

— TECHNICAL SUBMISSION • Q20293-IFS-DS-TS-001 • REV 00

60 Queen Victoria St

Fire Resistant Ductwork to BS EN 1366-8 & 9. To supply and install fire resistant smoke extract ductwork for 120 min integrity & insulation.



Phoenix ME

client

25 Aug 2026

date of issue

P. Fach

originator

IFS-DS

system, BS EN 1366-8 & 9

From **Imperial Ductwork Services Ltd**

Equipment **Fire Resistant Ductwork**

Manufacturer **Imperial Ductwork Services Ltd**

Index

01	Cover sheet
02	Product description
03	Project scope
04	Test classifications
05	Certificate of Constancy of Performance
06	Declaration of Performance
07	Accreditations
08	QA procedures
09	Construction & installation details
10	Fixings & supports
11	Fire stopping details
12	Fire insulation
13	Volume control dampers
14	Attenuators
15	Maintenance recommendations
16	Approval

Document transmittal

DOCUMENT TRANSMITTAL

FROM	REF
Imperial Ductwork Services Ltd	Q20293-IFS-DS-TS-001
TO	DATE
Phoenix ME	25 August 2026
EQUIPMENT	MANUFACTURER
Fire Resistant Ductwork	Imperial Ductwork Services Ltd

To supply and install Fire Resistant Smoke Extract Ductwork manufactured to BS EN 1366 Part 8 & Part 9 for 120 min Integrity & Insulation.

SPECIFICATION REF
Not stated on the transmittal

Note: In the absence of technical submittals being returned within 15 days from issue indicating a formal approval status, IDSL will proceed to mitigate any further delay based on acceptance of this technical submittal.

SUPPORTING DOCUMENTATION ISSUED

(i)	Equipment Specifying Schedule	☐
(ii)	Manufacturers Data	☒
(iii)	Design Check Calculations	☐
(iv)	Certified Performance Levels	☐
(v)	QA / QC Documents	☐
(vi)	Sample Enclosed	☐
(vii)	Builders Work Requirements	☐
(viii)	Assembly & Installation Details	☐
(ix)	O&M Instructions	☐
(x)	List of Recommended Spares	☐
(xi)	Deviation Schedule	☐
(xii)	Other	☐

APPROVALS

PARTY	SIGN	DATE
M&E Contractor		
Main Contractor		
Services Consultant		

Use the [approval response](#) at the end to return your status.

The IFS-DS system

Following a substantial investment programme, Imperial Ductwork Services Limited are delighted to propose the IFS-DS fire resistant ductwork system, for single compartment smoke control ducts, multi-compartment duct systems and ventilation ducts, including kitchen extract systems.

Single compartment ducts are tested to BS EN 1366-9:2008. They passed at pressure level 3 (~1500 Pa ambient, ~500 Pa under fire), achieving a 2 hour classification (E600 120) without losing cross-sectional area or exceeding a leakage rate of 5 m³/h/m³.

Multi-compartment ducts give the same level of performance but are tested to BS EN 1366-8, achieving EI 120.

Tested with a range of components, the systems cover a direct field size range up to 1250 × 1000 mm or Ø1000 mm under BS EN 1366-1 and BS EN 1366-9, classified to BS EN 13501-4.

IDSL hold third party accreditation for installing fire-resistant ductwork and dampers under BRE LPS 1531, and Warrington Fire FIRAS for installing fire-resistant ductwork systems.

The system supplied and installed by IDSL with Imperial Fire Solutions will be classified to BS EN 13501-3 for ventilation ducts and BS EN 13501-4 for smoke control ducts. Where applicable, ducts will carry the relevant CE / UKCA mark.



1250×1000 mm smoke control ducts	2500×1250 mm ventilation ducts
Ø1000 mm circular	Level 3 ~1500 Pa ambient, ~500 Pa fire



EFR-2501-0452 · 1812-CPR-2293 · 2822-UKCA-CPR-0235

FORMAL TEST & PERFORMANCE CRITERIA

TEST STANDARD	DUCT TYPE	FIELD (SIZE)	CLASSIFICATION	CLASSIFICATION STANDARD
BS EN 1366-1	Horizontal Type A	DIAP · 1250 × 1000 mm	EI 120 o-i s	BS EN 13501-3
BS EN 1366-1	Vertical Type A	DIAP · 1250 × 1000 mm	EI 120 o-i s	BS EN 13501-3
BS EN 1366-1	Horizontal Type A	EXAP · 2500 × 1250 mm	EI 120 o-i s	BS EN 13501-3
BS EN 1366-1	Vertical Type A	EXAP · 2500 × 1250 mm	EI 120 o-i s	BS EN 13501-3
BS EN 1366-1	Horizontal Type B	DIAP · 1250 × 1000 mm	EI 120 o-i	BS EN 13501-3
BS EN 1366-1	Vertical Type B	DIAP · 1250 × 1000 mm	EI 120 o-i	BS EN 13501-3
BS EN 1366-1	Horizontal Type B	EXAP · 2500 × 1250 mm	EI 120 o-i	BS EN 13501-3
BS EN 1366-1	Vertical Type B	EXAP · 2500 × 1250 mm	EI 120 o-i	BS EN 13501-3

TEST STANDARD	DUCT TYPE	FIELD (SIZE)	CLASSIFICATION	CLASSIFICATION STANDARD
BS EN 1366-1	Horizontal Type A Component	DIAP · 1250 × 1000 mm	EI 120 o→i s	BS EN 13501-3
BS EN 1366-1	Horizontal Type B Component	DIAP · 1250 × 1000 mm	EI 120 o←i	BS EN 13501-3
BS EN 1366-8	Horizontal Type C	DIAP · 1250 × 1000 mm	EI 120 o←i s	BS EN 13501-4
BS EN 1366-9	Horizontal Type C	DIAP · 1250 × 1000 mm	E600 120 o←i s	BS EN 13501-4
BS EN 1366-1	Horizontal Type A	DIAP · Ø1000 mm	EI 120 o→i s	BS EN 13501-3
BS EN 1366-1	Vertical Type A	DIAP · Ø1000 mm	EI 120 o→i s	BS EN 13501-3
BS EN 1366-1	Horizontal Type B	DIAP · Ø1000 mm	EI 120 o←i	BS EN 13501-3
BS EN 1366-1	Vertical Type B	DIAP · Ø1000 mm	EI 120 o←i	BS EN 13501-3
BS EN 1366-8	Horizontal Type C	DIAP · Ø1000 mm	EI 120 o←i s	BS EN 13501-4
BS EN 1366-9	Horizontal Type C	DIAP · Ø1000 mm	E600 120 o←i s	BS EN 13501-4

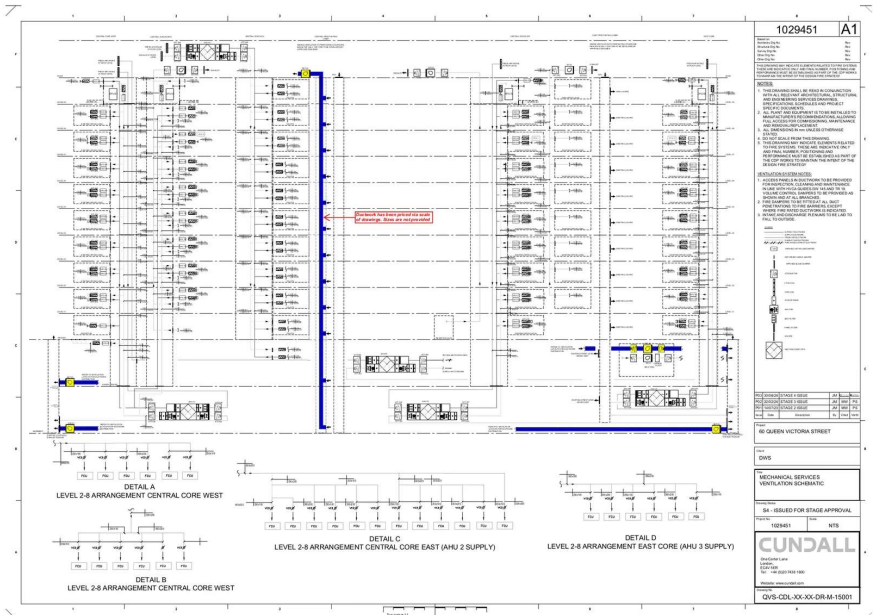
18 of 18 classifications · DIAP direct field of application · EXAP extended field of application

READING A CLASSIFICATION

- E** Integrity: the duct prevents fire and hot gases passing through it.
- I** Insulation: the unexposed face stays below the temperature rise limits.
- 120** Minutes of fire resistance.
- (ve ho)** Valid for vertical (ve) and horizontal (ho) orientations.
- S** Smoke leakage within the limit.
- 1500/+500 Pa** Service pressure range covered.
- Multi** Multi-compartment: the duct can pass through and serve several fire compartments.
- o→i / o←i** Fire exposure direction: outside to inside, or inside to outside the duct.

60 Queen Victoria St

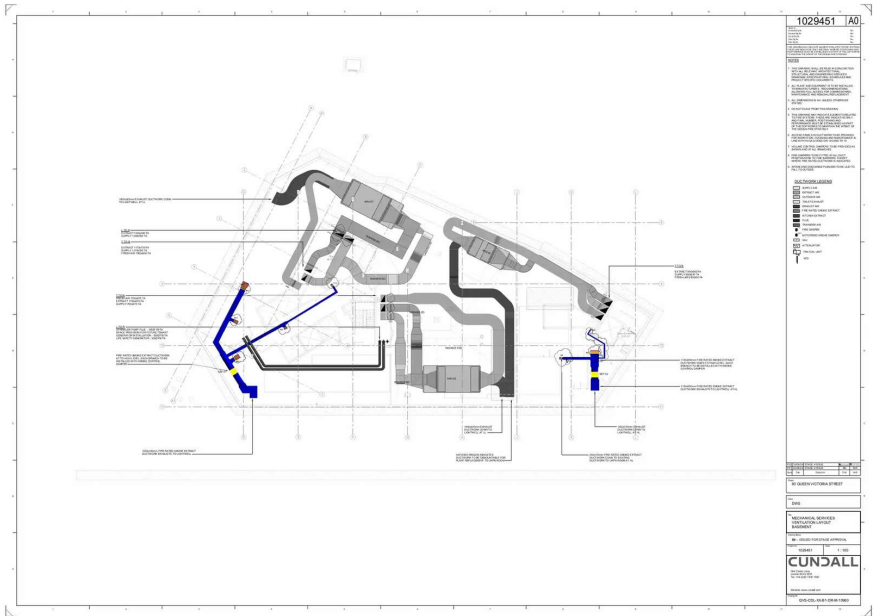
Cundall mechanical services drawings, marked up by IFS to show the fire resistant smoke extract ductwork in scope.



