

**ACCURACY**  
BY DESIGN

**MYRKOS**

Portable Gas Analyzers

**MS** MORGAN®  
SCHAFFER | Accuracy is  
Everything.

# Accuracy Matters

To make informed decisions on site, you need fast and reliable data.

Myrkos portable gas analyzers provide **lab quality DGA data**.

**Where you need it, when you need it:**

- In remote locations or whenever on-site diagnosis is required
- To confirm monitoring data
- When frequent oil testing is required on aging transformers

## Myrkos is the most accurate portable gas analyzer on the market:



Lowest detection limits



Proven gas chromatography (GC) technology



Minimizes human error in sampling, extraction and measurement



Built-in diagnostics and solubility coefficients



Interference-free measurement of 9 gases in all common oil types



Extraction and gas measurement technologies recognized by ASTM 3612 Method C and IEC 60567 standards

**30**✓  
months

**Standard Warranty**

### PPMreport™ Software

Myrkos portable gas analyzers include PPMreport™ software, which transforms DGA results into useful transformer diagnoses, generates DGA reports in PDF format and exports data to Morgan Schaffer's advanced diagnostic software, Inside View.

# Speed and Ease of Use Matter

- Accurate results in just 2 minutes
- Everything you need in one convenient carrying case
- On-screen oil sampling and gas extraction instructions
- Single syringe used for sampling, gas extraction and gas measurement
- Daily calibration
- 7-hour battery life

## Myrkos Field Package

- Easy portability, set-up and operation
- Maximizes operator productivity
- 7 hours of cordless operation
- Over 40 hours of operation between carrier gas refills
- Flexible data management and analysis using on-board controller (included)



## Myrkos Lab Package

- Lab quality results
- Maximizes throughput of laboratory DGA analyses
- Enables laboratories to optimize resources and minimize cost per sample
- Integrates easily into any laboratory QMS and standard procedures

**We did it first.  
We still do it best.**

**More than 50 years  
of DGA expertise.**



## **Cost Reduction Also Matters**

Myrkos portable gas analyzers are an effective cost reduction tool:

- Confirm the presence of faults in the event of a monitor alarm
- Minimize downtime on false alarms
- Optimize maintenance schedules
- Monitor condition of transformers known to have faults
- Diagnose critical equipment during re-energizing or commissioning
- Allow cost-effective diagnosis of smaller transformers

## **Inside View diagnostic software**

Inside View, the most comprehensive DGA and dielectric oil diagnostic software on the market, integrates data from any brand of online monitor or portable analyzer and oil testing lab.

- Centralize data for fast and easy accessibility
- Perform accurate oil test data interpretation
- Deploy a configurable health index
- Receive only necessary alerts

**DGA Accuracy.**  
Where you need it.  
When you need it.



# Accuracy in everything we do.

**Morgan Schaffer's commitment is not limited to our equipment.  
We also ensure excellence in all of our activities:**

- On-time delivery
- Superior technical support
- Responsiveness and customer service
- Repair services
- Quality assurance across the board

**For more information about Calisto online DGA monitors  
or to request a demo unit, please contact us at:**

## Head Office

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## Morgan Schaffer USA

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Sharon Hill, Pennsylvania, USA 19079  
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## Accreditations

Morgan Schaffer is ISO/IEC 17025:2005 accredited in Canada by the Canadian Standards Council for the tests listed on its scope of accreditation. Morgan Schaffer USA accreditation is forthcoming.  
Morgan Schaffer is ISO 9001:2008 certified.

