

SYNCO ARC SPRAY

SYSTEM



ARC SPRAY GUN (AIR DRIVE)



**POWER SOURCE
WITH CONTROL CONSOLE**

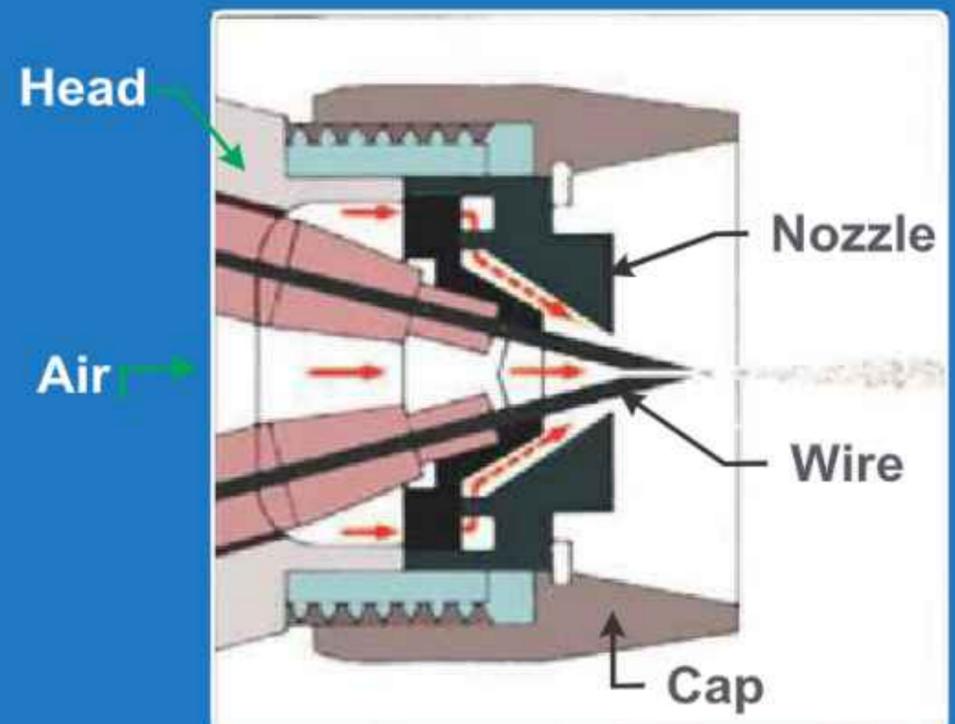
SYNCO ARC SPRAY PROCESS

Wire Arc Spray Process involves using two wires as consumable electrodes. Both the wires are fed from the rear of the gun to meet and Arc at a common point in an automated air stream. Synco uses rectifiers / power source to vary

voltage between 18-50 volts to initiate an Arc between the two wire tips. Once the wires Arc and melt compressed air stream is used to spray the molten droplets on the substrate.

SYNCO ARC SPRAY GUN :

