Ultrafoam GX2™ System

THE GREEN MACHINE

GENCOR® INDUSTRIES INC.

A GREENER FUTURE IS IN THE MIX

Background

The foaming of Asphalt Cement and placing it on hot aggregate is certainly not a new process. Hundreds of thousands of tons of foamed warm asphalt were laid utilizing this process, and as a result, foaming of asphalts was demonstrated as an effective means of reducing viscosity and mix temperatures while enhancing mix quality.

One of the most economical and environmentally friendly techniques is the introduction of water into the process causing the AC to foam. The process of foaming aids in uniform distribution of the AC around the aggregate surfaces to obtain maximum coating and temporarily lower the AC viscosity, improving the coating and workability of the mixture at lower temperatures.

Warm mix can lower emissions, improve quality, and lower costs in four major areas:

1. Reduce the emissions of volatile hydrocarbons
2. Eliminate objectionable odors
3. Increased compaction time
4. Reduce fuel consumption

The Ultrafoam GX2™ Process

Gencor has devised a simple, robust and reliable method to inject steam into the foaming process, using only the energy of the pump or head supplying the AC and water. The *Ultrafoam GX2™* can achieve consistent foaming at varying production rates without the use of a powered mixing device. As a result, the AC and water can be introduced at widely different flow rates and temperatures.

The *Ultrafoam GX2™'s* patented design provides variable orifices for both AC and water and a means to keep the two flows in intimate contact so that the available mixing energy is used efficiently.

When making foamed asphalt, a small percentage (by weight of total AC) of water is injected into the center of the AC flow. The *Ultrafoam GX2™* design has a centrally located spring loaded water valve that will open when the pressure of the water is impressed behind the valve. External to the centrally located nozzle is a uniquely designed diaphragm plate which provides a means to introduce and direct the flow of AC to the process. This unique diaphragm allows the AC to flow through at varying rates while keeping a constant fluid pressure. As the flow of the AC is increased, the fingers of the diaphragm will deflect allowing for increased flow area. Equally important is that the flow stream of the AC is directed toward the center nozzle such that the AC flow converges to the center of the injection point of the water.

Due to this unique patented design, the *Ultrafoam GX2™* maintains the perfect ratio of AC and water at all production rates thus creating smaller, more stable bubbles for the most consistent asphalt foaming in the industry.

Ultrafoam GX2™ System

THE GREEN MACHINE

WWW.GENCORGREENMACHINE.COM

Equipment

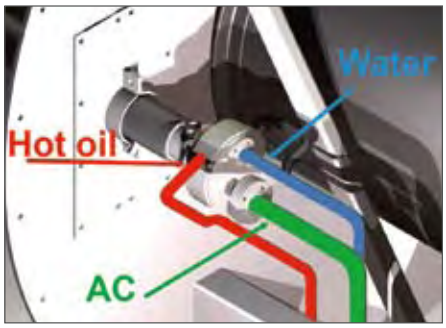
The *Ultrafoam GX2™* system includes the special Gencor foaming generator which can be easily bolted to a 3" or 4" existing asphalt injection line going to the drum mixer. The *Ultrafoam GX2™* is hot oil jacketed for proper heat retention and includes (2) hot oil jumpers. A variable speed drive (VFD) and positive displacement water pump are mounted on a unitized skid which includes an inlet strainer, gauge, pressure switch, pressure relief valve, water flow meter and 30 feet of 1/2" hose. Operator controls consist of a start/stop button and auto/manual switch housed in a separate mountable NEMA enclosure with 150 feet of control cable.

Advantages

- Mixes AC and water together in a proportionate and continuous fashion.
- Exceptional foaming at all production rates.
- No loss of pressure drop and mixing energy.
- Generates evenly sized bubbles.
- Improves workability of the mix.
- All of the mixing energy is provided by the pumping system.
- Simple and reliable.

In addition, the Ultrafoam GX2™ provides several other important features.

1. **Water Sealing** – The special valve design prevents the AC from back-flowing into the water piping system.
2. **Foam Expansion** – The foaming action causes a significant expansion in the AC. The design of the device allows for a substantially smaller flow area for the normal AC materials with a greatly expanded flow area for foamed AC.



3. **Clearing of AC Flow Line** – The *Ultrafoam GX2™* can deflect either upstream or downstream AC and therefore when not running production, the AC lines can be cleaned by reversing the pump.
4. **Compressed Air Purge** – Pushbutton air system purges the remaining water in the piping and hose between the GX2™ pump system to the GX2™ foaming unit mounted on the drum when temperatures approach freezing.
5. **Water Flow Alarm** – Senses water and transmits alert to the operator if loss of water flow to the GX2™ unit occurs.
6. **Pump Heater** – A convective heat bulb is used inside the pump enclosure to prevent pump and internal components from freezing.
7. **Weatherproof Enclosure** – Provides freeze and dust protection to the pump and electronic parts.

Available options:

- **Ratio Controller** – Totalizing unit monitors water usage and percent water.
- **Coriolis Meter** – Mass flow water meter is available for states requiring an additive feature.

GENCOR
INDUSTRIES INC.

5201 N. Orange Blossom Trail • Orlando, Florida 32810 • T (407) 290-6000 • F (407) 578-0577
www.gencorgreenmachine.com • www.gencor.com

GENCOR GREEN CERTIFIED PRODUCTS 2010