Resin Infusion and Glue Pasting Machine for Wind Blade Manufacturing

Meter Mix Dispensing System for Resin Infusion, Glue Pasting Machine
About Twin Engineers

Twin Engineers Pvt. Ltd. offers specialist technology in three areas - Fluid Filling, Meter Mix Dosing and Robotic Dispensing. Twin is the only company globally, that offers solutions across all these three areas and has been a market leader in its chosen niche since the last two decades.

Twin’s offerings include 35 standard machines, highly specialized custom-made systems and an extensive range of automation solutions to enable greater productivity. A global network of representatives ensures real-time availability of critical spares, consumables & services.

Customers from diverse industries which include automotive, electrical, electronics, filters, PU components rely on Twin’s versatile technology for their applications.

Over the last two decades, Twin has developed innovative technology and automation to bring about breakthrough improvements in productivity of wide range of processes. With Twin, you connect to technology led thinking to achieve higher performance!

The list of materials handled, industries served and machines has only been growing...

- 25 YEARS OF EXPERIENCE
- 50+ DIFFERENT MATERIALS HANDLED
- 13 INDUSTRY SEGMENTS SERVED
- 500+ INSTALLATIONS
Twin's advanced automation technology in resin infusion and glue dispensing is used by some of the world's leading manufacturers of wind blades. Backed by an extensive experience spanning over two decades, Twin's Meter Mix Dispensing (MMD) technology used in processes for wind blade manufacturing, is recognized for delivering industry leading performance, cost-effectively.

Systems for automation in wind blade manufacturing includes:

**Meter Mix Dispensing Systems for Resin Infusion**
Variable ratio MMD systems for dispensing resin material

**Glue Pasting Machine**
Variable ratio MMD systems for pasting adhesive materials

**KEY BENEFITS**

- Accurate mixing and dispensing
- Reduces material wastage
- Online data collection
- Maintenance free

**ADVANCED AUTOMATION OPTIONS**

- Configure and monitor in-process parameters and production data
- Visual indicators of key process parameters such as pump pressure, flow, material consumption, drum level etc.
- Easily extract and analyse system performance with the access controlled facility to export production data
- USB support for easy transfer and archive of process data and setup parameters
Meter Mix Dispensing System for Resin Infusion
Get the best efficiency with total control over mixing ratio

Twin has developed specialized systems for infusion of two component resin used in fiber matting process in manufacturing of windmill rotor blades. These systems allow accurate ratio control throughout the infusion process and thus ensure the best efficiency in wind blade production.

System Options
- Machine with in-built tanks
- Machine directly integrated with IBCs
INTELLIGENT ELECTRONIC CONTROLS

Highly advanced PLC control panel with touch based HMI Controller enables ease of operations. Data logging facility for advanced reporting can be configured as per need.

STATIC MIXER

The static mixing elements divide and recombine the feed materials through millions of stirrations giving a homogeneous mix.

VARIABLE RATIO PUMP

Allows highly accurate control over the mixing ratio throughout the course of process.

WIRELESS REMOTE CONTROL

The wireless remote allows the operator to easily switch-on and switch-off the material flow, or increase and decrease the flow rate even when he/she has moved away from the system to inspect the mould.

FEATURES

- Flow meter to measure the resin flow rate
- Adjustable output
- Material re-circulation facility
- Auto-calibrated level sensor to show exact material level in the tank (optional)

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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<tbody>
<tr>
<td>System</td>
<td>Modular</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>9 to 30 kg/min</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>100:20 to 100:70</td>
</tr>
<tr>
<td>Electrical Load</td>
<td>4.5 KW</td>
</tr>
<tr>
<td>Viscosity (Resin)</td>
<td>1500 Pa.s at 25°C</td>
</tr>
<tr>
<td>Viscosity (Hardener)</td>
<td>50 Pa.s at 25°C</td>
</tr>
</tbody>
</table>

Viscosity (Resin) | 1500 Pa.s at 25°C (Resin)  
Viscosity (Hardener)| 50 Pa.s at 25°C (Hardener)
Glue Pasting Machine
High speed dispensing with accurate mixing ratio

Twin’s meter mix dispensing systems for two component epoxy resin ensure accurate mixing ratio for the adhesives and are specially designed for high volume dispensing of the glue in stipulated time for bonding of shells and large composite structure. Twin’s systems are well proven for the paste-like adhesives with viscosity up to 1 million cps. The systems are available in both, portable as well as stationary versions, as per the needs. The portable system can be moved in parallel to the blades during online application of adhesives.

FEATURES

- Well proven for highly viscous, paste-like adhesives
- Ideal for high volume dispensing of glue
- 2 component system with standby feeding & metering system available for auto changeover of material (Optional)
- Highly advanced PLC control panel with touch based HMI Controller

SPECIFICATIONS

<table>
<thead>
<tr>
<th>System</th>
<th>Modular &amp; easily movable</th>
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<tbody>
<tr>
<td>Flow Rate</td>
<td>8 to 20 kg/min</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>100:20 to 100:100</td>
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<tr>
<td>Electrical</td>
<td>26 KW Load</td>
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<tr>
<td>Viscosity</td>
<td>Up to 1 million cps at 25°C</td>
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ADVANCED FEEDING AND PUMPING SYSTEMS

Progressive cavity feeding systems linked to precision metering gear pumps.

BOOM STRUCTURE (OPTIONAL)

Boom structure with strong base and super wheels enables easy dispensing of the glue directly on the blades. In this case entire machine can move along the length of the Wind blade.

WIRELESS REMOTE CONTROL

The wireless remote allows the operator to easily switch-on & switch-off the material flow, or increase & decrease the flow rate even when he/she has moved away from the system while working at the mould.
Glue Dispensing for Blade Balancing
Meter mix and dispensing of glue for balancing wind turbine blades

Pore Filler Machine
Portable Epoxy dispensing machine for filling the defective or repaired areas after de-moulding of wind blade components

FEATURES
- Inching mode for dispensing
- Programmable recipes
- Convenient Dispensing Gun
- Variable ratio, precision gear metering pump
- Compact and Portable design for easy movement
- Heated hoses with material re-circulation
- Band heaters, stirrers to maintain exact resin properties

SPECIFICATIONS
- Hose Length 10 Meters
- Flow Rate Up to 2 kg/min.
- Mixing Ratio Variable

FEATURES
- Programmable recipes
- Drum press with metering pump
- Variable ratio, precision gear metering pump
- Stirrers to maintain material properties
- Extended boom structure with handheld dispensing gun (optional)

SPECIFICATIONS
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<tbody>
<tr>
<td>Drum</td>
<td>200 L</td>
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<tr>
<td>Flow Rate</td>
<td>1.5 to 3 kg/min (adjustable)</td>
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</table>
Bringing new possibilities of dispensing processes into reality

KEY CLIENTS

INOXWIND  Gamesa

OTHER KEY CLIENTS

Honeywell  ABB  BOSCH  SIEMENS

CG Lucy Switchgear Limited

CG Lucy Switchgear Limited

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