metco
joining & cladding

Metco materials for laser cladding

Optimum materials... Dependable quality... Excellent value

Our new Metco portfolio of powder materials are designed to the meet the exacting requirements needed for laser cladding applications. Metco Joining & Cladding has been a trusted supplier of materials for demanding industries that include aerospace, power generation, mining, petrochemical and oil/gas exploration, and for more than 75 years. For exceptional quality, excellent reproducibility and superior performance, Metco is the brand you can depend on for your laser cladding applications.

Metco 1220A

CoCrC[WC][MoNiC][MoWNi]

Metco 1220A powder is an inert gas atomized powder that is chemically homogeneous and freely flowing. It provides excellent results for a variety of processes such as laser cladding, powder-fed thermal spray processes and PTA.

Order No. 1301056, Datasheet DSM-0218

Metco 1220B
Metco 1220C

Co 28Cr 4W 3Ni 3Fe 1.5Si 1C 1Mo

Metco 1220B and Metco 1220C are inert gas-atomized versions of the most generally useful cobalt alloy. Similar to Stellite 6, they have excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range. Overlay deposits of Metco 1220B and Metco 1220C have outstanding self-mated anti-galling properties, which result in their wide use as a valve seat materials. Deposits also exhibit high temperature hardness and high resistance to cavitation erosion. These alloys are ideally suited to a variety of hardfacing processes. Metco 1220C has a fine particle size distribution (–53 +20 µm). Metco 1220B is a standard size powder (–106 +45 µm).

Metco 1220B – Order No. 1301057, Datasheet DSM-0218

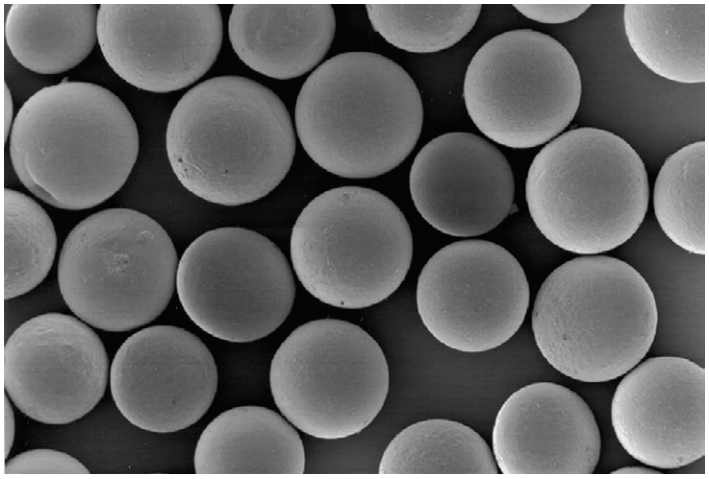
Metco 1220C – Order No. 1301058, Datasheet DSM-0218

Metco 1221A

Co 27Cr 5.5Mo 3Ni 0.25C

Metco 1221A is an inert gas-atomized, cobalt-based superalloy, similar in composition to Stellite 21. An excellent choice for dynamically active environments, overlays of M Metco 1221A offer excellent resistant to abrasion and galling and exhibit a low coefficient of friction between mating components. Metco 1221A also provides excellent corrosion resistance, particularly in reducing environments.

Order No. 2280106, Datasheet DSM-0218



Metco 50050A, a specialized spherical, fused tungsten carbide that produces deposits with excellent properties for laser cladding or PTA applications.

Metco 1223A

Co 25Cr 5Mo 2.5W 2Ni

Metco 1223A is an inert gas-atomized, cobalt-chromium-molybdenum alloy similar to Ultimet. It is designed for good wear and corrosion resistance and excellent laser cladability. It has excellent work hardening characteristics which offers a better protection against high stress abrasion. When laser cladded, Metco 1223A exhibits almost no porosity and excellent wear resistance. The product can also be used for PTA processes.

