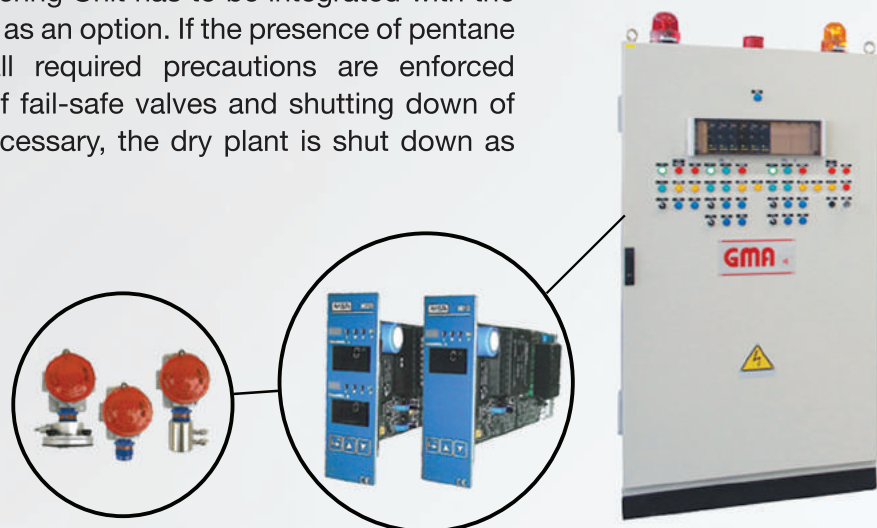
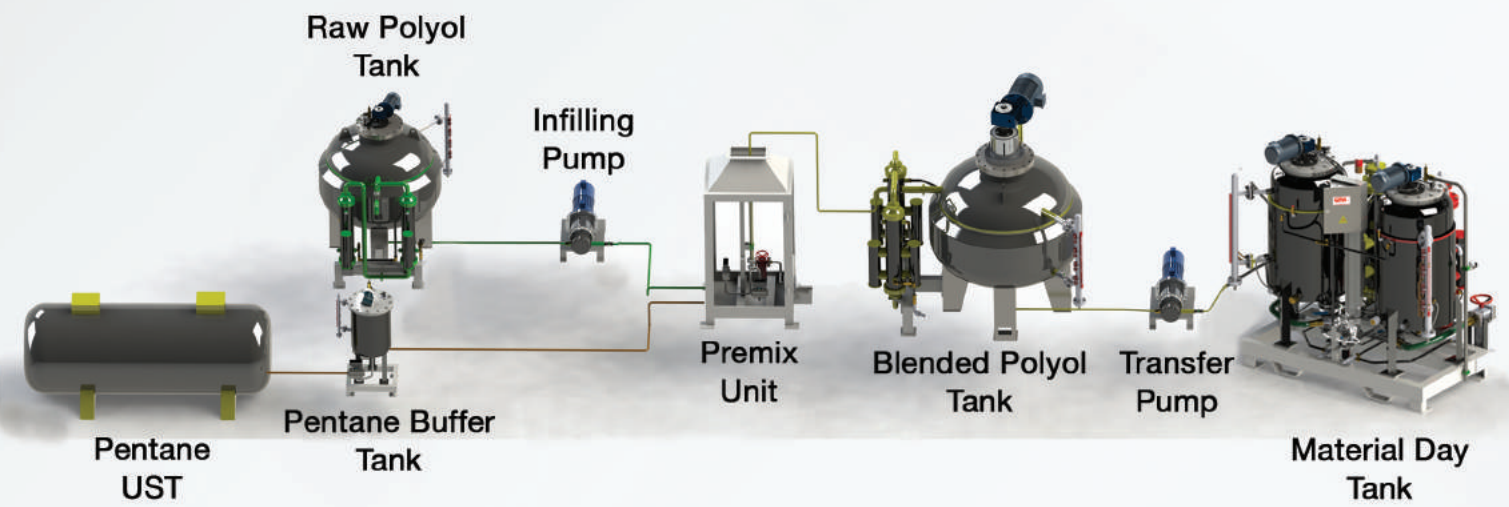


# GAS ALARM SAFETY SYSTEM

GMA Cyclopentane/ Polyol Premix & Metering Unit has to be integrated with the gas alarm safety system which is supplied as an option. If the presence of pentane vapour exceeds the limiting values, all required precautions are enforced immediately. These include the closure of fail-safe valves and shutting down of foaming station and premix station. If necessary, the dry plant is shut down as well.