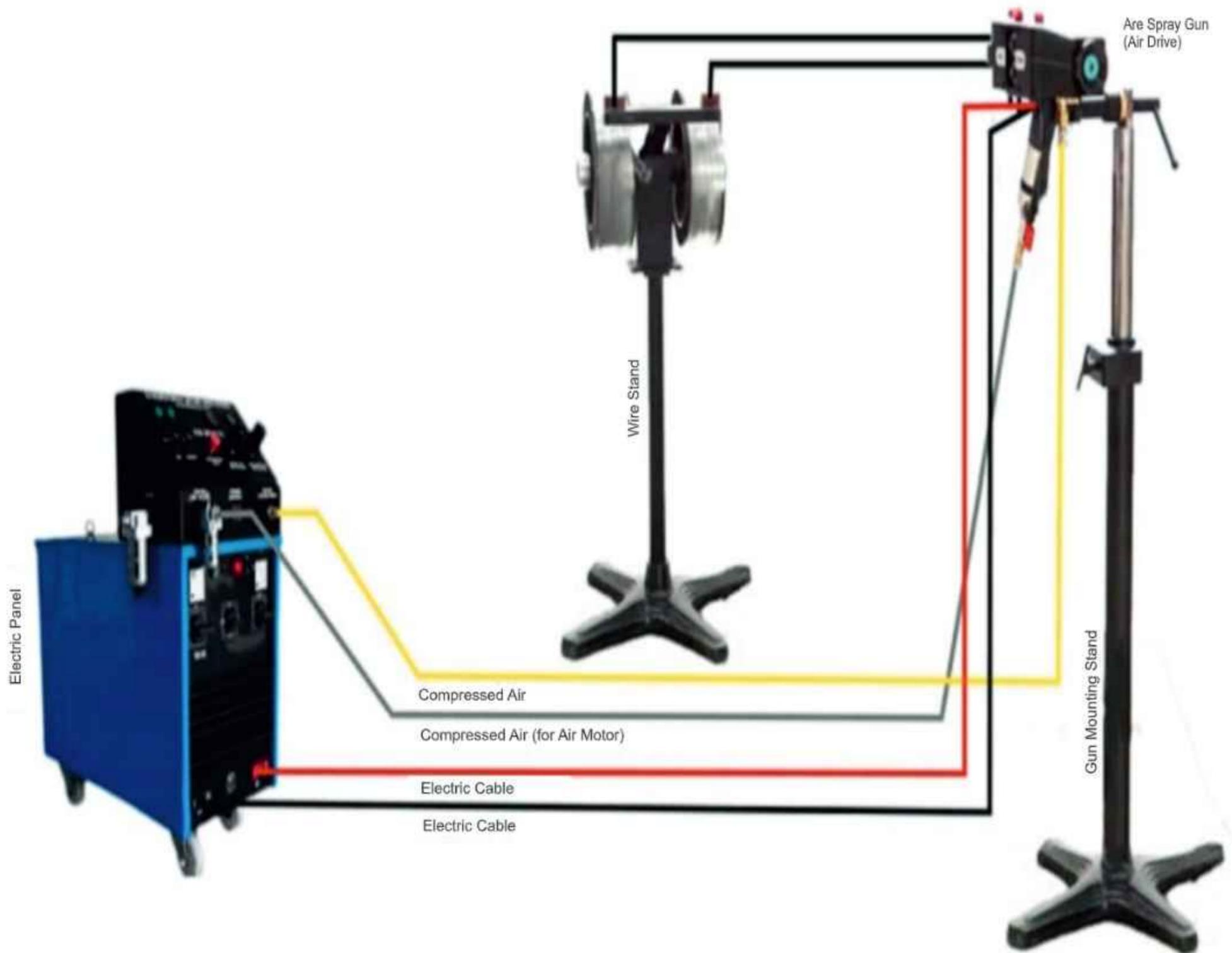
Synco Arc Gun provide mechanism for controlled feed rate of wire. Contact tips of the gun are provided according to size of wires. Arc spray systems provide excellent cohesive and adhesive strength. Synco Arc Spray Processes provides higher spray rates. DC power source is used to provide a voltage between 18-50 volts. The Arc gap and spray particle size increase with increase in voltage therefore voltage should be set at minimum required according to the wire being sprayed. Only electrically conductive wires are amenable to spraying using Arc spray process.



Client Features :

- Higher deposition rates.
- Dense coatings.
- Wide variety of coatings can be done using different wires.
- Higher coating thickness.
- Extend life span of substrates.
- Reduce costing of metal spray coatings.

SYNCO ARC SPRAY SYSTEM (LAYOUT)



- Synco provides Arc Gun with Air-Motor / Electric Drive Motors.
- Power Source: Synco provide DC current rectifier using 3-Phase, 380/415/440V, 50/60Hz frequency and voltage variable from 18-50 Volt. Synco also provides state of art power source with PLC and HMI control & electronic mechanism for smooth arcing of wires being used as electrodes.
- Control Console: State of art control console is provided above the power source with complete set of essential regulators and pressure gauges.
- Trolley mounted/power control mounted real stand for holding wire spools can be provided.
- Interconnecting Hoses and Cables: Standard length of 5 meters (extra length optional).