QVS-CDL-XX-XX-DR-M-15001

Ventilation schematic

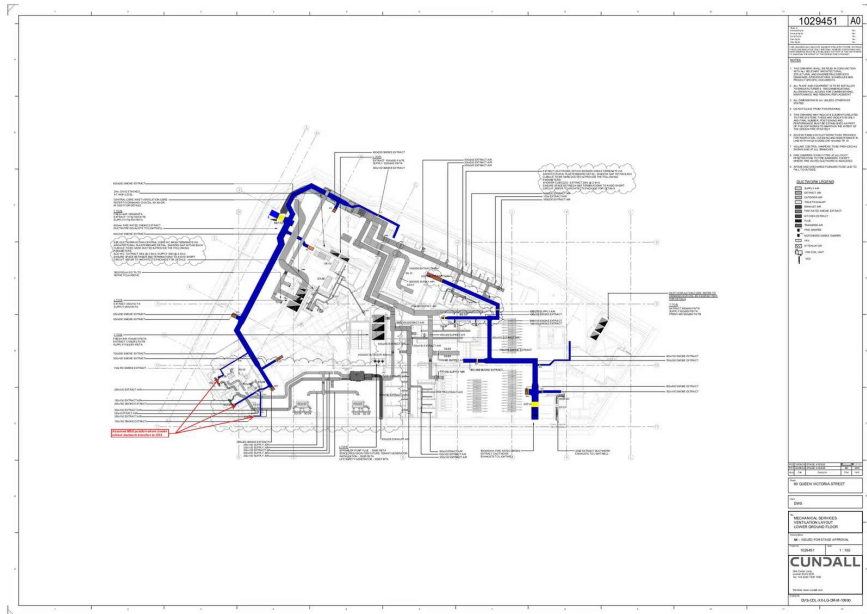
Riser schematic from basement to roof showing the fire rated smoke extract ductwork in IFS-DS mark-up, including the central core and firefighting lobby arrangements.



QVS-CDL-XX-B1-DR-M-10980

Basement ventilation layout

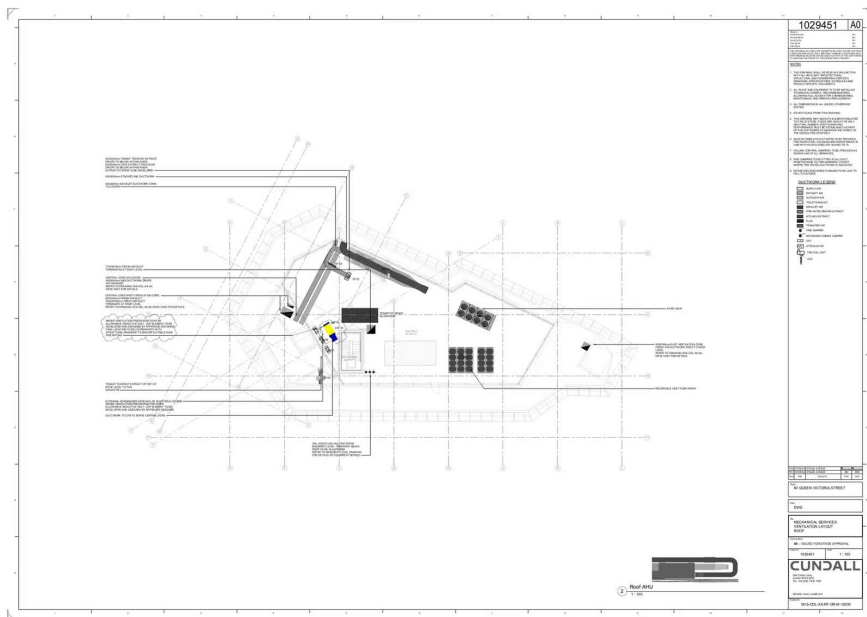
Mechanical services ventilation layout, basement. Fire rated smoke extract runs marked in blue, with smoke control damper branches rising to high level.



QVS-CDL-XX-LG-DR-M-10990

Lower ground ventilation layout

Mechanical services ventilation layout, lower ground floor, with IFS-DS smoke extract ductwork at high level.



QVS-CDL-XX-RF-DR-M-12000

Roof ventilation layout

Roof plant layout: ventilation core and pressurisation riser terminations, fans and AHU connections.

Test classifications

Two Efectis France classification reports (notified body 1812) to EN 13501-4:2016.

BS EN 1366 Part 8 • EFR-24-004007

CLASSIFICATION • HORIZONTAL & VERTICAL SMOKE EXHAUST DUCTS

E I 120 (ve ho) S

-1500/+500 Pa Multi

Rectangular four-sided smoke exhaust ducts in galvanised steel insulated with ISOVER mineral wool. Inner section 0 × 0 up to 1250 × 1000 mm (w × h), vertical and horizontal.

DELIVERED

24 March 2025

LABORATORY

Efectis France, Maizières-lès-Metz

SPONSOR

Imperial Ductwork Services Ltd

SIGNED

C. Salsi / R. Stouvenot

REFERENCE OF THE FIRE TESTS

TEST NUMBER	LAB	DATE	STANDARD
EFR-22-003538	Efectis FR	06/10/2023	EN 1366-1:2014
EFR-22-003497	Efectis FR	08/06/2023	EN 1366-1:2014
EFR-22-003559	Efectis FR	10/01/2024	EN 1366-1:2014
EFR-22-003554	Efectis FR	17/11/2023	EN 1366-1:2014
EFR-22-003562	Efectis FR	04/04/2024	EN 1366-8:2004

Horizontal duct: galvanised steel §6.2.1

- Galvanised steel sheet, max. segment length 1340 mm, 1 mm thick. Leakage class C to EN 1507.
- Slide-on flanges or continuous girth flanges (30 mm), Ø10 mm holes in the corners. Slide-on flanges fixed with HENROB R50743CH06 self-pierce rivets Ø5 × 7.5 mm at 150 mm centres; CGF fixed by stitching.
- Joined with M10 × 30 mm screws and nuts in the corners and joint bolt clamps at max. 150 mm centres.
- Flange face: TPIN153SWH (ARBOSEAL) intumescent tape 15 × 3 mm plus a bead of Product 58 acrylic mastic.

Horizontal duct: reinforcement §6.2.2

- Segments ≥ 800 mm: external L stiffeners 50 × 40 × 1.6 mm at mid-length, Ø4.8 × 16 mm rivets at max. 150 mm.
- Internal stiffeners: M10 rod in a Ø21 mm conduit sleeve through the full height, with 75 × 3 mm plate washers inside and out.
- ≥ 800 mm: one stiffener at each extremity (330 mm from edge), two at mid-length, one at each quarter length and mid-width. ≤ 800 mm: one at each extremity and one at mid-length/mid-width.

Horizontal duct: supports & insulation §6.2.3–6.2.4

- Unprotected hangers at max. 1100 mm: L 50 × 50 × 5 mm bearer under the duct, two M10 rods at L_{duct} + 50 mm.
- Two layers of ULTIMATE U Protect Slab 4.0 Alu1 (ISOVER), 60 mm each at 65 kg/m³ (120 mm total), 175 mm joint offset.
- Stud-welded pins Ø3 × 64 mm (1st layer) and Ø3 × 132 mm (2nd layer), Ø30 mm washers, max. 285 mm spacing. ISOVER Fire Screws 200 mm at corners, max. 285 mm. 90 mm aluminium tape on edges and joints.

Horizontal duct: wall penetration §6.2.1 (wall)

- Opening $(w + 100) \times (h + 100)$ mm through a group A plasterboard wall to EN 1363-1:2020, EI 120: 130 mm thick, 2 × 15 mm type F boards each side, 70 mm mineral wool at 90 kg/m³, steel studs.
- Gap max. 50 mm filled with ISOVER slab 65 kg/m³, 60 mm, covered with Protect BSF; first insulation layer glued to the wall with Protect BSK.

Vertical duct §6.3

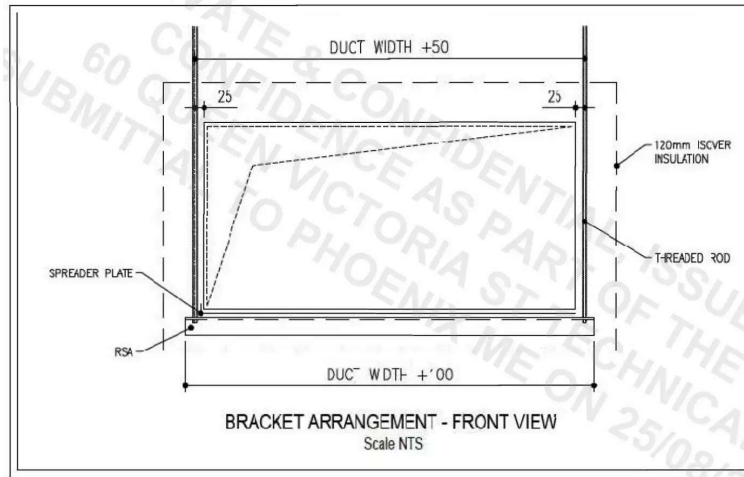
- Same 1 mm galvanised construction and flanges as horizontal. Exposure i→o: TPIN153SWH tape plus Product 58; exposure o→i: KERAFIX 2000 (CH Materials) tape 20 × 3 mm.
- Segments ≥ 800 mm: external 50 × 40 × 1.6 mm stiffeners at mid-length; one internal M10 stiffener at mid-height/mid-width per segment and two per segment junction.
- Insulation: one layer of ULTIMATE U Protect Slab 4.0 Alu1, 100 mm, 65 kg/m³, pins Ø3 × 114 mm at max. 260 mm (largest sides) and 190 mm (smallest sides). Cover strips 300 × 40 mm, or a 40 mm × 1500 mm sleeve each side of the slab, pinned with Ø3 × 155 mm at max. 285 mm.
- Slab penetration: opening $(w + 100) \times (h + 100)$ mm through 150 mm aerated concrete at 550 kg/m³; 50 mm gap filled with 60 mm ISOVER slab and Protect BSF; glued with Protect BSK. Fixed both sides with 40 × 40 × 4 mm steel corners, rivets at max. 100 mm and Ø7.5 × 120 mm concrete screws at max. 100 mm.
- Connection between two ducts made as the duct body; secondary duct fixed with Ø4.8 × 16 mm stainless rivets at max. 150 mm.

