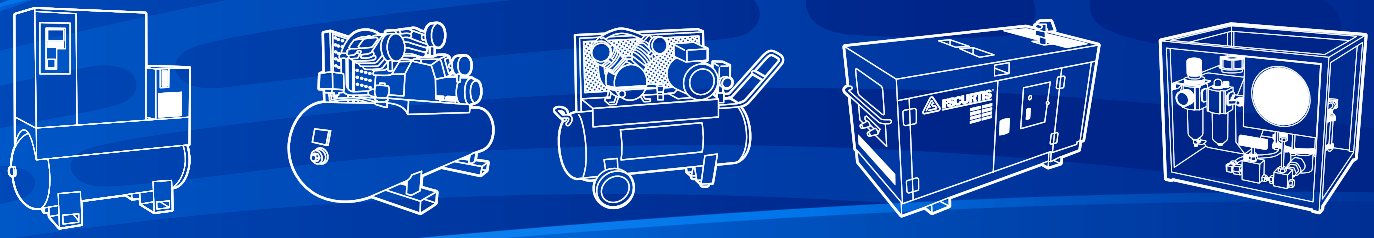
nessco
pressure systems

COMPRESSED AIR TESTING



ABOUT US

About Us

Nessco Pressure Systems (NPS) supply and service screw compressors, air preparation equipment, high pressure products and complete airline systems. With over 12 years experience in delivering compressed air systems of the highest quality and standard, NPS provide their customers with expert advice and service. The team is fully equipped for all makes and models of air compressor systems of various sizes and configurations providing servicing, repairs and replacement options.

When you choose Nessco Pressure Systems, you can be confident you are choosing a company who take the time to offer the full service. Our staff will start with an initial consult with the client resulting in a system design based on maximized energy saving and optimal flow pressure performance. This is followed by the supply and full installation of the product as well as after sales support including post installation audits and efficiency testing.

NPS supplies and services diesel compressors, electric screw compressors, piston and oil free compressors, receivers, dryers and filtration. We provide a turn key solution to each customer's requirements through consultancy, system design, sales and installation.

Our reputation as a trusted manufacturer and installer of pressure systems within the local community has seen NPS work not only with reputable local Perth companies but also with multinational corporations.

NPS has a strong presence in a number of industries within WA.

These industries include:

- ✓ Fabrication
- ✓ Manufacturing
- ✓ Mining
- ✓ Kitchen and cabinet making
- ✓ Automotive
- ✓ Medical
- ✓ Food and beverage
- ✓ Construction
- ✓ Fishing
- ✓ Agriculture and viticulture
- ✓ Chemical processing

Contact us

For more information on Nessco Pressure Systems, contact us today and talk to one of our representatives

By Phone: **(08) 9333 4999**
Monday - Friday: 7AM - 5PM
Saturday: 8AM - 12:30PM

By Fax: **(08) 9333 4900**

By email: **info@nesscopressure.com.au**

Or visit our website at **www.nesscopressure.com.au**

AIR TESTING

Benefits of a Compressed Air Test

Compressed air is a vital energy source and is utilised in many industries, including a vast range of controlled environments, such as the production of food, pharmaceuticals and medical devices. Fed directly into the controlled environment, these lines are required to meet the same ISO classification as the clean rooms and spaces they serve. Since they may introduce contamination, the lines must be regularly controlled, monitored, and tested.

When properly treated, compressed air is regarded as a safe, clean utility, as compared to other energy sources. When left unattended, however, compressed air can become contaminated, jeopardising product sanitation.

Contaminants originate from three general sources:

- ✓ Contaminants in the surrounding ambient are drawn into the air system through the intake of the air compressor. Ingested contaminants appear in the form of water vapor, hydrocarbon vapors, natural particles and airborne particulates.
- ✓ As result of the mechanical compression process, additional impurities may be introduced into the air system. Generated contaminants include compressor lubricant, wear particles and vaporized lubricant.
- ✓ A compressed air system will contain in-built contamination. Piping distribution and air storage tanks, more prevalent in older systems, will have contaminant in the form of rust, pipe scale, mineral deposits and bacteria.

Nessco Pressure Systems is qualified and equipped to ensure your compressed air/gas lines stay contamination-free.

