Australian Pressure Laboratory

T7.04 - Oil Free Testing

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Address: Unit 9, 39 Susan Street
Eltham VIC 3095

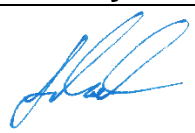
Phone (voice): 03 9431 3658
Company email: sales@auspressurelab.com.au
Internet email: www.auspressurelab.com.au

Document Revision History

Version	Date	Editor	Summary of Changes
4.0	20/1/15	Randall	
4.1	26/2/26	Jordy	Updates to include customer declaration sheet requirement and specifying IPA as the degreaser

Documentation Reviewers

Contributors	Contact Info
Jordy Anderson	jordy@auspressurelab.com.au

Sign-Off Authorization (one-only of below approvals required)		
Name	Date	Signature
Jordy Anderson	26/2/26	

1. Introduction

This document describes the method for handling pressure gauges which are required to be kept 'oil-free', primarily for the purpose of being used on oxygen systems. This method is not designed for cleaning and testing gauges which have not been designed to be oil free or have oil contamination. It is generally considered that once a bourdon tube gauge has been contaminated it is not possible to clean it with certainty. Gauges that are observed to be contaminated are not tested and the customer is advised they are not suitable for use on oxygen. Gauges should be marked up for use on oxygen as per AS1349-1986.

Either during the quoting or receipt stage, an oil-free declaration form is sent to the customer to be filled out before calibration can proceed. If not received in a sealed plastic bag, any instrument identified as oil-free will be placed in a new resealable plastic bag for storage at APL while awaiting test.

Upon receipt, an oil free gauge is put into a re-sealable plastic bag marked oil free and is only removed for calibration.

Gauges with a range up to 7000 kPa are tested using bottled BOC pure dry nitrogen. Gauges with a range above 7000 kPa are tested using distilled water using an oil to distilled water interface. The interface includes a cleaned, oil free rubber sack and is connected to a hydraulic dead weight tester. The rubber sack is cleaned between each calibration. Pneumatic oil-free instruments are connected to a dedicated oil-free dead weight tester, which is thoroughly cleaned from any oil contamination. All fittings, components and pipework are cleaned before use. If bulk degreasing is required, fittings are first soaked in 99.9% isopropyl alcohol, before being thoroughly dried using dry nitrogen and lint-free paper towel. Ultrasonic cleaning is performed using Biox '02' oxygen compatible cleaning liquid for 15 minutes at 50°C.

Gauges tested with distilled water are assumed to be clean as received, based on customer declaration. After testing, any water captured in the gauge is shaken onto a clean piece of paper towel in order to observe any potential contamination. Water is removed from the test instrument connection port as best as possible with the use of shaking and lint-free paper towel. Where possible, connection ports are blown with dry nitrogen. Please note, due to the dead-ended nature of most pressure gauges, some residual water may be trapped in the gauge.

The gauge is then returned in the sealed plastic bag.

Although every care is taken, the responsibility for assessing the suitability of the above method for the customer application is left to the customer.