Direct field of application §8

- Rectangular four-sided ducts. Horizontal results apply to vertical ducts with ho/ve classification to 13501-3, tested horizontally to EN 1366-8.
- Pressure: result at -500 Pa in duct A applies from -500 to +500 Pa if integrity is met in the duct B test.
- Sizes up to 1250 × 1000 mm (EN 1366-8:2024 §13.3).
- Vertical ducts: any number of storeys if supports are ≤ 5 m apart and the 8:1 buckling ratio is met.
- Supports in steel, stressed no higher than the table below. Expect about 40 mm elongation for unprotected 1.5 m hangers. Flexible and rigid supporting constructions covered.

MAX. STRESS (N/MM ²)	T ≤ 60	60-120	120-240 MIN
Tensile, vertical components	9	6	3
Shear, screws class 4.6 (EN ISO 898-1)	15	10	5

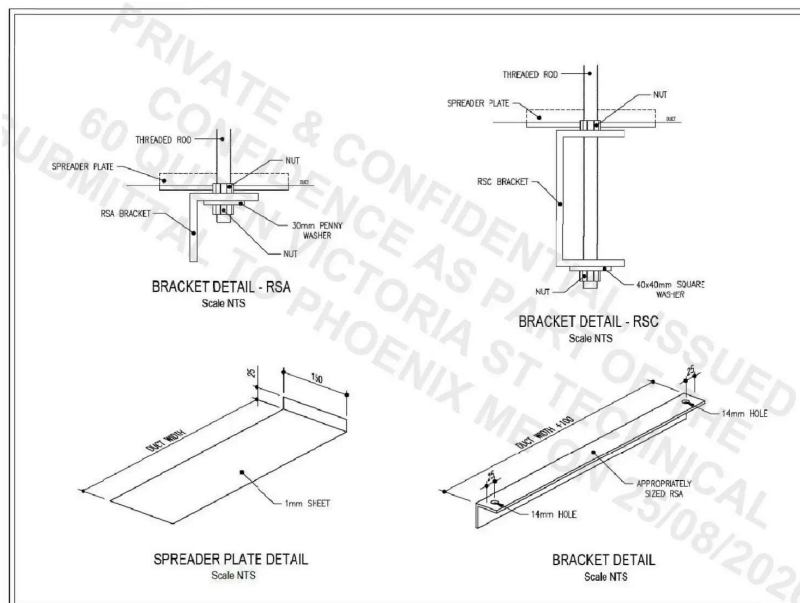
APPENDIX DRAWINGS



EFR-24-004007 • p10

Bracket arrangement, front view

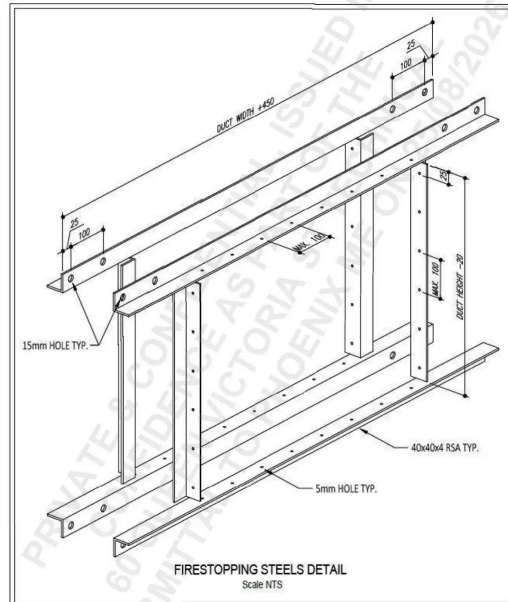
Duct width + 50 between threaded rods; RSA bearer and spreader plate; 120 mm Isover insulation.



EFR-24-004007 • p11

Bracket details

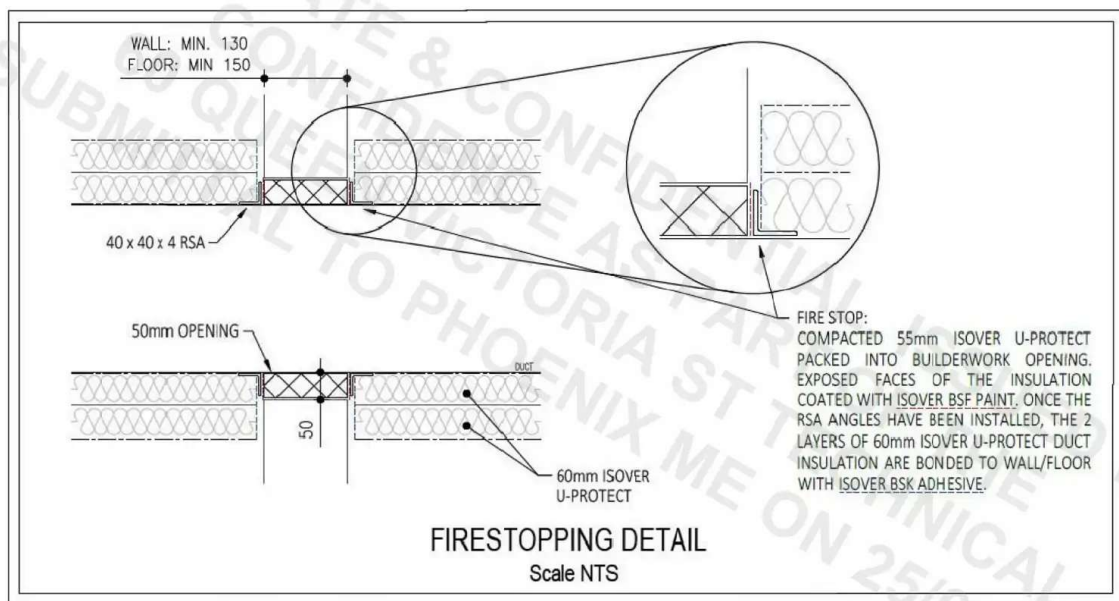
RSA and RSC bracket details, spreader plate detail and bracket detail.



EFR-24-004007 · p12

Firestopping steels detail

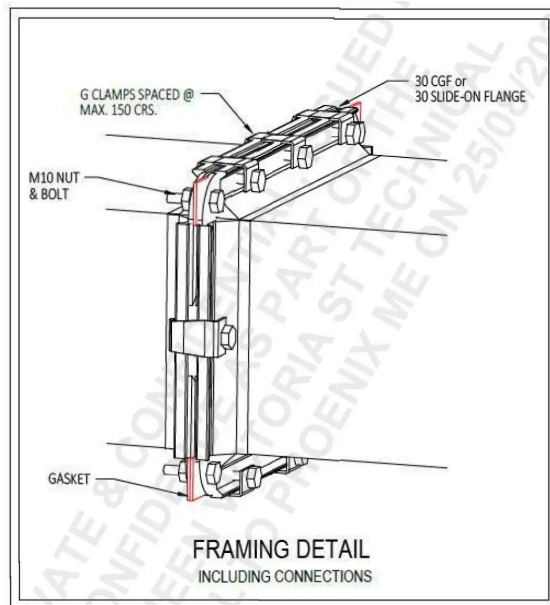
40 × 40 mm RSA framing around the opening with 15 mm and 5 mm holes.



EFR-24-004007 · p13

Firestopping detail

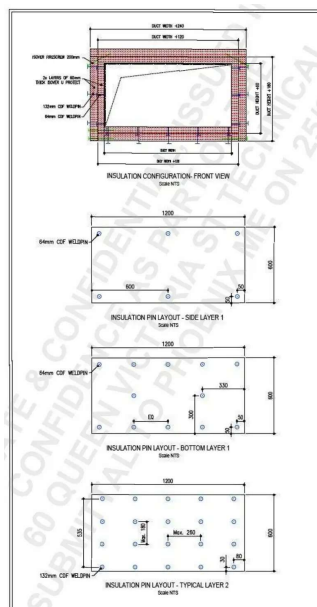
Wall min. 130 mm, floor min. 150 mm; 50 mm opening packed with compressed 55 mm Isover U Protect, faces coated with BSF; two 60 mm layers bonded with BSK.



EFR-24-004007 · p14

Framing detail including connections

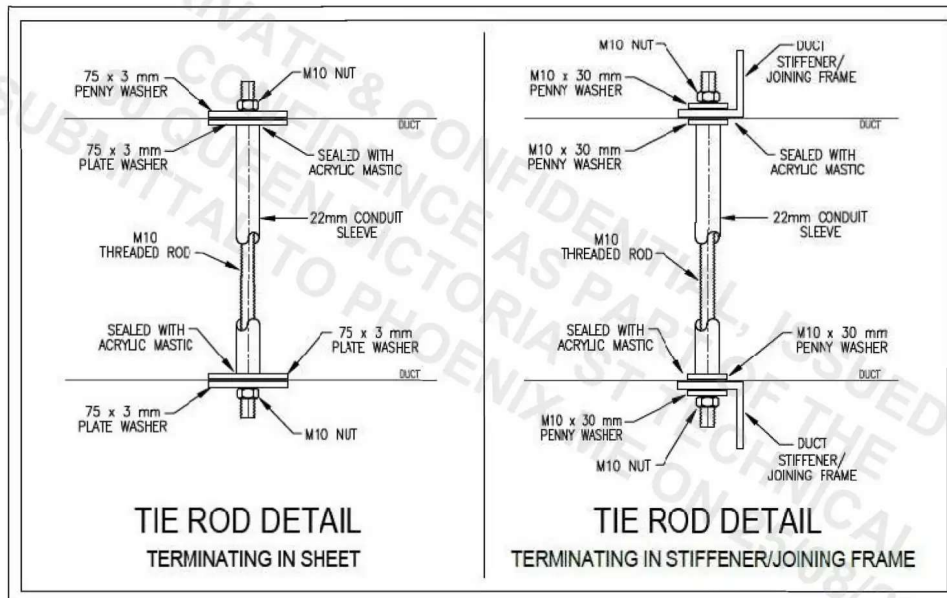
30 CGF or slide-on flange, G clamps at max. 150 mm, M10 nut and bolt, gasket.



