AIRLANE

PNEUMATICS LIMITED

PNEUMATIC PRODUCTS FOR SAFE SYSTEMS

PRODUCT GUIDE

'TECHNICAL AND SERVICE EXCELLENCE'

AIRLANE

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HEALTH AND SAFETY

The Machinery Directive and the Provision and Use of Work Equipment Regulations (PUWER) currently places huge emphasis on safety in the workplace.

Therefore, when designing, assembling and using pneumatic systems it is paramount that attention to safety and safe operating systems is undertaken.

Generally, pneumatic components are not designed as safety components. Therefore, they are not directly covered under legislative scope. Pneumatic components however, are used frequently to satisfy safety related functions.

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PNEUMATIC PRODUCTS FOR SAFE SYSTEMS

The issue of safety in the workplace is becoming increasingly important for machinery manufacturers who are forced to sort out a mass of continuously evolving standards, the focal point of which remains the Machinery Directive.

In order to ensure conformity of the machine, the manufacturer must verify that it meets the safety requirements listed in the directive and guarantee compliance with the harmonised standards published in the European Union's Official Journal and relating to the product in question.

A selection of pneumatic control equipment and compressed air products for use in the safety of machinery are included here.

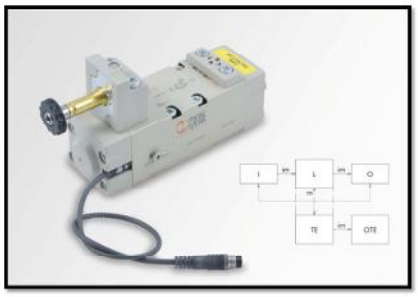
MONITORED DUMP VALVES

Pneumatic components are not normally designed as safety components even though they are often used in safety related circuits. For example, a solenoid/spring 3/2 valve can be used to dump air from a system in response to an emergency stop signal. Should this valve fail to operate a potentially hazardous situation can arise. This can be prevented by employing redundancy, that is by connecting two like valves in series. This ensures that one valve will always be operable.
To further safeguard the installation it is now essential to add a monitoring function for both valves to ensure that the control system is aware of any failure.
Our monitored dump valve has a positively driven switch mechanically linked to the valve poppet. This enables switch, valve or cable faults to be detected.

1. SINGLE VALVE ISO 5599/1 CAT2 PL=C

To reduce the probability of risk during plant maintenance, the manual actuator mounted on the Cnomo electric control is the monostable type. The sensor inside the valve is available in the standard version with a 2.5m three-wire cable (standard or ATEX certified) or with an M8 connector and a 300 mm cable. This valve, which is available in 3 sizes for the ISO 5599/1 series, is a category 2 component according to ISO EN 13849 and is suitable for use in safety circuits up to PL=c.

PART NO. (basic valve only – no coil)	ISO SIZE	SENSOR CONNECTION
7057021100	1	2.5m-3m wire connection
7057121100	1	M8 connection
7057221100	1	2m cable and ATEX approval
7058021100	2	2.5m-3m wire connection
7058121100	2	M8 connection
7058221100	2	2m cable and ATEX approval
7059021100	3	2.5m-3m wire connection
7059121100	3	M8 connection
7059221100	3	2m cable and ATEX approval



Please order coils seperately.

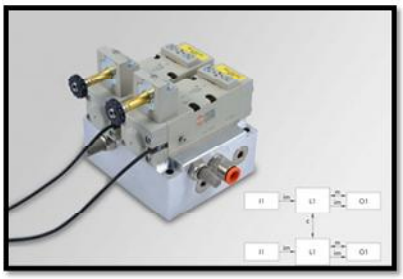
2. SIDE PORTED SUB BASE

PART NO.	ISO SIZE	PORT SIZE
0228000100	1	1/4 BSP
0228001100	2	3/8 BSP
0228002100	3	1/2 BSP

3. DOUBLE VALVE ISO 5599/1 CAT4 PL=E

For those requiring higher PLs, we have also developed a double-channel version (redundant) that requires the use of ISO 5599/1 valves with a monitored coil arranged so that ports 2 are in parallel and ports 4 are in series. If just one of the valves de-energizes, port 4 relieves, so, even if one of the two coils remains blocked, the other guarantees relief of the compressed-air circuit. In this case, too, the presence of spool position sensors can be used to monitor the status. The double valve is also available in 3 sizes for the ISO 5599/1 series. It is a category 4 component according to ISO EN 13849 and is suitable for use in safety circuits up to PL=e.