## Technical Specifications

Myrkos Instrument

Performance	
Measurement technology	Dual-channel gas chromatograph Micro-machined injectors and TCD detectors Shake Test® sampling and gas extraction <sup>1</sup>
Gases measured	H <sub>2</sub> (hydrogen)                      CH <sub>4</sub> (methane) C <sub>2</sub> H <sub>6</sub> (ethane)                      C <sub>2</sub> H <sub>4</sub> (ethylene) C <sub>2</sub> H <sub>2</sub> (acetylene)                      CO (carbon monoxide) CO <sub>2</sub> (carbon dioxide)              O <sub>2</sub> (oxygen) N <sub>2</sub> (nitrogen)
Gas-in-oil* measurement range	H <sub>2</sub> : 5 - 60,000 ppm Other fault gases: 1 - 60,000 ppm O <sub>2</sub> : 60 - 100,000 ppm N <sub>2</sub> : 500 - 100,000 ppm
Gas-in-oil* repeatability <sup>2</sup>	H <sub>2</sub> : greater of ±2 ppm or ±2% CO <sub>2</sub> : greater of ±10 ppm or ±2% Other fault gases: greater of ±2 ppm or ± 2% O <sub>2</sub> : ±60 ppm or ±2% N <sub>2</sub> : ±500 ppm or ±2%
Gas-in-oil* accuracy <sup>3</sup>	H <sub>2</sub> : greater of ±5 ppm or ±6% CO <sub>2</sub> : greater of ±10 ppm or ±6% Other fault gases: greater of ±2 ppm or ±6% O <sub>2</sub> : ±60 ppm or ±6% N <sub>2</sub> : ±500 ppm or ±6%
*Gas-in-oil specifications encompass instrument-to-instrument, syringe-to-syringe and gas extraction method uncertainties.	
Resolution	All gases: 1 ppm
Measurement time	2 minutes
Calibration	Morgan Schaffer CALGAS with NIST traceability
Sampling	100 ml Shake Test® syringe for oil samples 10 ml glass syringe for gas samples from relay, tank or PTFE membrane Room temperature injection
Sample integrity	Used as directed, individual syringes ensure no gas loss and no cross-contamination Automatic line purging with internal sampling pump
Gas filtering	Disposable oil traps (5 µm) Replaceable particle trap (10 µm)
Communication and Data	
Connectivity	Direct or networked TCP/IP Ethernet
Interface software	Morgan Schaffer PPMreport™ (Windows XP / Vista / Windows 7 / Windows 8 / Windows 10) provides instrument control, data acquisition, data management, DGA diagnostic tools and customizable PDF reports.
DGA data management and diagnostics	<b>Inside View</b> diagnostic software integrates DGA data from monitors and portable analyzers with laboratory oil quality data. Diagnostic tools for fleetwide transformer health management (sold separately).

<b>Operation</b>	
<b>Power supply</b>	In-line power adaptor with IEC 60320/C1 4 receptacle / Power supply Input: 100 - 240 VAC, 50/60 Hz, 100 W, 1Ø / Output: 24 VDC, 6.2 A 8 ft power cord with IEC 60320/C1 3 to NEMA 5-1 5P
<b>Gas requirements</b>	99.999% He, 80 psig
<b>Operating temperature range (standard)</b>	0 to 50 °C
<b>Storage temperature range</b>	0 to 75 °C
<b>Humidity range</b>	5 - 95% RH non-condensing
<b>Elevation range</b>	Up to 4,500 m (15,000 ft)
<b>Cooling</b>	Forced air convection
<b>Maintenance</b>	Annual visual inspection
<b>Expected operating life</b>	10 years
<b>Construction</b>	
<b>Width x Height x Depth</b>	250 x 155 x 420 mm (9.8 x 6.1 x 16.5 in.)
<b>Weight</b>	10 kg / 22 lbs
<b>Enclosure</b>	Cast aluminum frame, aluminum covers, powder coat paint, carrying handle
<b>Ruggedness</b>	Drop-tested to 1 m
<b>Conformities</b>	
<b>Directives</b>	Low Voltage Directive 2006/95/EC Directives EMC Directive 2004/108/EC CE Marking
<b>Safety</b>	IEC / EN 61010-1: 2001
<b>EMC rating</b>	IEC 61326-1: 2005 / EN 61326-1: 2006 CISPR 11: 2003 / EN 55011: 1998 + A1: 1999 + A2: 2002
<b>Standard Package</b>	
<b>Myrkos Analyzer</b>	Myrkos Portable DGA Analyzer PPMreport™ interface software, certificate, user manual
<b>Myrkos Calibration Kit</b>	Gas-tight glass syringe (10 cc) NIST traceable CALGAS cylinder (500 cc) Micro-flow regulator with dial gauge CO <sub>2</sub> trap for air run
<b>Myrkos Oil Sampling Kit</b>	Shake Test® syringe (100 cc) Myrkos Oil Sampling Kit bag of oil traps (25/bag) CO <sub>2</sub> trap for Shake Test®
<b>Myrkos Squirt Method Kit</b>	Squirt stopper Squirt tube
<b>Other Accessories</b>	Shake Test® syringe holder Tool and connection kits
<b>Warranty</b>	
Morgan Schaffer's Myrkos analyzer is backed by a 30-month standard warranty.	
<b>Service and Support</b>	
On-site commissioning assistance and on-site maintenance program available upon request.	
<b>Notes</b>	
<p>1 - The Shake Test® Method is a variation of ASTM D3612-02 Method C and is also described in the international standard IEC 60567.</p> <p>2 - 95% confidence interval</p> <p>3 - 95% confidence interval in comparison with Morgan Schaffer's ISO/IEC 17025 accredited laboratory.</p> <p>Product improvements since the writing of IEC 60567: 2005 have led to the improved accuracy specifications provided here.</p> <p>Continuing research and improvements may result in specification or appearance changes at any time.</p>	