EFR-24-004007 · p15

Insulation configuration

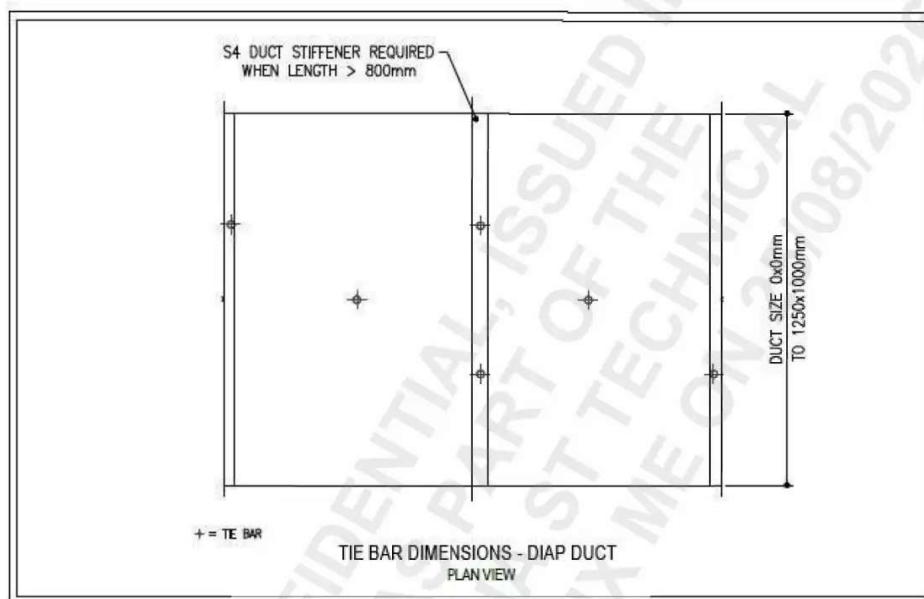
Front view and pin layouts for the side, bottom and typical layers.



EFR-24-004007 · p16

Tie rod details

Terminating in sheet, and terminating in stiffener / joining frame: M10 rod in a 22 mm conduit sleeve, sealed with acrylic mastic.



EFR-24-004007 · p17

Tie bar dimensions, DIAP duct

S4 duct stiffener required when length exceeds 800 mm; duct sizes 0 × 0 to 1250 × 1000 mm.

CLASSIFICATION · HORIZONTAL SINGLE COMPARTMENT SMOKE
EXTRACTION DUCTS

E600 120 (ho) S Mono

–1000 / +500 Pa with access doors and/or VCDs · –1500 / +500
Pa without components. 0.8 mm galvanised steel, inner section 0
× 0 to 1250 × 1000 mm.

DELIVERED

2 October 2025

SPONSOR

Imperial Ductwork Services
Ltd

LABORATORY

Efectis France, notified
body 1812

SIGNED

C. Salsi / R. Stouvenot

REFERENCE OF THE FIRE TESTS

TEST	LAB	DATE	CONDITIONS	E	S
Pr-24-3.002-En	PAVUS	14/05/2024	EN 1366-9:2008, –300 Pa, 600 °C	134 min	134 min
Pr-24-3.004-En	PAVUS	14/05/2024	EN 1366-9:2008, –300 Pa, 600 °C	134 min	134 min

Galvanised steel duct §6.2.1

- GALV-DX51D+Z275-M-A-CE (ArcelorMittal UK), 0.8 mm, max. segment length 1500 mm.
- 1500 mm: single sheet folded four times, grooved corner seam, beaded cross sections. 1340 mm: single sheet in CGF unit, notched seam flange. ≤ 1340 mm: two sections with a Pittsburgh lock seam. Product 58 inside along all lock forms.
- Slide-on: VM30 VerroMax flange (Doby Verrolec) 30 × 30 × 1 mm with VM30C corners 96 × 96 × 3 mm, HENROB rivets Ø5 × 7.5 mm at max. 150 mm, tack-welded corners, sealed with Product 58.
- Joined with M10 × 30 mm bolts and VGFC R5 type G clamps (4 mm, M8 bolts) at max. 200 mm; TPIN153SWH gasket 15 × 13 mm between flanges.

Reinforcement & compensator §6.2.2–6.2.3

- Segments over 750 mm: DVS2 'S' type stiffener frame (Doby Verrolec) 1.6 mm, L 20 × 30 mm, corners 106 × 106 mm, at mid-length with Ø4.8 × 16 mm rivets at max. 150 mm. Omitted on segments with an access panel.
- One FFDM compensator (MANDIK), 155 mm, at mid-length of the 9400 mm duct in the unexposed part.

Supports & wall penetration §6.2.4–6.2.5

- Unprotected hangers at max. 1500 mm: CSS41/S/2.5 channel 41 × 41 × 2.5 mm, length W_{duct} + 150 mm, open side down; two M10 rods 50 mm from each side, 40 × 40 × 3 mm lipped washers.
- Opening Ø_{duct} + 100 mm through aerated concrete, min. 450 kg/m³, min. 150 mm; max. 50 mm gap filled with 50 mm mineral wool at min. 100 kg/m³.

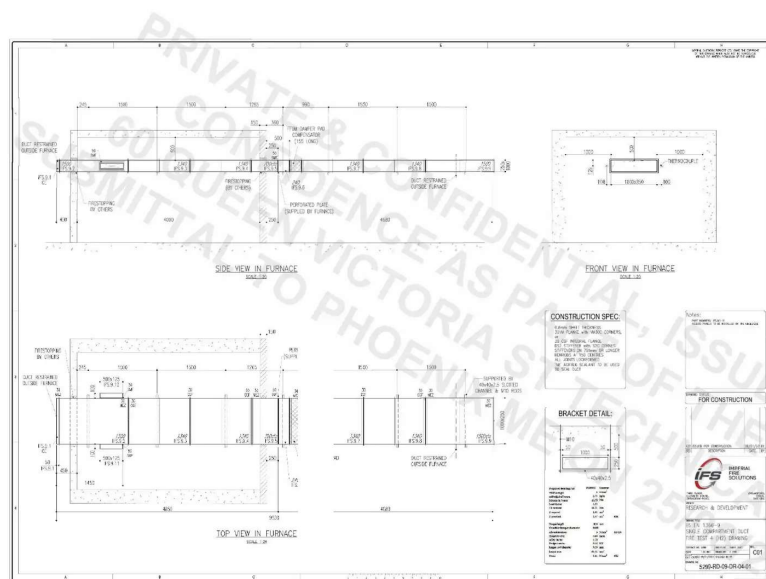
Optional components (–1000 / +500 Pa) §6.2.6

- Dampers: SEDS-L (MANDIK); HVC-VCD aluminium VCD (HVC Supplies) with VM30 flange; Advanced Air 1500 Series. All bolted M10 × 30 mm with VGFC R5 clamps at 200 mm and TPIN153SWH gasket.
- Access doors: FTDAD (Ace Filtration) 450 × 450 × 25 mm or ADTR45 (Doby Verrolec) 450 × 450 × 30 mm, edges sealed with Product 58.

Direct field of application §8

- All temperatures below 600 °C, same duration, same pressure level.
- Horizontal single compartment ducts up to 1250 × 1000 mm internal (EN 1366-9:2024 §13.2). For sizes over 1000 × 250 mm, hanger rod stress $\leq$ calculated test values.
- -1000 / +500 Pa with access doors or VCDs; -1500 / +500 Pa without components.
- Vertical parts in a single compartment are covered by the horizontal test; their weight must be allowed for in the suspension design.

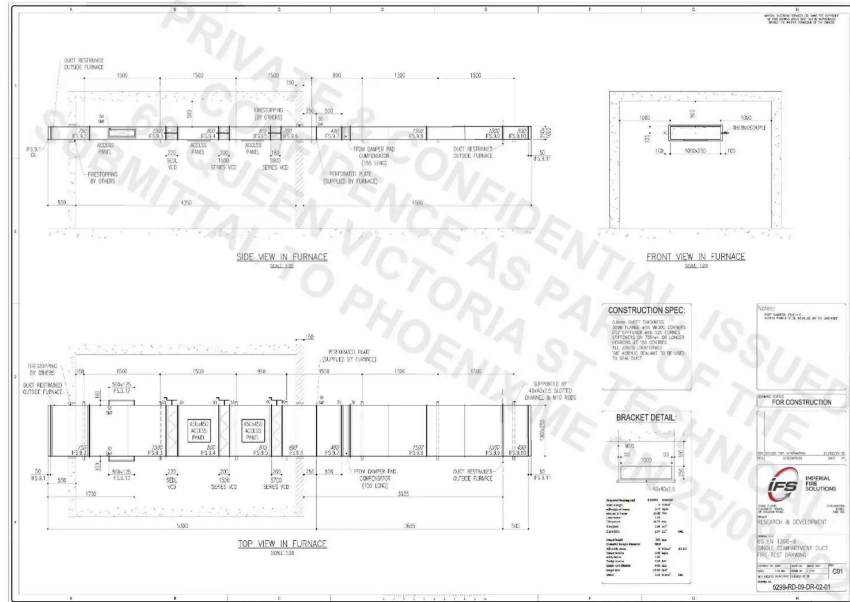
APPENDIX DRAWINGS



EFR-25-002463 · p7

Single compartment test arrangement (1)

Side, front and top views in furnace, construction specification and bracket detail.



EFR-25-002463 • p8

Single compartment test arrangement (2)

Second duct arrangement in furnace with construction specification and bracket detail.

1812-CPR-2293

Efectis France · notified body 1812

Revision 25-O · Regulation (EU) 305/2011 (CPR)

PRODUCT

Smoke and heat control systems: smoke duct sections

REFERENCE

IFS-DS

PLACED ON MARKET BY

Imperial Ductwork Services Ltd

MANUFACTURING PLANT

Dartford & Erith, UK

STANDARD

EN 12101-7:2011, Annex ZA, System 1

FIRST ISSUED

8 July 2025

Saint-Aubin · Y. Le Tallec, Certification director

Efectis performed initial type-testing, initial factory and FPC inspection, and carries out continuous surveillance. The certificate allows CE marking while test methods, FPC requirements, product and manufacturing conditions are unchanged.