PART NO. (basic valve only – no coil)	ISO SIZE	SENSOR CONNECTION
7057021110	1	2.5m-3m wire connection
7057121110	1	M8 connection
7057221110	1	2m cable and ATEX approval
7058021110	2	2.5m-3m wire connection
7058121110	2	M8 connection
7058221110	2	2m cable and ATEX approval
7059021110	3	2.5m-3m wire connection
7059121110	3	M8 connection
7059221110	3	2m cable and ATEX approval

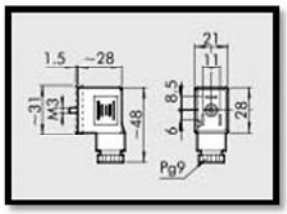


Please order coils seperately.

4. 22mm SOLENOID COILS AND CONNECTORS

A range of 22mm solenoid coils and connectors to suit the Monitored Dump valves. Voltages of coils are: - 12 & 24v DC, 24, 110 & 220v AC Connectors include Standard, LED, LED + VDR and ATEX approved options.

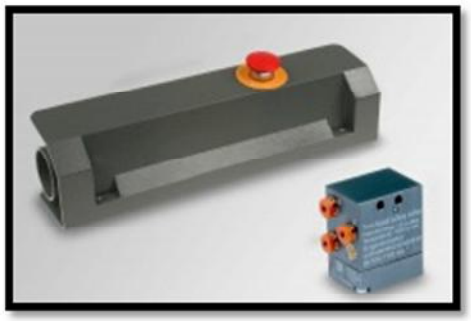
PART NO.	DESCRIPTION	VOLTAGE
W0215000151	22mm Solenoid Coil	12V DC
W0215000101	22mm Solenoid Coil	24V DC
W0215000111	22mm Solenoid Coil	24V AC
W0215000121	22mm Solenoid Coil	110V AC
W0215000131	22mm Solenoid Coil	220V AC



PART NO.	DESCRIPTION	VOLTAGE
W0970510011	22mm Standard Connector	Standard
W0970510012	22mm Standard Connector	LED 24V
W0970510013	22mm Standard Connector	LED 110V
W0970510014	22mm Standard Connector	LED 220V
W0970510015	22mm Standard Connector	LED + VDR 24V
W0970510016	22mm Standard Connector	LED + VDR 110V
W0970510017	22mm Standard Connector	LED + VDR 220V

TWO HAND SAFETY START VALVES

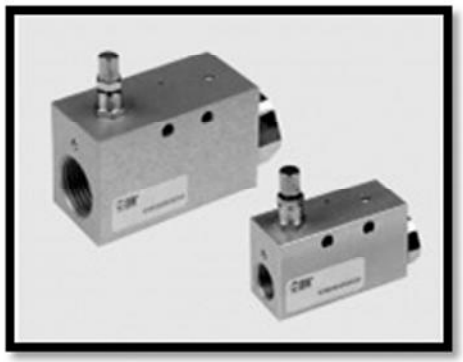
The two hand safety valve generates an output signal only if two synchronised pneumatic input signals are received. If one input signal is interrupted the output signal is interrupted as well. The most common application involves connecting a manual button-controlled valve to each of the inputs and using the output signal as a start-of-cycle control for a pneumatically operated machine.



