

FAAST

FIRE ALARM ASPIRATION SENSING TECHNOLOGY®



Notifier by Honeywell: FAAST Aspiration Planning and Pipework Guide

 **NOTIFIER**[®]
by Honeywell

The Earliest Warning

Aspirating systems can detect fires at a very early stage, often before visible smouldering takes place, before an open fire occurs and before intense smoke develops. This early detection is vital to mission critical and high-risk applications such as EDP areas, Internet data centres and network operating centres. Such areas typically have an increased fire risk due to high power requirement and density of equipment.

Legislation

In 2009, the EU produced an EN standard for ASD's - EN54-20. This falls under the legislation of the Construction Product Directive (CPD). In 2013 CPD becomes regulation (CPR), there will be no opt out. EN54-20 ASDs must have legislative CE approval

EN54-20 Sensitivity Classes

Smoke detector sensitivity is normally defined in terms of 'percentage obscuration per metre' (%obs./mtr) - that is to say, the amount of smoke required to obscure the passage of light by a given percentage across a distance of one metre. The EN54 Part 20 Code of Practice defines three sensitivity categories for smoke detection systems. Design application has to be considered when selecting class of ASD:

Class A

Very High Sensitivity, better than 0.8% obs./mtr. Used where very early warning of a potential fire is required. Designed primarily for high risk, high value areas to minimise downtime.

Class B

Enhanced Sensitivity, better than 2% obs./mtr. Very early fire detection for most areas in which valuable goods and/or processes need to be protected.

Class C

Normal Sensitivity @ 5% obs./mtr. Standard sensitivity equivalent to EN54-7. For general fire protection applications as an alternative to point detectors.

British Standards

In addition to EN54-20, ASD systems should be designed and installed in accordance with the FIA Code of Practice, BS5839-1 and BS6266 where relevant.

BS5839-1 - Used when the design mimics that of standard detection. ASD systems are used to directly replace point or other conventional detection methods for practical and/or financial reasons.

BS6266 - Used when installing ASD systems with Electrical Equipment such as IT/Communication suites. Again design mimics that of conventional detection, however the use of High Sensitivity Smoke Detection (HSSD) systems are encouraged and in some cases demanded

Maximize the performance of your aspirating system

A well designed, quality pipe work is critical to achieving the highest performance of your aspiration system. Notifier's comprehensive range of aspiration accessories is designed to optimise the performance of FFAST™ and other low pressure aspiration systems. All listed aspiration accessories meet the requirements of BS5391 Part 1, EN 61386-1 and EN 54 Part 20 standards where appropriate. Specified pipes are of 25mm external diameter with all necessary fittings to make pipe network connections, turns and alterations.



www.faast-detection.com

Design Pipe networks with PipelQ™

The Notifier portfolio of aspiration accessories will allow you to deliver pipe networks designed with FFAST™ PipelQ™ software. PipelQ™ enables quick and efficient design of pipe networks for even the most complex sites. PipelQ™ calculates the theoretical performance of a system to comply with EN legal requirements. A wide choice of pipe lengths and hole spacings minimises pipe wastage and reduces installation time.

EN54-20 Compliant Systems

If an ASD device has been correctly classified as Class A, B or C, this does not necessarily mean that it will satisfy the class specified in the project design. Labelling a device with a detection class simply indicates that a minimum project design with a single sampling hole corresponding to the specified class can be implemented. It is therefore important to check that the entire project design satisfies the desired detection class.

This can be done by the use of the PipelQ™ software supplied. The software takes into account the configuration options within the scope of the defined project design limits. The software should produce a conformity declaration for the detection categories specified by the selected project design in accordance with EN 54-20.



Pipe systems

ABS Pressure Pipe Systems

ABS (Acrylonitrile Butadiene Styrene) is a homogenous material with good chemical resistance and high impact strength. Other beneficial features are its suitability for use at low temperatures (-40°C) and its ease of jointing.

