

# Monobore Frac Missile System



Large-bore, single-line, modular frac missile system improves operational efficiency and safety

## Applications

Onshore unconventional frac operations

## How the it improves frac operations

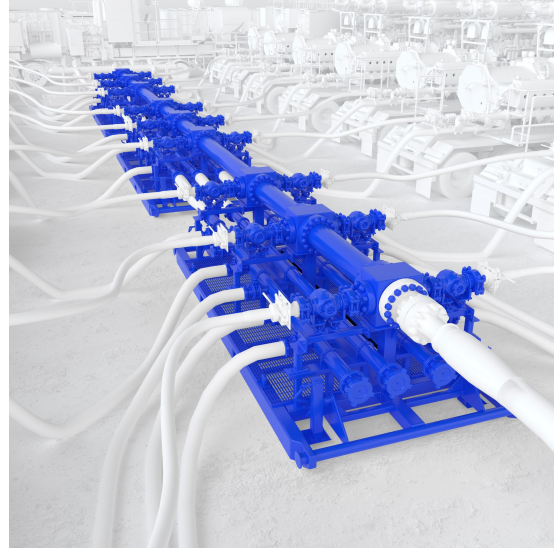
Comprising a robust, large-bore single pipe with highly secure API 6A flanges, the modular monobore frac missile system connects to the pumps to bring new efficiencies and safety to multiwell frac operations:

- simplifies connections to accelerate rig-up by 4 to 6 hours
- easily accommodates any number of frac pumps and pumping rates up to 160 bbl/min
- reduces fluid friction through its big bore, in turn reducing the required hydraulic horsepower to save on energy
- eliminates the risk of fluid leaks and
- washouts and their related NPT.

## Additional information

Used with the Cameron big-bore frac check valve, the system is easily adapted to other suppliers' valves. For pump isolation, the Cameron plug valve can be replaced with check valves.

The large-bore monobore missile is adaptable to use the Cameron clamp quick-connect system (CCS30) to slash the connection time for small-bore frac hoses with any pump union type to a mere 20 seconds or less. Connections are not only faster but more reliable because the CCS30 is installed using a conventional torque wrench, avoiding the HSE risks inherent in conventional hammer unions. The suction manifold is on a separate skid and has 4-, 6-, and 8-in inlets and a 10-in splitter butterfly valve on the main suction manifold. The double pump suction connection incorporates a 4-in low-pressure fitting.



Layout of three 6-pump monobore frac missile skids using two-connection MonoFlex technology to further streamline setup and improve the safety of multiwell fracturing operations.

## How it works

The skid-mounted four- and six-pump assemblies of the modular system are easily configured to flexibly fit any arrangement or number of pumps. This single 7-in high pressure line is rated for high-capacity performance to 15,000 psi and 160 bbl/min. The system also features dual low-pressure line systems for redundancy in performing suction pumping operations or a split-stream process that separates dirty sand-laden fluids and clean fluids for pumping separately. Instrumentation and the suction manifold are housed on separate skids. Fully compliant to API 6A, the missile's flanges provide highly reliable connections that mitigate the risk of fluid leaks and washouts. This enables continuous and safer operations and more pump time per day.

The monobore frac missile system is compatible with conventional flow iron and hoses. Use of MonoFlex™ dual-connection fracturing fluid delivery technology to provide a flexible, erosion-resistant conduit to the frac pumps is recommended for enhanced safety and reliability. With only two connections, MonoFlex technology greatly accelerates pad rig-up for multiple wells.

## What it replaces

Conventional multiron frac missiles are assembled from multiple iron strings interconnected with numerous high-pressure lines. They typically use a wide variety of non-API union types, such as hammer union and third-party proprietary designs. However, these traditional unions are inherently failure prone. Their failure releases the pressurized fluid, posing environmental concerns and high risk to field personnel and equipment. Leaks also interrupt frac operations, resulting in NPT.