



AMPERIT[®]

Thermal Spray Powders

Höganäs 

H.C. Starck 

Surface Technology
and Ceramic Powders
A part of the Höganäs Group

Höganäs – Expertise, Quality and Awareness for Customers

Whenever ideas are to be turned into successful products or applications, the first step is to find the appropriate material supplier. Hardly any other company worldwide meets its customers' needs in terms of materials as precisely as we can.



Höganäs is the undisputable world leader in iron and metal powders. Ever since our beginning in 1797, we have been at the forefront of what has been technically possible at the time. Together with our customers, we develop tomorrow's solutions for a myriad of applications.

By acquiring H.C. Starck's Surface Technology & Ceramic Powders division, Höganäs has gained access to a valuable product portfolio consisting out of high quality surface coating, ceramic and metal powders.

With innovativeness, a clear commitment to quality, and extensive technological expertise, we work side by side with our customers along the entire value chain. This close cooperation allows us to support our customers as an expert partner in development and solution creation.

The Key Benefits of Working with Us

On-target

Our close cooperation with our customers enables us to produce according to customer specifications.

Lot to lot consistence and reliable high-quality

We have gained profound experience in manufacturing powders over many decades and provide extensive know-how in manufacturing.

Innovation

We continuously work on innovative products of tomorrow. For this purpose, we put special focus on research and development. These include innovative high-tech materials, precisely controlled production and customer-specific product solutions.

Customer proximity worldwide

We have detailed knowledge of our markets. With sales offices and production sites located across Europe, America and Asia we are represented throughout the world and available for our customers both nationally and globally.

Sustainability

Our actions are related to a strong sense of responsibility toward mankind and the environment. Accordingly, we consider customer relationships as sustainable and responsible partnerships.

Please visit us on our website at www.hoganas.com for further information.

High-Quality Partnerships

For more than 40 years, *AMPERIT*® stands for high quality and reliability in the global thermal spray powder market.

Our business is defined by our customer focus and customer partnerships, which have made us one of the most successful spray powder manufacturers in the world. In order to meet customers' needs in coating processes, we pay particular attention to specific requirements of controlled chemistries, precisely defined grain forms and morphologies, as well as adjusted particle size distributions.

Over the past few decades, we have acquired the necessary knowledge of how to develop new materials and recycling processes, and how to improve the products we provide to our customers. Comprehensive application engineering offers a unique advantage for *AMPERIT*® products, ranging from powder development to complete coating solutions. Our experts provide customers with technical assistance and support, and a wealth of knowledge in materials and coating technology.

Our product portfolio covers the markets' needs for all major applications in thermal spraying:

- > **Carbides**
- > **Oxides**
- > **MCrAlYs**
- > **Molybdenum and other pure metals and alloys**

Our products are tailored for specific processes, such as products dedicated for plasma, HVAF and HVOF coatings.



Long-term partnerships with OEMs (original equipment manufacturers) and manufacturers of spraying systems as well as joint research and development activities have made us an experienced and reliable partner for material supply.

Höganäs and H.C. Starck Surface Technology and Ceramic Powders GmbH are now stronger together. The key benefits of our joint organisation include:

- > **Expanded product portfolio**
- > **Extensive application know-how**
- > **Enlarged product development capabilities**
- > **Expanded global sales network**

Please contact info@hoganasthermalspray.com for further information.

Customer-Oriented Application Engineering and Development

Our modern thermal spray and specialized metallographic laboratories represent top-quality application engineering. Modern, small-sized production facilities for agglomeration and sintering, and the latest atomization technology allow us to produce based on our customer's request.

Our pilot spray plant – the heart of our thermal spray application technology – has the ability to test and to optimize parameters and coatings for customers. In addition, it develops processing recommendations from the results. The plant is fully-equipped with spray systems for all major spraying processes. All coatings are tested on their corrosion, wear and cavitation in order to assist developing and completing coating solutions for various applications.

Spraying equipment includes:

- > **HVOF (JP-5000®, DJ Hybrid)**
- > **Plasma (F4, 3/7/9 MB)**
- > **Additional equipment (e.g. HVAF) is available on request**

Test equipment includes:

- > **Corrosion tests (Salt Spray ASTM B117, Electrochemical Corrosion)**
- > **Cavitation test**
- > **Bond strength test**
- > **Surface roughness measurement**
- > **Wear tests (ASTM G65 method B, Pin on Disk, JIS H8503)**
- > **Hardness measurement (Micro-, Macrohardness)**
- > **Porosity measurement**
- > **Elastic modulus**

AMPERIT® Spray Lab

The state-of-the-art equipment of our laboratory enables us to develop and to optimize our thermal spray powders. Furthermore, it allows us to establish spray parameters and to assess coating properties.



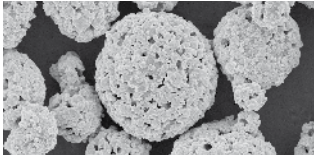
Development

Standard powders are modified and new powders are designed in small production units. Our competency in modifying standard powders plays a significant role in terms of fast and economic customization along with prompt testing on a smaller-scale basis. Innovative materials – specifically geared to market needs – are developed to offer unique solutions to meet even the most challenging requirements.

Small-scale production equipment includes:

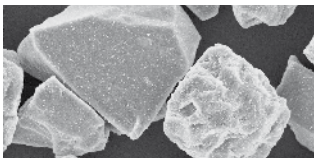
- > **Small spray dryers**
- > **Small sintering furnaces**
- > **Mixing, milling and classification equipment**
- > **Small atomizer (for metals and alloys)**

AMPERIT® Product Values



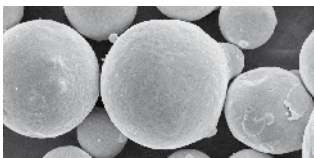
AMPERIT® CARBIDES – for wear protection

Our carbides provide maximum reliability through extraordinary wear resistance, excellent bonding properties and low porosity. Outstanding product characteristics make **AMPERIT®** carbides suitable for demanding requirements of e.g. steel, paper, oil and gas applications.



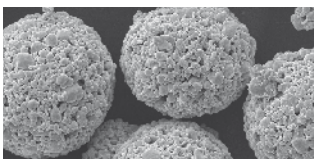
AMPERIT® OXIDES – for wear protection, chemical resistance and heat protection

Through outstanding wear protection, chemical and thermal stability, our oxides offer maximum reliability even at extreme temperatures. **AMPERIT®** oxides are well established e.g. in thermal barrier coatings in aviation, industrial gas turbines or in the printing industry.



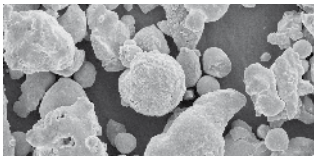
AMPERIT® MCrAlYs – for high temperature applications

AMPERIT® MCrAlY powders are used for coatings protecting parts from oxidation. Moreover, they are applied as a bond coat for thermal barrier coatings (TBC). They are essential for an excellent performance and reliability of highly stressed turbine parts.



AMPERIT® MOLYBDENUM – for technological solutions

AMPERIT® molybdenum's excellent product characteristics, e.g. exceptional sliding properties, low friction coefficient, high sliding wear resistance and ductility, make this thermal spray powder exceedingly suitable for demanding automotive applications.



AMPERIT® PURE METALS, ALLOYS & OTHERS – for wear resistance

AMPERIT® metals and alloys are used in a wide variety of applications ranging from simple bond coats for thermally sprayed oxide coatings to functional coatings. The former provides effective protection against corrosion – even in extreme conditions.

POWDER TYPE	Fused and crushed	Sintered and crushed	Agglomerated and sintered	Gas atomized	Water atomized	Spheroidized	Blended
PROCESS	Fusing in arc furnaces, followed by cooling and crushing	Sintering of raw materials, crushing	Spray drying of a suspension consisting of fine powders and organic binder and subsequent sintering	Atomizing molten metal or alloy with high pressure gas (Ar, N ₂) stream into a chamber	Atomizing with water into a chamber and subsequent drying	Feeding of agglomerates into a plasma flame to produce spherical particles	Mixing of 2 or more powders
CHARACTERISTICS	Blocky, irregular, dense	Blocky, irregular, relatively dense	Spherical, porous, constituents homogeneously distributed	Spherical, dense, high purity, low oxygen content	Irregular, dense, increased oxygen content compared to gas atomized	Spherical, porous or hollow, partly open (shells)	Different morphologies, segregation possible
EXAMPLES	Al ₂ O ₃ ; Cr ₂ O ₃ ; ZrO ₂ -Y ₂ O ₃	WC-CoCr	WC-Co Cr; Cr ₃ C ₂ -NiCr; ZrO ₂ -Y ₂ O ₃	MCrAlY; Ni-, Co-base alloys; NiAl	NiCr; NiAl	ZrO ₂ -Y ₂ O ₃	NiSF + WC-Co; Mo + NiSF; Cr ₃ C ₂ -NiCr AlSi-Polys

Examples of Applications

Our customer-specific products become more and more indispensable in terms of both innovative and challenging applications and new markets.

Gas Turbines for Aircraft and Power Generation

AMPERIT® Yttrium stabilized zirconium oxide coatings combined with a MCrAlY bond coat are extremely resistant to high temperatures, thermal cycling and hot gas corrosion. Those properties make them well-suited for high-temperature applications such as aviation and industrial gas turbines or combustion engines. Furthermore, **AMPERIT**® WC-Co, Cr₃C₂-NiCr can be for example applied for wear resistant coatings of rotating parts operating in very demanding turbine environments.

