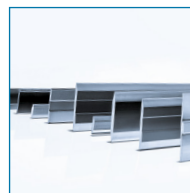
## ROUND BAR



- » Ø 12.5 – 130mm\*
- » production length
- » in special lengths

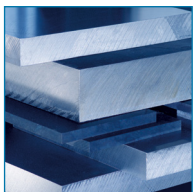
\*larger on request

## SHAPED PROFILES - ROLLED/ DRAWN



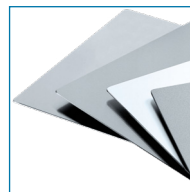
- » on coils
- » in rings
- » straightened in bars

## PLATES/ SHEETS



- » thickness 1.0 – 100mm
- » commercial sizes
- » customized
- » in various executions (sawn, ground, 6-side-machined,...)

## TITANIUM PLATES/ SHEETS (upon request)



- » thickness 1.8 – 100mm
- » cross rolled
- » pickled/ ground

## IN COOPERATION WITH EXTERNAL PARTNERS

### HIGH-PRECISION WIRE & ROD



- » rods Ø 0.15 – 4mm
- » wire Ø 0.005 – 4mm
- » micro flatwire 0.05 – 4mm x 0.01 – 2mm
- » special profiles
- » precisely offset on spools or rings

### TITANIUM FOIL & GRINDING (upon request)



- » titanium foil 0.01 – 2mm
- » Swiss vacuum grinding (for plates, sheets & foils)
- » tightest tolerances possible

# SUSTAINABILITY AND CIRCULAR ECONOMY

## THE LATEST TECHNOLOGY AND NEWEST ENVIRONMENTAL STANDARDS

At all our production sites, we set new standards for production quality, process reproducibility, and environmental impact. In addition to using resources responsibly, we are constantly implementing new measures for environmentally friendly processes and production.

The most important raw material is metal scrap. Therefore, establishing closed material loops internally and with customers is essential to ensure a sustainable supply chain, reduce our usage of primary raw materials and improve our carbon footprint.

With our integration of products, services and technical advisory, we drive meaningful change across our business sectors.



Learn more about  
inSPire, our sustainability initiative:



Reducing **CO<sub>2</sub> emissions**  
by **50 %** in our operations  
by 2029



Using **over 90% of recycled**  
scrap and secondary raw  
materials in our production  
processes by 2030



Contributing to the voestalpine  
group target of reducing **CO<sub>2</sub>**  
**emissions by 25% in our supply**  
**chain** by 2029

## QUALITY CERTIFICATIONS

As a leading global supplier of steel and non-ferrous alloys, we are committed to achieving customer satisfaction in every decision, product, service and delivery. Our materials are designed and manufactured to the highest quality standards. In order to guarantee reliable and safe products, we maintain a high level of quality in all of our production units and ensure that our processes are duly certified.

### voestalpine Böhler Edelstahl

- » EN/ ISO 9001
- » EN/ ISO 9100
- » EN/ ISO 14001
- » ISO 17025 (Lab)

### Villares Metals Brazil

- » EN/ ISO 9001
- » ISO 13485
- » EN/ ISO 14001
- » ISO 17025 (Lab)

### voestalpine Böhler Bleche

- » EN/ ISO 9001
- » EN/ ISO 9100
- » EN/ ISO 14001
- » ISO 17025 (Lab)

### voestalpine HPM Switzerland

- » EN/ ISO 9001
- » ISO 13485
- » EN 9120

### voestalpine HPM Canada

- » EN/ ISO 9001
- » ISO 13485
- » AS 9100-D

### voestalpine HPM USA

- » EN/ ISO 9001





# EIFELER MEDTECH COATINGS

## EIFELER PVD COATINGS

**Our coatings are designed to meet the real-world challenges of medical applications:**

- » A surgical instrument must not only cut – it must remain sharp after repeated sterilization cycles
- » A dental implant abutment must not only fit – it must be easy to insert, prevent screw fractures, and appear invisible to the patient
- » A bone saw must not only move – it must glide smoothly, without lubricants, without failure.

At the heart of every high-performing medical device lies a surface engineered for excellence. Our PVD (Physical Vapor Deposition) coatings are created in high vacuum environments by vaporizing metal and introducing reactive gases. With temperatures starting from 200 °C (392 °F), we deposit ultra-thin layers ranging from 1 to 6 µm, tailored to meet the most demanding specifications.

In our state-of-the-art medical technology center we equip your medical tools, instruments and dental abutments with unique properties:

- » Robust
- » Abrasion-resistant
- » Low friction
- » Decorative










# COATING PORTFOLIO

With our own research and development department, we work every day to further improve the coatings for various applications – always with a focus on customer benefit. We take quality just as seriously as you do: The biomedical PVD coatings have been individually tested in accordance with ISO 10993.

You will receive all coatings with corresponding analytical quality documentation. We also leave nothing to chance when it comes to PVD coating systems: We build the systems ourselves, ensuring that both the equipment and the processes are validated according to medical standards.