Standards

Individual products should be in accordance with the appropriate British Standards:

- Fittings (Metric) Din 8063, Kiwa 549, ISO 727
- Pipe BS 5391 EN 61386-1 Class 1131
- Adhesive BS 4346 Part 3

Technical - jointing guidelines

Solvent cement is specially formulated to chemically weld pipes and fittings together. The solvent cement chemically melts the two surfaces to be joined, so that when they are fitted together they form a homogenous mass, which then cures to form a weld. Note that this is not a glued joint.

It is therefore important to choose the correct type of adhesive as another type may be detrimental to the integrity of the system.

1. Cut the pipe at right angles to its axis, and to the required length using the correct cutting shears.
2. Dry fit the pipe to the socket of the fittings. When the pipe is fully home in the socket, draw a line around the pipe at the edge of the socket. Where this is not possible (perhaps on larger fittings) measure the socket depth and draw a line at the corresponding point along the pipe. This will give a visual indication, to ensure that the pipe is fully pushed home in the socket.
3. Apply the solvent cement with a suitably sized brush or the brush provided in the adhesive lid. Ensure that the area of the pipe up to the visual indicator is completely covered with an even layer of cement. This part of the operation must be done quickly and neatly, as the solvent must still be wet when the pipe and fitting is pushed together.
4. Push the pipe and fittings together and hold in place for up to 30 seconds. When the joint is made, a bead of solvent cement will form around the outer joint of the pipe and socket. This excess cement should be wiped away leaving the outer part of the joint clean.

Jointing 'Don'ts'

- Don't make joints in rain or wet conditions
- Don't use dirty brushes or cleaning rags, which are dirty or oily.
- Don't use the same brushes with different solvent cements.
- Don't dilute or thin solvent cements with cleaner.
- Don't leave solvent cement tins open. The contents will evaporate and the cement performance will be weakened.
- Don't use near naked lights, or smoke whilst jointing. Solvents are highly inflammable.
- Don't make joints in a confined space. Solvents emit hazardous vapours, which are dangerous.

Joints per Litre of Cement

As a rule of thumb around 70 joints can be made per 250ml of solvent cement when jointing 25mm ABS fittings and pipe.

Expansion and Contraction

Expansion or contraction of plastic pipe is caused by temperature change occurring within the pipe wall. When the operating temperature of a pipe is greater than when it was installed, then the pipe will expand. If the operating temperature is lower, then it will contract.

There are two factors to consider when calculating expansions or contractions in pipes.

1. Ambient temperature of the (air temp) environment when installing the pipe
1. Change of temperature of pipe contents or environment

Any change of the above factors will affect the mid-wall temperature of the pipe thus causing either expansion or contraction.

How to Allow for Expansion or Contraction

The change of length in a pipe system, whether it is expansion or contraction, will require compensation, so that any stresses generated by the change will not cause damage to the system, this can be done in by the use of an expansion loop, an expansion joint or using flexible arms.

1) Expansion Loops

These are designed to compensate for linear expansion or contraction within a pipe system. They are an ideal option when facing a large amount of movement due to expansion or contraction. For large amounts of movement we suggest you use the 100cm flexible connector; solvent weld one end to the pipe where you wish the expansion to be taken up and form a loop before solvent welding the other end to the pipe system

2) Expansion Joints

In line expansion sockets are a compact solution to allow for 70mm of travel. They have a fixed bracket which is clamped down securely and enables it to be screwed onto M8 or M10 threaded bar. The pipe is pushed into the expansion socket at both ends and must pass the o-ring on each end of the expansion joint.

For contraction requirements the pipes can meet in the middle, and for expansion purposes the pipe from each side has to pass the o-ring sufficiently as to not pull out, whilst the space between the pipes inside the expansion socket will allow for the linear expansion of the pipes upto 70mm.