Steel

Typical applications for tungsten carbide-based spray powders include rolls for galvanizing lines in the steel industry. Cermet for coatings on furnace rolls are part of our specialty portfolio as well.

Oil & Gas

High standards in wear, erosion, abrasion, and corrosion resistance are the main reasons why Högånäs's tungsten carbides, metals and alloys are highly used in the oil and gas industry. Our tungsten carbide products make it possible for applications such as mud pump rotors, ball and gate valves, plungers, and piston rods to generate excellent results in extreme conditions such as high pressure from water and sub-sea environments, and permanent NaCl exposure.

Pulp and Paper / Printing

Wear resistance is required across the entire range of pulp and paper production. Corrosion makes this production process particularly difficult. Therefore, Högånäs offers ceramic or carbide powders for wear-resistant paper roll coatings. Laser engravable Cr₂O₃ coatings for printing rolls meet all coating layer requirements of this industry.



Automotive

Driven by the growing demand for safe, reliable, and fuel saving vehicles, the automotive industry develops and uses new processes and materials. Thermal spray powders can help to reduce friction between piston rings and cylinder bores. Excellent examples are our Mo and NiSF powders for piston rings, which reduce wear and friction in combustion engines.

Solid Oxide Fuel Cells (SOFC)

Our oxide powders for SOFC applications comprise customized and common oxides, e.g. LSM, LSCF and GCO for electrodes and interconnector protection applications. Furthermore, we provide electrolyte powders, e.g. Y- and REO-stabilized ZrO₂. All powders for SOFC applications are available as spray powders and as fine, sinteractive powders for pastes and slurry coatings. Höganäs' portfolio also comprises SOFC pastes which are available upon request.

Product Catalogue

In the following, you will find more information on our comprehensive product portfolio

**You have not found what you are looking for?
Please contact us!**

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for wear protection**

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**AMPERIT® OXIDES
for wear protection, chemical
resistance and heat protection**

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**AMPERIT® MCrAlYs
for high temperature applications**

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**AMPERIT® MOLYBDENUM
for technological solutions**

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**AMPERIT® PURE METALS,
ALLOYS & OTHERS**

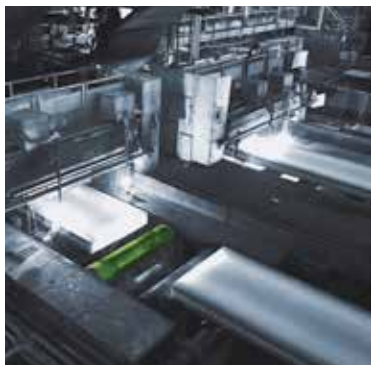
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TURBINE SPECIFICATIONS**

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AMPERIT® UNITS

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AMPERIT® | CARBIDES

for wear protection

AMPERIT® CARBIDES					
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications	
507.059	30/5	WC-Co-Cr ⁽¹⁻⁶⁾ 86/10/4 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF, HVOF Nanometric WC For nano structured coatings with superior surface finish For applications in paper and foil industry 	
507.074	45/15				
NEW 508.072	38/10	WC-Co-Cr ⁽¹⁻⁶⁾ 86/10/4 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF Coarse WC Hydro, Oil & Gas, pulp and paper Coatings with good cavitation and impact resistance 	
512.059	30/5	WC-Co ⁽¹⁻⁶⁾ 88/12 (Low Carbon) Agglomerated and sintered		<ul style="list-style-type: none"> HVOF Coarse WC C: 3.6 - 4.1% Used for Zn bath rolls in Continuous Galvanizing Lines (CGL) 	
512.074	45/15				
512.088	53/20				
515.001	45/22	WC-Co ⁽¹⁻⁶⁾ 88/12 Sintered and crushed		<ul style="list-style-type: none"> APS Very coarse WC C: 3.9 - 4.3% Hard, dense coatings with good abrasion, erosion and sliding wear resistance Used for machine parts, etc. 	
515.002	90/45				
515.074	45/15				
515.203					MTS 1055
515.400					AMS 7879
515.830					BMS 10-67 Type 1
515.851					PM 819-1 + PM 819-53
515.949					DMS 2049 Type 2
518.001	45/22	WC-Co ⁽¹⁻⁶⁾ 88/12 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF, APS, HVOF Medium WC Max. operating temperature 500 °C Hard, dense coatings with good abrasion, erosion and sliding wear resistance Smooth coatings with fine microstructure and high bond strengths Low oxidation and corrosion resistance Used for general wear, paper rolls, wire drawing equipment, fan and compressor blades, pump seals and housing, machine parts, etc. 	
518.002	90/45				
518.054	45/10				
518.059	30/5				
518.063	75/45				
NEW 518.072	38/10				
518.074	45/15				
518.088	53/20				
518.280					GE B50TF27 Cl.A
518.768					GE B50TF27 Cl.B
518.874					PM 819-25
519.059	30/5	WC-Co ⁽¹⁻⁶⁾ 88/12 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF, HVOF Fine WC Higher apparent density Designed for kerosene guns See AMPERIT® 518 First choice for corrugating rolls 	
NEW 519.072	38/10				
519.074	45/15				

AMPERIT® CARBIDES

AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications	
526.059	30/5	WC-Co ⁽¹¹⁾ 83/17 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF, APS • Coarse WC • Max. operating temperature 500 °C • Higher ductility than WC-Co 88/12 due to higher Co content • Hard, dense coatings with low sliding wear and high impact resistance • Protection against fretting and abrasion • Low oxidation and corrosion resistance • Used in aviation applications (fan and compressor blades, mid-span stiffeners, flap tracks, etc.), extrusion dies, glass industry, paper mill rolls, pump parts, wire drawing equipment, etc. 	
526.062	53/10				
526.074	45/15				
526.077	63/32				
526.088	53/20				
526.223					MTS 1058
526.350					MSRR 9507/1
526.382					MSRR 9507/69
526.454					PWA 36331-1
526.727					DMR 33-501
526.729					DMR 33-019
526.781					DHMS C4.19
526.831					BMS 10-67 Type 1
526.895		DMS 2049 Type 5			
528.764		WC-Co ⁽¹¹⁾ Agglomerated and sintered	GE B50TF295 Cl.A	<ul style="list-style-type: none"> • See AMPERIT® 518 	
529.072	38/10	WC-NiMoCrFeCo ^(2,7,9,10) 82/18 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Medium WC • Alternative to WC-CoCr • For very dense and ductile coatings with good abrasion, erosion and sliding wear resistance • Excellent corrosion resistance in seawater, diluted mineral and organic acids • Used for parts applied in marine environments, petrochemical and off-shore applications, etc. 	
529.074	45/15				
NEW 531.074		WC-FeNiCrMoCu 85/15 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Fine WC • Alternative to 86/10/4 • Cavitation resistance in seawater • Excellent corrosion resistance in sea water 	
538.074	45/15	WC-WB-Co 60/30/10		<ul style="list-style-type: none"> • Gas fired HVOF • Medium WC • Wear and corrosion protection in molten metal • Used for Zn bath rolls in Continuous Galvanizing Lines (CGL) • See also AMPERIT® 512 	
NEW 539.054	45/10	WC-WB-CoCr 60/30/5/5 Agglomerated and sintered		<ul style="list-style-type: none"> • Gas fired HVOF • Medium WC • Wear and corrosion protection in molten metal • Used for Zn bath rolls in Continuous Galvanizing Lines (CGL) • See also AMPERIT® 512 	
NEW 543.059	30/5	WC-CrC-Ni 42/42/16 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Fine WC • Max. operating temperature 750 °C • Dense and ductile coatings with high cavitation resistance for mud rotors, pump and valve parts, piston rods • Economical alternative to WC-CoCr for selected applications • Hard chrome replacement 	
NEW 543.074	45/15				

AMPERIT® | CARBIDES

for wear protection

AMPERIT® CARBIDES				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
NEW 547.002	90/45	WC-Ni ^(2,9,10) 88/12 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Fine WC • Max. operating temperature 500 °C • Higher corrosion resistance than WC-Co and better ductility
NEW 547.059	30/5			
547.074	45/15			
547.088	53/20			
551.059	30/5	WC-CrC-Ni ^(2,9,12) 73/20/7 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF • Fine WC • Max. operating temperature 750 °C • Higher oxidation and corrosion resistance than pure WC-Ni-based coatings • Smooth coatings with fine microstructure and high bond strengths • Used for gate valves, etc.
551.074	45/15			
551.088	53/20			
554.067	15/5	WC-Co-Cr ⁽¹⁻⁶⁾ 86/10/4 Sintered and crushed		<ul style="list-style-type: none"> • HVOF, HVOF, APS • Medium WC • C: 5 - 6% • Max. operating temperature 500 °C • CoCr matrix shows higher corrosion and abrasion resistance than Co matrix • Useable in water based solutions and wet corrosive environments • Hard chrome replacement • Used for rolls, ball valves, oil field equipment, etc.
554.071	25/5			
554.074	45/15			
555.074	45/15	WC-CrC-Ni ^(2,9,12) 73/20/7 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF • Medium WC • Max. operating temperature 750 °C • Higher oxidation and corrosion resistance than pure WC-Ni based coatings • Dense coatings with fine microstructure and high bond strengths • Used for mud pump rotors and general machinery
556.059	30/5	WC-Co-Cr ⁽¹⁻⁶⁾ 86/10/4 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Sub-micron WC • Extremely smooth surface finish achievable • See AMPERIT® 558
556.074	45/15			
557.059	30/5	WC-Co-Cr ⁽¹⁻⁶⁾ 86/10/4 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Medium WC • For coatings on valve components working in high pressure and salt water environments, e.g. in submarine oil&gas fields • For cavitation resistance coatings and impact tolerance, e.g. on hydroturbine runners • For ductile coatings on strained and stressed machine parts, e.g. blades, knives • See AMPERIT® 558
557.072	38/10			
557.074	45/15			

