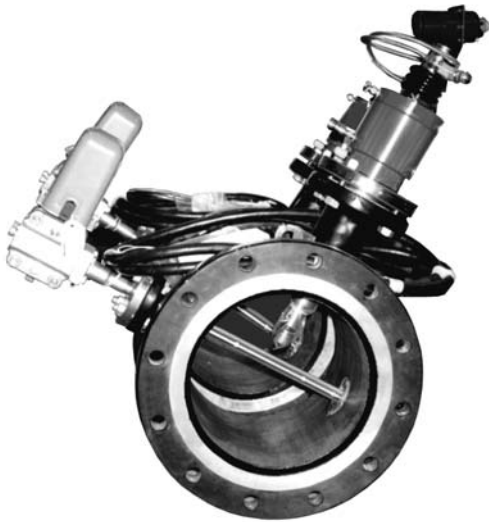




# Shipboard Sampling System



## Portable Dual Channel Sampling System

The Jiskoot dual channel shipboard sampler allows collection of flow proportional representative samples at the exact point of custody transfer. Designed to be mounted at the ship's manifold, this mobile unit enables assessment of the water content of crude oil or refined product transfers. The equipment is bi-directional making it suitable for all discharge and loading operations.

- Single or independent dual channel operation
- All pneumatic, suitable for all hazardous areas
- Accurate flow or time proportional sampling
- Suitable for all types of crude and refined products
- Samples obtained at custody transfer point
- Bi-directional
- Simple operation and installation
- Reliable with minimal maintenance
- Easily transferred from tanker to tanker
- Built in calibration facility

## General Description

The Jiskoot Shipboard Sampling System is a complete, all pneumatic sampling system. The system comprises three items:

## 1. Spool/Spacer Assembly

This fits between the manifold flange and the loading arm or hose. When loading arms with clamps are used a spool piece approximately 350mm (14") long, flanged at both ends is required. Alternatively, a spacer (wafer) can be used between flanges. Parts are normally epoxy coated carbon steel. Special materials are available on request

## 2. Control Unit

This allows setting of the batch size, monitors and indicates the flowrate, operates the sampler probe and totalises samples.

## 3. Sample Receiver

This collects the composite sample. A sample (laboratory) mixer unit may also be provided for use on the ship. It is connected to the sample receiver to thoroughly mix its contents and enable representative sub-samples to be drawn off for analysis. Re-usable packing cases can be provided for transportation of the equipment.

## Description of Operation (Single Channel)

Air supplied from the ship to the control unit is filtered and regulated for the pneumatic equipment. The pressure signals from the flow-measuring sensor in the spool assembly are scaled by the differential pressure transmitter. This output (proportional to the flowrate squared) is passed to the integrator which produces flow proportional pulses.



The pulses are fed to a divider counter which is set by the operator. This divider determines the number of integrator pulses required to trigger one sample grab. In this way the batch size or 'grabs per unit volume' is set. Each pulse from the divider increments a totaliser and initiates the operation of the sampler. The sample is deposited in the sample receiver. Facilities to calibrate the flow transmitter and to manually adjust the flowrate are also provided.

### Sample Receivers

Capacities: PR53 18 litres (5USG)  
PR23 9.0 litres (2.5USG)

Dry Weight: PR53 4.5kgs (10lbs)  
PR23 3.0kgs (6.5lbs)

When a sample is collected it may be many hours before it is analysed. To ensure that the contents of the receivers are thoroughly homogenised prior to analysis a laboratory mixer is recommended.

### Control Unit

A single or dual channel controller can be provided. This contains the air logic and indicators to operate the sampling system(s). The control box is made of stainless steel and the controls/indicators are protected behind a hinged clear door. All interconnecting couplings are 'keyed' to ensure correct installation.

Weight Single Channel 46lbs 21kgs  
Dual Channel 56lbs 25.5kgs

Dimensions 675 x 240 x 395mm  
Air requirements 4 SCFM (6m<sup>3</sup>/hr)  
Air connections 1/2" NPT Female

Maximum sample rate 2000/hr

### General Specification

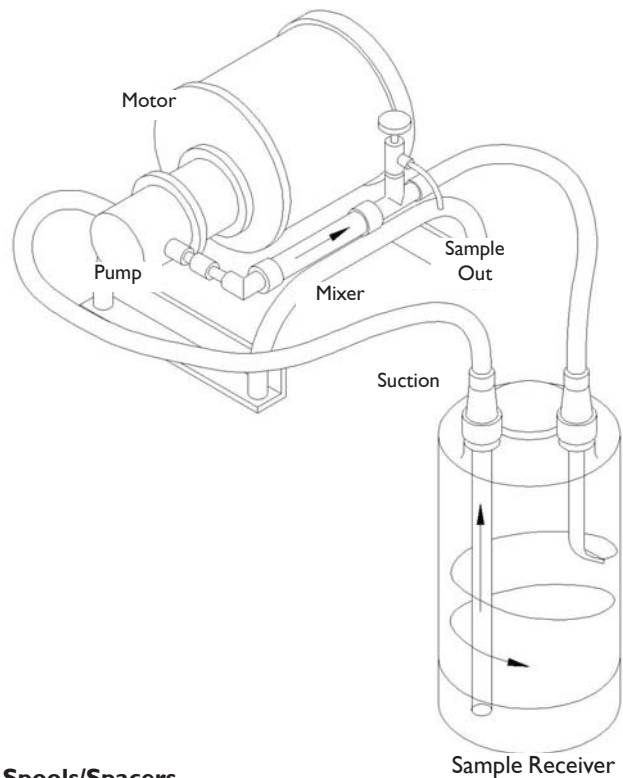
Fluids Sampled:	Crude oil and refined products
Sample Size:	1ml nominal
Flow Sensor:	1-10m/s manifold velocity
Flow Transmitter:	0-850 WG
Viscosity Range:	Up to 2000 centistokes
Maximum Line rating:	Class 150
Maximum Line pressure:	19 bar (275 psi)
Line Temperature:	-5°C to + 100°C
Minimum Batch:	Duration 8 hours (depends on volume required)

These are standard design specifications. We operate a policy of continuous development



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MS-53 Lab Mixer



### Spools/Spacers

A flanged spool or spacer can be supplied for installation at the manifold. The spacer can only be used for bolted connections. The assembly accommodates a flow sensor, flow transmitter and sample probe.

LINE SIZE	WEIGHTS	
	SPOOL	SPACER
8	104lb/50kg	44lb/20kg
10	141lb/65kg	57lb/26kg
12	195lb/88kg	67lb/30kg
16	265lb/120kg	81lb/37kg