




Mobile Automated Ratio Control (MARC)

Measure, monitor and manage acid blending to optimize hydraulic fracturing

Overview

The Mobile Automated Ratio Control (MARC) System provides a safe, accurate and consistent acid blend during hydraulic fracturing. MARC not only monitors the blend ratio during the frac stages, it also monitors and provides the acid solution source data. Level depth, volume and temperature of the acid solution are also available in the system. MARC includes an option to calculate acid trailer volume to ensure there is enough product left for the next stage. This system is designed to integrate into the existing field equipment as it can be placed between the drop pump (or blender) and the water and acid solution sources. Once integrated, field operators can easily follow the on-screen, step-by-step directions to customize the acid blend for every frac stage.

With MARC, hydraulic fracturing sites can eliminate manual acid delivery processes and improve safety. Field operators will no longer need to be in close proximity to lines carrying acid or acid equipment. Site operations will benefit from removing human errors during the ratio blending process, resulting in a more efficient acid ratio delivery. Once the acid ratio and drop size is determined, MARC ensures the ratio is accurately delivered. This accurate, consistent and efficient blending solution provides cost savings by reducing acid waste and manpower, while improving on site safety.

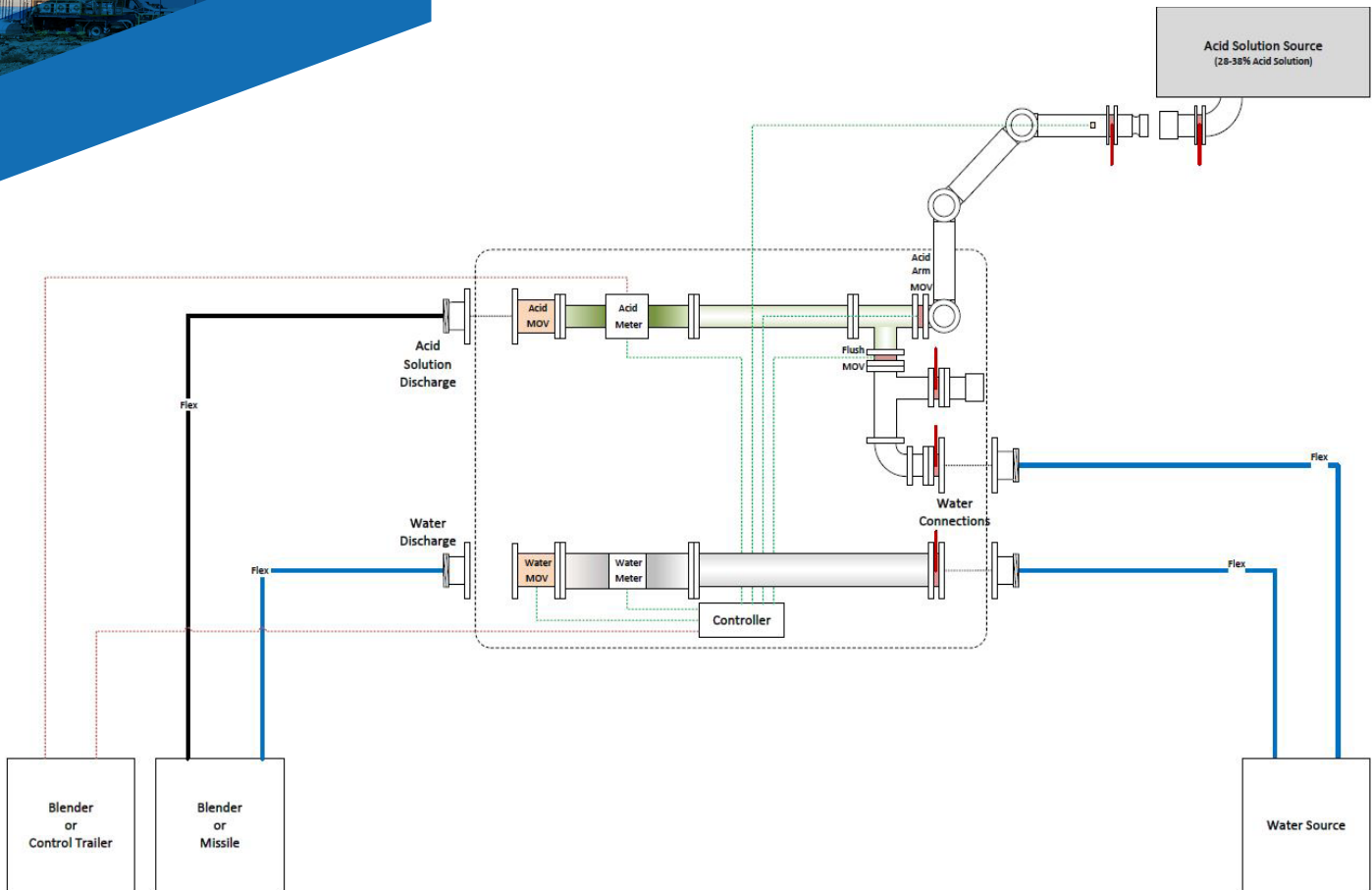
Reasons to deploy MARC at your site:

- Faster and more efficient frac stage process by removing the guesswork on measurement and blending
- Acid ratio is automated during blending process
- Reduced costs by preventing excess acid usage
- Reduced manpower for onsite labor
- Protects the environment from excess acid
- Internal components are coated for maximum protection against acid corrosion
- Safe access to PLC, valves and connectors
- Eliminates need to handle acid lines or equipment during blending process
- Fluid level measurement is automated on the skid, eliminating manual processes
- Integrates with existing equipment through common connectors, hoses and valves
- Less manual handling of mixing equipment extends longevity and reduces maintenance



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Key Features

- Designed to permit desired acid solution ratio through combined acid and water sides
- Monitors acid solution source content, no need to measure between active stages
- Manages desired acid solution ratio through combined acid and water sides
- Live real-time progress of drop data provided and adjustments to ratio during drop is allowed
- Skid automatically shuts acid source at end of drop and flushes the skid of all acid at each stage
- Arm is flushed during final drop at each site, and clears entire skid, including arm, for transport (not DOT hazardous)

Deployment Options

- Skid or trailer
- Pull through or pump included
- Choice of hose fitting type(s)
- Acid solution meter pulse feed
- Control trailer interface

See [website](#) for more details on these options.