AMPERIT® CARBIDES

AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
NEW 558.002	90/45	WC-Co-Cr ⁽¹⁻⁶⁾ 86/10/4 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Fine WC • Max. operating temperature 500 °C • CoCr matrix shows higher corrosion and abrasion resistance than Co matrix • Useable in water based solutions and wet corrosive environments • Smooth coatings with fine microstructure and high bond strengths • Hard chrome replacement • Used for paper rolls, gate and ball valves, hydraulic cylinders, compressor shafts, mud pump rotors
NEW 558.052	20/5			
558.059	30/5			
558.072	38/10			
558.074	45/15			
558.088	53/20			
560.062	53/10	WC-Co ^(1, 2, 4, 5, 6, 9, 10) NiSF 50/50 Blended		<ul style="list-style-type: none"> • APS, HVOF • Protection against erosion and abrasion • Used for glass mold plungers, pump plungers and sleeves, extrusion screws, steel mill rolls, etc.
560.077	63/32			
570.003	45/5	TiC Sintered and crushed		<ul style="list-style-type: none"> • VPS/LPPS • Dense particles • Hard and wear resistant coatings • Component for blends
NEW 578.059	30/5	CrC-NiCr 80/20 Agglomerated and sintered		<ul style="list-style-type: none"> • HVOF, HVOF • Medium carbide • Max. operating temperature 870 °C • For dense oxidation and erosion resistant coatings • Hot gas corrosion resistant • Used for valve stems, turbine shafts, fuel rod mandrels, etc. • Hydraulic piston rods
NEW 578.074	45/15			
NEW 580.002	90/45	Cr ₃ C ₂ Sintered and crushed	PWA 1304	<ul style="list-style-type: none"> • APS • Dense particles • Max. operating temperature 870 °C • Usually blended with metals or alloys • Hard and wear resistant coatings
NEW 580.054	45/10			
580.402				
580.404				
584.001	45/22	Cr ₃ C ₂ -NiCr ^(2, 9, 10) 75/25 Agglomerated and sintered	BMS 1067 Type 22	<ul style="list-style-type: none"> • HVOF, APS • Coarse CrC • Max. operating temperature 870 °C • For dense oxidation and erosion resistant coatings • Hot gas corrosion resistant • Used for valve seats, turbine components, fuel rod mandrels, etc.
584.054	45/10			
584.072	38/10			
584.833				
584				
585.003	45/5	Cr ₃ C ₂ -NiCr ^(11, 12) 75/25 Blended	MSRR 9507/2	<ul style="list-style-type: none"> • APS, HVOF • Coarse dense carbide • Max. operating temperature 870 °C • Good oxidation, abrasion, particle erosion, fretting and cavitation resistance • Hot gas corrosion resistant • Used in pump housing, machine parts, hydraulic valves, tooling, hot forming dies, turbine shafts, etc.
585.351				
585.357				
585.405				
585.435				
585.868				
			HTCT 650560	
			MSRR 9507/17	
			PWA 1307	
			AMS 7875	
			PM 819-5	

AMPERIT® | CARBIDES

for wear protection

AMPERIT® CARBIDES				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
587.072	38/10	Cr ₃ C ₂ -NiCr ^(2, 8, 9, 10) 65/35 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF, HVOF Coarse carbide Max. operating temperature 870 °C Lower hardness than 75/25 ratio Dense coatings Valve seats, turbine shafts
588.059	30/5	Cr ₃ C ₂ -NiCr ^(2, 9, 10) 75/25 Agglomerated and sintered	PWA 1364	<ul style="list-style-type: none"> HVOF, HVOF Medium CrC See AMPERIT® 584 Designed for kerosene guns
588.074	45/15			
588.088	53/20			
NEW 588.419				
NEW 593.059		Cr ₃ C ₂ -NiCr ^(2, 9, 10) (50/50) 90/10 Sintered and crushed	GE B50TF281 C.I.A	<ul style="list-style-type: none"> HVOF Max. operating temperature 870 °C Erosion resistant coatings for aircraft turbine applications Used for hydraulic piston rods
593.775	30/5	Agglomerated and sintered		
594.074	45/15	Cr ₃ C ₂ -CoNiCrAlY ^(1 - 6, 9, 10) 75/25 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF, APS Max. operating temperature 870 °C Special product for hearth rolls in steel industry
599.063	75/45	Mo ₂ C Agglomerated and sintered		<ul style="list-style-type: none"> APS C: 5.8 - 6.1% Hard ingredient in powder blends for sliding wear protection
599.074	45/15			
618.074 Green Carbides	45/15	WC-FeCrAl 85/15 Agglomerated and sintered		<ul style="list-style-type: none"> HVOF, HVOF Fine WC Excellent corrosion resistance in sea water Wear resistant coating with Ni- and Co-free metallic binder, alternative to WC-Co or WC-Ni

We offer unique **Amperit® coating solutions** with customized powder properties and spray parameters for the demanding requirements, such as gate- and ball valves, landing gears, hydro power turbines, mud rotors, etc.

Contact us directly under amperit.technicalsupport@hcstarck.com to learn more about our tailor-made powder and coating solutions.

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48): (1) Resp. Sens. 1; (2) Skin Sens. 1; (3) Eye Irrit. 2; (4) Repr. 2; (5) Aquatic Acute 1; (6) Aquatic Chronic 1; (7) Aquatic Chronic 2; (8) Aquatic Chronic 3; (9) Carc. 2; (10) STOT RE 1; (11) Acute Tox. 3; (12) STOT RE 2.

The values on above table are typical values and do not constitute a specification. Additional materials and grain sizes as well as high purity oxides for electronic applications are available on request. Product data sheets are available for download at www.hoganas.com

AMPERIT® | OXIDES

for wear protection, chemical resistance and heat protection

AMPERIT® OXIDES					
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications	
704.000	22/5	Cr ₂ O ₃ 99.5% Fused and crushed		<ul style="list-style-type: none"> • APS • Hard, corrosion and wear resistant ceramic coatings • Insoluble in acids, alkalis and alcohol • Used for anilox rolls in printing machines, pump seals areas, wear rings, etc. 	
704.001	45/22				
704.053	25/10				CPW 320
704.054	45/10				
704.072	38/10				
704.092	75/25				
704.216					MTS 1231
707.000	22/5	Cr ₂ O ₃ 99.5% Fused and crushed		<ul style="list-style-type: none"> • APS • Rounded particle shape • See AMPERIT® 704 	
707.001	45/22				
707.053	25/10				
707.054	45/10				
707.072	38/10				
707.092	75/25				
712.053	25/10	Cr ₂ O ₃ -TiO ₂ 75/25 Fused and crushed		<ul style="list-style-type: none"> • APS • Max. operating temperature 540 °C • Lower hardness but better toughness than pure Cr₂O₃ coatings • Used in wear applications where more toughness is needed 	
712.074	45/15				
716.054	45/10	Cr ₂ O ₃ -TiO ₂ -SiO ₂ 92/3/5 Blended		<ul style="list-style-type: none"> • APS • Hard, dense and wear resistant coatings • Good corrosion resistance • Higher mechanical shock resistance than pure Cr₂O₃ 	
716.066	53/15				
740.000	22/5	Al ₂ O ₃ Fused and crushed		<ul style="list-style-type: none"> • APS • Max. operating temperature 1650 °C • Resistant against corrosion, abrasion, erosion and sliding wear • Excellent dielectric properties • Stable in most acids and alkalis 	
740.001	45/22				
740.002	90/45				
740.003	45/5				
740.008	20/5				
740.050	< 5				
740.207					MTS 1062
740.355					MSRR 9507/9
740.406					PWA 1310

AMPERIT® | OXIDES

for wear protection, chemical resistance and heat protection

AMPERIT® OXIDES					
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications	
742.001	45/22	Al ₂ O ₃ -TiO ₂ 97/3 Fused and crushed		<ul style="list-style-type: none"> • APS • Max. operating temperature 1100 °C • Grey alumina for use as corrosion, abrasion, erosion and sliding wear resistant coatings • Typical applications in textile machines for guiding and handling of thread, rolls in paper industry, etc. 	
742.059	30/5				
742.068	35/15				
742.204					MTS 1059
742.206					MTS 1061
742.292					GE A50TF87 Cl.A
742.298					GE A50TF87 Cl.B
742.407					PWA 1311
742.731					DMR 33-020
742.850					PM 819-0
742.867					PM 819-11
742.966					GE A50TF87 Cl. C
744.000	22/5	Al ₂ O ₃ -TiO ₂ 87/13 Blended		<ul style="list-style-type: none"> • APS • Max. operating temperature 540 °C • Compared with AMPERIT® 742 less hard and corrosion resistant 	
744.001	45/22				
744.003	45/5				
745.001	45/22	Al ₂ O ₃ -TiO ₂ 60/40 Blended		<ul style="list-style-type: none"> • APS • Max. operating temperature 540 °C • Lower hardness compared to AMPERIT® 742 and 744 • Wear and erosion resistant • Good grindability • Polished coatings with reduced wettability • Used in textile industry, household applications (pans), etc. 	
745.003	45/5				
745.008	20/5				
750.000	22/5	Al ₂ O ₃ -ZrO ₂ 60/40 Fused and crushed		<ul style="list-style-type: none"> • APS • High Toughness • Good abrasion and erosion resistance 	
762.069	40/10	Al ₂ O ₃ -SiO ₂ 72-28 Fused and crushed		<ul style="list-style-type: none"> • APS • Mullite • EBCs 	
782.001	45/22	TiO ₂ Fused and crushed (Black)		<ul style="list-style-type: none"> • APS • Moderate wear resistance compared with Al₂O₃ or Al₂O₃-TiO_x • Soluble in alkalis and sulfuric acids • Decorative black coatings • Slightly conductive 	
782.002	90/45				
782.003	45/5				
782.054	45/10				
814.775		ZrO ₂ -Y ₂ O ₃ Fused and crushed	GE A50TF278 Class F	<ul style="list-style-type: none"> • APS 	
815		Agglomerated and sintered	GE A50TF278 Class F (conforms only)	<ul style="list-style-type: none"> • APS 	