3) Flexible Arms

Flexible arms are simple and relatively inexpensive to install. The flexibility of plastics permits expansion or contraction to be compensated for, by means of, either directional change within a pipe system, or by the installation of expansion loops consisting of two flexible arms. The length of the flexible arm is governed by the pipe diameter, and the amount of expansion or contraction that requires compensation.

Clips and Bracketing

Pipe brackets need to be made with the inside diameter of the bracket marginally larger than that of the pipe outer diameter. This allows for free lineal movement of the pipe, and avoids inhibiting expansion or contraction. They should also be smooth, to avoid damage to the outer surface of the pipe.

Plastic pipe clips meet all these requirements, and are strong, durable against temperature, Ultra Violet light and can also be used in corrosive or otherwise adverse environmental conditions.

Pipe clips are adaptable and can fixed in the normal way or be screwed onto M6 or M8 threaded bar by inserting the respective nut into the side of the clip. They can also be fitted to the side of M6 or M8 threaded bar by utilising a rod adaptor.











Bracket Spacing Intervals

Plastic pipe lines require regular support, and the spacing of clips or brackets depends on the pipe used and temperature.





The following tables show the centre to centre measurement between brackets for 25mm ABS pipe at various temperatures.

Bracket Spacing in Metres					
20 °C	30 °C	40 °C	50 °C	60 °C	70 °C
1.00	0.95	0.85	0.75	0.75	0.60















Accessories

	F-A3384-000	FAAST Integral filter. Replacement filter for FAAST 8100E aspiration detectors
	FL-IF-6	FAAST LT filter (pack of 6). Replacement filter elements for FAAST LT aspiration detectors
	F-LT-EB	FAAST LT - Earth Bar
	VSP-850-G	External in-line filter for aspirating systems
	VSP-855-4	External in-line filter replacement element (Pack of 4)
	VSP-855-20	External in-line filter replacement element (Pack of 20)
	KA-1	Steam Trap
	3KH-PVC	3-ways Ball Valve
	RSV-R25	Non Return Valve
	UK109070	Manual blow through valve set complete







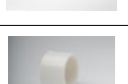


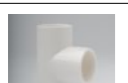

Power Supplies & Batteries

	4015-501-Y	Batteries 12V 7Ah
	4015-514-Y	Batteries 12V 12Ah
	HLS-PSU-20	24v 2 Amp EN54-4 Power Supply
	HLS-PSU-50	24v 5 Amp EN54-4 Power Supply




Red ASD Pipe & Accessories

	RED90	90 Degree Bend (ea)
	RED90ELB	90 Degree Elbow (ea)
	RED45	45 Degree Bend (ea)
	REDUN	Socket Union (ea)
	REDCLIP	Pipe Clip (ea)
	REDSOC	Jointing Socket (ea)
	REDTP	T Piece (ea)
	REDENDC	End Cap (ea)
	RED3MP	Pipe 3 Metres (ea)
	RED10MMCAP	RED 10MM CAPILLARY PIPE (100 METRE)
	REDAST025I	25MM RED AIR SAMPLING TEST POINT.
	REDFSK	Flush Sampling Kit
	REDCSK	Conical Sampling Kit
	REDDSK	Discrete Sampling Kit
	REDPIPC	Pipe Cutters
	REDCEM	Cement 250ml

White ASD Pipe & Accessories

	WHT3MP	Pipe 3 Metres, WHITE
	WHT45	45 Degree Bend, WHITE
	WHT90	90 Degree Bend, WHITE
	WHT90ELB	90 Degree Elbow, WHITE
	WHTCLIP	Pipe Clip, WHITE
	WHTCSK	Conical Sampling Kit, WHITE
	WHTENDC	End Cap, WHITE
	WHTFSK	Flush Sampling Kit, WHITE
	WHTSOC	Jointing Socket, WHITE
	WHTTP	T Piece, WHITE
	WHTUN	Socket Union, WHITE

