

Third Party Connections (IGT & UIP)

Pressure Testing Gauge Accuracy Briefing Note

1. Introduction

Following the Pressure Test Certificate briefing carried out by Cadent on the 13/07/2022 it is evident that inaccurate gauges are still in use. This briefing note outlines the gauges that Cadent deem acceptable. This list is not exhaustive, and gauges can be used that comply with the below statement. Alternative gauges are available for use and Cadent will review the suitability for use on Cadent's network with the provision of a Datasheet and calibration certificate.

"Gauges are an important factor when undertaking pressure tests and are required to be to a specified accuracy. The absolute accuracy of gauges shall be 3mbar for 0-10.5bar or 0.0285% of full scale for over 10.5bar maximum range, for short duration testing. They are required to have a resolution of 0.1mbar."

This requirement is based on the objectives of tightness test, to demonstrate there is no leakage that is deemed hazardous. This is a leak greater than 0.003 m³h⁻¹ of natural gas at standard conditions, Any leak smaller than 0.003 m³h⁻¹ is not considered to be hazardous.

2. Gauges

Gauge Description	Test Duration LP <2 hrs (3mbar)	Test Duration LP >2 hrs (3mbar)	Test Duration MP <2 hrs (3mbar)	Test Duration MP >2 hrs (3mbar)	Test Duration IP	Gauge Image
Steve Vick SMARTester™ (700mbar) Pressure type: Gauge Pressure range: 0-700mbar Accuracy: ± 0.2% mbar total uncertainty: 1.4mbar	✓	✗	✗	✗	✗	
Additel ADT 681 IS (700mbar) Part no: ADT681IS-10-GP10-BAR-B Pressure type: Gauge Pressure range: 0 – 700mbar Accuracy: ±0.1% mbar total uncertainty: 0.7mbar ² datalogging option available	✓	✗	✗	✗	✗	

Additel ADT 681 IS (2bar) Part no: ADT681IS-10-AP30-BAR-B Pressure type: Absolute Pressure range: 0 – 2bar Accuracy: $\pm 0.1\%$ mbar total uncertainty: 2mbar ² datalogging option available	✓	✓	✗	✗	✗	
Additel ADT 681 IS (3.5bar) Part no: ADT681IS-05-GP50-BAR-B Pressure type: Gauge Pressure range: 0 – 3.5bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 1.75mbar ² datalogging option available	✓	✗	✓	✗	✗	
Additel ADT 681 IS (7bar) Part no: ADT681IS-02-GP100-BAR-B-X Pressure type: Gauge Pressure range: 0 to 7bar Accuracy: $\pm 0.02\%$ mbar total uncertainty: 1.4mbar ² datalogging option available	✓	✗	✓	✗	✗	
Additel ADT 681 IS (10bar) Part no: ADT681IS-02-GP150-BAR-B Pressure type: Gauge Pressure range: 0 to 10bar Accuracy: $\pm 0.02\%$ mbar total uncertainty: 2mbar ² datalogging option available	✓	✗	✓	✗	✗	
Additel ADT 685Ex (700mbar) Part no: ADT685Ex-GP10 Pressure type: Absolute Pressure range: 0 to 700mbar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 0.35mbar	✓	✓	✗	✗	✗	
Additel ADT 685Ex (1bar) Part no: ADT685Ex-GP15 Pressure type: Absolute Pressure range: 0 to 1bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 0.5mbar	✓	✓	✗	✗	✗	
Additel ADT 685Ex (2bar) Part no: ADT685Ex-GP30 Pressure type: Absolute Pressure range: 0 to 2bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 1mbar	✓	✓	✗	✗	✗	

