



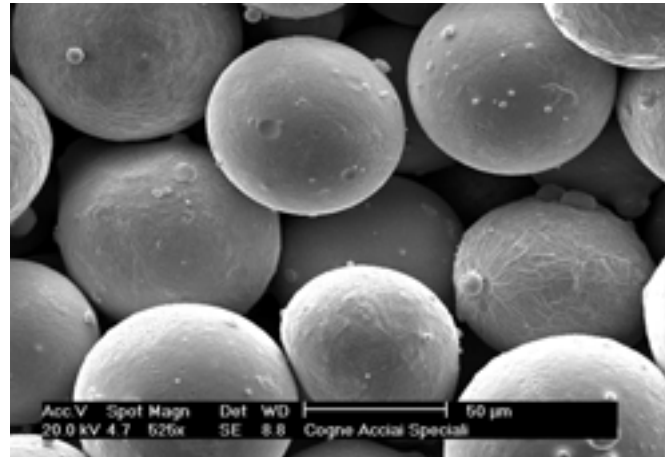
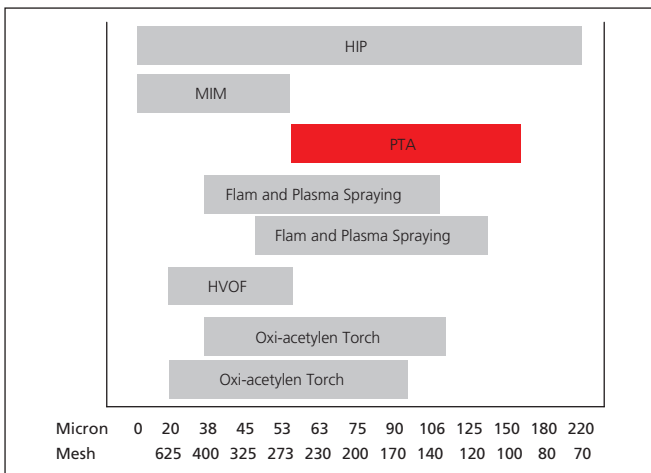
COGNE TECHNOLOGIES

# PTA POWDER

ENGLISH

## GAS ATOMISED POWDER

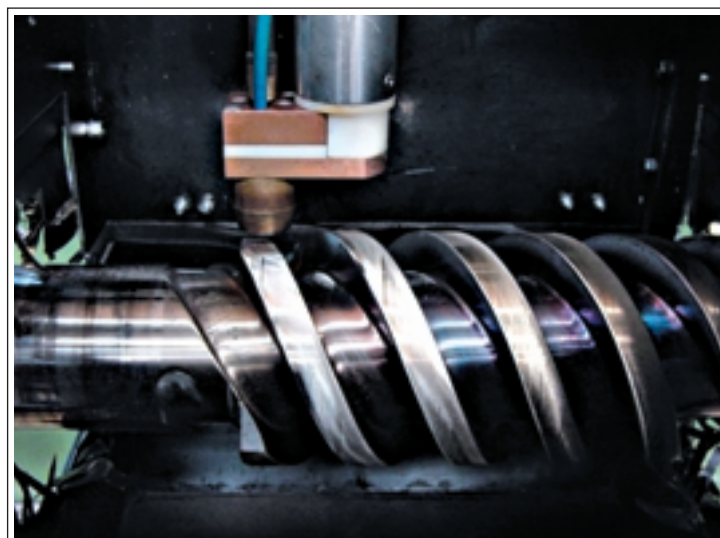
COGNE powder is atomised and cooled in nitrogen inert gas. This process allows COGNE to produce spherical, not oxidised particles with a homogeneous chemical composition. Powder is sieved using ultrasonic sieving to obtain a precise grain distribution according to the different applications.



La polvere COGNE è atomizzata e raffreddata in atmosfera inerte di azoto. Questo processo permette a COGNE di produrre particelle sferiche con una composizione chimica uniforme e con un basso tenore di ossigeno. La polvere è vagliata utilizzando vagli ad ultrasuoni in modo da ottenere una distribuzione granulometrica precisa e adatta a tutte le applicazioni.

The welding process by plasma transferred arc (PTA) employs plasma, originated by an electric arc, as a vector gas. The transferred arc also melts the base material on which the molten powder is applied, giving a typical dilution of ~ 5%. The coating obtained has full density, chemical anchorage, granting consequently high wear resistance.

The temperatures achieved in PTA process are elevated and allow to use Cobalt base powder, as well as Nickel and Iron super-alloys. PTA machine is completely automated, suitable for a wide range of high volume production industries, such as the automotive and plastic industries.