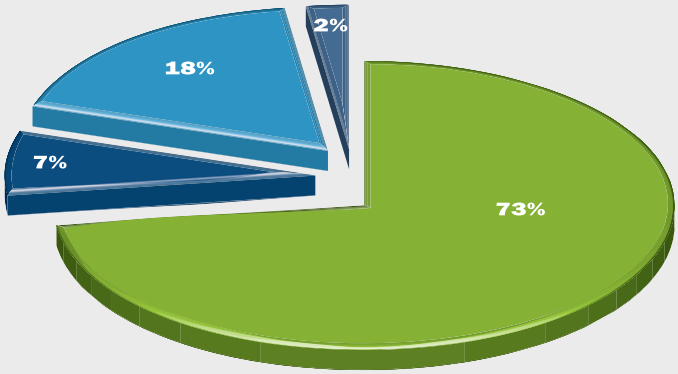
Air Testing by NPS

Nessco Pressure Systems

The scope of work includes:

- ✓ Breathing air quality testing to AS1715:2009 carried out on site, and recorded on our computer maintenance system. This will store all information and predict the date of your next test.
- ✓ Full report supplied and held on file for employee and Worksafe peace of mind.

Compressed air system costs over 10 years



ENERGY COST
CAPITAL COST
MAINTENANCE COST
INSTALLATION COST

With 73% of the cost of a compressor attributable to energy use, significant cost savings can be achieved by improving the system's efficiency.

Source:
Energy efficient compressed air systems, p. 1, Carbon Trust, UK, February

ISO CONTAMINANTS & PURITY CLASSES

Guide to ISO 8573-1:2010

ISO (International Organization for Standardization) is the world's largest developer and publisher of international standards. ISO 8573 is a series of nine documents or parts.

ISO 8573-1 is the key element to the nine documents and consists of the Contaminants and Purity Classes for three critical contaminants — Particles, Water, and Oil. Microbial and other gas contaminants are noted in this part; however no limits have been established. Parts 2-9 provide test methods for the various contaminants.

Although there are no hard and fast regulations in the Australia governing the quality of compressed air used in the production of pharmaceuticals, food, or medical devices; ISO 8573-1:2010 provides a variety of Purity Classes that range from those for the most critical applications to general purpose air.

The selection of appropriate Classes is dependent on a variety of factors. It is important to know the type of air purification filters that are installed, the intended use of the air at all points of use, and any equipment parameters that require a specific air quality level.

Some of our customers use baseline testing to determine what their system is producing at the various points of use before upgrading their purification or determining which Classes will be specified in their SOPs. Baseline results are compared to ISO Purity Classes and reported with whichever Class the air quality can meet. Others have adopted the British Compressed Air Society (BCAS) / British Retail Consortium (BRC) guideline for Food Grade Compressed Air Code of Practice that specifies direct contact ISO 8573-1:2001, Class 2:2:1 or indirect contact Class 2:4:1. We can also customize air specifications to meet an individual customer's air purity limits.

ISO CONTAMINANTS & PURITY CLASSES

ISO 8573-1:2010 CONTAMINANTS AND PURITY CLASSES

CLASS	PARTICLES				WATER			OIL
	BY PARTICLE SIZE MAXIMUM NUMBER OF PARTICLES PER M^3			BY MASS	VAPOR PRESSURE DEWPOINT		LIQUID	AEROSOL & VAPOR
	0.1 – 0.5 micron	0.5 – 1 micron	1 – 5 micron	mg/m^3	°C	°F	g/m^3	mg/m^3
0	As specified by the equipment user or supplier and more stringent than class 1							
1	400,000	400	10	-	≤ –70	≤ –94	-	≤ 0.01
2	20,000	6,000	100	-	≤ –40	≤ –40	-	≤ 0.1
3	-	90,000	1,000	-	≤ –20	≤ – 4	-	≤ 1
4	-	-	10,000	-	≤ + 3	≤ +37	-	≤ 5
5	-	-	100,000	-	≤ + 7	≤ +45	-	-
6	-	-	-	0 - 5	≤ +10	≤ +50	0.5	-
7	-	-	-	5 - 10	-	-	5	-
8	-	-	-	-	-	-	10	-
9	-	-	-	-	-	-	> 10	> 5

How to designate purity classes

The designation of ISO 8573 Purity Classes includes the following information in the given order:

Compressed air purity classes ISO 8573-1:2010 P:W:O where:

P is the purity class for particles (Classes 1 - 7, X)

W is the purity class for water (Classes 1 - 9, X)

O is the purity class for oil (Classes 1 - 4, X)

For example: ISO 8573-1:2010 [2:2:1] indicates Class 2 for particles, Class 2 for water, and Class 1 for oil.

When a class for any particular contaminant P, W, O is not specified, the designation shall be replaced by a hyphen, for example: [2: - :1] indicates that water will not be tested.

ISO 8573-6 provides test methods for gaseous contaminants and lists the gases of interest: carbon monoxide (CO), carbon dioxide (CO2), sulphur dioxide (SO2), hydrocarbons (HC), and nitrogen oxides (NOx).

ISO 8573-7 provides test methods for viable microbiological contaminants.

