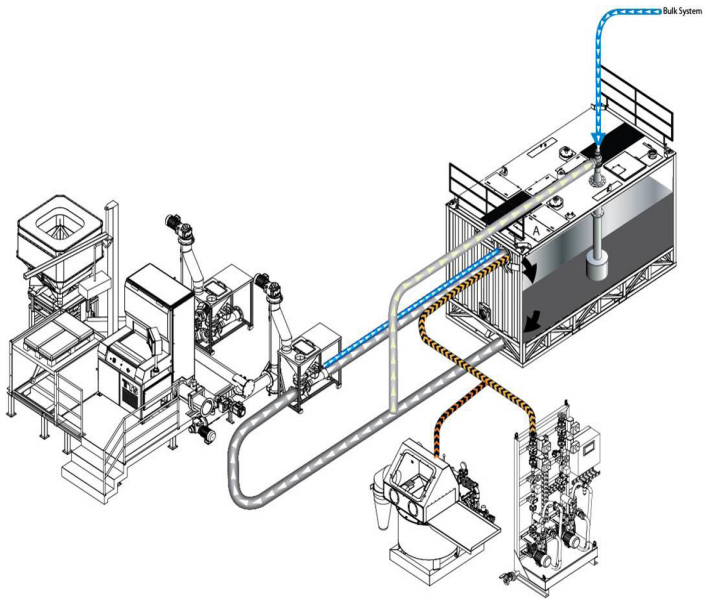
Mud Mixing System

RD01

Cameron's mud mixing system (MMS) is used to dose, add and mix mud chemicals into the mud system, which can be added in powder or liquid form. Showcasing modern innovation and proven technology, the MMS is designed to deliver safer, easier and more effective mud mixing and additive tasks with greater control and monitoring capabilities.

Engineered on a project-by-project basis, the Cameron MMS can be customized to meet almost any technical and functional system requirements. The MMS can be configured to most installation areas, making it a logical choice for any modern offshore or land rig installation with limited space.



Product Description

The skid for sack handling is used to cut and dose chemical sacks (up to 25 kg). The skid can be engineered to house the electro-pneumatic sack dosing unit (SDU), vacuum lifting unit, electro-hydraulic lifting table and waste compacting unit. To assist sack handling operations, an electro-hydraulic pallet lifting table and vacuum lifting unit can be installed near or on the skid housing of the sack dosing unit.

A screw conveyor system is used to dose powder from the SDU to the mud mixing unit. The screw conveyor system delivers powder into the mud mixing unit via an inlet located on the top of the mud mixing unit's skid. Powder can also be added manually through an access hatch located on the top of the skid. The mud mixing unit has an inline venturi mixer that delivers high-speed circulation of powdered chemicals and fluid (freshwater or liquid mud).

The big bag unit (BBU) is designed to cut flexible intermediate bag containers (big bags) of chemical powder. The discharged powder is then transported to the required area using the SDU/BBU screw conveyor system.

All standard and optional skid equipment can be controlled and monitored from the SDU local control panel (LCP) with integrated touch screen. The control system uses sophisticated human-machine interface (HMI) applications to guide operators through the process of selecting and setting operating values, which streamlines the operation process and reduces the potential for human error. Remote console operation (via the mud control system) is also available for most tasks.

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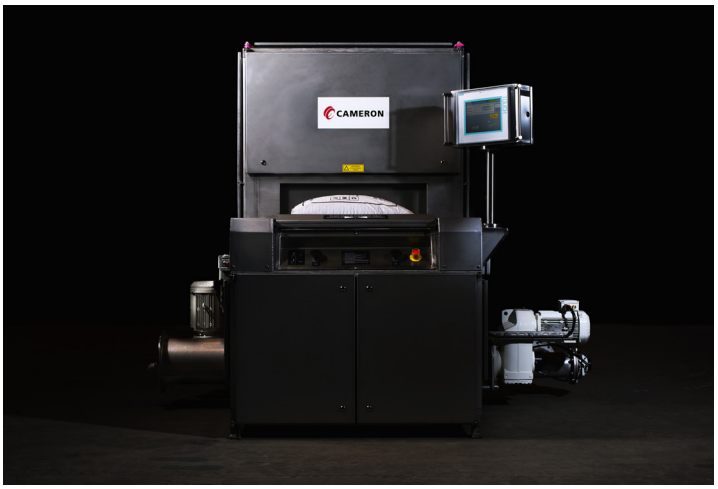
Sack Dosing Unit

Cameron's sack dosing unit (SDU) is designed to automatically cut and empty sacks of powdered chemicals and then dose the contents to the mud mixing unit(s). Empty sacks are removed, compacted and stored for disposal. Sacks are cut and dosed in a closed (mechanically-sealed) cutting cabinet. An automatic dust filter unit operates whenever the SDU is in use to prevent dust from entering the operator environment.