Additel ADT 685Ex (3.5bar) ⁴ Part no: ADT685Ex-GP50 Pressure type: Absolute Pressure range: 0 to 3.5bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 1.75mbar	✓	✓	✓	✓	✗	
Additel ADT 685Ex (7bar) Part no: ADT685Ex-GP100 Pressure type: Absolute Pressure range: 0 to 7bar Accuracy: $\pm 0.02\%$ mbar total uncertainty: 1.4mbar	✓	✓	✓	✓	✗	
Additel ADT 685Ex (10bar) Part no: ADT685Ex-GP150 Pressure type: Absolute Pressure range: 0 to 10bar Accuracy: $\pm 0.02\%$ mbar total uncertainty: 2mbar	✓	✓	✓	✓	✓	
Druck DPI 705E IS-2 (700mbar) Pressure type: 04G -Gauge Pressure range: 0 – 700mbar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 0.35mbar	✓	✗	✗	✗	✗	
Druck DPI 705E IS-2 (2bar) ³ Pressure type: Absolute Pressure range: 0 – 2bar Accuracy: $\pm 0.105\%$ accuracy Mbar total uncertainty: 2.1mbar	✓	✓	✗	✗	✗	
Druck DPI 705E IS-2 (3.5bar) Pressure type: Gauge Pressure range: 0 - 3.5bar Accuracy: $\pm 0.05\%$ accuracy mbar total uncertainty: 1.75mbar	✓	✗	✓	✗	✗	
WIKA CPG1500Ex (0.6bar) (Intrinsically safe version) Pressure type: Absolute Pressure range: 0 to 0.6bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 0.3mbar	✓	✓	✗	✗	✗	

WIKA CPG1500Ex (1bar) (Intrinsically safe version) Pressure type: Absolute Pressure range: 0 to 1bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 0.5mbar	✓	✓	✗	✗	✗	
WIKA CPG1500Ex (1.6bar) (Intrinsically safe version) Pressure type: Absolute Pressure range: 0 to 1.6bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 0.8mbar	✓	✓	✗	✗	✗	
WIKA CPG1500Ex (2.5bar) (Intrinsically safe version) Pressure type: Absolute Pressure range: 0 to 2.5bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 1.25mbar	✓	✓	✗	✗	✗	
WIKA CPG1500Ex (4bar) (Intrinsically safe version) Pressure type: Absolute Pressure range: 0 to 4bar Accuracy: $\pm 0.05\%$ mbar total uncertainty: 2mbar	✓	✓	✓	✓	✗	
Druck DPI 610/615 (10bar) Or newer model; Druck DPI610E-PC (10bar) Pressure type: Absolute Pressure range: 0 – 10bar Accuracy: $\pm 0.026\%$ mbar total uncertainty: 2.6mbar	✓	✓	✓	✓	✓	
Druck DPI 612 Flex (10bar) Pressure type: Absolute Pressure range: 0 – 10bar Accuracy: $\pm 0.047\%$ mbar total uncertainty: 4.7mbar does not have sufficient accuracy. Note: Replacement model Druck DPI612 PFX Non IS (20bar) also does not have sufficient accuracy.	✗	✗	✗	✗	✗	
Druck DPI 620SPC (10bar) Pressure type: Absolute Pressure range: 0 – 10bar Accuracy: $\pm 0.047\%$ mbar total uncertainty: 4.7mbar does not have sufficient accuracy. Note: Replacement model Druck DPI 620SPC (20bar) Also does not have sufficient accuracy.	✗	✗	✗	✗	✗	

3. Extended Duration Gauge

Cadent **NO LONGER** allow the use of the Comark C9505IS to be used for pressure testing.

4. Non-Conformance

Repeated non-conformance to the requirements of this briefing and GIS/TE/P6.3 will result in referral to the accreditation body for review.

5. Contact Details

For Gauge reviews please email details to box.DueDiligence@cadentgas.com

6. References

IGEM/TD/3	<i>Steel and PE pipelines for gas distribution</i>
IGEM/TD/4	<i>PE and steel gas services and service pipework</i>
GIS/TE/P6.3:2021	<i>Specification for Equipment used in testing gas mains and gas service with operating pressure not greater than 7bar</i>