

# DoubleTrac® Piping By Omega Flex, Inc. Double Containment Flexible Steel Piping Specification Sheet

Specification date \_\_\_\_\_

Project Name: \_\_\_\_\_

## 1) General

The primary delivery piping system shall be for suction or pressure applications, and have semi-rigid coaxial-type double wall construction. The stainless steel primary pipe fits snugly into the secondary pipe. This includes an integral EFEP barrier standoff, allowing for rapid migration of leaks from the primary pipe into the secondary pipe, and then to a designated accumulation point. All double-containment flexible piping system components shall be approved for use in aboveground and underground applications. All underground piping is designed for direct burial, and pipe runs can be joined with the use of transition sumps only. The piping system shall be compatible with chemicals naturally found in the ground and resistant to bacterial attack. Piping shall be supplied in flexible coils for pipe runs with no joints. All pipe and fittings shall be dual listed by Underwriters Laboratories to UL 971A Underground Piping for Flammable Liquids and UL 1369 Aboveground Piping for Flammable and combustible liquids. Where desired, coaxial pipe can be installed within a 3" or 4" thermoplastic corrugated gravel guard pipe chase to permit the replacement of the product piping without excavation. The pipe shall be available in 1", 1.5", and 2" diameters and provide bend radius, burst pressures, pressure ratings, vacuum ratings, and operational temperatures listed below.

Non-stainless steel primary pipe shall not be allowed for product-bearing piping. This includes FRP, polyethylene, or multi-layered flex pipe with bonded, swedged, glued, or fusion welded.

When used with an HDPE tank, dispenser, or transition sumps, entry fittings shall be made of rubber, Acetal, or fiberglass and sized for the appropriate pipe outer dimension.

Termination fittings shall include primary and secondary termination with an integral secondary containment test port for future testing of the containment piping system. Test ports may remove internal valves to drain primary pipe leaks into low-point accumulation sumps.

## 2) References

NFPA 20, "Installation of Stationary Pumps for Fire Protection"

NFPA 30, "Flammable and Combustible Liquids Code"

NFPA 30A, "Code for Motor Fuel Dispensing Facilities and Repair Garages"

NFPA 31, "Installation of Oil-Burning Equipment"

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NFPA 37, “Stationary Combustion and Gas Turbines”

NFPA 407, “Aircraft Fuel Servicing”

NFPA 1 “Uniform Fire Code”

International Fire Code published by the International Fire Council

International Mechanical Code published by the International Code Council

Underwriters Laboratories – UL-971A and UL 1369

PEI/RPI-100 “Recommended Practices for Installation of Underground Liquid Storage Systems”

PEI/RPI-200 “Recommended Practices for Installation of Aboveground Storage Systems for Motor Vehicle Fueling”

PEI/RPI-800 “Recommended Practices for Installation of Bulk Storage Systems”

PEI/RPI-1000 “Recommended Practices for Installation of Marina Fueling Systems”

PEI/RPI-1300 “Recommended Practices for the Design, Installation, Service, Repair and Maintenance of Aviation Fueling Systems”

PEI/RPI-1400 “Recommended Practices for The Design and Installation of Fueling Systems for Emergency Generators, Stationary Diesel Engines and Oil Burner Systems

USEPA – 40 CFR Part 280 Federal UST Standards

ICC-ES-ESR-4565 Seismic Resilience

### **3) Compatibility**

The piping system and fittings shall be resistant to all of the following:

- A. Motor Vehicle Fuels (MV) - petroleum based hydrocarbon fuel typically found in consumer dispensing, boiler operations, and emergency generation systems using gasoline or diesel fuels including blended fuels with a maximum 15% MTBE or Methanol or 30% Ethanol.
- B. Concentrated Fuels (CT) - Alternate un-blended fuels for up to 100% concentrations of Toluene, Methanol and Ethanol.
- C. High Blend Fuels (HB) - Fuels with higher than normal gasoline blends with maximum 50% Methanol or Ethanol.
- D. Aviation and Marine Fuels (A&M) - Specialty aviation and Marine use fuels for up to 100% kerosene or leaded gasoline.
- E. Bio-Fuels – All grades and types of Bio-Fuels
- F. Diesel Exhaust Fluid – Per ISO 22241-3

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### **4) Standards & Certifications**

All double containment flexible piping system components shall be approved for use in above ground and underground applications. All piping and components must be manufactured in an ISO 9001 certified facility. All underground double wall piping must be Underwriters Laboratories Listed in accordance with UL 971A. All aboveground double wall piping must be Underwriters Laboratories Listed in accordance with UL 1369.