AMPERIT® OXIDES

AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
816.006	125/45	ZrO ₂ -Y ₂ O ₃ 93/7 Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Porous • Thermal barrier coatings • white color • high purity, low Al₂O₃/SiO₂ • "low NORM"
818.138		ZrO ₂ -Y ₂ O ₃	GE APMS000177	<ul style="list-style-type: none"> • APS
819.262		ZrO ₂ -Y ₂ O ₃	GE A50TF278 Class E	<ul style="list-style-type: none"> • APS
819.264				
821.007	90/16	ZrO ₂ -Y ₂ O ₃ 80/20 Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Colour "yellow" • Max. operating temperature 1150 °C • Used for thermal barrier coatings, protection of graphite trays etc.
821.084	75/20			
825.000	22/5	ZrO ₂ -Y ₂ O ₃ 93/7		<ul style="list-style-type: none"> • APS • Colour "white" • Blocky particle shape • For dense and vertically cracked coatings
825.001	45/22	Fused and crushed (White)		
825.218			MTS 1198	
825.242			MTS 1342	
NEW 825.289			GE A50TF278 Cl. A	
NEW 825.290			GE A50TF278 Cl. B	
825.381			MSRR 9507/72	
NEW 825.774			GE A50TF278 Cl. C	
NEW 825.998			GE A50AG1	
NEW 825.999			GE A50AG1	
827.006	125/45	ZrO ₂ -Y ₂ O ₃ 93/7		<ul style="list-style-type: none"> • APS • Max. operating temperature 1320 °C • Color „yellow“ • Very good thermal shock resistance and thermal insulating properties • Hot corrosion resistant • Used for thermal barrier coatings in aircraft, stationary gas turbines and engines • For Applications like combustion liners and airfoils, etc. • Highest coating porosity achievable (only for A827.006) • For DVC's (non columnar) (only for A827.054)
827.007	90/16	Agglomerated and sintered		
827.054	45/10			
827.238			MTS 1352	
827.289			GE A50TF278 Cl.A	
827.290			GE A50TF278 Cl.B	
827.293			GE A50TF204	
827.423			PWA 1375	
827.772			GE A50A557	
827.773			GE A50A558	
827.774			GE A50TF278 Cl.C	
827.853			PM 819-20	
827.864			PM 819-57	
827.873			PM 819-84	
827.943			EMS57750 Type 1	
827			HTCT 650564	
827			DGTLV 504 009-001	

AMPERIT® | OXIDES

for wear protection, chemical resistance and heat protection

AMPERIT® OXIDES				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
NEW 828.007	90/16	ZrO ₂ -Y ₂ O ₃ 88/12	PWA 36375	<ul style="list-style-type: none"> • APS • Max. operating temperature 1150 °C • Good thermal barrier properties
828.405		Agglomerated and sintered		
831.006	125/45	ZrO ₂ -Y ₂ O ₃ 93/7 Plasma spherodized HOSP™	GE A50TF278 Cl.A GE A50TF278 Cl.B DMR 33-098 GE A50A557 GE A50A558 GE A50TF278 Cl.C GE A50TF278 Cl.D DGTLV 504 009-001 GE A50AG 1 Cl.A	<ul style="list-style-type: none"> • APS • Max. operating temperature 1320 °C • Color „white“, high purity • Good thermal insulating properties • Hot corrosion resistant • Used for thermal barrier coatings in aircraft and stationary gas turbines
831.007	90/16			
NEW 831.054	45/10			
NEW 831.063	75/45			
NEW 831.082	125/10			
NEW 831.289				
831.290				
NEW 831.733				
NEW 831.772				
NEW 831.773				
NEW 831.774				
831.967				
NEW 831				
1501				
835.956		Gd ₂ Zr ₂ O ₇	DPTI-00002446	<ul style="list-style-type: none"> • APS • Availability according to local patent situation • Advanced TBCs
835.957			PD-83336Y4 Class D2	
NEW 846		Proprietary ceramic	DGTLV 511143001	<ul style="list-style-type: none"> • APS • For SIEMENS approved users only
849.007	90/16	Y ₂ O ₃ Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Stable at high temperatures • Heat resistant in aggressive atmospheres • Used for protection of graphite sheets in the hard metal industry • Max. operating temperature in air 2200 °C (on graphite 1550 °C)
849.054	45/10			
860.074	45/15	LSM20 Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Used for protective coatings on Cr containing interconnectors (SOFC)
865.054	45/10	MCF ^(1, 8) Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Used for protective coatings on Cr containing interconnectors (SOFC)

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48): (1) Resp. Sens. 1; (2) Skin Sens. 1; (3) Eye Irrit. 2; (4) Repr. 2; (5) Aquatic Acute 1; (6) Aquatic Chronic 1; (7) Aquatic Chronic 2; (8) Aquatic Chronic 3; (9) Carc. 2; (10) STOT RE 1; (11) Acute Tox. 3; (12) STOT RE 2.

The values on above table are typical values and do not constitute a specification. Additional materials and grain sizes as well as high purity oxides for electronic applications are available on request. Product data sheets are available for download at www.hoganas.com

AMPERIT® | MCrAlYs

for high temperature applications

AMPERIT® MCrAlYs				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
NEW 405.001	45/22	NiCoCrAlYHfSi ^(1-6,9,10) Gas Atomized Ni balance Co 22 %, Cr 17 %, Al 12.5 %, Y 0.6 %, Hf 0.2 %, Si 0.4 %		<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • Max. operating temperature 1050 °C (VPS) or 850 °C (APS) • Stable at high temperatures in hot corrosive or oxidizing environments • Used as bond coat for TBCs, etc.
NEW 405.002	90/45			
NEW 405.006	125/45			
NEW 405.072	38/10			
410.001	45/22	NiCoCrAlY ^(1-6,9,10) Gas Atomized Ni remainder Co 23 %, Cr 17 %, Al 12.5 %, Y 0.45 %	PWA 1365-1	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • Max. operating temperature 850 °C • Stable at high temperatures in hot corrosive or oxidizing environments • Used on turbine blades, etc.
410.424				
410.429				
410.860				
413.001	45/22	NiCrAlY ^(2,8,9,10) Gas Atomized Ni remainder Cr 22 %, Al 10 %, Y 1 %		<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • Stable at high temperatures in hot corrosive or oxidizing environments • Used on turbine blades, etc.
413.003	45/5			
413.006	125/45			
413.247				
NEW 413.265				
413.284				
413.858				
413.981				
415.001	45/22	CoNiCrAlY ^(1-6,9,10) Gas Atomized Co remainder Ni 32 %, Cr 21 %, Al 8 %, Y 0.5 %	GE B50AG5	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • Max. operating temperature 1050 °C (VPS) or 850 °C (APS) • Stable at high temperatures in hot corrosive or oxidizing environments • Used as bond coats for TBCs, etc.
415.002	90/45			
415.006	125/45			
415.079	90/53			
415.220				
415.221				
415.288				
415.875				
416	SL-30	MCrAlY ^(1-4,7,9,10) Proprietary Gas Atomized		<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users

AMPERIT® | MCrAlYs

for high temperature applications

AMPERIT® MCrAlYs					
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications	
418	SV-20	MCrAlY ^(2, 8, 9, 10) Proprietary Gas Atomized	HTCT 650557	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users 	
	SH-20		HTCT 650515		
	SL-20		HTCT 650565		
421.001	45/22	NiCoCrAlTaReY ^(1-6, 9, 10) Gas Atomized Ni remainder Cr 18 %, Co 10 %, Al 6.5 %, Ta 6.0 %, Re 2.0 %, Y 0.3 %, Si 1 %, Hf 0.5 %	MTS 1351	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • Max. operating temperature 1050 °C (VPS) or 850 °C (APS) • Ta and Re containing MCrAlY for improved hot gas corrosion resistance 	
421.087	38/15				
421.240					GE B50TF242 Cl.A
421.299					GE B50TF242 Cl.B (1-4, 7-9)
421.760					GE B50TF242 Cl.C (1-4, 7-9)
421.761					GE B50TF242 Cl.D
421.992					
422	Sicoat 2231	MCrAlY ^(1-6, 9, 10) Proprietary Gas Atomized	DGTLV 511 114-001	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users 	
428	Sicoat 2453	MCrAlY ^(1-6, 9, 10) Proprietary Gas Atomized	DGTLV 511 114-001	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users 	
429	Sicoat 2464	MCrAlY ^(1-6, 9, 10) Proprietary Gas Atomized	DGTLV 511 114-001	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users 	
436	SV 349	MCrAlY ^(1-6, 9, 10) Proprietary Gas Atomized	HTCT 650585	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users 	
	SL 349		HTCT 650581		
NEW 447.994			GE B50AG16 Cl.A		
NEW 448.996		CoNiCrAlY	GE B50AG12 Cl.A		
NEW 448.997			GE B50AG12 Cl.C		
NEW 453	Sicoat 2479	MCrAlY ^(1-6, 9, 10) Proprietary Gas Atomized	DGTLV 511 114-001	<ul style="list-style-type: none"> • APS, HVOF, VPS (LPPS) • MCrAlY for stationary gas turbine applications • Availability only to OEM approved users 	
NEW 481.984		CoCrAlHf	GE B50TF201 Cl.A		
NEW 481.985			GE B50TF201 Cl.B		
NEW 481.986			GE B50TF201 Cl.C		

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48): (1) Resp. Sens. 1; (2) Skin Sens. 1; (3) Eye Irrit. 2; (4) Repr. 2; (5) Aquatic Acute 1; (6) Aquatic Chronic 1; (7) Aquatic Chronic 2; (8) Aquatic Chronic 3; (9) Carc. 2; (10) STOT RE 1; (11) Acute Tox. 3; (12) STOT RE 2.

