Unicomposite

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Pultrusion Machine

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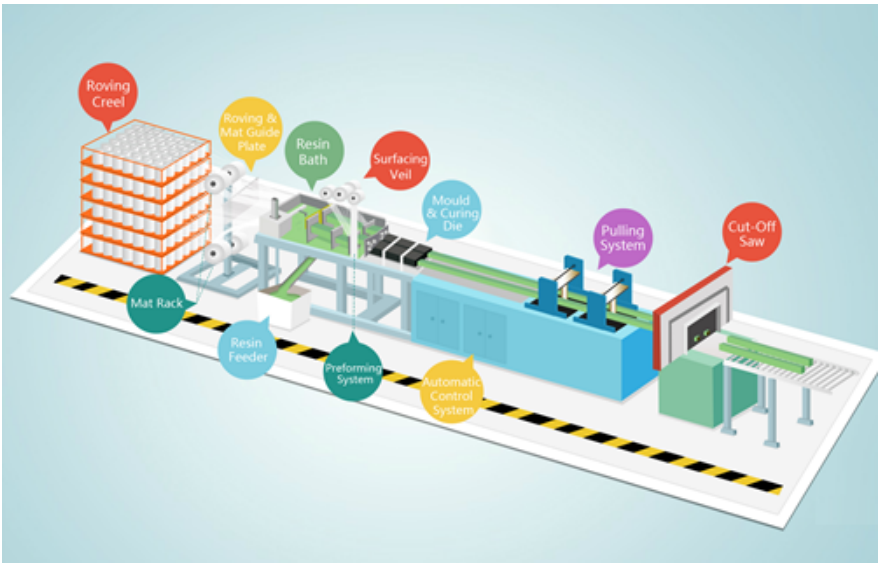
The pultrusion process generally consists of pulling continuous roving and/or continuous glass mats through a resin bath or impregnator and then into performing fixtures where the removed, and then into heated dies where the section is cured continuously.



The basic pultrusion machine consists of the following elements :

1. Creel
2. Resin wet-out tank
3. Forming dies
4. Heated matched metal die
5. Puller or driving mechanism
6. Cut off saw

For hollow shapes a mandrel is installed ahead of the resin tank and the mandrel extends through the forming die section.

Creel

The creel for continuous generally consists merely of bookcase-type shelves for inside pull packages with ceramic eyes located immediately intervals to lead the roving to the resin mix tank. In setting up the pultrusion process one must be careful to insure that the roving do not scrape across one another as this will generate considerable static and cause “fuzz balls” to build up in the resin mix tank, raising its viscosity. Metal bookshelves are best since they can be grounded to dissipate some of the static charge. An alternative to using ceramic guide ayes and a more foolproof system is to guide the roving from the creel to the wet-tank in vinyl tubes. This prevents much of the problems of the roving crossing one another.

Resin wet-out tank

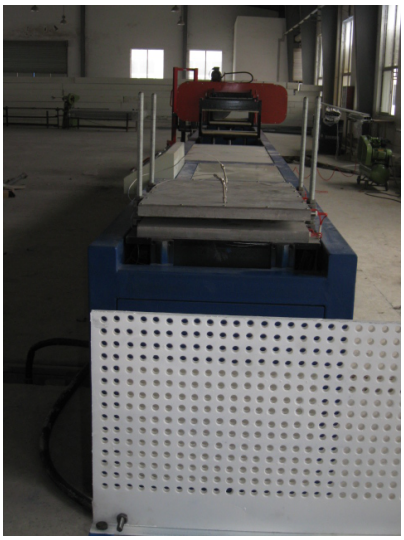
The resin bath or wet-out tank generally is a sheet metal or aluminum through containing rolls that force the reinforcement under the surface of the resin mix. Most good wet-out tanks contain a set of rolls or slots at the exit end mix from the reinforcement. A comb or grid plate generally is provided at the entrance and exit ends of the resin bath to keep the roving in horizontal alignment as they pass through the tank. The tank should have a drain plug for emptying the mix.

Performing Fixtures

Performing fixtures consolidate the reinforcements and move them closer to the final shape provided by the die. They may be constructed of fluorocarbon or ultrahigh molecular weight polyethylene since these are easy to fabricate and to clean, or of chrome-plated steel for longer wear on high production runs.