Order No. 2280105, Datasheet DSM-0218

Metco 1020A
Metco 1020B

Fe Cr Mo Nb Ti - Proprietary

Metco 1020A and Metco 1020B are inert gas-atomized proprietary ferritic stainless steel powders with a composition similar to a 400 series stainless steel. They have been optimized for higher wear resistance, while maintaining a similar level of corrosion resistance to a type431 stainless steel. These materials can be clad in multiple layers crack-free, allowing for the overlay to be utilized for rebuild or salvage of undersized parts. The overlay can be ground to a very good finish using silicon carbide wheels. Metco 1020A has a particle size distribution (-150 +53). Metco 1020B is a standard size powder (53 +20).

Metco 1020A – Order No. 1533800, Datasheet DSM-0278

Metco 1020B – Order No. 1533807, Datasheet DSM-0278

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Metco 1016A

Fe 12Ni 17Cr 2.5Mo 2.3Si 1Mn 0.03C

Metco 1016A is an inert gas-atomized version of 316L austenitic steel compatible with AISI Type 316L (UNS S31603). The low carbon content of Metco 1016A results in deposits with no grain boundary carbide precipitation and a refined microstructure that is often better than 316L bulk materials. Choose Metco 1016A for its impact, creep and stress rupture resistance at elevated temperatures and its corrosion resistance in chloride environments that resists pitting and crevice corrosion.

Order No. 2280147, Datasheet DSM-0418

Metco 1040A

Fe V Cr Mn C - Proprietary

Metco 1040A is welded as a hardfacing overlay that protects manganese steel substrates from extreme abrasion. As welded, it is in a hardened state (HRC 45), yet work hardens quickly to even higher hardness levels (≥ HRC 63), thereby preventing gouging and wear. Metco 1040A is suggested for use in any manganese steel application where improved abrasion resistance is required. The revolutionary improvement in abrasion and impact for an as-welded manganese steel overlay will lead to longer lifespans for manganese steel plates in the mining industry.

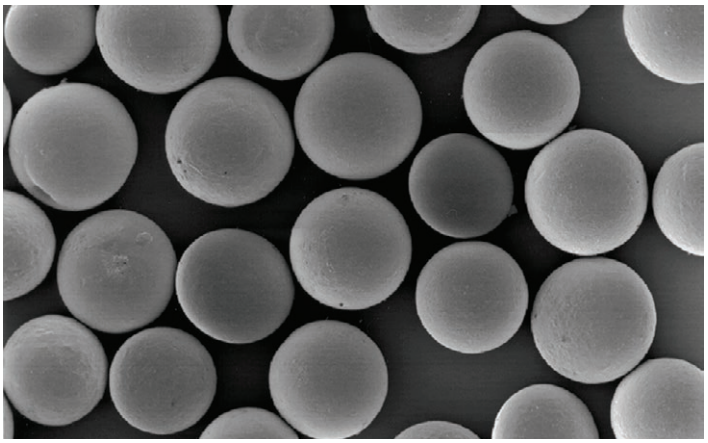
Order No. 1097802, Datasheet DSM-0208

Metco 1030A

Fe Mo V C B Ni Mn Si - Proprietary

Metco™ 1030A is a revolutionary new chromium-free and heat-treatable hardfacing overlay material. It provides the best performance in aggressive environments where impact and abrasive wear are critical sources of material failure. The chromium-free composition enables a safer, cleaner processing environment for the applicator. As welded, it is in a hardened state (HRC 45), yet work hardens quickly to even higher hardness levels (≥ HRC 63), thereby preventing gouging and wear. Metco 1040A is suggested for use in any manganese steel application where improved abrasion resistance is required. The revolutionary improvement in abrasion and impact for an as-welded manganese steel overlay will lead to longer lifespans for manganese steel plates in the mining industry.

Order No. 1097796, Datasheet DSM-0206



SEM photomicrograph of Metco 1020 showing morphology that is typical of these products.