Control of the machine's sequences is performed from the LCP mounted on the SDU skid. A touchscreen is mounted at the front of the LCP, which is the primary tool for inputting and monitoring sack dosing tasks.

To facilitate quicker and easier installation, the SDU is designed as a skid-mounted unit with a normal footprint of 2.1 m x 2.9 m x 1.5 m. The SDU skid can also house the optional vacuum lifting unit and lifting table.



Main Features

- Cuts and doses up to 110 sacks/hr
- Requires only electrical power and pneumatic air supply for operation
- Graphic-based menu system guides operators through selection and activation process
- Integrated waste compacting and removal system

Safety Features

- Integrated vacuum lifting unit and electro-hydraulic lifting table reduce operator strain
- Self-cleaning dust-filter unit operates automatically
- Double-handed start prevents accidental activation

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Technical Specifications	SI	Imperial (US)
Skid dimensions (H x W x D)	2.1 m x 2.9 m x 1.5 m	7.9 ft x 10.8 ft x 8.5 ft
Unit weight (including skid)	1600 kg	3527 lb
Powder additive capacity	0.1 m^3/hr - 4 m^3/hr	3.5 ft^3/hr - 52.98 ft^3/hr
Sack cutting capacity	0-110 sacks/hr	
Area classification	Safe Zone	
SWL	84 dBA	
Dust unit	Single-drive direct inlet centrifugal fan	
Waste unit	Compactor unit with motor and screw conveyor	

Scope of Supply	Options
Skid-mounted electro-pneumatic sack dosing unit	Integrated vacuum lifting unit
LCP with touchscreen panel	Integrated electro-hydraulic lifting table
Integrated self-cleaning dust-filter unit	Frequency control panel
Integrated waste compacting unit with conveyor and motor	Screw conveyor system to mud mixing unit
Standard instrumentation package	Additional certification (CE/Hazardous Zone I/Zone II)
Standard project documentation	NORSOK documentation

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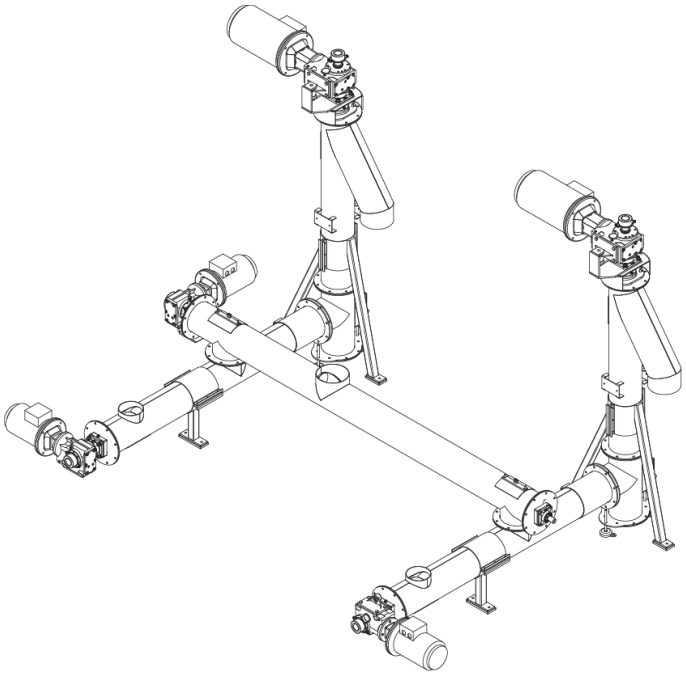
Screw Conveyor System

Cameron delivers full and partial transport screw conveyor systems. Our most popular screw conveyor unit is a single-flight modular conveyor unit, which can be configured to run horizontally, vertically or bi-directionally. Each unit is run by an electrical gear motor.

