

Excerpt from the
May 2005
Factory Mutual Research Approval Guide

CHAPTER 7
FLAMMABLE GAS EQUIPMENT

as it pertains to the products of
Alternate Energy Systems, Inc., Peachtree City, Georgia, USA

VAPORIZERS

These vaporizers are for outdoor use. They may be designed to vaporize liquid petroleum by direct-fired burners located under the vaporizing chamber(s) or by heating a water charge which surrounds the vaporizing coil. Rate of vaporization is automatically controlled to supply the demand of consuming devices with control provided by a thermostatic element installed in the vaporizing chamber. For fire protection reasons, the vaporizer should be located as far as practical from the liquid petroleum storage tank. The vaporizer should be at least 75 ft (23 m) from the tank relief valve and at least 15 ft (5 m) from any part of the tank. However, vaporizers for use with tanks of 2000 gallons (10 m³) water capacity or less may be located not less than 25 ft (8 m) from the tank relief valve. Further, it is recommended that the manufacturer always be advised of the proposed installation when ordering a vaporizer so that the connecting piping, associated fittings, etc., may be economically but properly sized.

If electrical ratings are not noted in the listing, electrical power is not required for equipment operation.

LP-Gas

Alternate Energy Systems, 210 Prospect Pk, Peachtree City GA 30269

Direct Fired Vaporizer. Models AE-30, -50, -80, -120, DF-1600, -2400, -3600, -4800*. Model No. designates rated capacity in gal/hr at 0°F (-18°C) inlet temperature.

Horizontal Water Bath Vaporizer with Venturi Burner. Models WB-200, -250**, -350. Model No. designates rated capacity in gal/hr at 0°F (-18°C) inlet temperature. Requires 115 V, 60 Hz, 1 phase power.

Horizontal Water Bath Vaporizer with Power Burner. Models WB-450, -550, -650, -750, -850, -1000, -1200, -1500, -1800, -2000, -2200, -2500, -3000, -3500, -4500, -5500. Model No. designates rated capacity in gal/hr at 0°F (-18°C) inlet temperature. Requires 230 V, 60 Hz, 1 phase power for models through WB-1800. All others use 460 V, 60 Hz, 3 phase power.

*DF models similar to AE models previously FM Approved as discussed in FM Approval report S/N 26918, dated July 25, 1977 and JI 0F3H5.AF, dated March 23, 1981.

**WB-250 identical to models WB-200, WB-350 except for capacity.

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LP-GAS VAPORIZER-MIXERS

Designed for outdoor service, these machines may not require electric power and are designed to vaporize liquid LP-Gas, mix the vapor with air to supply, within set pressures, a vapor-air mixture of predetermined Btu/ft³ value to a plant piping system. The operation is accomplished by the action of two machine functions consisting of a vaporizer and vapor-air mixing section which operate to satisfy the system demand. The mixer section cycles "on-off" to maintain the supply of proper vapor-air mixture to the system, while the vaporizer section operates "on-off" to maintain an adequate vapor supply to the mixer section. Proportioning type mixers normally provide continuous operation. The gas system demand governs the frequency of operation.

The vaporizer-mixer should be installed as far from the LP-Gas storage tanks as practical. The unit should be at least 75 ft (23 m) from storage tank relief valves or unloading station, at least 15 ft (5 m) from any part of the storage tanks and 50 ft (15 m) from openings in important buildings.

Installation, initial start-up and field adjustment of the equipment are made by the manufacturers or their representatives. Field service and repair parts are available from the manufacturers.

If electrical ratings are not noted in the listing, electrical power is not required for equipment operation.

Alternate Energy Systems, 210 Prospect Pk, Peachtree City GA 30269

Direct-Fired Vaporizer/Venturi Mixer Module. Models AE-80/HVS-7MM, -120/HVS-10MM, -160/HVS-14MM, -240/HVS-20MM, -360/HVS-30MM, DF-1600/HVS-14MM, -2400/HVS-20MM, -3600/HVS-30MM, -4800/HVS-40MM*. Standard output pressure is 5 psi (35 kPa) at 1465 Btu/ft³ (55 J/L). Vaporizer Model No. designates rated discharge in millions of Btu/hr. Requires 115 V, 60 Hz, 1 phase power. For output pressures from 10 to 50 psi (70 to 345 kPa) at 1465 Btu/ft³ (55 J/L), the model designation is followed by suffix H and requires compressed air for venturi operation.

