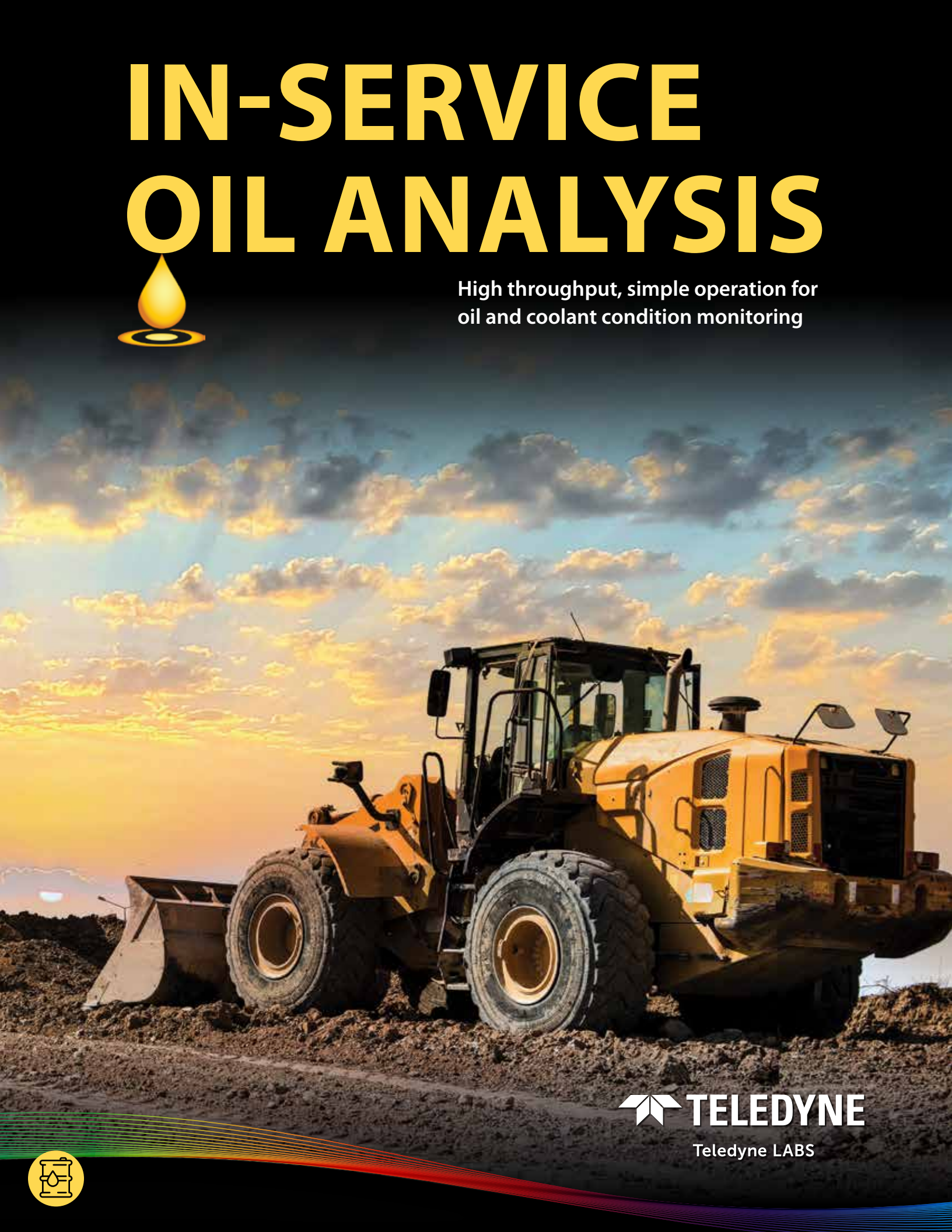
IN-SERVICE OIL ANALYSIS

High throughput, simple operation for oil and coolant condition monitoring



TELEDYNE

Teledyne LABS

WHY IN-SERVICE OIL ANALYSIS

In-service oil analysis predicts lubricant or coolant failure, machine-part failure and fluid contamination through condition monitoring. Proactive testing prevents expensive, debilitating breakdowns that can bring an entire operation to a standstill. Teledyne LABS has cost-effective solutions to help your lab perform sample preparation and analysis with ease, speed and accuracy.