Metco 1051A

Fe Cr Nb W Ti V C Mn B Si - Proprietary

Metco™ 1051A is an inert gas-atomized iron-based alloy specifically designed to perform in aggressive environments where both abrasive wear and impact are of concern. Deposits of this product are unique in that they exhibit impact resistance that is 10 to 20 times better than PTA-applied WC-Ni overlays, but with similar abrasion resistance. Metco 1051A coatings withstand impact and high stresses.

Order No. 1300511, Datasheet DSM-0209

Amdry 7050

Ni 3.2B 3Si

Amdry 7050 is a gas-atomized, self-fluxing alloy consist of nickel and cobalt based. It is especially useful when blended with a carbide where a harder matrix is required for erosive wear situations. The lack of chromium substantially reduces the dissolution of carbide during the fusing process.

Order No. 1085539, Datasheet DSM-412

Metco 11A
Metco 11B

Ni 15Cr 4.2Si 3.5Fe 3.1B 0.7C

Metco 11A and Metco 11B are gas-atomized, self-fluxing alloys consists of nickel and cobalt based products with a proven track record for hardfacing applications. They are optimized to provide better wetting and fusing behavior. Using a two-step "spray and fuse", oxy-fuel welding, hardfacing or cladding technology, they develop a fully dense microstructure that is free of oxides and porosity, and is metallurgically bonded to the substrate.

Metco 11A – Order No. 1301201, Datasheet DSM-412

Metco 11B – Order No. 1301203, Datasheet DSM-412

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Metco 12C
Ni 7.5Cr 3.5Si 2.5Fe 1.7B 0.25C

Metco 12C is a gas-atomized, self-fluxing alloy consisting of nickel and cobalt based is recommended where a hardness of HRC 35 is sufficient for wear resistance and where machinability of the coating is important.

Order No. 1002519, Datasheet DSM-412

Metco 14E
Ni 11Cr 3.7Si 2.75Fe 2.2B 0.5C

Metco 14E is a gas-atomized, self-fluxing alloy consisting of nickel and cobalt based. Metco 14E coatings, with a fused hardness of HRC 45 – 50, are harder than Metco 12C coatings and suitable where thick, wear resistant coatings are desired. In this respect, these are better than the harder Metco 15E coatings, which may be susceptible to cracking when applied as a thick coating on highly hardenable steels.

Order No. 1002519, Datasheet DSM-412

Metco 15E
Ni 17Cr 4Fe 4Si 3.5B 1C

Metco 15E coatings have a typical hardness of HRC 60 and produce dense, pore-free coatings with high wear resistance and corrosion resistance.

Order No. 1051113, Datasheet DSM-412

Metco 16C-NS
Ni 17Cr 4Si 3.7B 3Fe 2.5Cu 2.5Mo 0.6C

Metco 16C-NS coatings are similar to Metco 15E coatings, but have superior resistance to corrosion against a variety of acids and aqueous media. They can also be applied much thicker than Metco 15E coatings and offer better resistance to cracking. Metco 16C-NS is the best choice when coatings thicker than 1.5 mm (0.06 in) are required, or for thinner coatings on complex geometries. However, coatings of Metco 16C-NS may require more stock removal after fusing to get a smooth, clean surface

Order No. 1029071, Datasheet DSM-412

Metco 1720A
Metco 1720B
Ni Cr Mo Nb Ti Proprietary

Metco 1720A and Metco 1720B are proprietary nickel-based, superalloy hardfacing powders. Overlays of Metco 1720x materials have been optimized to have corrosion resistance similar to that of Inconel 625 overlays, but with superior wear resistance. Both provide excellent corrosion resistance, particularly in reducing environments.

