

### FastFusion Poly Pipe Field Fusion Welding

Not many two-year old companies can claim to have revolutionized their industry, but that's exactly what Fast Fusion of Grand Junction, CO, is in the process of doing. Starting from scratch, Fast Fusion designed, developed, and produced an entirely new system for fusion welding polyethylene pipe in the field, a system that dramatically increases the productivity, efficiency, and profitability of pipeline contractors who use it.

Polyethylene pipe is widely used for a variety of applications including water and sewer lines, chemical transfer, food processing, irrigation, mining and dredging, geothermal power generation, telecommunications, and oil and natural gas collection and transport. The primary advantage of polyethylene pipe over its metallic and PVC competitors is the fact that it can be joined by fusion as it is installed, creating what is effectively a joint-free pipe of virtually any length required.

Fusion joining is a mature and well-proven technology, and there are a number of equipment suppliers in the industry. The traditional approach is to create a "welding station" at some convenient point along the right of way, and then move the pipe through the welding system. This is not as simple as it sounds, however, because the joint must be protected from environmental contaminants while it's being made, which means the "welding station" is typically housed in a protective structure of some kind.

"Considering that polyethylene pipe is used everywhere from the Canadian Arctic to the deserts of the American Southwest, placing, moving, and maintaining a 'welding station' structure can be a big job," explains Fast Fusion President Dick McKinley. "It also takes a lot of people and equipment to move the pipe through the 'welding station,' and you inevitably put a lot of strain on the newly-welded joints in the process.

"Our approach is to turn this model completely around and bring the welding equipment to the joint. The Fast Fusion Trac20 is a self-contained fusion welding system on tracks that moves along the right of way and makes the joints in place. Once it's joined, the pipe experiences only minimal movement.

"A Trac20 can be equipped with any welding system the customer prefers," McKinley continued, "and it incorporates our patented cooling technology that significantly cuts the cycle time for a weld. The net result is that a Trac20 effectively doubles the number of joints that can be assembled in a day and reduces the cost per foot by 50% while simultaneously improving joint quality.

The Fast Fusion Trac20 is powered by a Cat 3054C, a four-cylinder, turbocharged and after-cooled diesel engine that meets Tier II/Stage II emission requirements. It is directly coupled to the hydraulic pump that powers the Trac20's hydrostatic track drive, and also powers a 6,000-watt generator and an air compressor via an auxiliary belt drive. The generator provides current to the fusion welding system's heating elements, and the compressor is part of Fast Fusion's patented joint cooling system. The engine also supplies power for the cab air-conditioning system, as well as the usual complement of engine accessories.

Since announcing the availability of the Trac20 in North America in January of 2005, Fast Fusion has sold 22 and has already received orders for a second machine from three of the original customers. All of these machines were sold through ISCO Industries of Louisville, KY, which has exclusive North American distribution rights. Fast Fusion anticipates a similar response from European customers as soon as negotiations with an international distributor are completed. Five Star Industries of Knoxville, IA, is the preferred manufacturer of the Fast Fusion product.

Fast Fusion is not resting on its laurels. It has already produced a version of the Trac20 intended for the offshore oil industry. The MFT21 is essentially a barge-mounted version of the Trac20, minus the tracks and hydrostatic drive system. The first unit is now at work laying pipe in the Gulf of Mexico. Also on the horizon is a bigger version of the Trac20, the MFT 36 and the MFT 48 will be the size of a Cat D8 bulldozer and will be able to handle pipe in the 18 to 48 in. dia. range, will also be powered by Caterpillar. (Updated March 2006)

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**Irrigation Project**

MobileFusion Trac 20 in an environmentally sensitive area in California fusing 4" through 20" HDPE. Minimal environmental impact and double efficiency were hallmarks of this PE fusion operation.

**Insertion Project Florida**

MobileFusion Trac 20 in Florida, thirty six miles of perforated polyethylene 8 inch and 12 inch diameters. Minimal environmental impact and a reduction in cost per ft. of 47%

**Natural Gas Project**

Mobile Fusion Trac20 in Alberta Canada. Fifty percent production increase per shift allowed this project to be operational in less time than using conventional fusion methods.



**Mining Project**

Mobile Fusion Trac20 in New Mexico. Operation provided minimal environmental impact and eliminated the need to drag the pipe resulting in better efficiency and project quality control.

**Natural Gas Project**

Mobile Fusion Trac20 fusing medium density polyethylene pipe in Western Colorado. Minimal environmental impact and increased production over conventional pipe fusing methods.



**Highway Irrigation Project**

Pipe fused for a bore project under an Interstate. Pipe ramming, pipe bursting and directional drilling technologies have a new partner in efficiency, productivity and profitability, the Mobile Fusion Trac technology by Fast Fusion.

**Natural Gas Project**

Mobile Fusion Trac20: Fast Fusion versus conventional HDPE fusion methods is to ONE PERSON versus FOUR! Efficiency! Productivity! Profitability!

**Natural Gas Project**

Mobile Fusion Trac20 in Western Colorado/ Fusing pipe in all weather conditions with a fifty percent increase in production.

**All Weather Cab of MFT 20:**

View inside the cab of the MFT 20. This ergonomic environment is designed as a safe operator work platform for maximizing operator efficiencies inside the all weather cab.

**Side By Side Comparison of Fusion Methods**

Size	Conventional Cost / Foot	Fast Fusion Cost / Foot	\$ Savings	% Savings
2"	\$0.27	\$0.22	\$0.04	16%
3"	\$0.32	\$0.25	\$0.07	23%
4"	\$0.40	\$0.26	\$0.14	36%
6"	\$0.50	\$0.30	\$0.20	41%
8"	\$0.58	\$0.35	\$0.23	39%
10"	\$0.75	\$0.41	\$0.34	45%
12"	\$0.82	\$0.50	\$0.32	39%
14"	\$1.06	\$0.51	\$0.54	51%
16"	\$1.19	\$0.58	\$0.61	51%
18"	\$1.19	\$0.69	\$0.50	42%
20"	\$2.57	\$1.12	\$1.44	56%

☒ Average Savings 40%

☒ Average Savings 6"-20" - 46%