Shanghai Duomu Industry Co., Ltd

- Introduction of Plasma Power Supply
- Introduction of Plasma
- Application case

Plasma Power Supply DML-VO3BD

Plasma power supply is an effective technique to improve the wear resistance and impact resistance on the surface of metal

The process of PTA surfacing is to melting the alloy powder by the heat of plasma arc and the melt pool in the workpiece would change the features on the surface. The plasma arc has the natures of high heat, high efficiency, good stability and easy to control the depth of fusion etc

Compared with MIG, laser, HVOF, PTA is affordable, flexible additional material formula, metallurgical bonding etc



Low cost, economize on labor and consumables



Plasma Power Supply







Characteristics of Plasma Power Supply DML-V03BD

- Digital programming control
- Digital inverter technology, IGBT power module
- High Voltage
- Aerodynamic design
- Storage function
- Dynamic welding
- Pulse function







The Features of Plasm

Pilot arc is auxiliary to starting main arc

The heat source of ion arc is from main arc(transferred arc), which the temperat would be up to 16000-24000 $^\circ\!{\rm C}$

Ion beam would weld almost all metal material





Principles and Characteristics



There are three compressed methods of the beam from the plasma torch: mechanical compression, gas compression and electromagnetic compression

Plasma arc has high energy density, high arc column stiffness, which can avoid magnetic drift and is less affected by distance



Powder feeding system



owder feeding system

Configuration with the powder feeding by impeller that would realize the feeding in advance and in lag to avoid the crack as extinguishing arc

Plasma Surfacing Torch



DML-V03BD: The two torches would be configured as the requirement



The advantages of die-casting powder welding torch

Torch DMD300 with small size is proper for welding small bore and the water cooling directly is proper for working for a lon time.



Good insulation to avoid electric shock of workers



Applicable base metal range

A

B

Welding machine parameters

This power supply for DC can be used for pearlite, ferrite, lower bainite, austenite, plate martensite and other ferrous metals.

Plasma surfacing is a fine crystalline surface strengthening process, which has a stirring effect on the molten pool, can fine grains and uniform structure composition, and has obtained more wear resistance, corrosion resistance, high temperature oxidation resistance

Plasma Power supply DMI -V03BD

Item	Parameter			
Function	Continuous welding	Pulse welding		
Pilot arc current (A)	3-20	3-20		
Welding current (A)	2-300	2-300		
Background current (A)	2-300	2-300		
Current rise time (s)	0-0.5	0-0.5		
Current drop time (s)	0-0.5	0-0.5		
Pulse welding time (ms)		1-999		
Welding interval time (ms)		10-990		
Rated voltage (V)	AC380	50HZ		
Input power (KW)	17.	8		
Advance powder feeding time (s)	0-5	5		
Delay powder feeding time (s)	0-5	5		
Gas shiled time (s)	1-2	0		
Duty cycle (%)	90			
Weight (kg)	161	L		
Dimension (mm)	800X500	X1558		

The report of Wear resistance testing



洛阳金鹭硬质合金工具有限公司干沙/橡胶轮耐磨性测试。

ASTM G65 - Procedure A =

样品名称:	截齿用等离子堆焊粉	
试样编号:	HS160406	
实验编号:	161215	3
是否热处理:	N/A	
硬度:	N/A	
表面粗糙度:	N/A	
the second se		70 g

等离子堆焊机型号。	DML-V02BD -
堆焊电流。	75A -
试样编号:(Test No.)。	HS160406 -
测试力:(Test Load)。	30 Lbf 135N -
轮转数: (Wheel Revolutions)-	6,000 -
沙流速: (Sand Flow, g/min)-	330 -
测试前重量: (Initial Mass, g)-	149.044 -
测试后重量: (Final Mass,g)→	148.829 -
质量损失: (Mass Loss, g) -	0.210 -
密度: (Density, g/cm3) -	N/A -
体积损失: (Volume Loss, mm (mass loss/density) x 1000) -	N/A -
轮直径 (测试后): Wheel Diameter, mm (after use)-	228.3 -
最大磨损深度: (Maximum Wear Scar Depth, mm) -	N/A -
最终结果: (Adjusted Mass Loss, g) -	0.215 -

实验人员:	朱显东	3
日期:	15/12/2016	3
橡胶轮直径:	Below	2
橡胶轮宽度:	12.7mm	3
橡胶轮硬度:	A-60(邵氏硬度)	3





硬度: 58.5HRC

总结: 耐磨程度明显, 比原有 42CrMo 材料提高 3.7 倍





UPPLIES

 Auxiliary
 Cooling water、 Argon、 Power source

 Supplies
 Alloy powder、 Welding wire

Some objects can't draw into wire due to the physical properties. However, the alloy powder would cover all wire. The advantages of the alloy powder are low cost, uniform bead, efficiency that is approved more and more by the customers.





Typical application



C O N T A C T U S

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