PART NO.	DESCRIPTION	PORT SIZE
W3605000001	Two hand safety valve	4mm
0227700000	Complete push button panel	4mm

SOFT START VALVES

The in-line progressive starter is a valve that regulates the flow of air until the outlet pressure reaches a certain value, at which the valve opens and allows air to flow at full rate. This valve can be used to control a group of valves or a single valve, or it can be mounted between another valve and an actuator. The air that enters inlet 1 passes through a choke that has a knob adjustment to control the flow. The valve opens completely when the outlet pressure reaches about 60% of the inlet pressure. If the air supply is switched off, the valve discharges air from outlet 2 to inlet 1.



PART NO.	DESCRIPTION	PORT SIZE
W3606000002	VAP 1/4	1/4 BSP
W3606000004	VAP 1/2	1/2 BSP

PNEUMATIC STOP VALVES

Stop valves mounted on the cylinder inlets allow a flow of air only in the presence of a pneumatic pilot. Unidirectional and bidirectional versions are available. This item is mainly used as a safety valve. When pressure drops in the pneumatic pilot, all cylinder movement is halted.

1. BI-DIRECTIONAL STOP VALVES

Operating pressure: 0.5 - 10bar
Operating temperature: –10 to 60°C, 14 to 148 °F
Fluid: Lubricated or unlubricated filtered air
Installation: In any position

PART NO.	DESCRIPTION	PORT SIZE
W6001101106	STP-B 1/8 006	G 1/8
W6001111106	STP-B 1/4 006	G 1/4
W6001111108	STP-B 1/4 008	G 1/4
W6001121108	STP-B 3/8 008	G 3/8
W6001121110	STP-B 3/8 010	G 3/8
W6001131112	STP-B 1/2 012	G 1/2

2. UNI-DIRECTIONAL STOP VALVES

Operating pressure: 0.5 - 10bar
Operating temperature: –10 to 60°C, 14 to 148 °F
Fluid: Lubricated or unlubricated filtered air
Installation: In any position

PART NO.	DESCRIPTION	PORT SIZE
W6001001106	STP-U 1/8 006	G 1/8
W6001011106	STP-U 1/4 006	G 1/4
W6001011108	STP-U 1/4 008	G 1/4
W6001021108	STP-U 3/8 008	G 3/8
W6001021110	STP-U 3/8 010	G 3/8
W6001031112	STP-U 1/2 012	G 1/2

PADLOCKABLE REGULATORS

The New Deal padlockable regulator has a pin with a hole in it that projects from the top of the knob. When the knob is in the push-lock position, the padlock can be inserted in the hole preventing the knob from being operated. A padlock and two keys are supplied with the regulator.

PART NO.	DESCRIPTION	PORT SIZE
1210013	REG KEY 1/4 08	1/4"
1310013	REG KEY 3/8 08	3/8"
1410013	REG KEY 1/2 08	1/2"

PRESSURE RELIEF VALVES

A high lift safety relief valve factory preset and sealed to suit many applications in industry. The valve automatically vents at the selected pressure and resets when the pressure returns to 'normal'. Atmospheric discharge with lifting knob easing gear. These valves are primarily used on compressed air supply systems, compressor sets and pressure vessels. Safety valves are PED approved and CE marked (certificate included).

Material: brass construction with stainless steel springs
Temperature: -15 to +140 degrees Celsius
Capacity is shown for air at 15 degrees Celsius in standard litres/second at 10% overpressure.

PART NO.	CONNECTION (BSPT)	SETTING (bar)	CAPACITY (l/s)
APRV12500	1/2"	5.0	40
APRV12790	1/2"	7.9	59
APRV12860	1/2"	8.6	64
APRV12970	1/2"	9.7	72
APRV12112	1/2"	11.2	83
APRV12160	1/2"	16.0	108
APRV34500	3/4"	5.0	60
APRV34790	3/4"	7.9	89
APRV34860	3/4"	8.6	96
APRV34970	3/4"	9.7	107
APRV34112	3/4"	11.2	122
APRV34160	3/4"	16.0	161
APRV01500	1"	5.0	97
APRV01790	1"	7.9	144
APRV01860	1"	8.6	155
APRV01970	1"	9.7	172
APRV01112	1"	11.2	198
APRV01160	1"	16.0	260

MECHANICAL PISTON ROD LOCK - PASSIVE

The mechanical piston rod lock is a normally-closed mechanism. In the abscence of pneumatic piloting, the two shoes lock the cylinder rod in both directions. With pneumatic piloting, the piston rod guide forces the shoes to come right up to each other and overcome the counter spring force and the piston rod can slide. It is important to remember that the mechanical piston rod lock is a static type, which means that it is necessary to stop the cylinder piston rod pneumatically before locking the part mechanically.