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AMPERIT® | MOLYBDENUM

for technological solutions

AMPERIT® MOLYBDENUM				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
105.002	90/45	Molybdenum Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Max. operating temperature 320 °C (in oxidizing atmospheres) • C max. 0.2% • Tough coatings with acceptable hardness and excellent sliding properties • Good bond strength • Used for valves, synchronizers, piston rings, pump parts, etc.
105.074	45/15			
105.091	150/45			
106.002	90/45	Molybdenum Sintered and crushed	PWA 1313 MTS 1054 GE 401-3083-630 CPW 213 PM 819-13	<ul style="list-style-type: none"> • APS • Max. operating temperature 320 °C (in oxidizing atmospheres) • Dense blocky grains • Tough coatings with acceptable hardness and excellent sliding properties • Good bond strength • Used for valves, synchronizers, piston rings, pump parts, etc. • Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
106.062	53/10			
106.158				
106.222				
106.282				
106.707				
106.870				
109.063	75/45	Molybdenum Agglomerated and sintered	BMS 1067 Type 21	<ul style="list-style-type: none"> • APS • Max. operating temperature 320 °C (in oxidizing atmospheres) • C max. 1% • See AMPERIT® 105
109.066	53/15			
109.832				
110.002	90/45	Mo-Mo ₂ C Agglomerated and sintered		<ul style="list-style-type: none"> • APS • Max. operating temperature 320 °C (in oxidizing atmospheres) • C: 2.2 - 2.4% • Tough coatings with high hardness, excellent sliding properties and good wear resistance
110.074	45/15			
119.075	90/15	Mo-NiSiF ^(2, 9, 10) 75/25 Blended		<ul style="list-style-type: none"> • APS, HVOF • Max. operating temperature 350 °C • Wear resistant coatings with excellent sliding properties • Low friction coefficient • Used for piston rings, etc.
920.054	45/10	MoSi ₂	DMS 2049	<ul style="list-style-type: none"> • APS • High temperature oxidation resistant coatings
920.894				

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48): (1) Resp. Sens. 1; (2) Skin Sens. 1; (3) Eye Irrit. 2; (4) Repr. 2; (5) Aquatic Acute 1; (6) Aquatic Chronic 1; (7) Aquatic Chronic 2; (8) Aquatic Chronic 3; (9) Carc. 2; (10) STOT RE 1; (11) Acute Tox. 3, (12) STOT RE 2.

The values on above table are typical values and do not constitute a specification. Additional materials and grain sizes are available on request. Product data sheets are available for download at www.hoganas.com

AMPERIT® | PURE METALS, ALLOYS & OTHERS

AMPERIT® PURE METALS, ALLOYS & OTHERS				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
140.001	45/22	Tungsten Sintered		<ul style="list-style-type: none"> • VPS (LPPS) • Corrosion resistant against acids • Good high temperature stability in non-oxidizing atmospheres • High melting point • Good adhesion to graphite, alumina and quartz
140.002	90/45			
140.003	45/ 5			
140.067	15/5			
140.071	25/ 5			
146.412		Cr	PWA 1331	
150.002	90/45	Tantalum ⁽¹³⁾ Fused and crushed		<ul style="list-style-type: none"> • VPS (LPPS), APS • Corrosion protection for chemical equipment against acids
150.074	45/15			
151.065	30/10	Tantalum ⁽¹³⁾ Special Grade		<ul style="list-style-type: none"> • Cold Spray • Dense coatings for highest corrosion protection against sulfuric acid • Improved mechanical properties • High deposition efficiency • Corrosion protection for chemical equipment against acids
154.007	90/16	Titanium ⁽¹³⁾		<ul style="list-style-type: none"> • VPS (LPPS) • Good corrosion resistance against salt water, Cl containing solutions and oxidizing acid solutions • High purity • Conforms to ASTM F-1580 • Material for biomedical applications
154.093	125/90			
154.096	355/200			
155.086	< 63	Titanium ⁽¹³⁾		<ul style="list-style-type: none"> • VPS (LPPS) • Good corrosion resistance against salt water, Cl containing solutions and oxidizing acid solutions • Material for biomedical applications
155.093	125/90			
160.003	45/5	Niobium ⁽¹³⁾ Fused		<ul style="list-style-type: none"> • VPS (LPPS) • Fused and crushed • Corrosion resistant against several acids • Good high temperature stability in non-oxidizing atmospheres
165.965		Re	GE B50TF260 Cl. A	
170.084	75/20	Silicon		<ul style="list-style-type: none"> • Bond Coat for EBC coatings
170.266			GE A50TF350	
NEW 171.084	75/20	Silicon		<ul style="list-style-type: none"> • High purities, metall impurities less than 350 ppm • Coatings for semiconductor applications
175.001	45/22	Nickel ^(2, 8, 9, 10) Water Atomized		<ul style="list-style-type: none"> • APS, HVOF (gas fueled) • Max. operating temperature 530 °C in air • Good corrosion protection • Repair and bond coat for Ni-based alloys
175.002	90/45			
176.001	45/22	Nickel ^(2, 8, 9, 10) Gas Atomized		<ul style="list-style-type: none"> • APS, HVOF, HVOF • Repair and build-up for Ni-based alloy components
176.068	35/15			
NEW 186.063	75/45	AlSi 88/12 Gas Atomized		<ul style="list-style-type: none"> • APS • Repair and build-up

AMPERIT® PURE METALS, ALLOYS & OTHERS

AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
214.006	125/45	Aromatic polyester		<ul style="list-style-type: none"> • APS • Organic place-holder for abradable coatings
215.082	125/10	AlSi ⁽¹²⁾ Polyester 60/40		<ul style="list-style-type: none"> • APS • For abradable coatings
250.001	45/22	NiCr ^(2, 8, 9, 10) 80/20 Water Atomized		<ul style="list-style-type: none"> • APS, Flame, HVOF (gas fueled) • Max. operating temperature 980 °C • Oxidation and corrosion resistant • Good machinability • Used for repair, bond coat and corrosion protection
250.002	90/45			
250.071	25/5			
250.200			MTS 1050	
250.354			MSRR 9507/8	
250.410			PWA 1317	
250.411			PWA 1319	
250.425			PWA 1303	
250.428			PWA 1315	
250.968			GE B50TF40 Cl.A	
250.969		GE B50TF40 Cl.B		
251.001	45/22	NiCr ^(2, 8, 9, 10) 80/20 Gas Atomized		<ul style="list-style-type: none"> • APS, HVOF • Spherical alternative to AMPERIT® 250 • Better flowability
251.002	90/45			
251.051	12/5			
251.968			GE B50TF40 Cl.A	
251.969			GE B50TF40 Cl.B	
280.001	45/22	NiAl ^(2, 8, 9, 10) 95/5 Water Atomized		<ul style="list-style-type: none"> • APS, Flame, HVOF (gas fueled) • Max. operating temperature 800 °C • Oxidation and abrasion resistant • Excellent machinability
280.002	90/45			
280.003	45/5.5			
280.241			MTS 1309	
280.287			GE B50TF56 Cl.B	
280.616			DHS122-101	
280.732			DMR 31-011	
280.972		GE B50TF56 Cl.C		