MAKING LIFE EASIER IN THE LAB

Teledyne LABS focuses on in-service oil analysis in the laboratory with products to streamline workflows associated with oil condition monitoring through the handling and preparation of in-service oil samples. Our goal is to ultimately save your laboratory time and money by automating repetitive tasks and speeding up sample-to-sample tests. In short, to increase sample throughput and reduce bottom line costs.

A LEADER FOR DECADES

Teledyne LABS has served an active role in the analysis of in-service oils for more than 20 years. Whether running 50 or 2,500 samples a day, in a contract lab, for a major manufacturer or at a remote construction site, in-service oils laboratories turn to Teledyne LABS for oil condition monitoring to increase sample throughput, speed the process and assure accurate results.

Streamline ICP-OES workflows with these four innovative products from Teledyne LABS.

SAMPLE PREPARATION

OILS PREPARATION

APS-7450V - *Volumetric Sample Prep Station*

COOLANTS PREPARATION

SimPrep - *Simple Automated Prep System*

SAMPLE INTRODUCTION TO ICP

AUTOSAMPLER

Oils 7400/7600 - *Homogenizing Autosampler*

INCREASED THROUGHPUT

ASXPRESS PLUS - *Rapid Sample Introduction System*

APS-7450V

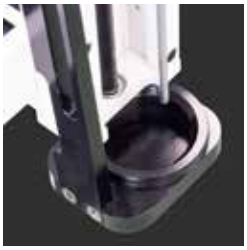
Volumetric Sample Prep Station

- 20 seconds per sample*
- Excellent precision, accuracy and reproducibility
- Consistent performance across a wide range of viscosities
- Intuitive software
- Automated sample mixing
- Dilution range 5× to 100×
- < 1% carryover

*for a 1:10 dilution with a final volume of 5mL

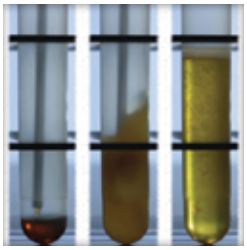
Maintain Sample Integrity

A drip cup travels with the probe as it moves over the sample vials to collect any sample droplets, preventing cross contamination.



Sample Homogenization

Sample mixing is acheived by close proximity, high acceleration diluent addition. This concussive mixing method works well across a wide range of sample types.



Customize Sample Routines

The OilEase™ software makes it easy to create custom methods and apply them to specific samples in a sequence. Daily work can be started with only three clicks.

Simplify Preparations

The onboard density correction option adjusts the volume of sample diluent added to account for the density difference in standard and diluent solutions. This allows users to maintain optimal speed while improving sample accuracy.

Technical Specifications

Autodilutor Dimensions

Height*	49 cm	(19.5 in)
Width	57 cm	(22.5 in)
Depth*	78 cm	(30.5 in)
Weight	33.6 kg	(74 lbs)

*allow extra space for cables/tubing

Syringe Pump Dimensions

Height	30.5 cm	(12 in)
Width	7.5 cm	(3 in)
Depth*	18 cm	(7 in)
Weight	3.7 kg	(8.2 lbs)

*allow extra space for cables/tubing

Capacities

Sample racks: Up to 4 racks, up to 360 samples
Collection racks: Up to 4 racks, up to 360 samples

Rack Options

Tube racks: 60, 80, 90, 96, and OE4 96 position racks
Bottle racks: 45 position and OE4/OE8 32 position
Pour off cups: 90 position cup rack with overflow retention for easy pour off
Custom racks options available

Hardware Interfaces

RS-232 and USB

Power Requirements

100-240 VAC, 47-63 Hz, 1.9 A
2× power outlets needed

Minimum Computer Requirements

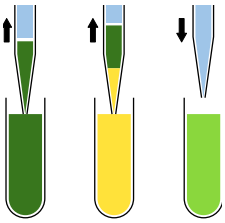
Microsoft Windows® 10 or later operating system
4 GB RAM
1 COM or USB port

SimPrep
Automated Liquid Handling Station

- Automated sample prep for coolant sample before ICP-OES and IC
- Save labor and free up personnel
- Eliminate inconsistent manual pipetting
- Intuitive and flexible software
- Serving multiple techniques and markets:
  - ICP-OES, ICP-MS, AA, IC, FIA and more
  - Environmental, In-service Coolants, Mining, Pharmaceuticals...