SYNCO ARC SPRAY SYSTEM

ARC SPRAY GUN (AIR DRIVE)

MODEL: SYN250AMP/SYN400AMP
SYN600AMP/SYN800AMP

Specification :

Synco ARC Spray Gun (Air Motor)

- Size : 310mm (L) 80mm (W) 260mm (H)
- Drive : Pneumatic Motor / Air Motor
- Net Weight : 3.6 Kg.
- Wire Dia. : 1.6mm & 3.17mm
- Can be run at 1000 RPM per high melting wires & 2500 RPM for low melting wires.
- Compressed air - 35 CFM-FAD at 60-80 psi (5-6 bar)
- Pull wire mechanism



SYNCO ARC SPRAY SYSTEM

- ARC GUN WITH PNEUMATIC MOTOR :
Pull type light weight.
- WITH ELECTRIC MOTORS :
Electric motor is used to pull the wire for spraying.
- System is mobile & is mounted on castor wheel. Synco control panel provide in built high velocity wire spraying option in the control console.



SYNCO ARC SPRAY SYSTEM

POWER SOURCE WITH CONTROL CONSOLE

POWER SOURCE WITH CONTROL CONSOLE

| Synco Arc Spray System | Model : SYN 400 AMP | Model : SYN 600 AMP |
|-----------------------------------------------------------------------------------------|---------------------------------|---------------------------------|
| Max. Melting Output (Kg./hr) | | |
| Zinc | 30.00 | 45.00 |
| Aluminium | 8.60 | 12.90 |
| Cr-Ni-Steel | 13.20 - 14.30 | 19.80 - 21.45 |
| Al-Bronze | 15.00 - 15.90 | 22.50 - 23.85 |
| Maximum Coverage (m ² /100m/hr) | | |
| Zinc | 26.10 | 39.15 |
| Aluminium | 26.06 | 39.10 |
| Cr-Ni-Steel | 14.58 | 21.87 |
| Al-Bronze | 21.78 | 32.67 |
| High Velocity option installed | Yes | Yes |
| Wire Size (Diameter) | 1.6mm to 3.17mm | 2mm to 3.17mm |
| Wire Feed | Both Pneumatic & Electric Drive | Both Pneumatic & Electric Drive |
| Power Source with Control Console Weight | 156 Kgs. (approx.) | 300 Kgs. (approx.) |
| Dimension | 36" x 27" x 22" | 36" x 41" x 22" |
| Power Requirement (Approx) 2mm Wire | 10KW Per HRS | 10KW Per HRS |
| Power Requirement (Approx) 3.17mm Wire | 15KW Per HRS | 15KW Per HRS |
| Power Requirement Power Source INPUT Voltage (V) Phase (Nos) Frequency (Hz) | 415V±10% 3 50 | 415V±10% 3 50 |
| Power Source OUTPUT Open Circuit Voltage Range | Constant Potential 18 - 54 | Constant Potential 18 - 65 |
| Max. Output Current @ 60% Duty Cycle | 240 (Amp.) | 360 (Amp.) |



SPARE PARTS LIST OF

SYNCO ARC SPRAY SYSTEM (AIR DRIVE)

MODEL: SYN250AMP/SYN400AMP/SYN600AMP/SYN800AMP

| PART NO. | DESCRIPTION | ITEM |
|----------|------------------------------------------|--------------------------------------------------------------------------------------|
| 01 | Close Head |  |
| 01 | Close Head Assembly |  |
| 02 | Nozzle Positioner Long Slot |  |
| 02-A | Nozzle Positioner Long Cross Slot |  |
| 02-B | Nozzle Positioner Short Slot |  |
| 02-C | Nozzle Positioner Short Cross Slot |  |
| 03 | Nozzle Cap Golden (Extra Fine/Medium) |  |
| 03-A | Nozzle Cap Green (Medium/Coarse) |  |
| 03-B | Nozzle Cap Blue (Medium/Coarse) |  |
| 03-C | Nozzle Cap Red (Extra Fine Spray) |  |
| 04 | Protective Cap |  |
| 05 | Terminal Assembly |  |
| 06 | Insulator Sheet |  |
| 06-A | Mounting Plate |  |
| 07 | Contact Tube |  |
| 07-A | Contact Tip 1.6mm (Brass) |  |
| 07-B | Contact Tip 2.0mm (Brass) | |
| 07-C | Contact Tip 2.5mm (Brass) | |
| 07-D | Contact Tip 3.17mm (Brass) | |