ANNEX: FIELD COVERED	
Duct sections for	Multi-compartments
Shape / orientation	Rectangular · horizontal or vertical
Maximum size	1250 (w) × 1000 (h) mm
Material	1 mm galvanised steel
Transverse joint	30 mm flanges; TPIN153SWH 15 × 3 mm KERAFIX 2000 20 × 3 mm tape; Product mastic
Stiffeners	External 50 × 40 × 1.6 mm · internal M10 Ø21 mm conduit
Insulation	ULTIMATE U Protect Slab 4.0 Alu1, 65 kg
Penetration sealing	ISOVER 65 kg/m³, 60 mm, Protect BSF p
Horizontal supports	L 50 × 50 × 5 mm, two M10 at W _{duct} + 50 max. 1100 mm
Classification	E I 120 (Ve Ho) S -1500/+500 P
Field of application	Per report EFR-24-004007 Revision 1

DoP No. IFS-DS-002

PRODUCT-TYPE

IFS-DS Rectangular Multi-Compartment Smoke Control Ductwork

MANUFACTURER

Imperial Ductwork Services Ltd
Sargasso, Five Arches Business Estate, Maidstone Road, Sidcup, Kent DA14 5AE

HARMONISED STANDARD

BS EN 12101-7:2011

SIGNED

R W Chapman
4 Copthall Avenue, London EC2R 7DA · 24 July 2025

INTENDED USE

Fire resisting multi-compartment smoke control ductwork tested to BS EN 1366-8, incorporating grilles, access panels, attenuators and VCDs

SYSTEM OF AVCP

System 1

NOTIFIED BODY

Efectis France, no. 1812
Certificate 1812-CPR-2293

REFERENCE

DOP.002.12-25.V2.0

DECLARED PERFORMANCE

ESSENTIAL CHARACTERISTICS	PERFORMANCE	SPECIFICATION
Integrity	EI120	BS EN 12101-
Insulation	(Ve-	7:2011
Smoke leakage	Ho) S 1500	BS EN 13501-
	Multi	4:2016
Issued under Regulation (EU) No 305/2011 under the sole responsibility of the manufacturer.		

Accreditations



LPCB LPS 1531 installer approval

Scope: Appendix 5 fire rated ductwork systems; Appendix 6 fire resisting dampers.

Certificate **1654PI, issue 02**
 Standard **LPS 1531: Issue 1.2**
 Issued **27 Feb 2024 (first 14 May 2021)**
 By **BRE Global Ltd**

● **Held in force by regular surveillance**



FIRAS certification scheme

Application of passive fire resisting products using ducting, from 07/11/2023.

Certificate **G18248, issue 1**
 Issued **07/11/2023**
 Valid to **07/11/2028**
 By **Warringtonfire**

● **Valid to 7 Nov 2028**



ASFP contractor member

Association for Specialist Fire Protection.

Membership **3371/C**
 Expiry **05/09/2025**
 Signed **Mike Ward, MD**

● **Expiry shown: 5 Sept 2025**



Institution of Fire Engineers

Affiliate organisation.

Quality assurance



ISO 9001:2015 certificate of registration

Provision of installation, and contracting of ductwork ventilation systems, and fire solutions within the UK.

Certificate **253359**
Initial / latest **29 May 2024**
Expiry **28 May 2027**
By **British Assessment Bureau (UKAS 8289)**

● Valid to 28 May 2027

Quality Procedure 15: Fire Rated Installation

Q-15000 Rev 7 · 08/2025

Objective & scope 15.0–15.1

15.0 To ensure all projects under the control of IDSL follow the quality procedures and control required to maintain traceability through the installation period of all fire-resistant ductwork and dampers.

15.1 Applies to all contracts and site staff, without exception, for fire rated installations and standard DW144 / DW145 installations.

Definitions 15.2–15.6

15.2 Estimating: refer to procedure 1.

15.3 Fire resistant ductwork performs smoke control and ventilation (e.g. kitchen extract); its primary function is fire compartmentation, meeting load-bearing, integrity and insulation criteria evaluated to BS EN 1366.

15.4 FDs, FSDs & SCDs maintain compartmentation and prevent the spread of fire and smoke; SCDs also help extract smoke from the room of incident.

15.5 VCDs control airflow and must match the fire resistance of the system they are installed in, evaluated to EN standards.

15.6 Manufacture: to DW144 (procedure 5); fire rated items per the specialist manufacturer, including DW172 kitchens and DW145 dampers. IDSL fire resisting ductwork is made at Imperial Ductwork Manufacturing.

Handover & technical submittals 15.7

Project Handover Meeting before works start (Contracts Engineer, Manager, Director, Estimating Manager, CAD, QS and IFS), with a Contract Handover Document. **IDSL must ensure any contractual agreements to the design are noted and corrected against the main contract document.** Technical submittals are updated as the design changes.

Estimating issues drawings highlighted to the IDSL colour coding. The QS files the handover document with the Quality Control Manager on the "1.0 Fire Rated Schedule". All IDSL insulation is Isover, ordered via IDSL.

The Contracts Engineer prepares the submittal with data sheets, specification references, integrity and insulation durations, scope, drawings and the test standard basis. BS EN 1366 Parts 1, 8 or 9 are the primary standards; BS 476 Part 24 assessments should not be used. Submittals are reviewed by IFS, issued to the client and design team, and uploaded to Procore and the IDSL server.

Drawings, fixings & materials 15.7

CAD reads the fire rated specification and Fire Strategy before drawing; issues outside IDSL control are raised with the client. FDs, MFSDs, FSDs and SCDs are labelled individually with a specification table; drawings carry an LPS number.

A project-specific pull test is arranged to select fixings and supports. Bespoke items such as fans, attenuators and risers are discussed with IFS.

Batch numbers and manufacture dates of all products are recorded with the QA Manager. The first tube of each box of curing product is checked; part-cured product is not used. An insulation sample is checked on each project for 65 kg/m³. Signed delivery sheets are returned to the QA Manager.

Labour, inspection & insulation 15.7

All labour installing fire rated ductwork, FDs, FSDs and SCDs must be trained, with evidence issued to the Quality Control Manager on every project; all managers are inducted on IDSL fire resisting products (Fire Rated Installation Induction and Certificate).

Site inspections by the specialist manufacturer and internal team take place before and after insulation. Isover is fixed with welded pins, so RAMS include hot works. Insulation is 2 × 60 mm (120 mm), overlapped between sections.

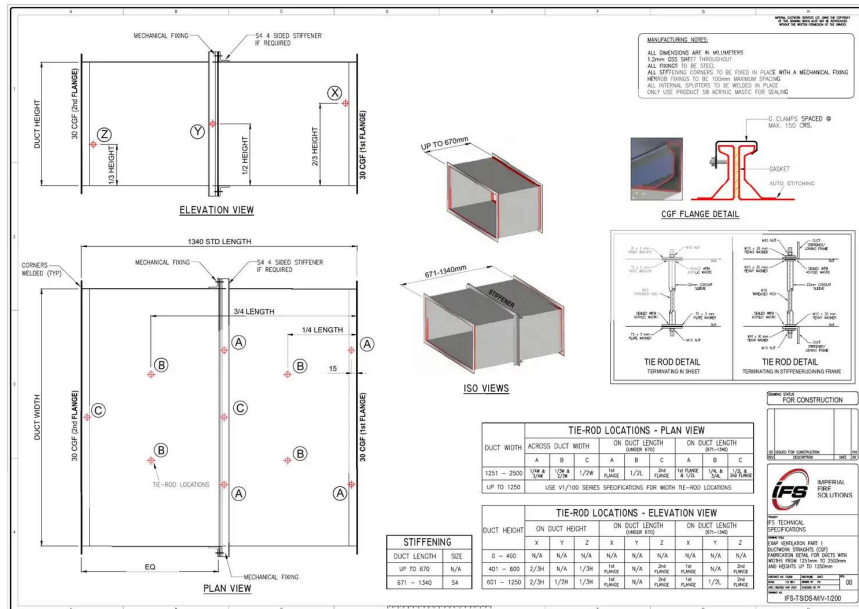
APPLICATION	INSULATION	RATING
EN 1366 Part 1 Supply	120 mm	120 min
EN 1366 Part 1 Extract	120 mm	120 min
EN 1366 Part 1 Kitchen Extract	120 mm	60 min
EN 1366 Part 8 Smoke Extract	120 mm	120 min
EN 1366 Part 1 Smoke Make Up Supply	60 mm	120 min
EN 1366 Part 9 Smoke Extract	Uninsulated, only in the final compartment	

The specification must always be checked. Penetration openings are insulated with Isover and fire batted before IDSL fit penetration seals both sides.

Leakage testing 15.7

All fire-resistant systems are 100% leakage tested during installation (where of sufficient volume) to meet BS EN 12101-7:2011 Annex B Table B.1, as acknowledged in the IFS/Efectis email of 03/08/23, using Document 3001 Air Leakage Test Sheet with Form 5.

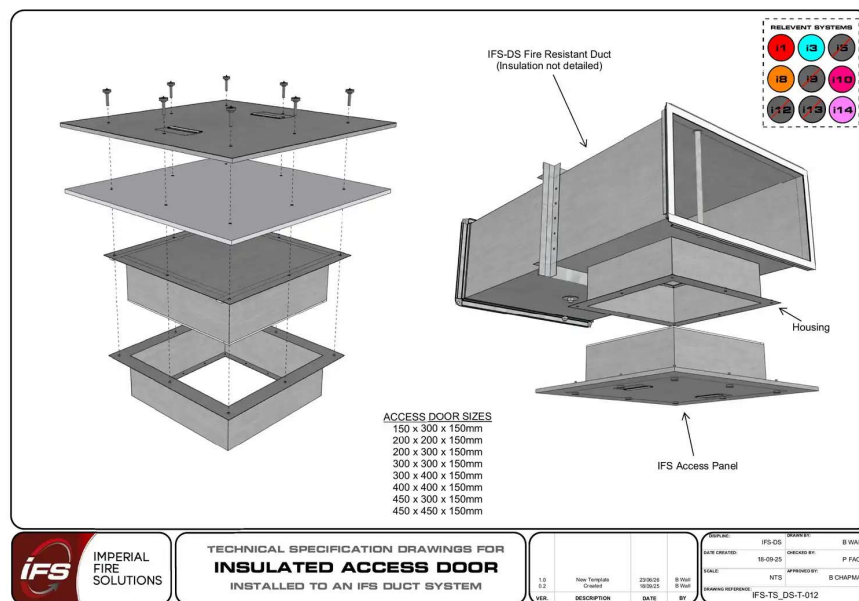
Testing follows BESA DW 145. Each file holds the witnessed test sheet, drawings and the test machine calibration certificate, flow rates to ISO 8501:2007 at 1.2 kg/m³.



