



Integrated Drilling Waste Management

TWMA TCC RotoMill



TCC RotoMill Onshore/Offshore Cuttings Process is a constituent part of the Integrated Drilling Waste Management Solution managed and operated globally by TWMA

Operating Detail

A **TWMA TCC RotoMill** can process cuttings and associated drilling wastes from a central processing facility, from an offshore rig or platform, from a supply vessel and on a land rig location. This versatility allows cuttings processing to be carried out at the source of the waste, the work site.

The System can be used separately or in conjunction with the **TWMA CCDS** and **TWMA Vacuum System** to provide an Integrated Drilling Waste System capturing all materials at the work site.

TWMA TCC RotoMill process is a proven technology and a highly efficient thermal desorption system, capable of reducing drilling waste and drill cuttings to their separate component parts of base oil, water and solids. Importantly there are no emissions to the atmosphere during the process. The process is available in several builds including

Zone 2/Category 2 and Safe Area.

The **TWMA TCC RotoMill** cuttings process is a continuous one, governed by a computerised monitor and control system. The process can operate at any temperature to suit the base oil properties by adjusting the control set point within the operating system.

The **TWMA TCC RotoMill** can operate on a 24-hour per day basis. The unit does not require extended warm-up or shutdown periods. This feature ensures that shift patterns and processing hours can be adjusted to meet the specific needs of the project and the rate at which cuttings are generated.

A single **TWMA TCC RotoMill** can have a processing capacity of typically 5 tonnes per hour or 40,000 metric tonne per annum.

- TWMA has a track record of Integrated Managed and Operated projects on multiple rigs with the TWMA TCC RotoMill
- Can be configured to suit various layout plans
- Integrates with TWMA CCDS and TWMA Vacuum Systems
- Single Unit Can Process up to 50,000t per Annum
- Process temperatures can be set to suit base oil properties
- Available to suit Zone 2 environment
- TWMA engineering department will provide a range of services from rig survey, conceptual design to a fully installed, integrated and managed operation
- TWMA managed and operated system
- Daily reporting, detailed volumes and wastes processed
- End of well reporting

Recovered Materials

The TWMA TCC RotoMill processes the drilled cuttings and produces three distinct components of Oil, Water and Dry powder.

Oil

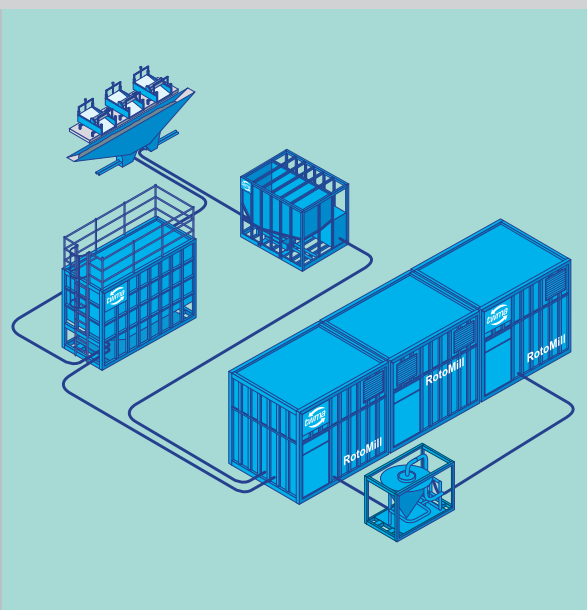
The oil is recovered by the process and can be recycled back into the drilling mud system. Because of the relatively low temperatures used in the process the oil is unaffected by the thermal desorption and is free of any odour.

Water

The recovered water can be discharged or used to dampen the powder at point of discharge.

Rock Powder

The inert solid phase can be used in Industry as filler/bulking agent or alternatively disposed of in line with client expectations and requirements.



Analytical Requirements for Drill Cuttings Processing

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The processing requires that the following tests are carried out and reported.

- Incoming drill cuttings are retorted for percentage content of oil, water and solids.
- Produced powder is analysed for the petroleum hydrocarbon content.
- Recovered oil is tested for contamination.
- Process waters are analysed for pH, COD, suspended solids and hydrocarbon content.

Stream Vs Analysis Requirement

Description	Cuttings	Powder	Water	Oil
Analysis				
Retort	●			●
% Petroleum Hydrocarbons		●	●	
pH (if required)			●	
Temperature (if required)			●	
COD (if required)			●	
Suspended Solids			●	●

Typical performance levels are:

- The level of retained hydrocarbons in the recovered solids is < 0.1%
- The level of retained hydrocarbons in the recovered water is typically < 20ppm
- Suspended solids in the recovered water is typically between 5 – 15 mg/l
- The recovered base oils are unimpaired by the process and suitable for re-use in the mud system

Safety and Certification

TWMA has taken care in selecting quality components and systems to ensure a safe and user friendly system.

- Fully Guarded.
- Zone 2/ Category 2 or Safe Area Operation.
- Lifting Frame and Gear to DNV 2.7.-1 if required.
- There are other certification options available on request.
- All Systems pressure tested.
- Pressure Relief Systems where applicable.
- All pipe work rated at Applicable standards.
- Computer controlled safety shut down systems on temperature and pressure.
- Maintenance Manual.
- Operators Manual.
- Maintenance programme.
- All Electrical components compliant with Zone 2/Category 2 on all units.

Equipment Specifications Weight & Dimensions

Examples of two machines are given below but other builds are available for specific projects.

950Kw Unit (5t Unit)*		The TWMA TCC RotoMill is an integral part of the TWMA Integrated Drilling Waste Management Package. The system is very well proven and is found to be highly reliable working for most if not all the major oil and gas operators often in extreme temperatures and harsh operating conditions.
Length	8000 mm	
Width	8000 mm	
Height	4500 mm	
Weight (Depending on Prime Mover)**	70,000 Kg	
Prime Mover (Electric)		
Motor	Zone 1/Category 1	
Power	950Kw/1200HP	
Prime Mover (Diesel)		
Motor	Zone 2 T3/Category 2	
Power	950Kw/1200HP	

250Kw Unit (1t Unit)*		
Length	6000 mm	
Width	6000 mm	
Height	4000 mm	
Weight (Depending on Prime Mover)**	30,000 Kg	
Prime Mover (Electric)		
Motor	Zone 2/Category 2	
Power	250Kw/330HP	
Prime Mover (Diesel)		
Motor	Zone 2 T3/Category 2	
Power	250Kw/330HP	

* The above is indicative only as material type and composition needs to be taken into consideration.

** Dry weight.

The machines are able to be configured in several different layouts to suit specific deck space requirements.

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