| PART NO. | DESCRIPTION | ITEM |
|----------|-------------------------------------|---------------------------------------------------------------------------------------|
| 08 | Driven Bevel Gear (Steel) |  |
| 09 | Front Bearing Retainer |  |
| 10 | Front Bearing |  |
| 11 | Bevel Gear Drive Box (Air Drive) |  |
| 12 | Worm Shaft (Standard Speed) |  |
| 13 | Rear Bearing Warm Shaft |  |
| 14-A | Yoke Support Tube Dowel |  |
| 15 | Yoke Support Tube |  |
| 16 | Inner Yoke |  |
| 17 | Outer Yoke |  |
| 18 | Yoke Bearing |  |
| 19 | Roller Shaft |  |
| 20 | Wire Roller |  |
| 21 | Worm Wheel (Standard Speed) |  |
| 21-A | Worm Wheel Retaining Screw |  |
| 22 | Lever Cam Shaft |  |
| 23 | Lever Bush |  |
| 24 | Roller Opening Lever |  |



SPARE PARTS LIST OF

SYNCO ARC SPRAY SYSTEM (AIR DRIVE)

MODEL: SYN250AMP/SYN400AMP/SYN600AMP/SYN800AMP

| PART NO. | DESCRIPTION | ITEM |
|----------|------------------------------|--------------------------------------------------------------------------------------|
| 24-A | Lever Locating Pin |  |
| 25 | Tension Screw |  |
| 26 | Plain Spring Support |  |
| 27 | Tension Spring |  |
| 28 | Threaded Spring Support |  |
| 29-R | Right Hand Side Cover Plate |  |
| 29-L | Left Hand side Cover Plate |  |
| 30 | Short Rear Wire Guide |  |
| 31 | Long Rear Wire Guide |  |
| 32 | Short Front Wire Guide |  |
| 33 | Long Front Wire Guide |  |
| 34 | Flexible Wire Guide (Teflon) |  |
| 35 | Gas Ket |  |
| 36 | Nozzle Air Connector |  |
| 37 | Drive Gear on Air Motor |  |
| 39 | Air Motor |  |
| 40 | Air Lock |  |
| 41 | Washer |  |
| CH-4 | Wire Feed Tube (Teflon) |  |

| PART NO. | DESCRIPTION | ITEM |
|----------|-----------------------------------------------------|---------------------------------------------------------------------------------------|
| 42 | Remote Control |  |
| 43 | Gun Holding Plate |  |
| 43-A | Mounting Stud |  |
| 43-B | Mounting Stud Lock Washer |  |
| 43-C | Nut |  |
| AM-4-10 | Drive Gear Fixing Screw |  |
| AM-4-13 | Fixing Screw | |
| AM-4-21 | Fixing Screw | |
| SM-4-13 | Power Cable Retaining Screw |  |
| SM-4-20 | Terminal Fixing Screw |  |
| SM-4-15 | Head Fixing Screw |  |
| 50 | Hood |  |
| 51 | Hood Mounting Screw |  |
| 60 | Roller Cover |  |
| -- | Ear Muff |  |
| -- | Protective Goggles |  |
| CH-1 | Air Hose (Per Set) For High Velocity (5m Length) |  |
| CH-1 | Air Hose (Per Set) Std. 5M length |  |
| CH-3 | Power Cables (Per Set) 5M Length |  |

SYNCO ARC SPRAY SYSTEM

Portable Wire Feed & Gun Stand

- Portable gun stand for mounting of gun.
- Portable spool stand for mounting of wire spool.
- Can be moved near to job, away from power source.
- Swivel type stand takes the direction of wire feed towards operator's side.