IFS-TS/DS-M/V-1/200

EXAP ventilation Part 1 ductwork straights (CGF)

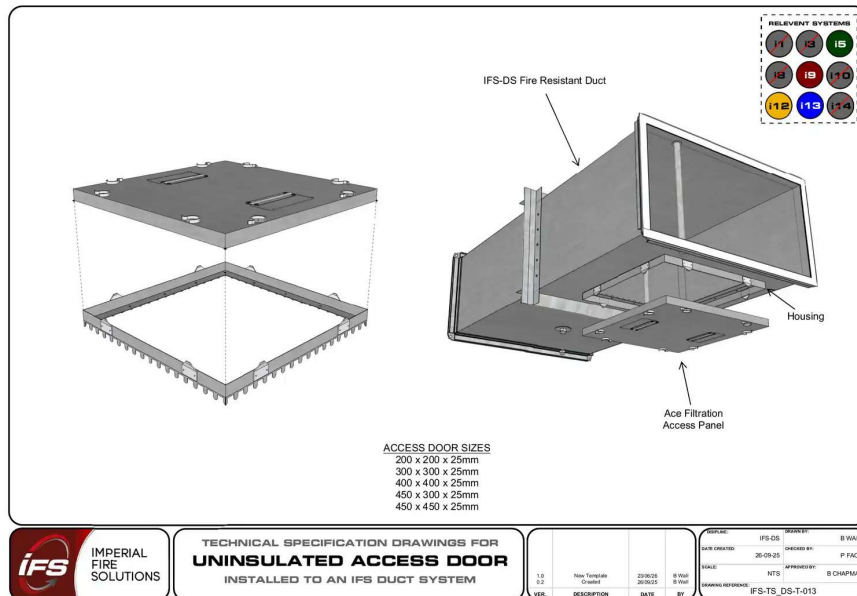
Fabrication detail for widths 1251 to 2500 mm and heights up to 1250 mm, with tie-rod locations in plan and elevation.



IFS-TS_DS-T-012

Insulated access door

Installed to an IFS duct system (insulation not detailed). Relevant systems i1–i14.



IFS-TS_DS-T-013

Uninsulated access door

Installed to an IFS duct system, Ace Filtration access panel.

MANUFACTURING NOTES

- ✓ All dimensions in millimetres; 1.0 mm GSS sheet throughout; all fixings steel.
- ✓ All stiffening corners fixed with a mechanical fixing; HENROB fixings at 100 mm maximum spacing.
- ✓ All internal splitters welded in place; only Product 58 acrylic mastic for sealing.
- ✓ CGF flanges with G clamps at max. 150 mm centres, gasket and auto stitching.
- ✓ Stiffening: up to 670 mm length none; 671–1340 mm S4 four-sided stiffener. Ducts over 1000 mm high: see IFS-TS/DS-M/SE-8/200 series.

TIE-ROD LOCATIONS (DIAP, SE-8/100)

DUCT WIDTH	ACROSS WIDTH A / B / C	LENGTH < 670 A / B / C	LENGTH 671–1340 A / B / C
0–400	KOFs required, refer to IFS-TS/DS-M/SE-8/101		
401–500	½W / – / –	1st flange / – / –	1st flange & ½L / – / –
501–700	½W / – / –	1st flange / ½W / –	1st flange & ½L / 1@¼L & 1@¾L / –
701–1250	⅔W / ½W / ⅓W	1st flange / ½W / 2nd flange	1st flange & ½L / 1@¼L & 1@¾L / ½L & 2nd flange

ACCESS DOOR SIZES (INSULATED, IFS-TS_DS-T-012)

150 × 300 × 150 200 × 200 × 150 200 × 300 × 150 300 × 300 × 150 300 × 400 × 150 400 × 400 × 150 450 × 300 × 150 450 × 450 × 150

IFS access panel with housing. The uninsulated version (T-013) uses an Ace Filtration access panel.

SEALANTS & INTUMESCENT PRODUCTS

Product 58 AM
intumescent mastic

Intumescent acrylic high pressure mastic: a permanent flexible joint against fire, smoke and toxic fumes. Over-paintable; fits a standard skeleton gun.

- Max. joint40 mm
- Touch dryapprox. 15 minutes
- Clean toolswarm water
- HealthNon hazardous; goggles and protective clothing; keep out of drains

Arboseal intumescent tape

Preformed intumescent strip on synthetic rubbers; expands and chars under flame to block fire and smoke.

- Size15 × 3 mm × 12 m reel
- Application+5 to +50 °C
- Service-25 to +50 °C · 20 years+
- ComplianceBS 476-22:1987, Warrington C118002, TRADA IT349
- Storage12 months unopened, cool and dry

Kerafix 2000

Acrylic-latex bound AES-wool (alkaline-earth silicate fibre) paper for heat insulation, seals and expansion joints and fire protection systems.

- HazardNot classified (EC 1272/2008); no warning label
- Melting point> 1200 °C; does not burn
- PPEGoggles EN 166, nitrile gloves EN 374, P2 mask if dust
- HandlingAvoid dust; no compressed air or sweeping
- StorageCool, dry, frost-free; away from acids

PRODUCT 58: METRES OF GAP SEALED PER TUBE

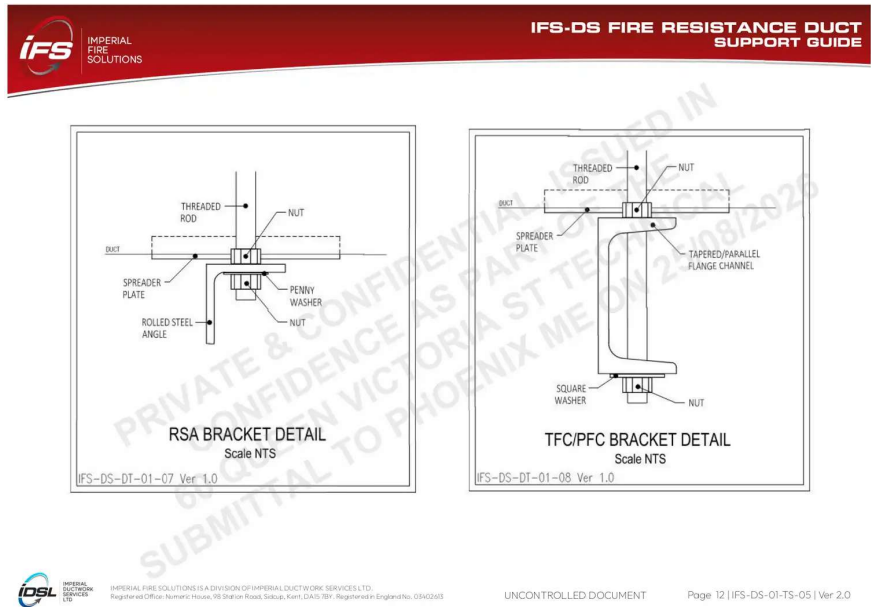
DEPTH \ WIDTH (MM)	5	10	12	15	20	25	50
1	50	30	25	20	15	12	8
3	20	10	8.3	6.7	5	4	2
5	12	8	5	4	3	2.4	1.2
8	7.5	3.75	3.1	2.5	1.9	1.5	0.75
10	5	3	2.5	2	1.5	1.2	0.8
12	5	2.5	2.1	1.7	1.25	1	0.5
15	4	2	1.57	1.33	1	0.8	0.4
20	3	1.5	1.25	1	0.75	0.5	0.3
25	2.4	1.2	1	0.8	0.6	0.48	0.24
30	2	1	0.83	0.57	0.5	0.4	0.2
50	1.2	1.2	0.5	0.4	0.3	0.25	0.12

Metres of gap filled from one tube.

Fixings & supports

Support guide

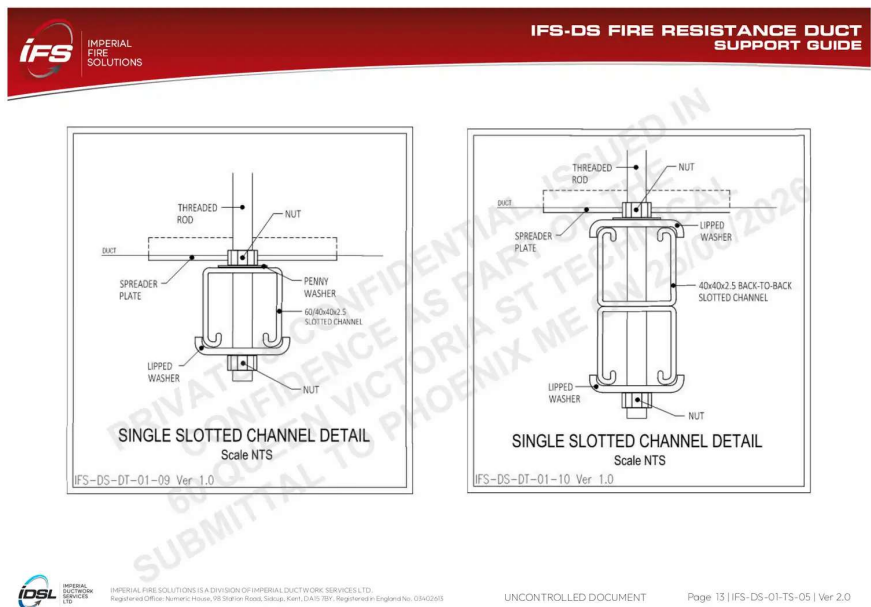
IFS-DS fire resistance duct support guide (IFS-DS-01-TS-05 Ver 2.0) and riser bracketry.



IFS-DS-01-TS-05 • p12

RSA and TFC / PFC bracket details

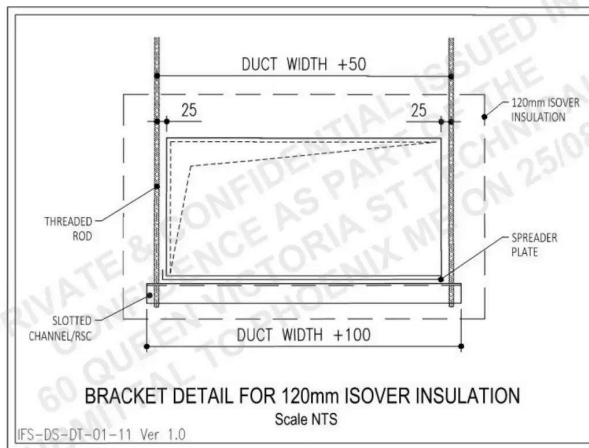
Threaded rod, spreader plate and rolled steel angle; taper / parallel flange channel with square washer.



