



PLURAL COMPONENT EQUIPMENT

EVOLUTION OF HEATED PLURAL COMPONENT SPRAY EQUIPMENT FOR HIGH-PERFORMANCE COATINGS AND LININGS

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WHAT IS PLURAL- COMPONENT SPRAY EQUIPMENT?

- PCE spray equipment meters two-component materials (resin and catalyst), by either mechanically linked or electronically proportioned, and dispenses the correct ratio of material being applied.
- All PCE are variable ratio by either changing the lowers on a mechanically linked unit, or by changing the ratio electronically.(Turning a key)
- Materials can range from epoxys, polyurethanes and polyureas, with varying ratios and pressure requirements.
- PCE spray equipment dispenses at the proper temperatures and ratios, folds the components together, and ensures that coatings will cure and perform as intended.

DETERMINING FACTORS TO USE PCE

- Materials being used.
- Pot-life of material.
- Recommended spray pressure.
- Recommended paint temperature (MIN/MAX).
- Amount of material being sprayed.
- Size of project (elevations / distance from equipment to furthest point of area being sprayed.

WHAT IS A MECHANICALLY LINKED PCE?

- Mechanically linked PCE utilizes fixed-ratio pump lowers that mechanically dispense the desired ratio.
- This means you may have different sized pump lowers to achieve the desired ratios and spray pressures.
- Ratios range from 1 to 1 - 4 to 1
- Mechanically linked plural component pumps have been the backbone of the industry since the 1970's and up to present day.

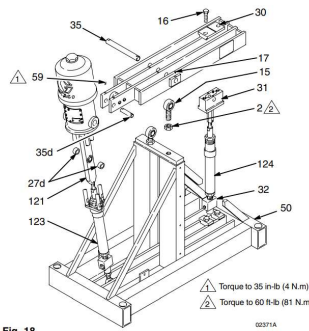
FLUID FLOW ON MECHANICALLY LINKED PCE?

- Supply system
- Lower
- Heater
- Recirculation manifold / back to hoppers
- Heated supply hose/insulated supply line
- Mixing block / static mixer / spray gun

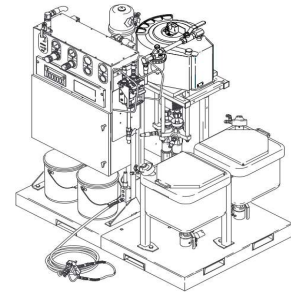
EVOLUTION OF MECHANICALLY LINKED PCE



BULLDOG HYDRA-CAT
1970s



HYDRA-CAT VARIABLE RATIO
1970s



SuperCat Proportioner
1990s

EVOLUTION OF MECHANICALLY LINKED PCE



XP™
2000s



XP-h™
2000s



DUOMIX 270 GX



XP50 High Flow Skid
2021

SIGNIFICANT CHANGES IN MECHANICALLY LINKED PCE

- Air motors have changed significantly. Larger diameter air motors were engineered to provide a solution for higher production request, as well as adding de-icing features.
- Pump lowers have also changed significantly by having bigger fluid passages to allow better flow. They have also made larger lowers for high production that allow the unit to push higher gallons per minute (GPM). The combination of this along with 10k air motors are the new workhorse of the industry.
- Larger heaters that assist on providing better heat transfer to material. These heaters are capable of being rebuilt.

PROS AND CONS OF MECHANICALLY LINKED

PROS

- Easy to operate
- Portability
- Ability to spray short pot life coatings
- Multi-gun capability's (1 to 4 guns)

CONS

- Changing ratios is one of the biggest disadvantages
- Purchasing multiple lower to achieve different ratios
- Not having the capability of tracking spray history

ELECTRONIC PROPORTIONING PCE



ValueMix
2000



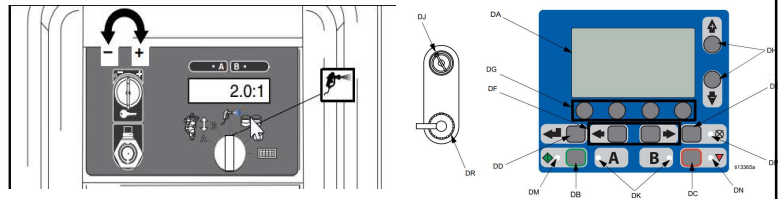
Xtreme Mix™
2002



XM™
2009

WHAT IS AN ELECTRONICALLY PROPORTIONED PCE?

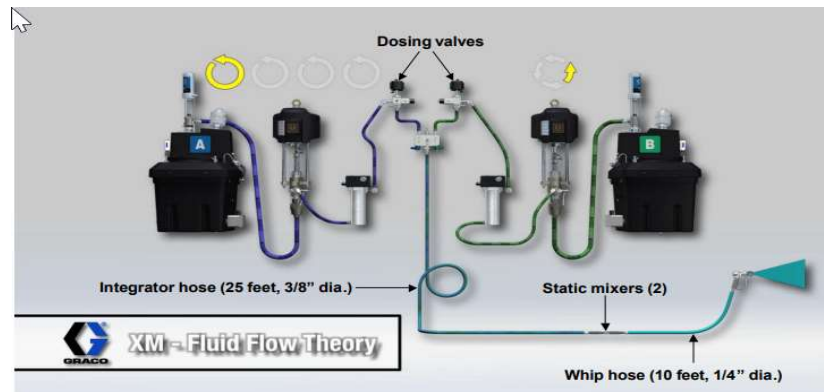
- Electronically proportioned PCE meter material components electronically by using two separate air motors driving two separate pump lowers.
- This gives you the ability of a wide range of ratios with a flip of a key to set the desired ratio.
- Ratio ranges from 1 to 1 through 10 to 1



FLUID FLOW ON ELECTRONIC PROPORTIONING

- Supply
- Pump lowers
- Heater
- Metering valve
- Heated supply hose/insulated supply line
- Mixing block / static mixer / spray gun

HOW IT ALL COMES TOGETHER!



SIGNIFICANT CHANGES ELECTRONIC PROPORTIONING

- Xtreme Mix™ is a dosing technology
- XM units are an injection dosing technology (B side is injected into the stream while mixing)
- XM units have the capability of tracking spray pressures, temperatures, real time ratios, GPM, amount of material sprayed, and pot-life.

PROS AND CONS OF ELECTRONIC PROPORTIONING

PROS

- Easy to change ratio.
- Tracks spray parameters.
- Easy download of spray parameters.
- Multi-spray capability.
- Built in ratio assurance.
- Larger heaters.

CONS

- Larger unit.
- More intimidating.
- Can't spray 30 sec. pot-life materials (polyurea).

POLYUREA TYPICAL SETUPS



- 150 ft. heated hose
- Quick-set mix manifold
- 15 ft. spray whip to gun

EPOXY TYPICAL SETUP



- 100 ft. of heated line
- Mix manifold
- 25 ft. integration line
- Independent flush out splitter block
- Three 100 ft. spray lines (depending on pot-life)

TYPICAL SETUPS FOR FIRE PROOFING



- 150 ft. of heated hose
- Spray block and 15 ft. spray whip

TYPICAL MISTAKES MADE WITH PCE

- 80% of issues with plural component equipment are temperature related; Coating being too cold. Too hot can be an issue as well, depending on manufacture's recommendation.
- Pre-heat material a day before in a temperature-controlled room or with heater blankets.
- 20% of failures are due to lack of routine maintenance.
- Checking filters.
- Lubricating and adjusting packings once a week.
- Parking lowers when done for the day.

QUESTIONS ??