Hoses & Cables

- The hose package consists of two current cables and an air hose & two insulated wire guide tube and one hose for motor lubrication.
- Cable & hose set has a standard length of 5 mtrs. (other lengths as optional)
- The insulated wire guide tubes have a standard length of 2.5 meters and are made from a special low resistance material.



Synco Gun Extension for ID Spraying using ARC Spray System

- Enables spraying in bore or difficult-to-reach-at place.
- Angular Nozzle: 90 deg.
- Available in length of :
315mm (1 ft.) / 630mm (2 ft.) / 945mm (3 ft.)
- Allows coating in internal diameter of 70mm & above.



SYNCO ARC SPRAY WIRES

- **ALLOY 625 WIRE** : Alloy 625 is a non magnetic, corrosion and oxidation resistant, nickel based alloy. Excellent corrosion resistance. *Wire spray coating can withstand many corrosive environments. In alkaline, salt water, fresh water, and neutral salts and in air almost no attack occurs. *Provides resistance to oxidising environments
- **BABBITT WIRE** : Babbitt Wire of (70, 30)/ (80, 20) in 1.6mm/2mm available. Automatic Wire Flame Spray Equipment is used to apply this coating. Particularly suitable for coating on capacitors, resistors, panels etc. *Produces dense coatings which are suitable for high speed and heavy duty bearings. *Bearing Reclamation.
- **MOLYBDENUM WIRE 99%** : It is frequently used as a bond coat on parts such as Synchro Rings/industrial Gears/Clutch Parts etc due to its very good bond strength between the surface of base metal and sprayed metal. Though molybdenum is a costly wire, the sprayed thickness required for excellent bonding is only 0.015". It has low friction characteristics and is wear resistant. Available in 2mm and 3.17mm sizes.
- **MONEL 400*** : High strength and toughness from cryogenic temperatures to 1800 degrees F (980 degrees C), good oxidation resistance, exceptional fatigue strength and good corrosion resistance. *Chemical and pollution control equipment, ash pit seals, nuclear reactors, marine equipment, ducting, thrust reverser assemblies, fuel nozzles, afterburners, spray bars. *Excellent finishing.
- **NiAl 95/5*** : Dimensional Restoration. *Good Bond Strength. *Oxidation and Abrasion Resistant. *Self Bonding Material. *Excellent Bonding. Available in 1.6 mm
- **PURE ZINC WIRE*** : Steel Protection against corrosion in aggressive atmospheric conditions. *Electrical conductivity. *Available in 1.6mm and 3.12mm. This wire can be sprayed using Synco Flame Spray System.
- **SS 316L** : Produces corrosion resistant work hardenable finish. Excellent machinability. *Dimensional Restoration *Good Corrosion Resistance.
- **SS 420** : Coatings are highly wear resistant and show good corrosion resistance and antifrictional qualities, final machining by wet grinding. Available in 1/8" and 1, 6 mm, other diameter on request. C Mn Si Cr Fe <51>1 13-14 bal.
- **SS 80** : High carbon steel for reclamation of machine element parts requiring hard surfaces. Finish by wet grinding Available in 1/8" and 1, 6mm, other diameter on request. C Mn Si Fe 8.55.21 bal.
- **SS 440** : Coatings are highly wear resistant and show very good corrosion resistance. This is recommended for applications that require good wear resistance and very good corrosion qualities. C Mn Si Cr Ni Mo Fe. 44<1<117, 5 11, 2 bal.



