

Doble Precision Sampling Syringes



TOGETHER WE POWER THE WORLD

PROVIDING QUALITY AT INCREDIBLE PRICES

Obtain proficient samples for your electric apparatus condition assessment program. Oils tests such as those for gases and water in oil are critical for determining the condition of your critical assets. To obtain representative samples follow Doble guidelines for sampling available on our website, www.doble.com and use our quality sample containers.

Benefits of Doble precision sampling syringes:

- Precision manufactured to form a tight seal that keeps moisture and gases where they belong
- Easy to use—simple instructions
- Sample visible, so it can be seen that it was properly taken
- Boxes available to shield sample from light to prevent deterioration
- Light weight for shipping
- Reliably stores the sample until tested
- Bar coded for simple reliable recording of syringe number
- Cost effective approach for obtaining and maintaining oil samples



Doble's high precision syringes are ground for the perfect fit using the latest computer controlled technology, completely surpassing previous technologies. Bar coding permits quick scanning for error-free data entry.

Our 50 mL syringes are great for multiple tests such as dissolved gas-in-oil analysis (DGA), water content and furanic compounds in oil if needed. The high precision sampling syringes are available with the following accessories; stopcocks, sample tubing, ID cards, box and sample bottles.

The Latest in Sampling Technology

Doble *DOMINO*[®] *USS*

The Latest in Sampling Technology Doble Ultimate Sampling System (*USS*)

The highest cost of an oil test program is often associated with obtaining samples. For this reason it is important when sampling to get it right the first time. The Doble *USS* does just that. Attach the *USS* while taking your samples and it lets you know when sufficient oil has been flushed through the valve to obtain a representative sample. Best of all, you have performed a test for water in oil in the field at the same time. Now you don't have to worry about moisture contamination of the sample from air, sample containers or other sources and you have obtained a sample that can be relied upon.



www.doble.com

Description

The *DOMINO USS* is a portable moisture-in-oil sensor mounted in a convenient carrying case that is powered by batteries, rechargeable batteries or AC. With the plumbing accessories that come standard with the unit for either 1 inch or 2 inch NPT (National Pipe Thread) valves, the sensor can easily mount to any transformer valve or other oil filled electric apparatus or device for instantaneous readout of water content in ppm. The quick-connect fittings also supplied with the instrument make it very easy and quick to connect to the valve. If you don't have a standard valve, Doble supplies an extra quick connect fitting that can be attached to an adapter of your choice.

As oil flows past the sensor in the brass manifold, the ppm of the water in the oil and the temperature of that oil are measured automatically...and that's it! It only takes about 2-3 minutes to attach the adapters and about 2- 3 minutes to have enough oil flow out to get a stable and good reading.

Benefits

Use the *DOMINO USS* to measure the water content in the oil while doing other field testing as it only takes a few minutes. It is simple to use. In addition it provides a highly effective way to provide quality samples. The ppm reading on the *USS* will not stabilize until all the excess moisture has been removed from the valve so you can be sure that the valve was adequately flushed prior to sampling. In this way the water content can be monitored while flushing is taking place. Once the readout has reached a stable ppm value it can be assumed that all of the excess or unwanted moisture has been removed from the valve. Another extremely important benefit is that the oil exit point from the *USS* manifold is a hose barb. This allows you to easily connect tubing that enables the retrieving of samples. Doble has just made quality sampling a whole lot easier.

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DOMINO[®] USS Technical Specifications



Handheld Indicator:

Operating and Mechanical Parameters:

Humidity	0 to 100%RH, non-condensing
Temperature range	-10 to 40°C
Languages	English, Finnish, French, German, Spanish, Swedish
Display	Backlit LCD Character height up to 16mm
Probe inputs	1 or 2
Power supply	Rechargeable NIMH battery pack with AC power or 4 x AA size alkalines, type IEC LR6
Analog output	0 to 1 VDC
Output resolution	0.6mV
Accuracy	0.2% full scale
Temperature dependence	0.0002%/°C full scale
Minimum load resistor	10 kohm to ground
Date interface	RS232C (EIA-232)
Data logging capacity	900 to 2700 real time data points
Logging interval	1s to 12h
Logging duration	1 min to memory full
Alarm	Audible alarm function
Housing classification	IP 54
Housing material	ABS/PC-Blend
Housing weight	400g
Storage temperature	-40 to 70°C
Storage humidity range	0 to 100% RH, non-condensing

Battery pack:

Operation times	48h typical at 20°C continuous use
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Operation times	Up to 30 days data logging use
Power consumption	10W maximum during charge
Charging time	4h



Moisture-In-Oil Probe Option

Measured Variables:

Relative Saturation (RS)	0 to 100% (-40 to 60°C)
Temperature Measurement	-40 to 100°C
Parts per Million of water	calculated (ppm w/w)

Sensor Types:

Water Sensor	Thin film polymer
Temperature*	Pt 100 RTD 1/3 Class B IEC 751

Sensor Accuracy:

RS: Accuracy (including nonlinearity and repeatability)	(0-90% range), ±1% RS (90-100% range), ±2% RS
Temperature at 20°C	±0.1°C

Mechanics:

Pressure range of sensor head (probe)	0-20 bar (0-290 psi)
Operating temperature range	-40 to 60°C
Sensor protection grid	Stainless steel
Probe head diameter	12mm
Housing classification	IP65 (NEMA 4)
Electronics housing material	APS/PC-Blend
Probe material	Stainless steel (AIS316L)
Probe cable length	1.9m
Extension cable (option)	10m
Weight of probe assembly	520g

Doble is certified ISO 9001:2000
Doble is an ESCO Technologies Company

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