IFS-DS-01-TS-05 • p13

Single slotted channel details

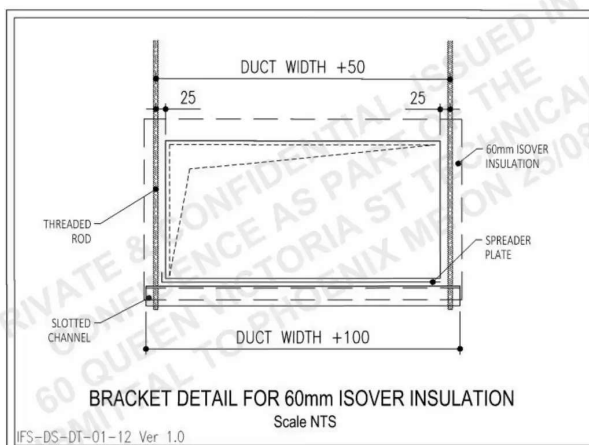
Slotted channel with lipped washers and penny washers; 40 × 40 × 2.5 back-to-back slotted channel option.



IFS-DS-01-TS-05 · p14

Bracket detail for 120 mm Isover insulation

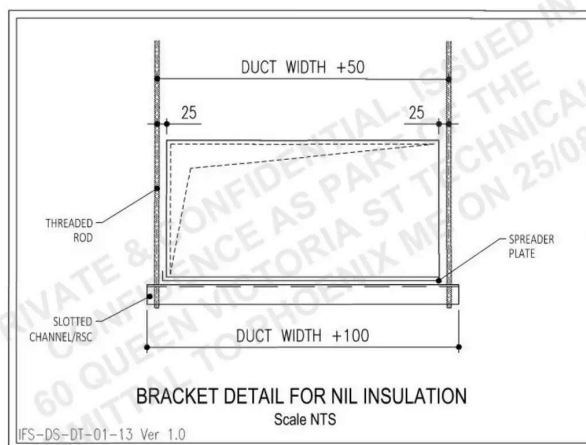
Duct width + 50 to rods, + 100 overall; spreader plate; systems i1, i3, i10.



IFS-DS-01-TS-05 · p15

Bracket detail for 60 mm Isover insulation

System i14.



i5

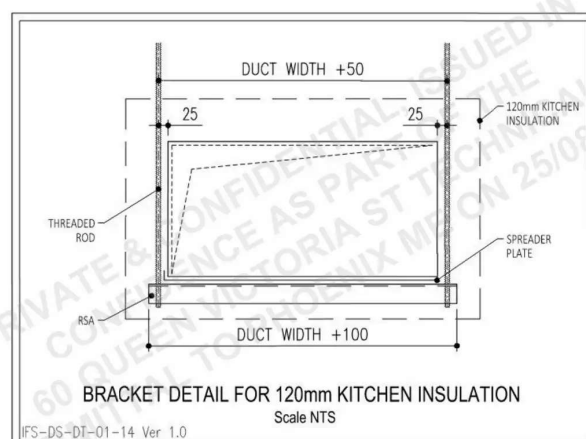


i13

IFS-DS-01-TS-05 · p16

Bracket detail for nil insulation

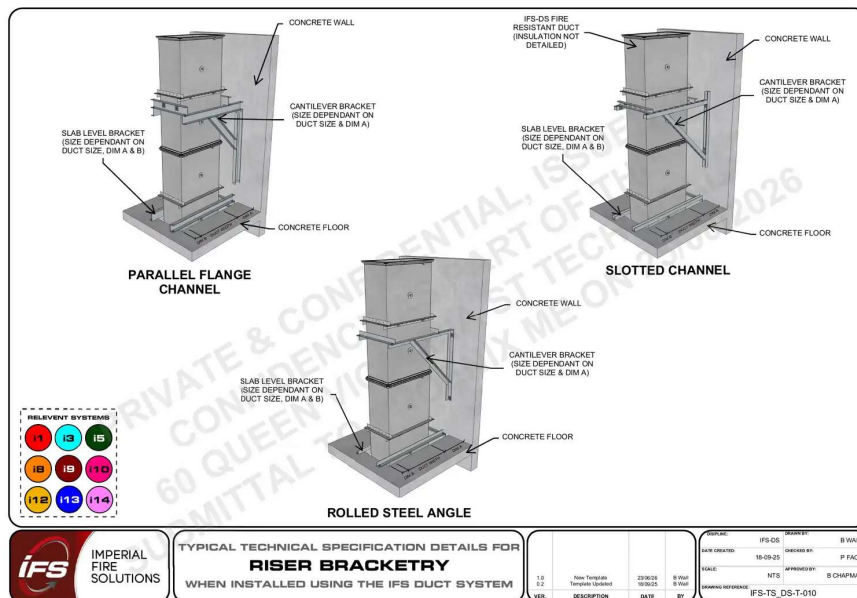
Systems i5, i8, i12, i13.



IFS-DS-01-TS-05 · p17

Bracket detail for 120 mm kitchen insulation

System i9.



IFS-TS_DS-T-010

Riser bracketry

Cantilever and slab level brackets (sized to duct and dimensions A and B) on parallel flange channel, slotted channel or rolled steel angle.

Hilti HUS3 screw anchor

HILTI · TECHNICAL DATASHEET, SEP 24

HUS3 screw anchor

High performance screw anchor for single point fastening in concrete. ETA-13/1038; design to EN 1992-4. Used in the fire stopping details as HUS3-H 6, 60 mm.

Versions	H hex · C countersunk · A external thread · P / PS / PL pan head · I internal thread · I-Flex
Concrete	C20/25, hammer drilled
Size 6	Ø6 drill · clearance Ø9 (PL Ø10) · SW 13
Drill depth	h _{nom} + 10 mm (floor/wall), + 3 mm (ceiling)
Min. spacing / edge	35 / 35 mm
h _{nom} 40 / 55	Torque 20 / 25 Nm · h _{min} 80 / 100 mm

FIRE RESISTANCE · R30

HUS3- TYPE	H, C, A, I, I-FLEX, P, PS, PL	H, C, A, I, I-FLEX, P, PS, PL	H, HF	H, HF	H, HF	C
SIZE · h _{nom} mm	6 · 40	6 · 55	8 · 50	8 · 60	8 · 70	8 · 50-70
Tension N _{Rd,fi} kN	0.5	1.5	1.5	2.3	3.0	0.5
Shear V _{Rd,fi} kN	0.5	1.6	1.7	3.5	3.8	0.5

FIRE RESISTANCE · R60

HUS3- TYPE	H, C, A, I, I-FLEX, P, PS, PL	H, C, A, I, I-FLEX, P, PS, PL	H, HF	H, HF	H, HF	C
SIZE · h _{nom} mm	6 · 40	6 · 55	8 · 50	8 · 60	8 · 70	8 · 50-70
Tension N _{Rd,fi} kN	0.5	1.2	1.5	2.3	2.8	0.4
Shear V _{Rd,fi} kN	0.5	1.2	1.5	2.3	2.8	0.4

FIRE RESISTANCE · R90

HUS3- TYPE	H, C, A, I, I-FLEX, P, PS, PL	H, C, A, I, I-FLEX, P, PS, PL	H, HF	H, HF	H, HF	C
SIZE · h _{nom} mm	6 · 40	6 · 55	8 · 50	8 · 60	8 · 70	8 · 50-70
Tension N _{Rd,fi} kN	0.5	0.8	1.5	1.6	1.9	0.3
Shear V _{Rd,fi} kN	0.5	0.8	1.5	1.6	1.9	0.3

FIRE RESISTANCE · R120

HUS3- TYPE	H, C, A, I, I-FLEX, P, PS, PL	H, C, A, I, I-FLEX, P, PS, PL	H, HF	H, HF	H, HF	C
SIZE · h _{nom} mm	6 · 40	6 · 55	8 · 50	8 · 60	8 · 70	8 · 50-70
Tension N _{Rd,fi} kN	0.4	0.7	1.2	1.2	1.5	0.2
Shear V _{Rd,fi} kN	0.4	0.7	1.2	1.2	1.5	0.2

Fire resistance to ETA-13/1038, EN 1992-4. Single anchor, no edge or spacing influence, C20/25, $\gamma_{M,fi}$ = 1.0.

RECOMMENDED LOADS · CRACKED

HUS3- TYPE	H, C, A, I, I-FLEX	P, PS, PL	H, C, A, I, I-FLEX	P, PS, PL	H, C, HF	H, C, HF	H, C, HF
SIZE · H _{NOM} MM	6 · 40	6 · 40	6 · 55	6 · 55	8 · 50	8 · 60	8 · 70
Tension N _{rec} kN	1.0	1.0	2.4	2.4	2.9	4.3	5.7
Shear V _{rec} kN	2.7	2.7	6.0	6.0	4.1	9.1	10.5

RECOMMENDED LOADS · UNCRACKED

HUS3- TYPE	H, C, A, I, I-FLEX	P, PS, PL	H, C, A, I, I-FLEX	P, PS, PL	H, C, HF	H, C, HF	H, C, HF
SIZE · H _{NOM} MM	6 · 40	6 · 40	6 · 55	6 · 55	8 · 50	8 · 60	8 · 70
Tension N _{rec} kN	2.8	2.8	3.6	3.0	4.3	5.7	7.6
Shear V _{rec} kN	3.8	3.8	6.0	6.0	5.9	9.1	10.5

Recommended loads with overall partial safety factor for action γ = 1.4. Single anchor, C20/25.