## GENERAL LAYOUT



ENGINEERED TO HELP YOU WIN



Blowing Agent/Polyol  
Premix & Metering Unit

**GMA**<sup>®</sup>  
Polyurethane Processing Machinery

**RIM** RIM POLYMERS INDUSTRIES PTE LTD  
209 Henderson Road, #03-08 Henderson Industrial Park, Singapore 159551  
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# HIGH PRESSURE POLYOL PREMIX UNIT

No other systems technology is like our patented GMA PX40/50-5C 5-Components mixing system that allows the mixing of raw polyol with up to four types of blowing agents at varying combinations.

With enhanced capability to customise polyol formulation, our GMA high pressure polyol premix unit assures users unparalleled insulation performance and environmental-friendly end products due to exceptionally efficient utilisation of raw materials and low need for energy and space.

As a pioneer of polyurethane technology, Rim Polymers' accumulated know-how over the years in refrigeration equipment insulation has contributed to the success of this breakthrough technology. Today, GMA High Pressure Polyol Premix Unit accounts for the fulfillment of a large share of the global production of refrigerator and freezers, eminently recognised for its high degree of production reliability where requirements are precisely met and end products are perfected.

A typical Polyol Premix System consists of:

- | Polyol Metering Group
- | Multiple Blowing Agent Metering Group
- | Static Mixer
- | Control System



# POLYOL METERING GROUP

Bosch Rexroth's high pressure axial piston pump is used for all standard metering units. The raw polyol is fed into the high pressure pump and recirculated back to customer's storage tank for proper temperature conditioning. A volumetric flow transducer is employed to enable digital read out on the touch screen panel which is commonly used to observe synoptic graphics and alarm text messages for both raw polyol and the blowing agent metering groups. The required output for the chemical is then achieved by regulating the hand wheel of the metering pump manually\*. Safety pressure switches and check valves are also installed to ensure safe operations.



\*Variable speed inverter drive offer as an option.

# CYCLOPENTANE METERING GROUP

Rim Polymer's GMA branded cyclopentane metering group consists of various components which contributes to its favourable output. A cyclopentane metering pump which is simple in design yet versatile in use. This is coupled with a fail-safe valve which is installed at the suction line of the metering pump and an AC inverter motor which has closed-loop controlled function.

Visualization of flow rate could be read at the touch screen panel also makes up part of the cyclopentane metering group. Pressure switches, 3-way valves, check valves and component filter completes the system for it to be up and running when connected to the polyol metering group, static mixer and control system.



# STATIC MIXER & CONTROL SYSTEM



Cyclopentane, polyol and other blowing agent output are displayed respectively on the touch-screen operator panel. The flow output for these components are stabilized, delivered to the static mixer and fed to the foaming machine day tank or intermediate buffer tank. The static mixer is designed to process and mix the polyol and cyclopentane components homogeneously.

The control system is a standard Mitsubishi Programmable Logic Controller (PLC). The touch screen panel on the control system has easily understandable flow chart. By using the touch screen display, we will be able to control the start and stop the function of the individual polyol and blowing agent metering group. The calibration of each components could be carried out at the "manual" mode. Parameter settings could also be conveniently configured at the touch-screen panel. Settings such as blowing agents and polyol specific gravity, and other parameters constant could be programmed with a simple touch.

Alarm text messages would also be display when there are suspected faults.