SYNCO ARC SPRAY WIRES

- **SIL 8016 (STAINLESS STEEL WIRE)** : High carbon steel for reclamation of machine element parts requiring hard surfaces. Finish by wet grinding Available in 1/8" and 1, 6 mm, other diameter on request. C Mn Si Fe 8.55.21 bal.
- **SS 440 WIRE** : Coatings are highly wear resistant and show very good corrosion resistance. This is recommended for applications that require good wear resistance and very good corrosion qualities. C Mn Si Cr Ni Mo Fe 44<1<1 17, 511, 2 bal.
- **Ni Al 80/20 WIRE** : Produces coatings which resist corrosive gases and oxidation in temperatures up to 980 Deg C. Used as bond coat for ceramic materials. Coatings are machine able.
- **NiCrAl** : Cr 20%, Al 7% and Ni Bal. Resistant to Oxidation and corrosion at hightemperature. Undercoat for ceramics topcoat. Recommended for salvage and build-up of miss machined parts or worm machine parts.
- **NiAlMo** : Mo 5.0%, Al 5.5% Ni bal. Recommended for salvage and build-up of both machinable and grindable carbon steels. Good resistance against wear and particles. Used for high strength and low shrink coatings.
- **SYNCO ALCR3 WIRE** : Fe-Cr-Al. It is an Arc spray wire providing very dense coatings and high bonding strength, a wire for multipurpose are spray applications. It can be used as a bonding layer s well as final (single) coating. It is highly corrosion and heat resistant (+1000 Deg C). Coatings can be machined. Tensile Strength 600-800 Mpa. Melting Point 1500 Deg C.
- **SYNCO S23 WIRE** : This is a solid wire sued for Arc Spray applications. Coatings are highly wear and corrosion resistant. Good antifrictional properties. An all purpose stainless steel coating wire. Finished by wet grinding only. For bearing applications and general wear applications this is a universal spraying wire (bond coating required)

SYNCO WATER CURTAIN TYPE PAINT BOOTH

The water curtain type paint booth provides an extremely efficient means of removing paint particles from the exhausted air by using water as a filtration media.

Standard water curtain type paint booths are utilized for high volume paint usage, medium or large sized components and batch processes. A conveyORIZED booth can also be provided for continuous process.

Water Curtain Type Paint Booth contains special features like water tank or over spray paint collection disposal tank, specially designed eliminators (baffles), saw tooth plates, washing chamber and high pressure exhaust blower. This type of painting booth is more popular for heavy paint consumption, high production and / for any component.

Working of Water Curtain Type Paint Booth is very simple. When the paint is sprayed on the component the over spray is sucked rapidly by the high pressure centrifugal blower through the saw tooth plate and the eliminator. During the above process the paint waste particles get cut at the saw tooth plate thereby separating the thinner to the exhaust blower and paint waste into the tank. More finer spray dust is eliminated in the washing chamber. Paint is actually washed in this chamber. The best advantage of Water Curtain Type Paint Booth is that lumps of waste paint are collected in the collection tank thereby helping the user to dispose it easily.



STANDARD MODELS

| Model | Working Dimensions (in mm) | Fan Motor (KW) | Pump Motor (KW) | Air Flow Rate (M ³ /H) |
|------------|----------------------------|----------------|-----------------|-----------------------------------|
| SWC - 2000 | 2000 X 2000 | 2.25 | 2.25 | 9000 |
| SWC - 3000 | 3000 X 3000 | 3.75 | 2.25 | 15000 |

SYNCO PAINT BOOTHS BUILT AROUND YOUR REQUIREMENTS :

WE TAKE INPUTS FROM YOU ABOUT :