When used as a dosing screw, conveyor speed (dosing rate) is set automatically as a part of the main equipment's activation sequence. For example, when feeding powder from the sack dosing unit (SDU) to the mud mixing unit, the screw conveyor rate is set automatically as part of the SDU selection and activation sequence.

Each module can be controlled and operated as an individual unit or as part of a system. Remote console operation is also available as an option.



Main Features

- Precise, cost-efficient tool
- Simple, robust design
- Highly versatile modular system
- Can be used as single units or a complete system
- Can be engineered for vertical, horizontal and diagonal direction
- Suitable for heavy-duty application
- Length and direction can be designed to fit all installation areas
- Drive provided by variable frequency drive (VFD) or fixed speed motor
- Integrated inspection hatch
- Reduced maintenance requirements

Safety Features

- Integrated vacuum lifting unit and electro-hydraulic lifting table reduce operator strain
- Self-cleaning dust-filter unit operates automatically
- Double-handed start prevents accidental activation

Technical Specifications	
Area classification	Safe Zone
Conveyor type	8” single-flight helicoid module
Control	Local and remote (option)
Spiral diameter	203 mm (8”)
Construction	AISI 316L austenitic stainless steel
Conveyor weight (empty)	Approx. 200 kg
Motor area classification	Safe
Screw conveyor motor type	Electrical-gear motor
System drive	VFD or fixed speed

Scope of Supply	Options
Single-flight conveyor comes with the following:	Remote operation
Electrical gear motor with VFD or fixed speed	Additional certification (CE/Hazardous Zone II/Zone I)
Inspection hatch	NORSOK documentation
Interface to LCP	
Testing and commissioning	
Standard project documentation	

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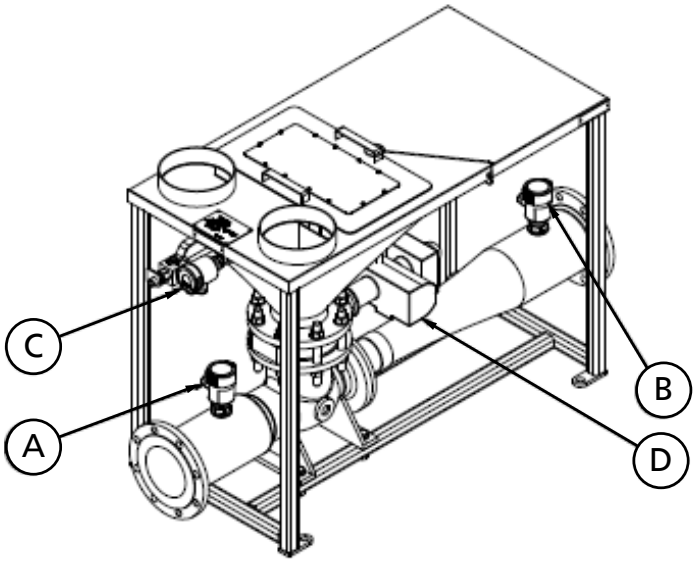
Mud Mixing Unit

Cameron's mud mixing unit (MMU) is a simple and robust skid-mounted unit used for high-capacity mixing and discharge of powdered chemicals in both WBM and OBM systems. The unit provides increased accuracy, reliability and ease of use. All of the components are manufactured from corrosion-resistant materials and are engineered to provide high performance even in the harshest operating environments.

Powder is fed to the MMU from either the surge tank, sack dosing unit or big bag unit. The powder enters the MMU's funnel which leads to a venturi mixer installed directly in the mixing line.

The basic hopper design can be modified to include a range of optional equipment and capabilities such as remote-operated valves, automatic differential pressure control and an automatic flushing system. When fitted with remote-operated valves and optional instrumentation, most hopper operations can be controlled and monitored from a remote operation console via an interface to the mud control system.