### **5) Piping - Materials and construction**

#### **a. Primary Piping**

- i) Shall be made from T316 series Stainless Steel Strip conforming to ASTM A240.
- ii) Piping shall not be subjected to heat treating or annealing after the corrugation forming operation.
- iii) Piping shall be suitable for operation with all fuels as defined in UL 971A and UL 1369
- iv) Piping is rated for 125 Psig (1"), 100 Psig (1-1/2") and 75 Psig (2")

#### **b. Secondary Jacket**

- i) The jacket shall be a 2-layer co-extrusion of EFEP and Nylon 12.
- ii) The secondary jacket shall be rated for 50 Psig (All Sizes).
- iii) Nylon 12 Jacket is to be resistant to UV.

### **6) Mechanical Attachment Fittings**

- a. Fittings shall be made from 300 series Stainless Steel.
- b. Fittings shall provide a metal-to-metal seal (no gaskets).
- c. Fittings shall incorporate a port for interstitial space monitoring and or testing.

### **7) Delivery, Storage and Handling:**

Pipe and fittings shall be protected from damage due to impact and point loading. Pipe shall be properly supported to avoid damage due to flexural strain. The contractor shall not allow dirt, debris or other extraneous materials to get into the pipe and fittings.

### **8) Installation and Training:**

The piping system shall be installed as specified on contract drawings or at the discretion of the installing contractor to provide a complete pipe conveyance system as required for the project. Pipe sizes shall be as shown on the contract drawings.

All pipe and fittings installed or constructed in the field shall be assembled by technicians of the contractor who have been satisfactorily trained by the manufacturer. When the installing contractor is not certified, the pipe manufacturer shall provide onsite training and certification of the contractor's technicians in the proper assembly and installation procedures. Off site, classroom training is not acceptable. The piping system shall be installed in strict accordance with the manufacturer's current installation instructions. The installing contractor shall be responsible for all necessary tools required for a complete testable piping installation.

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## 9) Testing Underground Product Piping

### a. General

Contractor shall notify, where required, any authorities having jurisdiction in advance of any piping tests. Prior to pressure testing, the piping must be isolated from any tanks, pumps, boilers or dispensers. An air pressure test must be performed on the primary and secondary piping to detect any leaks that may exist. Test pressure to be in accordance with OmegaFlex Product Installation Manual. All testing shall be in compliance with the pipe manufacturer's installation instructions.

### b. Prior to Backfill

All new piping shall be tested before being covered, enclosed, or placed into service. Test pressure to be in accordance with OmegaFlex Installation Manual for a minimum of one hour with no pressure decay. On double-wall secondary piping systems, after the inner pipe test has been completed, the contractor must pressure test the secondary containment piping at the air pressure required by the manufacturer's instructions.

### c. After Backfilling

After backfilling, where required by the authority having jurisdiction, all underground primary lines shall be tested with a precision testing system by a third-party independent testing company.

### d. Tightness Certificate

Upon completion of the test, the Contractor shall provide a "Certificate of Tightness" to the Owner.

## 10) Tank, Transition and Dispenser Sumps:

All Tank Sumps, Transition Sumps and or Dispenser Sumps shall be made of HDPE or Fiberglass and manufactured by S. Bravo Systems or otherwise as specified on contract drawings.

## 11) Acceptable Manufacturer and Products:

All pipe, fittings and specialty components for a complete fuel delivery system shall be as manufactured by DoubleTrac as manufactured by Omega Flex, Inc. Exton, PA (Phone Number 800-355-1039) or approved equal.

## 12) Warranty

The piping system manufacturer shall provide a 30-year warranty in underground pipe and 15-year warranty for aboveground pipe per its standard warranty terms.