Pilot pressure (bar): 4 to 8
Max. ambient temperature (degrees Celsius): 80
Max. fluid temperature (degrees Celsius): 70
Operation: NC - bidirectional
Mechanics: double shoe with mechanical lock / mechanical stick-slip

PART NO.	TUBE ID	LOCKING FORCE (N)
W5010001102	32	650
W5010001103	40	1100
W5010001104	50	1600
W5010001109	63	2500
W5010001106	80	4000
W5010001107	100	6300
W5010001108	125	8700

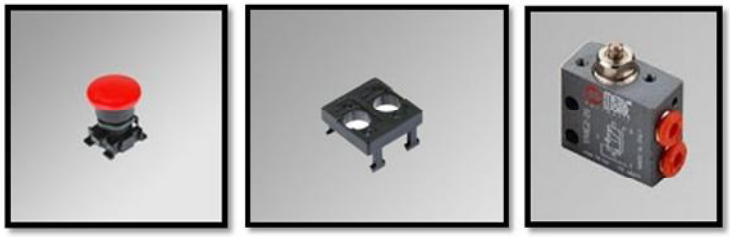
LOCKABLE SHUT-OFF VALVES

To allow maintenance and repair of pneumatic systems you should always fit some form of isolation device. By positioning the isolation strategically the main airline can remain pressurised while sub-systems are isolated individually. By fitting exhausting shut-off valves the downstream pressure can be exhausted safely. These valves should be lockable to prevent the unauthorised re-introduction of the air supply.

PART NO.	PORT SIZE (IN/OUT)	EXHAUST
V301010GWS	3/8 BSP	3/8 BSP
V301015GWS	1/2 BSP	3/8 BSP

EMERGENCY STOP VALVES

All machinery should include it's own emergency stop system to help prevent injury to operators and machine damage in the event of a breakdown.
Emergency stop valves are latching palm button types, red in colour.
When operated they stay in position until unlatched by a simple twisting motion



PART NO.	DESCRIPTION	WEIGHT (g)
W3501000101	VME1-10 NO 4	42
W3501000110	VME1-16 NO M5	36
W3501001100	VME2-10 NO 4	34
W3501001110	VME2-10 NO M5	34
W0351000014	Red mushroom-head push button with lock 40	29
0351000050	2 places adaptor thickness 6.8mm	5

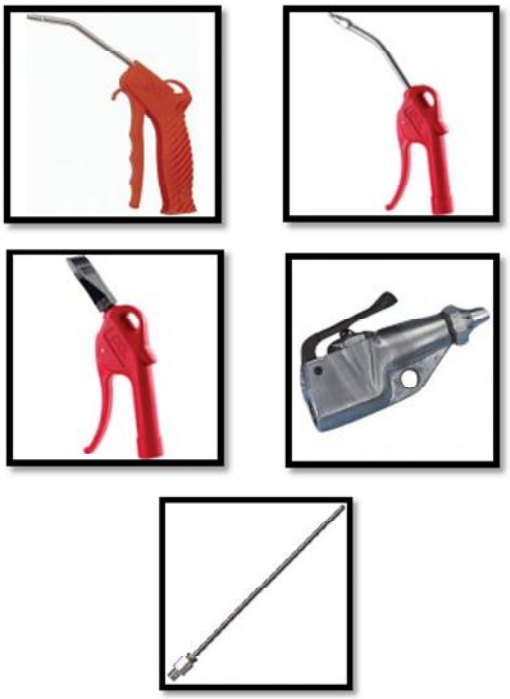
AIR FUSES

The AirGuard offers simple but efficient protection to pneumatic systems in the event of a broken compressed air hose or pipe.
The air supply is immediately shut off by the AirGuard, should the volume of air exceed a set value.
This "value" is factory preset and is set to allow normal air consumption when using air tools.
Should the air consumption exceeds the set value, e.g. the air line is severed, then the internal piston instantly shuts off the main flow. An integral bleed hole allows some air to flow though. This enables the line pressure to automatically reset the AirGuard once the main line break is repaired.