AMPERIT® | PURE METALS, ALLOYS & OTHERS

AMPERIT® PURE METALS, ALLOYS & OTHERS				
AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
NEW 281.001	45/22	NiAl ^(2, 8, 9, 10) 95/5 Gas Atomized	MTS 1519 GE B50TF56 Cl.C MSRR 9507/5 PWA 1380 PM 819-56	<ul style="list-style-type: none"> HVOF, HVOF, APS, Cold Spray Spherical alternative to AMPERIT® 280 Better flowability
281.002	90/45			
281.003	45/5			
281.245				
281.267				
281.390				
281.420				
281.863				
291.003	45/5	NiAl ^(2, 8, 9, 10) 69/31 Fused and crushed		<ul style="list-style-type: none"> APS Used as bond coat for various applications Good corrosion resistance High bond strength
291.008	20/5			
291.059	30/5			
335.063	75/45	NiCrBSi ^(2, 8, 9, 10) Gas Atomized		<ul style="list-style-type: none"> HVOF, APS, Flame Max. operating temperature 820 °C Self-fluxing alloy, 60 HRC Hard dense coatings Resistant against cavitation, fretting and particle erosion Good corrosion resistance Used on pump sleeves, piston rings, forging tools, glass mould plungers, etc.
335.066	53/15			
NEW 340.074	45/15	CoMoCrSi ^(1 - 6) (Similar to T-400) Gas Atomized		<ul style="list-style-type: none"> HVOF, APS Excellent dry sliding properties Corrosion and oxidation resistant Used for bearing journals and guide tracks Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
NEW 340.088	53/20			
NEW 342.074	45/15	CoMoCrSi ^(1 - 6) (Similar to T-800) Gas Atomized		<ul style="list-style-type: none"> HVOF, APS Excellent dry sliding properties Corrosion and oxidation resistant Used for bearing journals and guide tracks Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
NEW 342.088	53/20			
NEW 344.088	53/20	CoCrWSiC ^(1 - 6) (Co Hardfacing Alloy #6) Gas Atomized	GE B50A960	<ul style="list-style-type: none"> HVOF Excellent wear and thermal shock resistance Excellent corrosion and shock oxidation resistance Used in valve seals, steam turbines, machine parts Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
NEW 344.930				
348.430		Co Hardfacing alloy #31	PWA 1316	
348.431			PWA 1318	
NEW 351.762		CoCrWNiMn	GE B50A919	

AMPERIT® PURE METALS, ALLOYS & OTHERS

AMPERIT®	Particle in µm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
NEW 360.088	53/20	FeCrNiMn (Steel similar to 17-4 PH) Gas Atomized		<ul style="list-style-type: none"> HVOF, HVOF Repair and build-up
377.088	53/20	FeCrNiMo ^(2, 9, 10) (Stainless Steel similar to 316 L) Gas Atomized		<ul style="list-style-type: none"> HVOF, HVOF, APS, Cold Spray Used for corrosion and cavitation protection as well as contour restoration
380.002	90/45	NiCrMoNb ^(2, 8, 9, 10) (Ni Superalloy 625) Gas Atomized	GE B50TF270	<ul style="list-style-type: none"> HVOF, HVOF, APS, Cold Spray Max. operating temperature 1000 °C Excellent oxidation and corrosion resistance Used in boilers and in chemical industry Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
380.074	45/15			
380.088	53/20			
380.993				
381.071	25/5	FeVCrCWMoMnSi Gas Atomized		<ul style="list-style-type: none"> HVOF, HVOF Excellent sliding properties for machine parts, piston rods, and hard chrome replacement For applications without wet corrosion resistance requirements Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
381.088	53/20			
407.088	53/20	NiCrMoNbAlTi ^(2, 8, 9, 10) (Ni Superalloy 718) Gas Atomized	GE B50TF202	<ul style="list-style-type: none"> HVOF, Cold Spray, APS Excellent for corrosion resistant coatings Hardenable Very good for high temperature applications Used on turbines and chemical equipment Acid resistant Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
407.291				
407.987				
407.988				
409.002	90/45	NiMoCrFeW ^(2, 8, 9, 10) (Ni Superalloy C-276) Gas Atomized		<ul style="list-style-type: none"> HVOF, HVOF, Cold Spray, APS Excellent for corrosion resistant coatings Used in chemical equipment in corrosive environments Also available as AMPERWELD® (coarser grain sizes) for PTA and Laser Cladding
409.074	45/15			
409.088	53/20			
442.974		NiCrSi	GE B50TF81 Cl. A	
442.975			GE B50TF81 Cl. B	
445.980		NiCoCrAlMoWTi	GE B50TF183	
469.063	75/45	CoCrAlYTaCSi ⁽¹⁻⁶⁾ Gas Atomized Co balance Cr 25 %, Ta 8.2 %, Al 7.5 %, C 0.75 %, Si 0.75 %, Y 0.75 %		<ul style="list-style-type: none"> APS, HVOF, Detonation guns Max. operating temperature 1050 °C Excellent build-up resistance Used on furnace rolls in steel sheet annealing
469.088	53/20			

AMPERIT® | PURE METALS, ALLOYS & OTHERS

AMPERIT® PURE METALS, ALLOYS & OTHERS				
AMPERIT®	Particle in μm	Chemistry / Powder Type	Approvals	Typical Properties and Applications
470.001	45/22	CoCrAlYTaNCSi-Al ₂ O ₃ ⁽¹⁻⁶⁾ 90/10 Blended		<ul style="list-style-type: none"> • APS, Detonation guns • Max. operating temperature 1050 °C • Excellent build-up resistance • Better wear resistance than AMPERIT® 469 • Used on furnace rolls in steel sheet annealing
470.054	45/10			
471.063	75/45	CoCrAlYTaNCSi-Al ₂ O ₃ ⁽¹⁻⁶⁾ 90/10 Agglomerated and sintered		<ul style="list-style-type: none"> • .063 for kerosene HVOF • .074 for gas fueled HVOF • Max. operating temperature 1050 °C • Homogeneous distribution of fine Al₂O₃ particles • Excellent build-up resistance • Good wear resistance at high temperature and thermal shock resistance • Used on furnace rolls in steel sheet annealing
471.074	45/15			
NEW 473.054	45/10	CoNiCrAlY-CrC-CrB ₂ -Y ₂ O ₃	blended	<ul style="list-style-type: none"> • HVOF, Plasma • Excellent build-up resistance • Good wear resistance at high temperature and thermal shock resistance • Used on furnace rolls in steel sheet annealing

Hazards identification in Advertising (REGULATION (EC) No 1272/2008 Article 48): (1) Resp. Sens. 1; (2) Skin Sens. 1; (3) Eye Irrit. 2; (4) Repr. 2; (5) Aquatic Acute 1; (6) Aquatic Chronic 1; (7) Aquatic Chronic 2; (8) Aquatic Chronic 3; (9) Carc. 2; (10) STOT RE 1; (11) Acute Tox. 3, (12) STOT RE 2; (13) Flam. Sol. 1.

The values on above table are typical values and do not constitute a specification. Additional materials and grain sizes are available on request. Product data sheets are available for download at www.hoganas.com

AMPERIT® | AIRCRAFT APPROVALS AND TURBINE SPECIFICATIONS

AMS Specifications

AMPERIT®	Material	Specification	Remarks
585.435	Cr ₃ C ₂ -NiCr 75/25	AMS 7875	
515.400	WC-Co 88/12	AMS 7879	
526.437	WC-Co 83/17	AMS 7881	Method 2 (Kerosene)
556.440	WC-Co-Cr 86/10/4	AMS 7882	Method 4 (Jet Kote, DJ)
558.426	WC-Co-Cr 86/10/4	AMS 7882	Method 3 (Jet Kote)
558.433	WC-Co-Cr 86/10/4	AMS 7882	Method 2 (Kerosene)
558.434	WC-Co-Cr 86/10/4	AMS 7882	Method 1 (DJ)
558.443	WC-Co-Cr 86/10/4	AMS 7882	Method 4 (Jet Kote, DJ)
558.444	WC-Co-Cr 86/10/4	AMS 7882	Method 2 (Kerosene)

Alstom (GE Power)

AMPERIT®	Material	Material (Alstom)	Specification
416*	MCrAlY Proprietary	SL30	HTCT 650559
418*	MCrAlY Proprietary	SV20	HTCT 650557
418*	MCrAlY Proprietary	SH20	HTCT 650515
418*	MCrAlY Proprietary	SL20	HTCT 650565
436*	MCrAlY Proprietary	SL349	HTCT 650581
436*	MCrAlY Proprietary	SV349	HTCT 650585
584*	Cr ₃ C ₂ -NiCr 75-25		HTCT 650560
587*	Cr ₃ C ₂ -NiCr 65-35		HTCT 650560
827*	ZrO ₂ -Y ₂ O ₃	SS-93-07	HTCT 650564

* Please contact sales office

CPWA

AMPERIT®	Material	Specification
106.707	Mo	CPW 213
282.705**	Ni-Al 95-5	CPW 247
704.053	Cr ₂ O ₃	CPW 320
410.429	NiCoCrAlY	CPW 387

** Available on request

AMPERIT® | AIRCRAFT APPROVALS AND TURBINE SPECIFICATIONS

GE AVIATION			
AMPERIT®	Material	Specification	Class
106.282	Mo	401-3083-630	A
NEW 165.965	Re	GE B50TF260	A
170.266	Silicium	GE A50TF350	A
NEW 825.289	ZrO ₂ -Y ₂ O ₃	GE A50TF278	A
NEW 825.290	ZrO ₂ -Y ₂ O ₃	GE A50TF278	B
NEW 825.774	ZrO ₂ -Y ₂ O ₃	GE A50TF278	C
827.774	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	C
827.289	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	A
827.290	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	B
827.293*	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF204	C
NEW 831.289	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	A
831.290	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	B
831.774	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	C
NEW 831.967	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50TF278	D
742.292	Al ₂ O ₃ -TiO ₂ 97-3	GE A50TF87	A
742.298	Al ₂ O ₃ -TiO ₂ 97-3	GE A50TF87	B
NEW 742.966	Al ₂ O ₃ -TiO ₃	GE A50TF87	C
NEW 280.287	Ni-Al 95-5	GE B50TF56	B
NEW 280.972	Ni-Al 95-5	GE B50TF56	C
NEW 380.993	Ni-SA 625	GE B50TF270	A
NEW 250.968	Ni-Cr	GE B50TF40	A
NEW 250.969	Ni-Cr	GE B50TF40	B
NEW 251.968	Ni-Cr	GE B50TF40	A
NEW 251.969	Ni-Cr	GE B50TF40	B
NEW 442.974	NiCrSi	GE B50TF81	A
442.975	NiCrSi	GE B50TF81	B
413.284	NiCrAlY	GE B50TF192	A
415.288	CoNiCrAlY	GE B50TF195	A