Horizontal Water Bath Vaporizer with Venturi Burner/Venturi Mixer Module. Models WB-200/HVS-14MM, -250/HVS-20MM, -350/HVS-30MM. Standard output pressure is 5 psi (35 kPa) at 1465 Btu/ft³ (55 J/L). For output pressures from 10 to 50 psi (70 to 345 kPa) at 1465 Btu/ft³ (55 J/L), the model designation is followed by suffix H and requires compressed air for venturi operation.

Horizontal Water Bath Vaporizer with Power Burner/Venturi Mixer Module. Models WB-450/HVS-40MM, -550/HVS-50MM, -750/HVS-60MM, -850/HVS-70MM, -1000/HVS-80MM, -1000/HVS-90MM, -1200/HVS-100MM, WB-1500/HVS-110MM, -120MM, -130MM, WB-1800/HVS-140MM, -150MM, -160MM. Standard output pressure is 5 psi (35 kPa) at 1465 Btu/hr³ (55 J/L). Model No. designates rated vaporizer capacity in gal/hr and mixed gas capacity in millions of Btu/hr, respectively. For output pressures from 10 to 50 psi (70 to 345 kPa) at 1465 Btu/ft³ (55 J/L), the model designation is followed by suffix H and requires compressed air for venturi operation. Requires 230 V, 60 Hz, 1 phase power.

*DF models similar to AE models previously FM Approved as discussed in FM Approval reports S/N 26919, dated July 20, 1977 and (JI) 0F3H5.AF, dated March 23, 1981.

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LP-GAS VENTURI MIXERS/PROPORTIONERS

These machines are for outdoor service and are designed to mix propane vapor (supplied from an LP-Gas vapor source) and air (supplied by a compressor for high delivery pressures) or inspired atmospheric air (for medium and low delivery pressures). The vapor source can be an LP-Gas vaporizer, or in some cases, the natural vaporization from the storage tank is adequate as supplied vapor. Rated pressures are at maximum capacities with all venturis on the mixer running. Silencers may have to be added to meet the requirements of the Occupational Safety and Health Act (OSHA).

The mixer venturis cycle "on-off" when a pressure drop is sensed within the mixer surge tank. The gas system demand governs the frequency of the venturis' "on-off" operation. The venturis make a vapor-air mixer of a predetermined Btu/ft³ (J/L) value to substitute for the natural gas normally used. Proportioning type mixers blend LP-Gas and air in precise ratio to provide a fuel compatible with natural gas. They are designed for continuous operation and will modulate with load demand.

The mixer or proportioner may be installed anywhere, but is normally adjacent to the vapor source. Installation, initial start-up and field adjustment of the equipment are made by the manufacturers or their representatives. Field service and repair parts are available from the manufacturers.

If electrical ratings are not noted in the listing, electrical power is not required for equipment operation.

Alternate Energy Systems, 210 Prospect Pk, Peachtree City GA 30269

Mixer. Models HVS-7MM, -10MM, -14MM, -20MM, -30MM, -40MM, -50MM, -70MM, -80MM, -90MM, -100MM, -110MM, -120MM, -130MM, -140MM, -150MM, -160MM*. Standard output pressure is 5 psi (35 kPa) at 1465 Btu/ft³ (55 J/L). Model No. designates rated capacity in millions of Btu/hr. Requires 115 V, 60 Hz, 1 phase power.

Mixer. Models HVS-7MMH, -10MMH, -14MMH, -20MMH, -30MMH, -40 MM, -50MMH, -70MM, -80MMH, -90MMH, -100MMH, -110MMH, -120MMH, -130MMH, -140MMH, -150MMH, -160MMH*. Output pressures from 10 to 50 psi (70 to 345 kPa) at 1465 Btu/ft³ (55 J/L). Model No. designates rated capacity in millions of Btu/hr. Units require compressed air supply and 115 V, 60 Hz, 1 phase power.

Blender Models POM-30, POM-40, POM-60, POM-80, POM-100*. Output pressures from 10-100 psi (70 to 680 kPa) available. Model No. designates outlet size in inches. Units require compressed air supply. Operate at 115 V or 120 V, 50/60 Hz, single phase or 24 V dc.

*Models similar to those previously FM Approved as discussed in FM Approval report JI 0F3H5.AF, dated March 23, 1981.