PART NO.	DESCRIPTION	THREAD CONNECTION (BSP)
P4GAA12	AirGuard 1/4 BSP F x F	1/4"
P4GBA12	AirGuard 1/4 BSP M x F	1/4"
P4GAA13	AirGuard 3/8 BSP F x F	3/8"
P4GBA13	AirGuard 3/8 BSP M x F	3/8"
P4GAA14	AirGuard 1/2 BSP F x F	1/2"
P4GBA14	AirGuard 1/2 BSP M x F	1/2"
P4GAA16	AirGuard 3/4 BSP F x F	3/4"
P4GAA18	AirGuard 1 BSP F x F	1"
P4GAA1C	AirGuard 2 BSP F x F	2"

AIR SAFETY BLOW GUNS

The safety blow guns have unblockable nozzles and low noise to help prevent operator injury.



PART NO.	GRIP	NOZZLE	DESCRIPTION
BG5004	Pistol	Safety	•Ergonomically designed handle, for comfort in use •Innovative nozzle design ensures airflow cannot be blocked •Valve allows trigger-adjustable airflow
BG5006	Pistol	Low noise safety– conforms to HSE requirements	•Ergonomically designed handle, for comfort in use •Innovative nozzle design ensures airflow cannot be blocked •Valve allows trigger-adjustable airflow
BG5005	Pistol	Safety aircurtain	•Ergonomically designed handle, for comfort in use •Valve allows trigger-adjustable airflow •Safety Aircurtain provides a curtain of air
BG106	Palm	Safety	•Robust and compact design •Extensive, easy to fit with additional nozzle range •Display packed for convenience
BGN461	N/A	Safety	•A comprehensive range of threaded (1/8" inlet), easy to fit, interchangeable nozzles to cater for all blowgun applications

ULTRA QUIET HIGH FLOW SILENCERS

Exhausting air can generate high sound volumes contributing to hearing loss. Fitting exhaust silencers to valves on machines can go a long way to eliminating this hazard.

PART NO.	DESCRIPTION	BSP
SPLF-1	High flow silencer	1/8"
SPLF-2	High flow silencer	1/4"
SPLF-4	High flow silencer	1/2"
SPLF-5	High flow silencer	3/4"

COALESCING EXHAUST AIRFLOW SILENCERS

As well as the noise generated by exhausting air operators may also be subjected to any lubricants or pollutants carried in the air stream.
By fitting a coalescing silencer both the noise levels are reduced and any oil mist or pollutant carry-over is collected safely.

PART NO.	DESCRIPTION	PORT THREAD
3514S	Exhaust silencer reclassifier	G1/2
3516S	Exhaust silencer reclassifier	G3/4
3516	Exhaust silencer reclassifier	G3/4
3518	Exhaust silencer reclassifier	G1

PART NO.	REPLACEMENT ELEMENT	WEIGHT (Kg)
3514S-2	Small	0,200
3516-2	Large	0,200

NOTES

AIRLANE

PNEUMATICS LIMITED

North East of England's Premier Pneumatic Control Equipment Specialists

Airlane was formed to give a world class leading service by people who fully understand pneumatic control systems and the industries in which they are used. Airlane are 100% committed to supplying highly efficient, cost effective automation solutions using leading edge technologies to improve manufacturing output and reduce both cost and environmental legacies.

Whatever your pneumatic application

- From Conception to Installation -

Demand the BEST Solution, Demand the AIRLANE Solution!

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