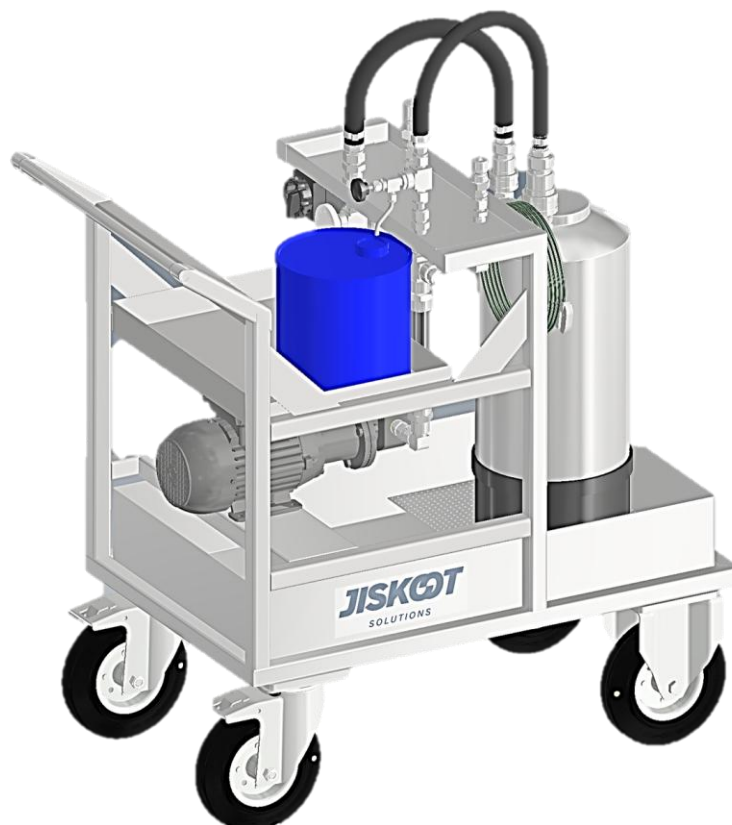


LM53-TS1 - ATEX Receiver Mixing Trolley - Specifications and Functional Description



General Description

The LM53-TS1 is a portable, wheel-mounted mixer designed for safely homogenising hydrocarbon and refined product samples in accordance with **ISO 3171** and **API MPMS Chapter 8.3** when collected in industry standard portable containers.

It provides controlled circulation through a static mixer to deliver representative and reproducible samples for laboratory analysis.

This operator-friendly design offers all the features of a laboratory mixing setup in a compact, portable, and easy-to-maintain assembly.

Optional features include local temperature indication for the mixed product, purging and flushing connections, and customisable wheel and cover options to suit different operating environments.

	Description
Construction	Stainless Steel 316 frame and drip trays, tubing connectors etc. Hoses hi nitrile/buna. Pump/motor C/steel.
Classification	ATEX EEx d IIC T3, UL/FM or CSA on request.
Motor Voltage / Frequency	110–240 VAC, 50/60 Hz, single or three-phase. 375watts.
Electrical Connection	M20 × 1.5 entry, supplied with flying lead or prepared for customer hard-wiring and isolation on/off switch.
Pumped Flow Rate	20 L/min (typical), Integral safety relief system
Mixing System	Integrated static mixer
Sampling Points	¼” in sample take-off valve , tubing spigot and optional septum port
Operator Interface	Integral operator’s sample tray
Drainage	Manual (low point) drain valve
Mobility	Anti-static rubber wheels with park brake
Grounding	Optional grounding cable to prevent static build-up
Temperature Monitoring	Optional gauge to monitor and limit rise (< 10 °C per API MPMS 8.3)

Design Features

Compatible with industry standard portable sample containers using top mounted ¾” suction and ½” return connections. An amended version can be fitted to adapt for a ¾” bottom suction arrangement or other connector types.

Drip trays positioned with standoffs to avoid sample containers sitting within collected spillage.

Option for a wider trolley design to accommodate two standard IATA containers. (one can be used for a solvent flush container).

Integrated safety and ergonomic considerations for field and laboratory use.

The LM53-TS1 provides a robust, compliant, and portable solution for the precise preparation of homogeneous petroleum product samples, ensuring reliability and regulatory conformity in every use.

Functional Description

The LM53-TS1 circulates fluid drawn from the lowest point of the sample container via a dip tube and quick connector into its pump. The pump delivers the fluid through a static mixer, reducing droplet size and ensuring complete sample homogenisation.

Downstream of the mixer, a take-off T-piece fitted with a needle valve and septum sample port permits withdrawal by syringe (for extraction to a Karl Fischer titration, etc). The flow then returns through a ½" quick connector to a spray-bar inside the container, promoting swirl and even redistribution.

Typical mixing time ranges from 10 to 12 minutes, depending on sample volume, viscosity, water content, and density.

API MPMS Chapter 8.3 also stipulates that a temperature rise during the mixing cycle beyond 10 Degrees C is undesirable, so there is an option to fit a temperature gauge. Other automations are also possible.

No samples should be withdrawn during the mixing cycle. Once mixing is complete, aliquot, analysis, and retention samples are withdrawn while the mixer is operating.

Cleaning and Maintenance

After sampling, the mixer should be flushed, drained, and purged as required. Optional purge ports and drains are available for cleaning with compatible solvents such as avgas or kerosene.

All maintenance and cleaning operations must be conducted in accordance with ATEX safety guidelines.

The drip pans have a standoff so the container will not sit within any spillage

Options

Optional features include local temperature indication for the mixed product, purging and flushing connections, and customisable wheel and cover options to suit different operating environments.

In addition, a grounding cable can be fitted to ensure no static buildup between the pumped loop, which is insulated by the elastomeric hoses and seals on the connectors from the sample container

The unit is designed with a number of drip pans and a position to allow a free standing IATA container; there is an option for a wider trolley in which two standard containers can be located.

Why Jiskoot Solutions?

Jiskoot Solutions is a consultancy operated by Mark Jiskoot the former CEO of Jiskoot Ltd. working in conjunction with former employees in developing enhanced technologies compatible with the industry standards they developed.

We know the provenance of the designs and how to improve them!