## Technical Specifications

## Field Package

Standard Field Package (in addition to the Myrkos Instrument)	
Carrying case	Made of high-performance HDPE Press and pull latches, padlockable Rugged in-line wheels and telescopic handle Rain, immersion and vibration proof 795 x 518 x 310 mm (31.3 x 20.4 x 12.2 in.)
Li-ion rechargeable battery	24 VDC operation 7 hours autonomy 1.4 kg (3.1 lbs) Cycle life > 300 cycles LCD state of charge indicator Includes a charge control module with a universal power adaptor Includes the battery to Myrkos power cable
Miniature portable controller	10.1 in. screen size 6-cell Li-ion battery, 10.5 hours autonomy Preloaded with PPMreport™, support documentation and instrument method file Back-up files provided on SD card 1.5-foot RJ45 crossover patch cable
Carrier gas module (helium 99.999% min.)	42 hours of helium autonomy Built-in quick-connect port for O <sub>2</sub> -N <sub>2</sub> measurements Removable for easy off-site refill
Shake Test® syringe carrying case (for 2)	Holds 2 fully-extended Shake Test® syringes Fits inside the Myrkos carrying case Includes the squirt kit and one CO <sub>2</sub> trap
Shake Test® syringe carrying case (for 6)	Holds 6 fully-extended Shake Test® syringes Protects syringes against damage
High-pressure filling line	Connection kit to refill the carrier gas module (with CGA 580) Safety relief valve preset to 1,800 psig
Other accessories	Shake Test® syringe holder support 5 additional Shake Test® syringes 3 additional oil trap bags (25/bag) Set-up and operation guide
Operation	
Set-up	Intuitive and ergonomic design Large plateau for convenient operation using miniature portable controller
Instrument protection	Includes a lid stay to prevent unintended closing during operation Manual reset over-temperature protection
Weight	27.8 kg (61.5 lbs)

## Technical Specifications

## Lab Package

Standard Lab Package (in addition to the Myrkos Instrument)	
Syringe shaker	Automated Shake Test® sample extraction Safe syringe clip-on installation Holds up to 3 Shake Test® syringes One-button 2-minute operation with automatic stop 110/220 VAC 50/60 Hz
O <sub>2</sub> -N <sub>2</sub> measurement bench top kit	Built-in ergonomic extraction gas port with shut-off valve 4-ft 1/8 in. copper connection line with brass tee
Shake Test® syringe carrying case (for 6)	Holds 6 fully extended Shake Test® syringes Protects the syringes against damage
Two-stage helium pressure regulator	CGA 580 connection High-pressure output stability (preset to 80 psig) 4-ft 1/8 in. copper connection line with one-way valve
Other accessories	5 additional Shake Test® syringes 3 additional oil trap bags (25/bag)
Options and Accessories	
Shake Test® syringe	Method compliant with ASTM D3612-02 and described in IEC 60567 standard 100 cc, individually serialized
12 VDC/120 VAC vehicle inverter	Pure sine, 300 W connects to standard vehicle 12 VDC source
On-site training session	1-day on-site training session provided by Morgan Schaffer qualified personnel
Extended warranty	Extended warranties from 3 to 5 years available
Consumables	
	NIST traceable CALGAS cylinder (500 cc), suitable for 200 calibrations Bag of oil traps (25/bag)
Spare Parts	
	Li-ion rechargeable battery (Field Package only) Support for the Shake Test® syringe holder (Field Package only) Battery charger w/universal AC adaptor (Field Package only) Gas-tight glass syringe (10 cc) CO <sub>2</sub> trap for air run CO <sub>2</sub> trap for Shake Test® 3-way valve stopcock (20/bag)

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