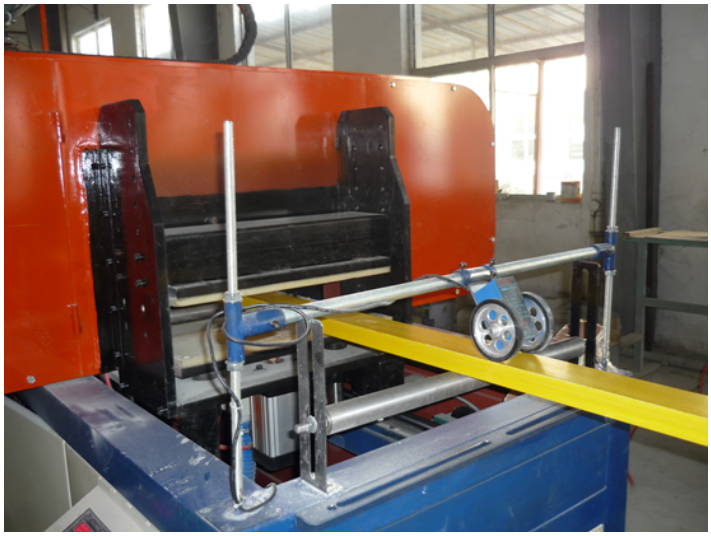
Heated Dies

The chrome-plated matches metal die may be heated by electrical cartridges, by strip heaters, or by hot oil. Thin sections generally are best heated by conductive heat. The cure of unidirectional thick sections can be speeded up and made more uniform by using both radio frequency (RF) radiation and conductive heat. For RF cure it is necessary to have a short section of the mold constructed of a material that is transparent to RF radiation such as Teflon or to support the wet roving on each side of the RF station with grillers or guide members.



Pulling Section

The pulling section can be either a pair of continuous caterpillar belts containing pads that engage the pultrusion, a double set of cylinders with pad pullers that can be synchronized for a continuous pull, or a single cylinder for an intermittent pull.



Cut-off Saw

A conventional cut-off saw is used with an abrasive or a continuous rim diamond wheel and sometimes a coolant spray. In addition to cooling the cut-off wheel and improving the appearance of the cut-off section the coolant spray minimized dust. Cut-off will cut in either the forward or return stroke. The saws carriage is clamped to the pultrusion product during the actual sawing operation.

UNICOMPOSITE PULTRUSION LINES PU-800

Specification:	
Envelope, width x height	560 x280 mm
Pull Capacity	8,500 kg
Puller Length	110cm
Puller Moving Length	55 cm
Mold Stand Capacity	3,550 kg
Speed Range	150 cpm
Heating System	
Number of zones	6
Watts per zone	1800
Saw	Optional
Length(Main part)	8.5 m
Width	950 mm
Weight	4,450 kg

UNICOMPOSITE PULTRUSION LINES PU-1000

Specfications:	
Envelope, width x height	700 x 350 mm
Pull Capacity	10,500 kg
Gripper Length	60 cm
Mold Stand Capacity	3,850 kg
Speed Range	150 cpm
Heating System	
Number of zones	6
Watts per zone	6,000
Saw	Optional
Cooling System	water
Length(Main part)	10.8 m
Width	115 cm
Weight	6,850 kg
Puller	Reciprocal Hydraulic type Automatic control

UNICOMPOSITE PULTRUSION LINES PU-1200

Specfications:	
Envelope, width x height	700 x 350 mm
Pull Capacity	12,500 kg
Gripper Length	60 cm
Mold Stand Capacity	4,850 kg
Speed Range	200 cpm
Heating System	
Number of zones	6
Watts per zone	6,000
Saw	Optional
Cooling System	water
Length(Main part)	10.8 m
Width	115 cm
Weight	6,850 kg
Puller	Reciprocal Hydraulic type Automatic control

UNICOMPOSITE PULTRUSION LINES PU-1500

Specfications:	
Envelope, width x height	800 x 550 mm
Pull Capacity	16,500 kg
Gripper Length	70 cm
Mold Stand Capacity	4,850 kg
Speed Range	150 cpm
Heating System	
Number of zones	6
Watts per zone	4,000
Saw	Optional
Cooling System	water
Length(Main part)	10.8 m
Width	135 cm
Weight	9,850 kg
Puller	Reciprocal Hydraulic type Automatic control