GE AVIATION

AMPERIT®	Material	Specification	Class
407.291	Ni-SA 718	GE B50TF202	B
407.987	Ni-SA 718	GE B50TF202	A
407.988	Ni-SA 718	GE B50TF202	D
421.299	NiCoCrAlTaReY	GE B50TF242	A
421.760	NiCoCrAlTaReY	GE B50TF242	B
NEW 421.761	NiCoCrAlTaReY	GE B50TF242	C
NEW 421.992	NiCoCrAlTaReY	GE B50TF242	D
NEW 445.980	NiCoCrAlMoWTi	GE B50TF183	A
NEW 481.984	CoCrAlHf	GE B50TF201	A
NEW 481.985	CoCrAlHf	GE B50TF201	B
481.986	CoCrAlHf	GE B50TF201	C
518.280	WC-Co 88-12	GE B50TF27	A
518.768	WC-Co 88-12	GE B50TF27	B
593.775	Cr ₃ C ₂ -NiCr 90-10	GE B50TF281	A
528.764	WC-Co 90-10	GE B50TF295	A

GE POWER

AMPERIT®	Material	Specification
106.282	Mo	GE 401-3083-630
351.762	CoCrWNiMn	GE B50A919
NEW 413.265	NiCrAlY	GE B50A892
415.001	CoNiCrAlY	GE B50AG5
NEW 447.994	NiCrAlY	GE B50AG16 Cl. A
NEW 448.996	CoNiCrAlY	GE B50AG12 Cl. A
NEW 448.997	CoNiCrAlY	GE B50AG12 Cl. C
NEW 825.998	ZrO ₂ -Y ₂ O ₃ 93/7	GE A50AG1
NEW 825.999	ZrO ₂ -Y ₂ O ₃ 93/7	GE A50AG1
NEW 1501	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50G1 Cl. A
827.772	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50A557

AMPERIT® | AIRCRAFT APPROVALS AND TURBINE SPECIFICATIONS

GE POWER

AMPERIT®	Material	Specification
827.773	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50A558
NEW 831.772	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50A557
NEW 831.773	ZrO ₂ -Y ₂ O ₃ 93-7	GE A50A558
NEW 344.930	CoCrWSi	GE B50A960

MTU

AMPERIT®	Material	Specification	Remarks
250.200	Ni-Cr 80-20	MTS 1050	
106.222	Mo	MTS 1054	
515.203	WC-Co 88-12	MTS 1055	
526.223	WC-Co 83-17	MTS 1058	
742.204	Al ₂ O ₃ -TiO ₂ 97-3	MTS 1059	
742.206	Al ₂ O ₃ -TiO ₂ 97-3	MTS 1061	
740.207	Al ₂ O ₃	MTS 1062	
825.218	ZrO ₂ -Y ₂ O ₃ 93-7	MTS 1198	
704.216	Cr ₂ O ₃	MTS 1231	
415.220	CoNiCrAlY	MTS 1262	
415.221	CoNiCrAlY	MTS 1273	
280.241	Ni-Al 95-5	MTS 1309	
825.242	ZrO ₂ -Y ₂ O ₃ 93-7	MTS 1342	
421.240	NiCoCrAlTaReY	MTS 1351	
827.238	ZrO ₂ -Y ₂ O ₃ 93-7	MTS 1352	
281.245*	Ni-Al 95-5	MTS 1519	listed in MTS 1519 as 281.090
413.247*	NiCrAlY	MTS 1545	listed in MTS 1545 as 413.1

PWA

AMPERIT®	Material	Specification	AMPERIT®	Material	Specification
250.425	Ni-Cr 80-20	PWA 1303	250.411	Ni-Cr 80-20	PWA 1319
580.402	Cr ₃ C ₂	PWA 1304	146.412*	Cr	PWA 1331
580.404	Cr ₃ C ₂	PWA 1306	588.419*	Cr ₃ C ₂ -NiCr 75-25	PWA 1364
585.405	Cr ₃ C ₂ -NiCr 75-25	PWA 1307	410.424	NiCoCrAlY	PWA 1365-1
740.406	Al ₂ O ₃	PWA 1310	410.429	NiCoCrAlY	PWA 1365-2
742.407	Al ₂ O ₃ -TiO ₂ 97-3	PWA 1311	827.423	ZrO ₂ -Y ₂ O ₃ 93-7	PWA 1375
106.158	Mo	PWA 1313	281.420	Ni-Al 95-5	PWA 1380
250.428	Ni-Cr 80-20	PWA 1315	526.454	WC-Co 83-17	PWA 36331-1
348.430	Co-Hard Alloy 31	PWA 1316	828.405	ZrO ₂ -Y ₂ O ₃ 88-12	PWA 36375
250.410	Ni-Cr 80-20	PWA 1317	Special	Cr ₂ O ₃ -Al ₂ O ₃ 70-30	PWA 36376
348.431	Co-Hard Alloy 31	PWA 1318			

Rolls Royce

AMPERIT®	Material	Specification	AMPERIT®	Material	Specification
526.350	WC-Co 83-17	MSRR 9507 / 1	825.381	ZrO ₂ -Y ₂ O ₃ 93-7 "white"	MSRR 9507 / 72
585.357	Cr ₃ C ₂ -NiCr 75-25	MSRR 9507 / 17	250.354	Ni-Cr 80-20	MSRR 9507 / 8
585.351	Cr ₃ C ₂ -NiCr 75-25	MSRR 9507 / 2	740.355	Al ₂ O ₃	MSRR 9507 / 9
281.390	Ni-Al 95-5	MSRR 9507 / 5			
526.382	WC-Co 83-17	MSRR 9507 / 69			

AMPERIT® | AIRCRAFT APPROVALS AND TURBINE SPECIFICATIONS

Siemens

AMPERIT®	Material	Material (Siemens)	Specification
422	Proprietary MCrAlY	SICOAT 2231	DGTLV 511 114-001
428	Proprietary MCrAlY	SICOAT 2453	DGTLV 511 114-001
429	Proprietary MCrAlY	SICOAT 2464	DGTLV 511 114-001
827	ZrO ₂ -Y ₂ O ₃ 93-7		DGTLV 504 009-001
831	ZrO ₂ -Y ₂ O ₃ 93-7		DGTLV 504 009-001
835.945	Gd ₂ Zr ₂ O ₇		DPTI-00002446
835.957	Gd ₂ Zr ₂ O ₇		PD-83336Y6
846	Proprietary Ceramic		DGTLV 511 143-001 PD-83336Y5

SNECMA

AMPERIT®	Material	Specification
280.732	NiAl 95-5	DMR 33-011
NEW 413.726	NiCrAlY	DMR 33-090
526.729	WC-Co 83-17	DMR 33-019
526.727	WC-Co 83-17	DMR 33-501
742.731	Al ₂ O ₃ -TiO ₂	DMR 33-020
831.733	ZrO ₂ -Y ₂ O ₃ 93-7	DMR 33-098

Volvo (GKN)

AMPERIT®	Material	Specification	AMPERIT®	Material	Specification
742.850	Al ₂ O ₃ -TiO ₂ 97-3	PM 819-0	410.860	NiCoCrAlY	PM 819-51
515.851	WC-Co 88-12	PM 819-1	515.851	WC-Co 88-12	PM 819-53
585.868	Cr ₃ C ₂ -NiCr 75-25	PM 819-5	281.863	Ni-Al 95-5	PM 819-56
742.867	Al ₂ O ₃ -TiO ₂ 97-3	PM 819-11	827.864	ZrO ₂ -Y ₂ O ₃ 93-7	PM 819-57
106.870	Mo	PM 819-13	827.873	ZrO ₂ -Y ₂ O ₃ 93-7	PM 819-84
827.853	ZrO ₂ -Y ₂ O ₃ 93-7	PM 819-20	415.875	CoNiCrAlY	PM 819-86
518.874	WC-Co 88-12	PM 819-25	416.877	NiCoCrAlSiTaY	PM 819-87
413.858	NiCrAlY	PM 819-44			

Others

Customer	AMPERIT®	Material	Specification	Type	Remarks
Honeywell	827.943	ZrO ₂ -Y ₂ O ₃ 93-7	EMS57750	Type 1	
Boeing	109.832	Mo	BMS 1067	Type 21	
Boeing	515.830	WC-Co 88-12	BMS 1067	Type 1	listed as 515.400
Boeing	526.831	WC-Co 83-17	BMS 1067	Type 1	listed as 526.062
Boeing	584.833	Cr ₃ C ₂ -NiCr 75-25	BMS 1067	Type 22	in approval
De Haviland	526.781	WC-Co 83-17	DHMS C4.19		listed as 526.062
McDonnell Douglas	515.949	WC-Co 88-12	DMS2049	Type 2	
McDonnell Douglas	920.894	MoSi ₂	DMS2049	Type 3	
McDonnell Douglas	526.895	WC-Co 83-17	DMS2049	Type 5	