Metco 1720A – Order No. 1538352, Datasheet DSM-0280

Metco 1720B – Order No. 1538353, Datasheet DSM-0280

Metco 51058
60MTC 60CTC-S 40(NiCrBSi)

Metco 51058 is a blend of spherical fused tungsten carbide and a self fluxing alloy matrix with a matrix hardness of 40 HRC. This combination can be applied to many substrates with minimal porosity and cracking. It is usually used as applied, however the deposits can be finished with diamond abrasives to final dimension and finish requirements. Metco 51058 is particularly suitable for PTA processing due to its coarser size distribution.

Order No. 1306774, Datasheet DSM-0233

Metco 51059A
60CTC-S 40(NiCrBSi)

Metco 51059A is a 60/40 blend of spherical, cast tungsten carbide (CTC-S) and self-fluxing matrix materials. This combination of a very hard phase material (tungsten carbide) and a corrosion resistant matrix results in a product that is suitable for laser cladding or PTA deposits that resist erosion from particulates in slurries.

Order No. 1511221 (5 kg) & 1511227 (25 kg), Datasheet DSM-0233

Metco 51060A
60CTC-S 40(NiCrBSi)

Metco 51060A is a blend of spherical fused tungsten carbide and a self fluxing alloy matrix with a matrix hardness of 40 HRC. This combination can be applied to many substrates with minimal porosity and cracking. It is usually used as applied, however the deposits can be finished with diamond abrasives to final dimension and finish requirements.

Order No. 2284703, Datasheet DSM-0233

Metco 50050A
CTC-S - Blend Material

Metco 50050A is a special grade of Oerlikon Metco's spherical, fused tungsten carbide. These carbides have a fine non-acicular structure with greater hardness than conventional fused and crushed tungsten carbide. Increased apparent density and improved flowability raise the amount of hard phase present in wear resistant coatings. This material can be blended with a nickel-based alloy matrix material for laser cladding or PTA welding applications.

Order No. 1511229, Datasheet DSM-0313

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WOKA 50001, WOKA 50005, WOKA 50007, WOKA 50009, WOKA 50024

CTC - Blend Material

WOKA™ Fused Tungsten Carbides (CTC) are irregularly shaped, two-phase tungsten carbide powders. WOKA CTC materials are designed to be the hard phase constituent of a wear-resistant surface. Depending on the surfacing process, they can be blended with self-fluxing alloys or used a filler material for rods, wires, electrodes or infiltration applications. Overlays containing these materials offer excellent abrasive wear resistance in harsh environments that can tolerate some impact resistance.

WOKA 50001 - Order No. 1065261, Datasheet DSM-0301
WOKA 50005 - Order No. 1075043, Datasheet DSM-0301
WOKA 50007 - Order No. 1075044, Datasheet DSM-0301
WOKA 50009 - Order No. 1094769, Datasheet DSM-0301
WOKA 50024 - Order No. 1065592, Datasheet DSM-0301

WOKA 50504, WOKA 50505, WOKA 50512, WOKA 50532, WOKA 50538

CTCP (WC Co and WC Ni) Sinter Pellets

WOKA™ Cemented Tungsten Carbide Pellets (CTCP) are spheroidal cemented carbide materials specially designed for hard-banding applications in the oil and gas industry. These products can be blended as a hard-phase filler material in nickel or iron hard facing rods and wires. Blend products with finer particle size distributions with cobalt-, iron- or nickel-based self-fluxing alloy powders using a hard phase to matrix ratio of 30 to 60 % for PTA or laser cladding applications

WOKA 50504 - Order No. 1059529, Datasheet DSM-0356
WOKA 50505 - Order No. 1067530, Datasheet DSM-0356
WOKA 50512 - Order No. 1067531, Datasheet DSM-0356
WOKA 50532 - Order No. 1075038, Datasheet DSM-0356
WOKA 50538 - Order No. 1072797, Datasheet DSM-0356

Contact us for more information on our Metco laser cladding products.

Don’t see the laser cladding material you need for your application? Talk to us!
Chances are we can supply exactly what you need.

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Inconel is a registered trademark of Huntington Alloys Corporation
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