Marking tapes

	AF-BR	Marking Tapes (Pack of 10)
	AF-20	Aspiration Reducing Film Tapes 2.0mm (Pack of 10)
	AF-25	Aspiration Reducing Film Tapes 2.5mm (Pack of 10)
	AF-30	Aspiration Reducing Film Tapes 3.0mm (Pack of 10)
	AF-32	Aspiration Reducing Film Tapes 3.2mm (Pack of 10)
	AF-34	Aspiration Reducing Film Tapes 3.4mm (Pack of 10)
	AF-36	Aspiration Reducing Film Tapes 3.6mm (Pack of 10)
	AF-38	Aspiration Reducing Film Tapes 3.8mm (Pack of 10)
	AF-40	Aspiration Reducing Film Tapes 4.0mm (Pack of 10)
	AF-42	Aspiration Reducing Film Tapes 4.2mm (Pack of 10)
	AF-44	Aspiration Reducing Film Tapes 4.4mm (Pack of 10)
	AF-46	Aspiration Reducing Film Tapes 4.6mm (Pack of 10)
	AF-50	Aspiration Reducing Film Tapes 5.0mm (Pack of 10)
	AF-52	Aspiration Reducing Film Tapes 5.2mm (Pack of 10)
	AF-56	Aspiration Reducing Film Tapes 5.6mm (Pack of 10)
AF-60	Aspiration Reducing Film Tapes 6.0mm (Pack of 10)	
AF-68	Aspiration Reducing Film Tapes 6.8mm (Pack of 10)	
AF-70	Aspiration Reducing Film Tapes 7.0mm (Pack of 10)	
	AK-20	Air Flow Reducers for Special Env. 2.0mm
	AK-25	Air Flow Reducers for Special Env. 2.5mm
	AK-30	Air Flow Reducers for Special Env. 3.0mm
	AK-32	Air Flow Reducers for Special Env. 3.2mm
	AK-34	Air Flow Reducers for Special Env. 3.4mm
	AK-36	Air Flow Reducers for Special Env. 3.6mm
	AK-38	Air Flow Reducers for Special Env. 3.8mm
	AK-40	Air Flow Reducers for Special Env. 4.0mm
	AK-42	Air Flow Reducers for Special Env. 4.2mm
	AK-44	Air Flow Reducers for Special Env. 4.4mm
	AK-46	Air Flow Reducers for Special Env. 4.6mm
	AK-50	Air Flow Reducers for Special Env. 5.0mm
	AK-52	Air Flow Reducers for Special Env. 5.2mm
AK-56	Air Flow Reducers for Special Env. 5.6mm	
AK-60	Air Flow Reducers for Special Env. 6.0mm	
AK-68	Air Flow Reducers for Special Env. 6.8mm	
AK-70	Air Flow Reducers for Special Env. 7.0mm	
AK-C	Plastic Clip for Air Flow Reducers	

Safety, Integrity and Heritage

Notifier by Honeywell is the world's largest manufacturer and supplier of engineered fire alarm systems. With over 400 Engineered Systems Distributors worldwide, and regional support on every continent, we have the flexibility to meet our customers' requirements.

With over 50 years of experience, we offer unrivalled specialist knowledge and products designed to meet all needs. Notifier offers a comprehensive line of quality fire detection and alarm control solutions. These

include everything from smoke detection and notification, non-addressable fire alarm panels, analogue addressable systems, to advanced network and integration packages.

As a leader in the fire safety market, Notifier is dedicated to the highest standards of service and product quality. Our operations are accredited to ISO 9001 and our products are designed and manufactured to meet every major international approval, including LPCB, VdS, UL, ULC and BOSEC/ANPI.

Notifier is a division of Honeywell International, a diversified technology and manufacturing leader, serving customers worldwide. By partnering with Notifier, you have the reassurance of working with a company of global standing that provides cutting edge fire detection systems.



Charles Avenue
Burgess Hill
W. Sussex
RH15 9UF

T: +44 (0) 1444 230 300
F: +44 (0) 1273 376 894
E: sales@notifierfiresystems.co.uk
www.notifierfiresystems.co.uk