AIR CHECK REPORT

AIR CHECK REPORT

To				
NAME ADDRESS	Customer		Report	
	Sampled		Received	
	By		Analysed	
	For		Reported	

Results vs ISO 8573-1:2001 Gas Quality Specification

LIMITING CHARACTERISTIC			ISO 8573:2001 CLASS (B)	CONCENTRATION		PASS/FAIL (3)	ESTIMATE OF UNCERTAINTY, % (4)
				Sample (1)	Sample (2)		
PARTICLES	By Particle Size, Number of Particles/m^3	0.5 - 1.0	2(A)	n/d	≤1,000,000	n/d	n/a
		1.0 - 5.0	2	0.5-1.0 Value	≤1,000	PASS	±7.0
		0.1 - 0.5		1.0-5.0 Value	≤100		±7.0
	By Mass Concentration, mg/m^3		n/a	<0.005	n/a	n/a	±4.3
WATER	Pressure Dew Point, °C		2	-49	≤-40	PASS	±30
	Liquid Water, g/m^3 (C)		n/a	n/d	n/a	n/d	n/a
OIL	Oil Aerosol, mg/m^3		n/a	<0.005	n/a	n/a	±4.6
	Oil Liquid, mg/m^3 (C)		n/a	n/d	n/a	n/d	n/a
	Oil Vapor, mg/m^3		n/a	<0.001	n/a	n/a	±6.3
	Total Oil, mg/m^3		1	<0.006	≤0.01	PASS	10.9
Other (5)	N/A		n/a	n/a	n/a	n/a	n/a

Report Notes

(1) Declared content of component in accordance with referenced class
(2) Limit as specified in the referenced class
(3) Indicates if the sample concentration is within the referenced class limit (PASS) or exceeds exceeds the referenced limits (FAIL)
(4) At the 95% confidence interval as a percent of the reported value; includes sampling and analytical estimates of uncertainty
(5) Contaminants outside the scope of the specification or range of acceptable values.
n/a = not applicable for this sample n/d = not determined n/p - not provided n/s = not specified
Trace Analytics, LLC is not yet accredited for Oil Vapor nor for Pressure Dew Point using detector tubes.

Compressed Gas System Information

Sampling Information

Pressure:	Outlet, 100 psig; Ambient, 14.75 psia
Temperature:	72 °F
Aerosol:	Filter 600001; 140 L/min, 35 min
Water Vapor:	Tube 5/a-P; 4 L/min, 12.5 min; Reading 5
Oil Vapor:	Charcoal Tube 900001; 4 L/min, 300 min
Charcoal Blank:	Blank 1
Other:	Filter Blank = BlankF

Sampling Point Identification

Customer Comments

Spec. Notes

Laboratory Comments

Analytical Test Methods

Oil Vapor	SOP CAT-A-06	Gas Chromatography-Mass Spectrometry
Oil Aerosol	SOP CAT-A-03	Analytical Gravimetry (with solvent extraction)
Solid Particles	SOP CAT-A-04	Optical Microscopy
Dew Point	SOP CAT-A-07	Direct-Reading Detector Tubes

Sampling Media Identification Numbers

Source: Bottle:	n/a
Source Filter:	600001
Charcoal Tube:	900001
Detector Tube:	5/a-P

nessco pressure systems

Owen West, Director

OUR CLIENTS

"The commencement of business at our new purpose built facility in Welshpool marked a significant milestone in the history of our company. A relocation of this size is a major undertaking, and is not a project we could take on without significant support from external contractors and suppliers. We thank Nessco Pressure Systems for the role they have played in helping us achieve what has been an extremely successful move."

Welshpool window manufacturer
- Managing Director

"After using LH Airtools now Nessco for over ten years it was time to upgrade our compressed air system. Nessco Pressure Systems carried out a full factory audit before recommending the size and type of compressor we should use. The new system incorporated variable speed drive compressors, combined with standard compressors offer excellent energy savings, plus dryer, filters and receiver. NPS carried out a complete turnkey installation."

Kewdale beverage manufacturer
- Facilities Manager

"The world's leading manufacturer of mine refuge systems, moved to Welshpool, Perth. The company required not only a new compressor system but also a compressed air ring main design and installation. NPS carried out the complete project and supplied all parts and labour. They also offer compressed air purification testing, providing certification. Safe to breath compressed air is extremely important in our industry."

Welshpool mining equipment supplier
- Workshop Manager

OUR PEOPLE

A COUPLE OF OUR SPECIALISED SERVICE TEAM

TONY BARBOUR

Tony is a fully qualified fitter, turner and machinist by trade, having served his apprenticeship in a marine engineering pressure workshop. He has worked in the industry for 20 years, nine of which he spent operating his own compressor business. Tony comes with a vast amount of experience and expertise.

OTTO SCHATZ

Otto is a fully trained motor mechanic, having received his qualifications with VW Porsche in Germany. With over 15 years experience in the mechanical industry as an owner operator, Otto has been with NPS for seven years and comes with highly recommended service knowledge on all types of compressors.

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