

Air Ingress Monitor Maintenance Kit

Description

Chell Air Ingress Monitors rely on the precision of three measurements from the air extraction line to compute accurate air ingress: 1. Differential pressure across a Pitot tube (fluid velocity) 2. Fluid temperature (via a platinum resistance thermometer in the Pitot tube) and 3. Absolute pressure. New instruments are supplied with UKAS (ISO17025) accredited calibration and we recommend that they are re-calibrated by Chell annually. However, between calibrations it is useful to be able to zero out any drift that may occur. The differential pressure is easily zeroed using the integral 3 or 5 valve manifold to cross port it (see section 6.3 of the installation and operation manual), but zeroing the absolute pressure transducer and verifying the temperature measurement requires external equipment.

Temperature

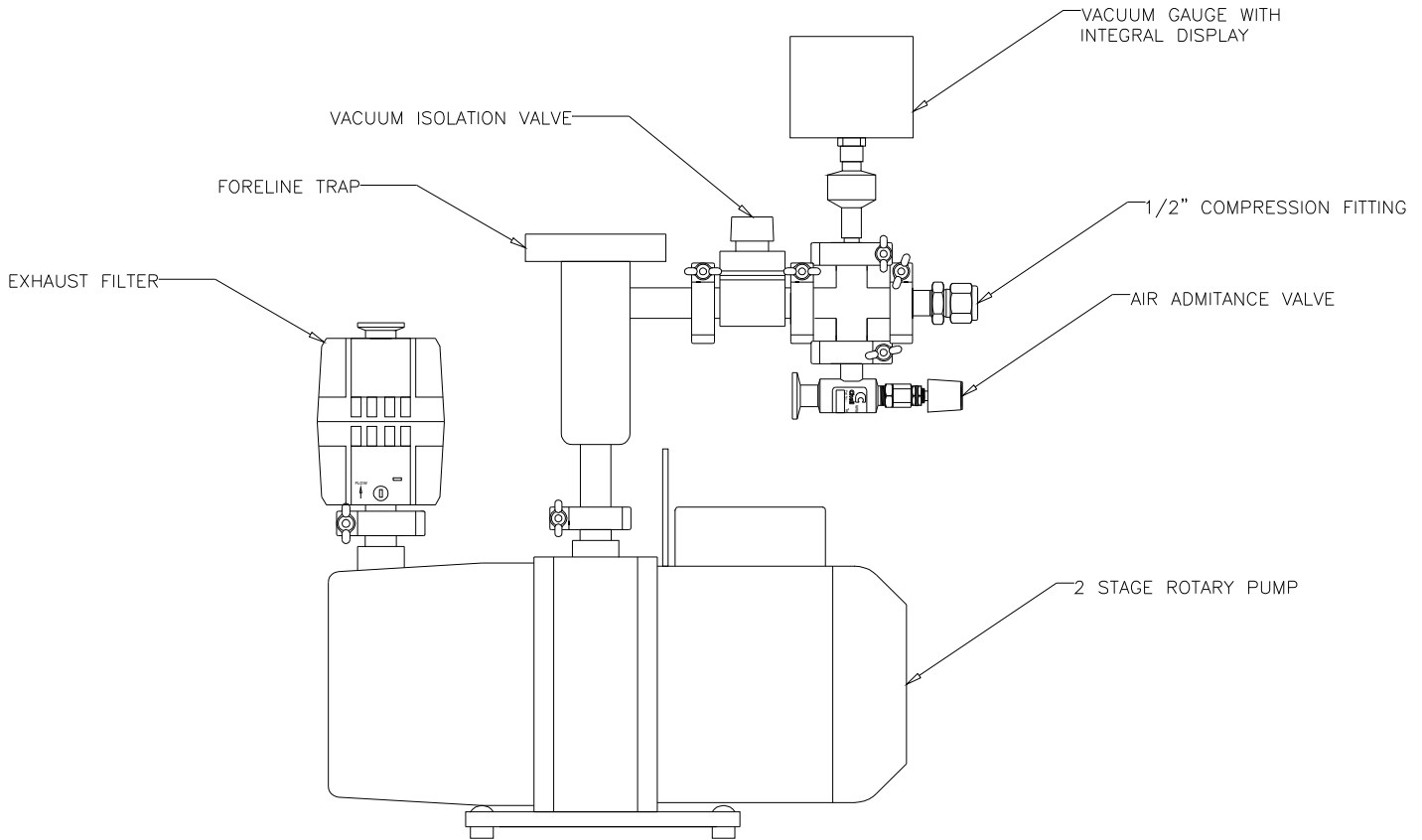
Measurement accuracy of temperature of the fluid in the air extraction line is vitally important, as the AIM uses this to calculate the partial pressure of saturated steam. This figure is then deducted from the absolute pressure to give the ratio of steam to air in the extraction line.

Assuming the Pitot tube was purchased from Chell it will have a platinum resistance thermometer fitted down the centre, and is supplied with a mating 4-pin connector and cable to connect to the AIM. The On-Site Maintenance Kit includes a battery powered hand held temperature indicator and platinum resistance thermometer, with UKAS accredited calibration. Connecting the indicator to the PRT in the Pitot tube and comparing its reading to that from the AIM will verify the AIM display, whilst replacing the PRT in the Pitot tube with the one in the kit will detect any problems with the PRT.

Absolute Pressure

The AIM has an internal 100 mm Hg full-scale absolute pressure transducer, with resolution of 0.01% of full scale, which measures vacuum level in the air extraction line via the static side of the Pitot tube. Some zero adrift may occur with time causing an offset in the instruments output throughout the range and therefore the accuracy of the absolute pressure, air ingress and percent air readings. In order to re-zero the transducer it needs to be pumped a decade below its resolution, when the transducers zero potentiometer can be used to return the AIM absolute pressure display to zero.

The On-Site Maintenance Kit includes a portable vacuum pump, with a ½" vacuum line that can be connected to the AIMs' static (negative) pressure port. The pump is fitted with an exhaust mist filter to prevent oil vapour release into the atmosphere, a foreline trap to prevent oil vapour back migration into the vacuum line, a vacuum gauge to verify that the pressure is below the resolution of the AIMs' transducer, a vacuum isolation valve and a vent valve. Its compact size, low weight and integral carry handle make it easy to transport to wherever it is required.



Temperature Indicator	
Resolution	0.1°C
Calibrated range	UKAS calibration @ 15, 45 and 70°C
Battery type	PP3
Battery life	200 Hours
Platinum resistance thermometer	AIM PRT calibrated with indicator
Extension cable	4m long with mating connectors
Vacuum Pump	
Ultimate Vacuum	0.003 mbar (0.004mm Hg)
Pumping speed	1.6m ³ h ⁻¹
Weight	10 Kg (22lbs)
Operating temperature range	12-40°C
Operating voltage	100-120 or 220-240 VAC 50/60Hz
Vacuum Gauge	
Measurement range	0.00013 - 1330 mbar (0.0001 to 1000mm Hg)
Operating temperature range	0 - 50°C
Operating voltage	100-120 or 220-240 VAC 50/60Hz
Display	Integral



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