Main Features

- Pressure transmitters (A and B) measure differential pressure in the venturi mixer
- Level switch generates high-high alarm (C)
- Remote feeding valve (D)
- Skid-mounted for easy installation
- Venturi-type mud mixer
- Simple design reduces maintenance requirements
- Integrated work table for sack cutting and dosing
- Direct discharge into mud mixing system

Safety Features

- Integrated safety hatch prevents accidental contact with the mixer and reduces any accidental contamination of the mixing fluid
- Closed mixing system reduces dust pollution

Technical Specifications	SI
Area classification	Safe Zone
System control	Local and remote (option)
System drive	Mud
Skid weight	250 kg
Mud mixer type	Venturi-type mixer
Powder mixing capacity	0-35 m^3/hr
Liquid flow	150-300 m^3/hr

Scope of Supply	Options
Skid-mounted mud mixing unit for safe zone installation	Automatic differential pressure control
Mixer compartment with venturi-type mixer	Automatic flushing system
Standard instrumentation	Remote-operated valve and level switch
Integrated work table and safety hatch	Closed cutting cabinet
Manual valve	Additional certification (CE/Hazardous Zone II)
Standard project documentation	NORSOK documentation

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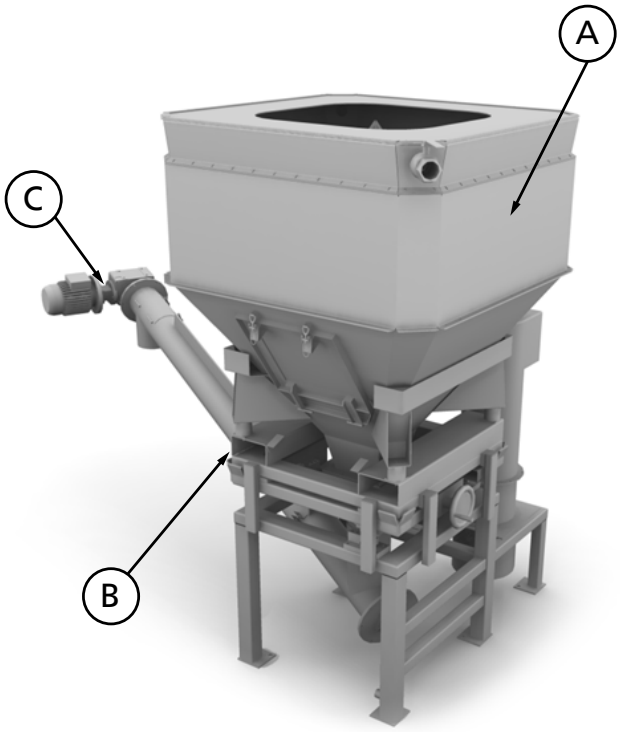
Big Bag Unit

Cameron's big bag unit (BBU) is designed to improve operator safety and productivity by reducing contact with powder and dust and enabling easy big-bag handling. The integrated dust filter unit operates whenever the BBU is in use to prevent dust pollution in the operation area, while the optional oscillating vibration unit activates during all dosing operations to make sure that the hopper is properly emptied, preventing both clogging and product wastage.

Operators control the BBU using a human-machine interface (HMI) operator station, with menu options including automatic dosing based on rate, volume or time span. From the same HMI, operators can monitor time used and amount dosed for any BBU job in progress.



Main Features

- Hopper designed to prevent clogging and wastage (A)
- Integrated forklift supports for easy filling (B)
- VFD-controlled dosing screw conveyer (C)
- Electronic load cells generate real-time weight data for display on operator control console
- Dismountable cutting blades
- Reduced maintenance requirements
- Pneumatic dust filter unit reduces dust pollution
- Customized to individual project requirements

Safety Features

- One-touch operator control and monitoring
- Integrated self-cleaning dust filter unit

Technical Specifications	SI	Imperial (US)
Area classification	Safe Zone	
Control	Local and remote (optional)	
System type	Electrical pneumatic	
Total dimensions (L x W x H)	3577 mm x 2412 mm x 2512 mm	141” x 95” x 99”
Empty weight	750 kg	2009 lb
Capacity	0.3 – 6 m³/hr	79 – 1585 gal/hr
Construction	AISI 316	

Scope of Supply	Options
Big bag unit complete with the following:	External dust filter system
Removable discharge hopper with forklift supports	Electronic load cells
Dust filter unit	Vibration unit
Manual valves	Interface with mud control system for remote operation
Dosing screw conveyor with motor	Remote-operated valves
Local control, monitoring and operation	Additional certification (CE/Hazardous Zone II)
Standard project documentation	NORSOK documentation

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