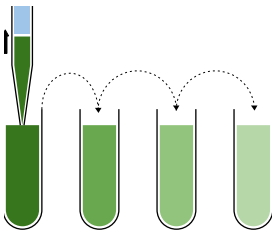
SimPrep Flexibility

The SimPrep does much more than sample dilution. The intuitive software and dual syringe configuration allow it to achieve a wide range of useful unctions.



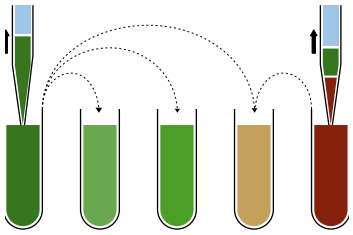
Calibration Standards and Standard Additions

The software allows for calibration standards preparation, standard addition spikes, and matrix spikes.



Serial Dilution

Programmable mixing options make serial dilution of high concentration and high matrix samples easier and less prone to error.



Sample Splitting

The same sample can be split (prepared) in several different ways. This capability is very useful between techniques with different detection capabilities such as ICP-OES, ICP-MS, AA, and IC.

Technical Specifications

Autosampler Dimensions

	ASX-560	ASX-280
Height*	62 cm (24")	62 cm (24")
Width	58 cm (22.8")	36 cm (14")
Depth†	56 cm (23.5")	55 cm (23.2")
Weight	11.7 kg (26 lbs)	8.1 kg (17.8 lbs)

*with sample probe
† allow addtional space for cables

Rack and Vial Options

90 × 7 mL | 60 × 14 mL | 40 × 20 mL | 24 × 30 mL | 21 × 50 mL

Dilution Module Dimensions

Height	26.7 cm (10.5")
Width	14 cm (5.5")
Depth	17.8 cm (7")
Weight	5.9 kg (13 lbs)

Syringe Sizes

µL	10	25	50	100	250	500
mL	1.0	2.5	5.0	10.0	25.0	50.0

Power Requirements

100-240 VAC, 47-63 Hz, 1.9 A

Computer Requirements

Microsoft Windows® 7 or higher

Optional Accessories

ENC DC series autosampler enclosures
Mobile cart

ASXpress Plus

Rapid Sample Introduction System

- Increase sample throughput by up to 50% or more
- Reduce sample delivery, stabilization and washout times
- Reduce sample waste
- Add more samples to your existing workflows
- Reduce sample matrix exposure on ICP-AES hardware
- Eliminate sample memory effects from peristaltic pump tubing

Increase Throughput

Get more sample throughput in less time by optimizing the sample introduction step. Reduce sample input and stabilization times to the ICP by removing the need for "fast pumping," improving plasma stability.

Reduce Maintenance

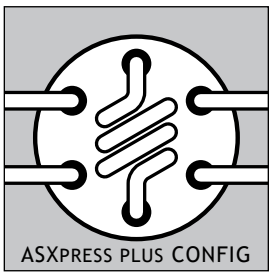
Extend the service life of ICP-OES components such as nebulizers, spray chambers, and torches by reducing exposure to the sample matrix.

Cost Effective

Reduce costs associated with ICP-OES operation (argon, electricity) and maintenance (pump tubing, glassware).

Simple Operation

Easy set-up with minimal modification to the analysis method. No additional complex software required; all system parameters are stored in the system's on-board processor.



Technical Specifications

Valve/Pump Module Dimensions

Height	12.8 cm	(5.0 in)
Width	5.8 cm	(2.3 in)
Depth	21.7 cm	(8.5 in)
Weight	1.30 kg	(2.8 lbs)

Electronic Module Dimensions

Height	25.4 cm	(10 in)
Width	8.3 cm	(3.3 in)
Depth	20.0 cm	(7.9 in)

Sample load loops
Volumes range from 0.5 mL to 5.25 mL

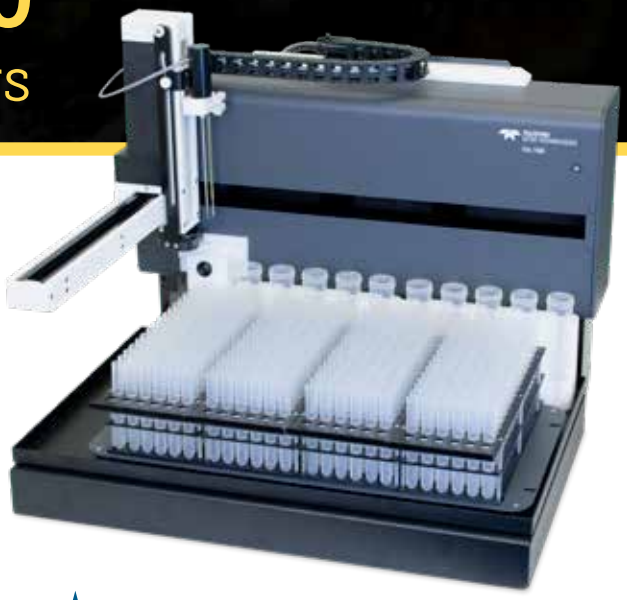
Hardware interfaces
RS-232 to autosampler
RS-232 and/or USB to host PC
External pump connector