AMPERIT® | UNITS

AMPERIT® Grain Size Code Guide

Grain Size Code	Grain Size Range in μm	Grain Size Code	Grain Size Range in μm	Grain Size Code	Grain Size Range in μm
.000	22/5	.061	150/53	.082	125/10
.001	45/22	.062	53/10	.083	125/38
.002	90/45	.063	75/45	.084	75/20
.003	45/5	.064	106/45	.085	106/20
.004	63/16	.065	30/10	.086	<63
.005	106/32	.066	53/15	.087	38/15
.006	125/45	.067	15/5	.088	53/20
.007	90/16	.068	35/15	.089	45/20
.008	20/5	.069	40/10	.090	Customized grain size (on request)
.049	300/45	.070	63/10	.091	150/45
.050	<5	.071	25/5	.092	75/25
.051	12/5	.072	38/10	.093	125/90
.052	20/5	.073	150/63	.094	106/38
.053	25/10	.074	45/15	.095	200/106
.054	45/10	.075	90/15	.096	355/200
.055	106/10	.076	12/2	.099	Customized grain size (fine, on request)
.056	100/60	.077	63/32		
.057	150/5	.078	75/15		
.058	<15	.079	90/53		
.059	30/5	.080	106/10		
.060	300/200	.081	106/53		

Mesh to micron conversion chart

U.S. mesh	Microns	U.S. mesh	Microns	U.S. mesh	Microns
3	6730	18	1000	80	177
4	4760	20	841	100	149
5	4000	25	707	120	125
6	3360	30	595	140	105
7	2830	35	500	170	88
8	2380	40	400	200	74
10	2000	45	354	230	63
12	1680	50	297	270	53
14	1410	60	250	325	44
16	1190	70	210	400	37

AMPERIT® | UNITS

Mass

1 ounce (oz.)	28.35 g	1 g	0.0353 oz.
1 pound (lb.)	0.45359 kg	1 kg (= 1000 g)	2.205 lb.
1 ton (short ton US)	907.185 kg	1 to (= 1000 kg)	1.102 ton (short ton US)

Density

1 lb.mass/in.³	27.68 g/cm ³	1 g/cm³	0.362 lb.mass/in. ³
1 lb.mass/ft.³	0.016 g/cm ³	1 g/cm³	62.4 lb.mass/ft. ³

Temperature Conversion

Kelvin (K)	Centigrade (°C)	Fahrenheit (°F)
273	0	32
373	100	212
$C = K - 273.15$	$K = C + 273.15$	$F = 1.8C + 32$
		$C = (F - 32) / 1.8$

Thermotechnical units

1 B.t.u.	0.252 kcal	1.05506 kJ	1 kJ	0.2388 kcal	0.9477 B.t.u
1 B.t.u./lb-mass	0.556 kcal/kg	2.329 kJ/kg	1 kJ/kg	0.2388 kcal/kg	0.4298 B.t.u./lb-m.

Pressure

	1 Pa = 1 N/m ²	1 bar = 1 Mdyn/cm ²	1 at = 1 kp/cm ²	1 atm = 1 p _{STP}	1 Torr = 1 mm _{Hg}	1 psi = 1 lb _f /in ²
1 Pa	1	$1.0000 \cdot 10^{-5}$	$1.0197 \cdot 10^{-5}$	$9.8692 \cdot 10^{-6}$	$75006 \cdot 10^{-3}$	$1.4504 \cdot 10^{-4}$
1 bar	$1.0000 \cdot 10^5$	1	$1,0197 \cdot 10^0$	$9.8692 \cdot 10^{-1}$	$7.5006 \cdot 10^2$	$1.4504 \cdot 10^1$
1 at	$9.8067 \cdot 10^4$	$9.8067 \cdot 10^{-1}$	1	$9.6784 \cdot 10^{-1}$	$7,3556 \cdot 10^2$	$1.4223 \cdot 10^1$
1 atm	$1.0133 \cdot 10^5$	$1.0133 \cdot 10^0$	$1.0332 \cdot 10^0$	1	$7.6000 \cdot 10^2$	$1.4696 \cdot 10^1$
1 Torr	$1.3332 \cdot 10^2$	$1.3332 \cdot 10^{-3}$	$1.3595 \cdot 10^{-3}$	$1.3158 \cdot 10^{-3}$	1	$1.9337 \cdot 10^{-2}$
1 psi	$6.8948 \cdot 10^3$	$6.8948 \cdot 10^{-2}$	$7.0307 \cdot 10^{-2}$	$6.8046 \cdot 10^{-2}$	$5,1715 \cdot 10^1$	1

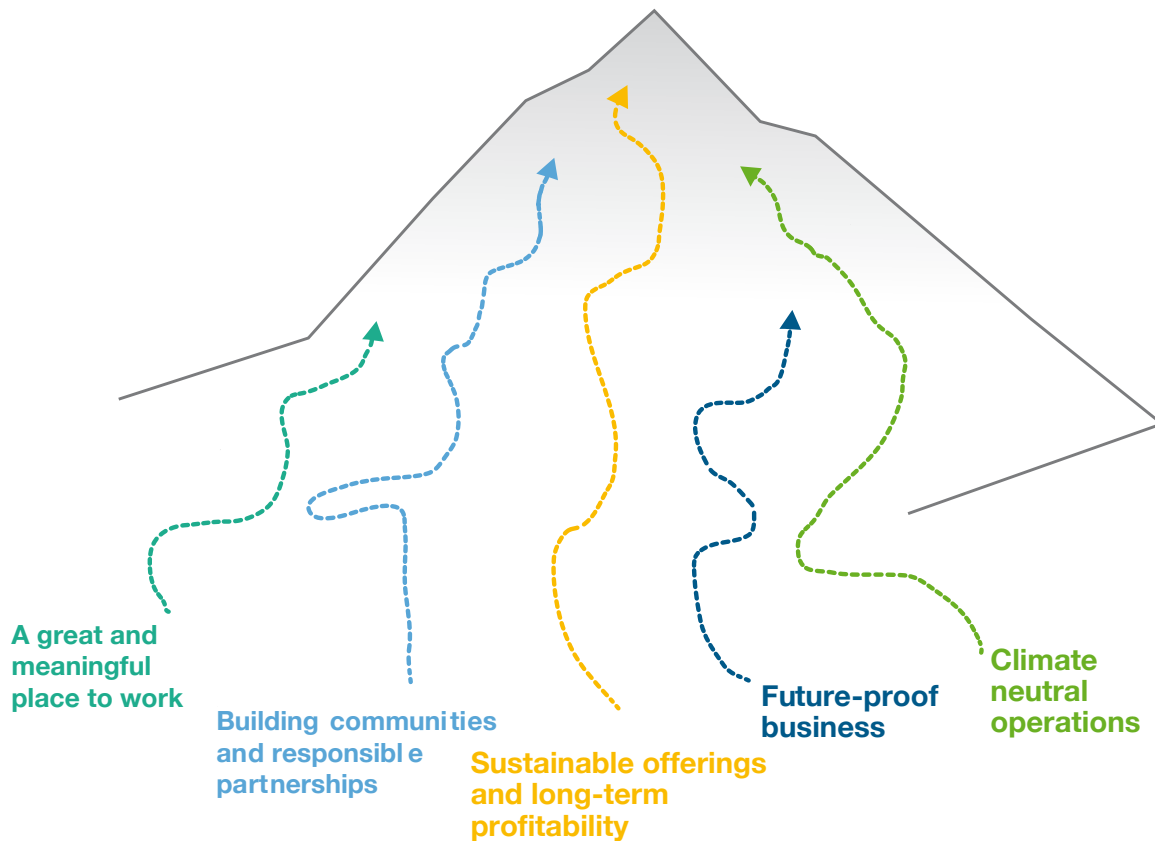
Volume

1 m³	= 1000 l	1 in³	= 0.0164 l
1 l	= 10 dl	1 l	= 0.2642 US gal
1 US gallon	= 3.7854 l	1 l	= 0.0353 ft ³
1 ft³	= 28.3168 l	1 l	= 61.0237 in ³

Gas Flow

1 scfh (70 °F)	= 0.4719 slpm (70 °F)	= 0.4381 nl/min (0 °C)
1 nl/min (0 °C)	= 1.0773 slpm (70 °F)	= 2.2826 scfh (70 °F)

Climb the paths of Mount Sustainability



Höganäs strives to be a catalyst for change and become a truly sustainable business. For us, environmental and social care, and business success are intertwined. Our sustainability strategy, Mount Sustainability, sets the direction.

A great and meaningful place to work means respect, equal treatment, competence and leadership development. For us, people that prosper are the foundation for the timely and efficient delivery of quality products and services to our customers.

Building communities and responsible partnerships includes amongst other things our extensive work with responsible sourcing, working together with our suppliers to develop and secure high standards concerning human rights, labor rights, anti-corruption and environmental protection.

Sustainable products and long-term profitability describes our efforts to develop products that benefit both

our customers and society. Our products not only enable our customers to reduce their material and energy consumption, but also improve the efficiency of their final products.

Future-proof business means ensuring high quality in our products through effective work methods, a clean work environment, responsible use of resources, Zero Waste and Zero Accidents.

Climate neutral operations is the guiding vision for our work with careful monitoring of our emissions, efficient use of energy and resources in production and transport, and gradually changing to renewable resources.

Höganäs aims to be the partner that enables sustainability and seeks cooperation with suppliers, end users, academia and communities to meet the expectations and requirements of society.

On Your Side

Wherever you are in the world, our experienced team will support you.



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Korea

Y.E. Specialties Co.Ltd.
Thailand

Metallizing Equipment Co.
India

Comersul Ltda.
Brazil

**Australian Metal Powders
AMPS Ltd.**
Australia

WelTrading Co. Ltd.
China

Sabaros S.A.
Russia

DPAP 08/18

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The values in this publication are typical values and do not constitute a specification.