You can be confident: eifeler PVD systems always incorporate the latest PVD coating technology, and coating recipes can be customized specifically for your application. The recipes are controlled via PLC and enable consistent and reproducible processing.

The integrity of your components is ensured through detailed process controls such as barcode tracking, incoming inspections, and in-process checks – always with a focus on batch and component quality. We develop MedTech coatings that solve your technical, regulatory, and application-specific challenges – delivering reliability where it matters most.

voestalpine Solution	Characteristics					
	Bio-Compatibility	Food Contact Conformity	Hardness (HV)	Coefficient of Friction	Layer Thickness (µm)	Color
eifeler-Med TiN	ISO 10993	EC 1935/2004	2,300 ±500	0.6	1 – 4	gold 
eifeler-Med TiCN	ISO 10993	EC 1935/2004	3,500 ±500	0.2	1 – 4	silver gray 
eifeler-Med AlTiN	ISO 10993	EC 1935/2004	3,300 ±300	0.7	2 – 5	anthracite 
eifeler-Med ZrN	ISO 10993	EC 1935/2004	2,800 ±300	0.5	1 – 4	light yellow 
eifeler-Med CrN	ISO 10993	EC 1935/2004	2,000 ±600	0.3 – 1.4	1 – 6	slate gray 
eifeler-Med ZrCN	ISO 10993	-	3,100 ±300	0.5	1 – 4	silver brown 
SUCASLIDE®	ISO 10993	-	1,000 ±200	0.05 – 0.1	0.5 – 2.5	black 



# ADDITIVE MANUFACTURING

## SHAPING THE FUTURE IN METAL

Additive Manufacturing (AM) encompasses a diverse set of advanced technologies that build components layer by layer, directly from digital models. Unlike traditional subtractive manufacturing methods, AM enables the creation of highly complex geometries with minimal material waste. This layer-wise approach opens up new possibilities for engineers and designers, allowing them to produce near-net-shape parts that would be extremely difficult, time-consuming, or cost-prohibitive to fabricate using conventional techniques.

At voestalpine, we recognize that AM is much more than just 3D printing. It represents a transformative shift in how components are designed, engineered, and produced. Successful implementation of AM requires a holistic understanding of several critical domains: advanced design methodologies tailored for additive processes, deep expertise in material science to ensure optimal performance, and intimate knowledge of the specific printing systems and post-processing techniques involved.

Our commitment to excellence is reflected in our comprehensive control over the entire value chain. From the meticulous production of premium metal powders, to the precision printing of components and their final finishing, we ensure that every step adheres to the highest standards of quality, reliability, and consistency – from powder production to the delivery of the finished component.

## KEY APPLICATIONS OF ADDITIVE MANUFACTURING IN MEDTECH

Application	Examples
Patient-Specific Implants	Cranial plates, spinal cages, hip and knee implants
Dental Applications	Crowns, bridges, aligners, and surgical guides
Prosthetics	Lightweight, affordable, and custom-fitted limbs and orthotic devices
Surgical Instruments	Custom tools, guides, and jigs for precision surgeries
Drug Delivery Systems	Medication embedded in implants for controlled release

## ADVANTAGES OF ADDITIVE MANUFACTURING IN MEDTECH

- » Customization & Personalization: Tailors implants, prosthetics, and surgical tools to individual patient anatomy.
- » Rapid Prototyping: Speeds up the development of medical devices and instruments.
- » Complex Geometries: Enables production of intricate structures like porous implants for better osseointegration.
- » Reduced Waste: Material-efficient compared to subtractive manufacturing.
- » On-Demand Production: Facilitates localized, just-in-time manufacturing, especially useful in remote or emergency settings.
- » Cost-Effective for Low Volumes: Ideal for small batch or one-off production runs.
- » Improved Surgical Planning: 3D-printed anatomical models help surgeons visualize and rehearse complex procedures.
- » Biocompatible Materials: Supports use of materials like titanium, PEEK, and bioprintable hydrogels.



© 2025 voestalpine High Performance Metals GmbH. All Rights Reserved. You must obtain prior written permission from voestalpine High Performance Metals GmbH for the reproduction, re-publication, redistribution, transmission, sale, modification, or adaptation of any content hereof. This publication is correct to the best of our knowledge and belief at the time of writing, but it is for general information purposes only and does not provide professional advice of any kind. This publication is provided "as is" without warranty of any kind. voestalpine High Performance Metals GmbH shall not be liable for any loss, damage or cost resulting from any inaccuracies, omissions, errors or from any decisions taken in reliance on this publication. This does not limit liability that cannot be limited under law.



**voestalpine High Performance Metals GmbH**

Donau-City-Strasse 7

1220 Vienna

T. +43 50304 10 0

E. [medtech@voestalpine.com](mailto:medtech@voestalpine.com)

[www.voestalpine.com/hpm/medtech](http://www.voestalpine.com/hpm/medtech)

**voestalpine**

ONE STEP AHEAD.