Power requirements
100-240 VAC ~ 47-63 Hz 1.9A

Minimum Computer Requirements
Microsoft Windows® 10 or later operating system
2 RS-232 ports or 2 USB ports or 1 of each

Autosampler Compatibility
ASX-260, ASX-280, ASX-520, ASX-520HS, ASX-560, XLR-8,XLR-860, ASX-1400, ASX-1600, Oils 7400, Oils 7600,non-CETAC autosamplers (please contact Teledyne CETAC for more information)

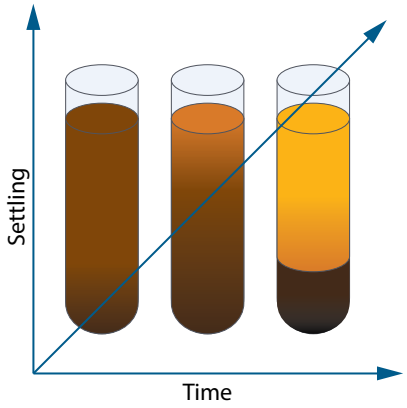
Oils 7400 & Oils 7600
Homogenizing Autosamplers



- Mix samples immediately prior to analysis for accurate results
- Unique dual-matrix design for fast switching between sample types
- Fast, smooth XYZ movement
- Accurate positioning to ± 0.4 mm

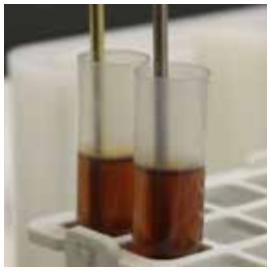
Why sample mixing?

Used oil samples typically carry particulate material that can settle prior to analysis; this can lead to non-representative data. The Oils 7400 and Oils 7600 autosamplers have been designed to resolve this problem.



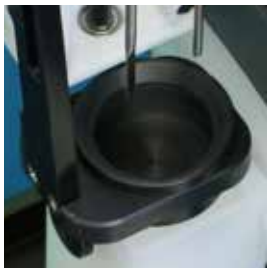
Accurate and Efficient

Each sample is automatically homogenized prior to analysis. While the current sample is introduced and analyzed, the next sample is stirred to ensure homogeneity.



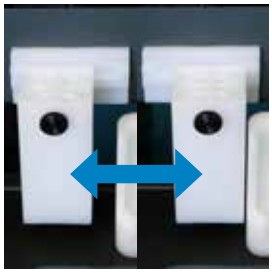
Maintain Sample Integrity

A drip cup travels with the probe as it moves over the sample vials to collect any sample droplets, preventing cross contamination.



Quickly Switch Samples

Two discrete liquid flow paths and a dual port rinse station allow switching between oils and coolants in as little as 5 minutes.



Filtered Probe

The included stainless steel filtered probe helps block out large particles, preserving the integrity of downstream components. The probe is robust and easy to clean.

Technical Specifications

Dimensions

Height	49 cm	(19.3 in)	49 cm	(19.3 in)
Width	57 cm	(22.4 in)	81 cm	(31.9 in)
Depth	57.5 cm	(22.7 in)	57.5 cm	(22.7 in)
Weight	23 kg	(50 lbs)	35 kg	(77 lbs)

Capacities

Oils 7400: Up to 4 racks, up to 384 samples
Oils 7600: Up to 6 racks, up to 576 samples

Rack Options

Bel-Art, CETAC/Bohdan, Janus

Hardware Interfaces

RS-232 and USB

Power Requirements

100-240 VAC ~ 47-63 Hz 1.9A

Minimum Computer Requirements

Microsoft Windows® 10 or later operating system
1 GB RAM
2 COM or USB port
Internet Explorer 6 or higher must be installed for system to function properly

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