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## Gas atomised Powder

	COGNE grade	C	Si	Cr	Ni	Mo	Others	Properties	Melting point	Characteristics	Applications
Co base	CO01	2.5	1.2	30	-	-	W: 12.5	600 HV	1250°C	Good abrasion, erosion and wear resistance due to high amount of carbides in the matrix	Pumps, cutters, steam valves, erosion and wear resistant parts
	CO06	1.1	1.2	28	-	-	W: 4.5	400 HV	1280°C	Good hot hardness and high mechanical and chemical resistance in a wide range of temperatures. Cavitation and impact resistance	Extrusion screws, engine valves and power generators steam.
	CO12	1.5	1.2	29	-	-	W: 8.0	450 HV	1270°C	Similar to CO06, but with higher abrasion and erosion resistance	Extrusion dies. Engine valves.
	CO21	0.2	1.0	27	2.5	5.5		350 HV		Good thermal shock resistance and high temperature stability. The Mo content gives a higher corrosion resistance.	Iron, oil and chemical industries. Hot trimming dies
	CO25	0.1	1.0	20	-	-	W: 15	280 HV	1330°C	Good thermal fatigue resistance	Tools and multi-layers application
	CO1F	1.7	1.2	26	22.5	-	W: 12.5	450 HV	1270°C	High abrasion and corrosion resistance, similar to CO06, but with higher hardness and fluidity	Automotive industry (valves)
Fe base	304L	< 0.03	0.5	18	11	-	Mn: 1.3	< 200 HV	1456°C	Austenitic grade resists intergranular corrosion. Resisting scaling up to 800°C	Components in food processing, textile and oil refining equipment and for low temperature service.
	316L	< 0.03	0.5	17	12	2.5	Mn: 1.5	< 200 HV	1445°C	Similar to 304L better pitting from chloride resistance. Mo content improves corrosion resistance in halides and sea water	
	630	0.05	0.4	17	4.0	-	Cu: 4.0 Nb: 0.4	< 380 HV	1473°C	Precipitation hardening grade with good corrosion resistance in marine environment.	Valves in oil industry, turbine valves, gears, bolts, springs
	410	0.12	0.3	13	-	-		According to HT	1492°C	Hardenable martensitic grade. Good heat resistance.	Steam turbine blades, furnace and burner parts for service at up to 650°C. Machine components, valve and pump parts.
	420	0.20	0.5	13	-	-	Mn: 0.3	According to HT	1487°C	Similar 410 but with lower corrosion resistance a cause of C content.	
	FE12V	2.8	1.0	7.0	-	1.5	V: 12	800 HV According to HT			
	WD54	1.2	-	4.0	-	5.0	W: 5.5 V: 3.0	800 HV According to HT		The high C and V content increases wear and abrasive resistance.	Tools, extrusion screws.
	WD91	1.0	-	3.8	-	8.5	W: 2.0 V: 2.0	800 HV According to HT	1385°C		
FE23C	2.0	1.5	26	10	5.0		350 HV	1274°C	High chemical and mechanical resistance, good wear resistance	Automotive industry (engine valves)	
Ni base	IN600	< 0.1	-	16	8.0	-		170 HV	1310°C	Good oxidation resistance at high temperatures. Good corrosion resistance and chloride ion stress corrosion cracking	Used for furnace components, in chemical and food processing, nuclear engineering
	IN625	< 0.1	1.0	22	< 5.0	9.0	Ti: <0.4 Al: <0.4 Nb: 3.5	200 HV	1320°C	Excellent resistance to many corrosive environments also at high temperature. Good high temperature strength.	Components for exposure to sea water and high mechanical stresses Chemical processing field
	IN825	< 0.03	< 0.5	21	30	3.0	Ti: 1.0	155 HV	1399°C	Resistance to many corrosive environments and resistance to pitting and crevice corrosion	Chemical processing, oil and gas recovery, acid production, reprocessing and handling of radioactive wastes.
	HA C22	< 0.02	< 0.08	22	4.0	13	V: <0.35 Co: <2.5 W: 3.0	180 HV		Better corrosion than C-276 in selected environments. Resistance to a wide range of organic acids	For welding filler metal for general corrosion resistance
	HA C276	< 0.01	< 0.08	15	5.0	16	V: <0.35 Co: <2.5 W: 4.0	180 HV	1375°C	Corrosion resistance in reducing and oxidizing environments that maintains in welded condition.	Used in severest environments in chemical processing
Ni base	NI50	0.45	3.8	11	2.5	B: 2.3		480-600 HV	1060°C		
	NI60	1.0	5.0	18	4.0	B: 2.5		650-830 HV	1080°C	Good abrasion resistance also in corrosive environment.	Extrusion screws, pump shafts, rolls
	NI60/1	0.6	4.0	15	3.0	B: 3.5	Mo: 3.0 Cu: 2.5	650-800 HV	1040°C	Melting range suitable for application without sagging	Thick coating on irregularly shaped parts

## Physical characteristics

Range size (µ) ASTM B214*	Internal range	Flow rate (s/50g) ASTM B213	Apparent density (g/cm³) ASTM B212
50-150	06	14.0-14.6**	4.3-4.8**
63-180	07	14.8-15.5**	4.2-4.5**
45-125	05	14.4-15.0**	4.4-4.5**

## Standard packaging

5 Kg and 20 Kg bottles

\* We guarantee 3% over and under grain size range  
\*\* Alloy chemical composition influences the values

Special chemical analysis or grain distribution are available upon request