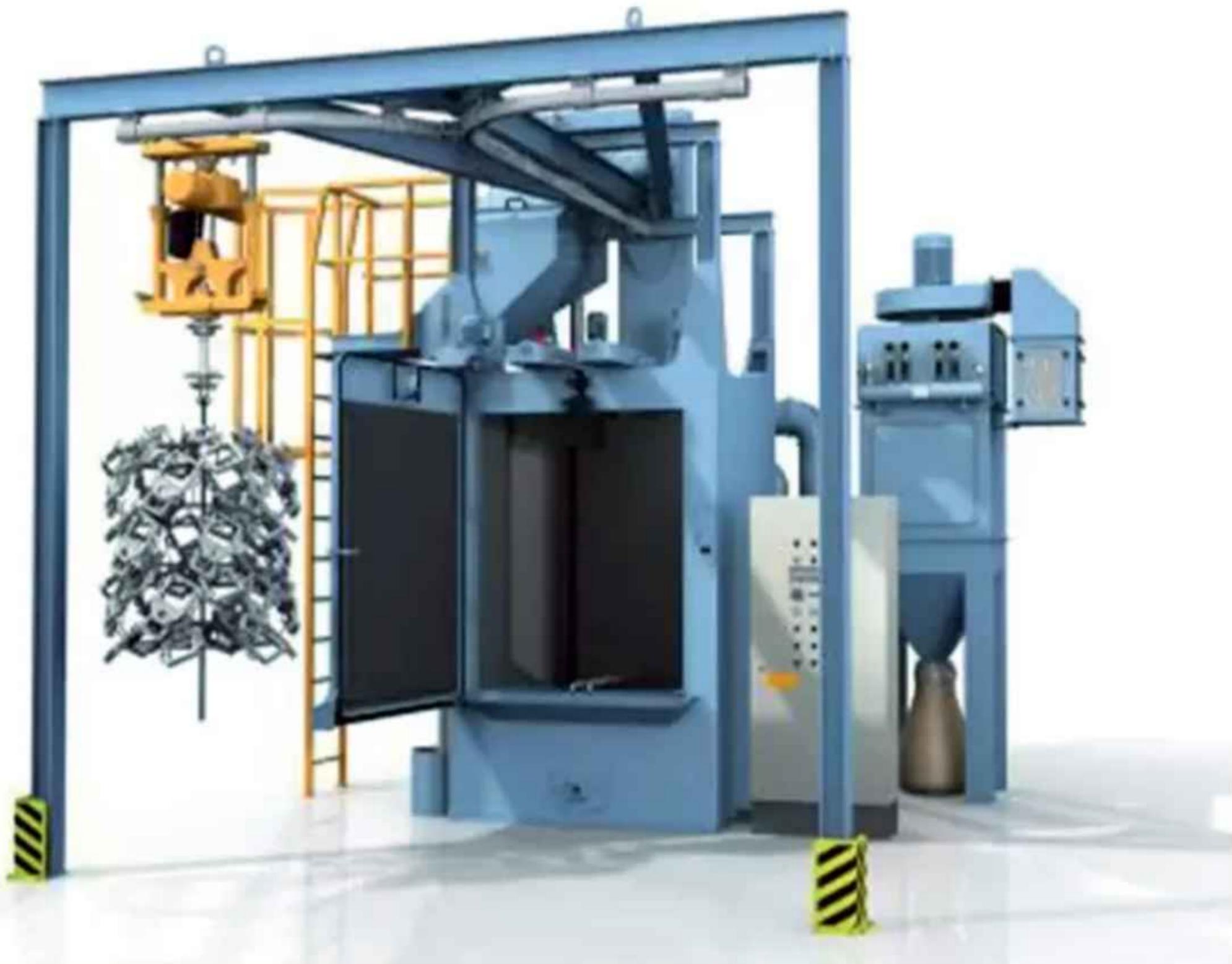
- Your Part Size and Configuration :** The Size of the part and the Carrier that conveys it through the booth and the relationship of the spray gun with part, all have a bearing on the velocity and direction on the air flow. Direction and Velocity are important for taking the over spray to the filter assembly.
- Production Rate and Transfer Efficiency :** Production rate is the number of parts that can be finished in a certain time frame. Production Rate includes the entire cycle including Drying and Curing. Transfer efficiency is the percentage of material being sprayed that adheres to the part, the rest is over spray. Production Rate and Transfer Efficiency determine the air flow.
- Material being sprayed :** The type of material being sprayed effects the choice of filtration or exhaust method to remove the over spray from the booth, and determines whether the heat or other curing means is also required to bring the product to the final state.
- SYNCO PAINT ARRESTORS** trap air-borne particles (over spray). SYNCO PAINT ARRESTORS CAN BE USED where material usage does not exceed 2 gallons per hour with minimal over spray. This represents majority of the applications.
- In SYNCO WATER CURTAIN TYPE PAINT BOOTH ,** Air Washing action traps the paint solids from over spray. Removal Efficiency of SYNCO WATER WASH BOOTHS can be as high as 98-99%, depending on the type of material being sprayed.

SYNCO ED ARC SPRAY SYSTEM

Synco also manufacturing Electric Drive Motor Arc spray system with standard power source in 250 / 400 / 600 AMP. System are suitable in automatic continuous Arc spraying process for example in tube mills.



SHOT BLASTING MACHINE



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