DESIGN RESISTANCE · CRACKED

HUS3- TYPE	H, C, A, I, I-FLEX	P, PS, PL	H, C, A, I, I-FLEX	P, PS, PL	H, C, HF	H, C, HF	H, C, HF
SIZE · H _{NOM} MM	6 · 40	6 · 40	6 · 55	6 · 55	8 · 50	8 · 60	8 · 70
Tension N _{Rd} kN	1.4	1.4	3.3	3.3	4.0	6.0	8.0
Shear V _{Rd} kN	3.8	3.8	8.3	8.3	5.8	12.7	14.7

DESIGN RESISTANCE · UNCRACKED

HUS3- TYPE	H, C, A, I, I-FLEX	P, PS, PL	H, C, A, I, I-FLEX	P, PS, PL	H, C, HF	H, C, HF	H, C, HF
SIZE · H _{NOM} MM	6 · 40	6 · 40	6 · 55	6 · 55	8 · 50	8 · 60	8 · 70
Tension N _{Rd} kN	3.9	3.9	5.0	4.2	6.0	8.0	10.7
Shear V _{Rd} kN	5.4	5.4	8.3	8.3	8.3	12.7	14.7

Design resistance, static and quasi-static loading, ETA-13/1038. Single anchor, C20/25.

fischer ZYKON FZEA II

FISCHER · CATALOGUE PP 228-231

ZYKON hammerset anchor FZEA II

Internally threaded undercut anchor with low anchoring depth for individual fixings in cracked and non-cracked concrete. Pre-positioned installation with the FZUB drill and FZED plus setting tool.

- ApprovedConcrete C20/25 to C50/60, cracked and non-cracked (ETA-06/0271)
- AlsoC12/15, dense natural stone
- CertificatesCE, fire resistance R 120, FM approved from M10
- VersionsZinc-plated, stainless (A4), high corrosion-resistant (C)
- UsesPipelines, ventilation, sprinklers, cable trays, ceilings

ITEM	ART.-NO. (GVZ)	DRILL FZUB	SETTING TOOL	LENGTH	BOLT PEN. MAX/MIN	UNIT
FZEA II 10 × 40 M8	047303	10 × 40	FZED 10 plus	43	17 / 11	100
FZEA II 12 × 40 M10	047304	12 × 40	FZED 12 plus	43	19 / 13	100
FZEA II 14 × 40 M12	047305	14 × 40	FZED 14 plus	43	21 / 15	50

CRACKED CONCRETE

TYPE	T _{MAX} NM	N _{PERM} KN	V _{PERM} KN	EDGE C, TENSION	EDGE C, SHEAR	S _{MIN} = C _{MIN}
FZEA II 10 × 40 M8	10 / 15	1.6	3.7 / 4.7 / 5.6	40	85 / 115 / 135	40
FZEA II 12 × 40 M10	15 / 20	3	5.6	65	135	45
FZEA II 14 × 40 M12	20 / 40	3.6	5.6	85	130	50

NON-CRACKED CONCRETE

TYPE	T _{MAX} NM	N _{PERM} KN	V _{PERM} KN	EDGE C, TENSION	EDGE C, SHEAR	S _{MIN} = C _{MIN}
FZEA II 10 × 40 M8	10 / 15	3.6	3.7 / 4.7 / 5.7	55	60 / 75 / 95	40
FZEA II 12 × 40 M10	15 / 20	3.6	6.1 / 7.8 / 7.9	55	100 / 130 / 135	45
FZEA II 14 × 40 M12	20 / 40	3.6	7.9	55	130	50

Permissible loads, single anchor, C20/25. h_{min} 80 mm, h_{ef} 40 mm, spacing for max. load 120 mm. Partial safety factor γ_F = 1.4.

Fire stopping details

+100 mm

opening: duct width + 100 × depth
+ 100

50 mm

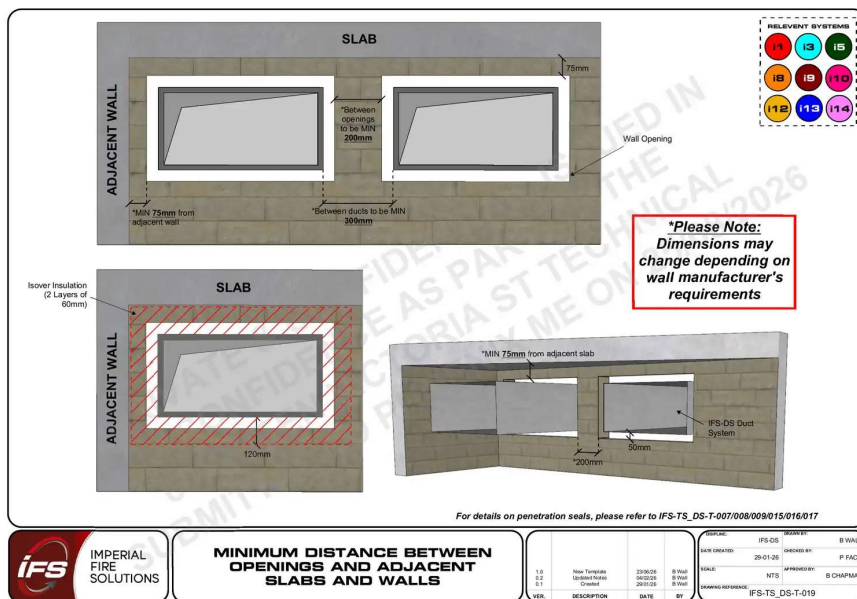
gap packed with 60 mm Isover
and 2 mm Protect BSF

200 mm

min. between openings (300 mm between ducts)

75 mm

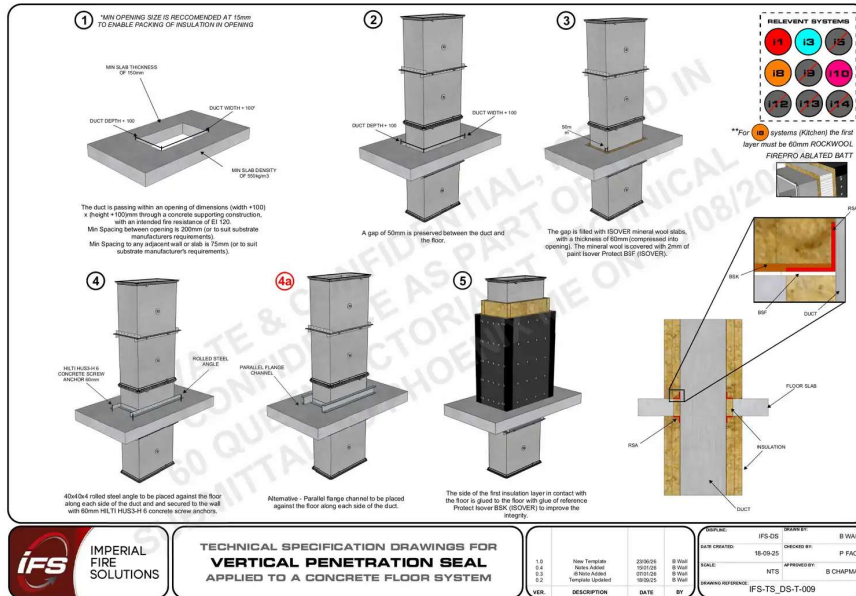
min. to an adjacent wall or slab



IFS-TS_DS-T-019

Minimum distance between openings and adjacent slabs and walls

200 mm between openings, 300 mm between ducts, 75 mm to adjacent walls and slabs; may change to suit the wall manufacturer.



IFS-TS_DS-T-009

Vertical penetration seal, concrete floor

Opening +100 through a concrete slab, EI 120. RSA or parallel flange channel each side fixed with 60 mm Hilti HUS3-H 6 concrete screw anchors; Protect BSF and BSK as above.

Isover U Protect

Tested to EN 1366-1 and EN 1366-8 and assessed to BS 476 Part 24: up to 2 hours for HVAC ventilation and smoke extract ducts, and up to 1 hour for kitchen ducts.

SAINT-GOBAIN ISOVER · 001-473, 02 AUG 2024

U Protect Slab 4.0 Alu1

High performance ULTIMATE mineral wool slab for fire protection of rectangular ductwork, faced one side with black aluminium foil.

Reaction to fire	Euroclass A1 (EN 13501-1)
Max. service temp.	400 °C
Certification	UKCA / CE to EN 14303 · MW-EN-14303-T4-ST(+)-400-MV2
Quality	ISO 9001 · ISO 14001 · EUCB
External use	Not suitable

PRODUCT CODE	THICKNESS	SIZE	SLABS/PACK	M ² /PACK	KG/M ²
5200687129	30 mm	1200 × 600	13	9.36	2.20
5200687130	40 mm	1200 × 600	10	7.20	2.90
5200680825	50 mm	1200 × 600	8	5.76	3.60
5200680826	60 mm	1200 × 600	6	4.32	4.40
5200680827	70 mm	1200 × 600	5	3.60	5.10
5200680828	80 mm	1200 × 600	5	3.60	5.80
5200680829	90 mm	1200 × 600	4	2.88	6.60
5200680830	100 mm	1200 × 600	4	2.88	7.30

MEAN TEMP °C	10	50	100	150	200	300	400
λ (W/m·K)	0.031	0.035	0.040	0.047	0.054	0.072	0.096

IFS-DS uses 60 mm slabs in two layers (120 mm), highlighted.

U PROTECT COMPONENTS

ISOVER · APR-2024

Protect Black Tape

Reaction to fire	A2-s1,d0 (EN 13501)
Material	Black aluminium tape, inorganic glue
Tensile / adhesion	13 N/cm / 10 N/cm to steel
Operating	-40 to +130 °C
Processing	+5 to +30 °C, dry dust-free surface, use a spatula
Pack	90 mm × 100 m, 12 rolls

ISOVER · DEC-2022

Protect BSF paint

Fire	B2 (DIN 4102-4); forms a micro-porous insulating layer
Material	Solvent free, pH neutral, VOC free water-based dispersion; not CLP classified
Use	Stir; dilute up to 10%; brush, roller or spatula
Drying	Touch dry 4 h; fully dry 24–48 h
Processing	+5 to +30 °C
Pack / storage	15 kg bucket, 400 g cartridges ×12 · 18 months frost-free

ISOVER · DEC-2022

Protect BSK glue

Reaction to fire	Non combustible, A1
Material	Inorganic sodium silicate glue, VOC free
Use	Stir; dilute up to 10%; brush, roller or spatula
Hardened	~12 h at 20 °C, 50% RH
Processing	+8 to +30 °C
Pack / storage	8 kg bucket, 310 ml cartridges ×20 · 12 months at +15 to +25 °C

FIREPRO Ablative Coated Batt

Penetration seal, required as the first 60 mm layer in i8 (kitchen) systems.

CoCP	2531-CPR-CXO10265
Basis	ETA-22/0157 (EAD 350454-00-1104), System 1
Plant	CPA50052, Pencoed, Bridgend
Issued	21 Apr 2022 (first 10 Dec 2021)

Volume control dampers

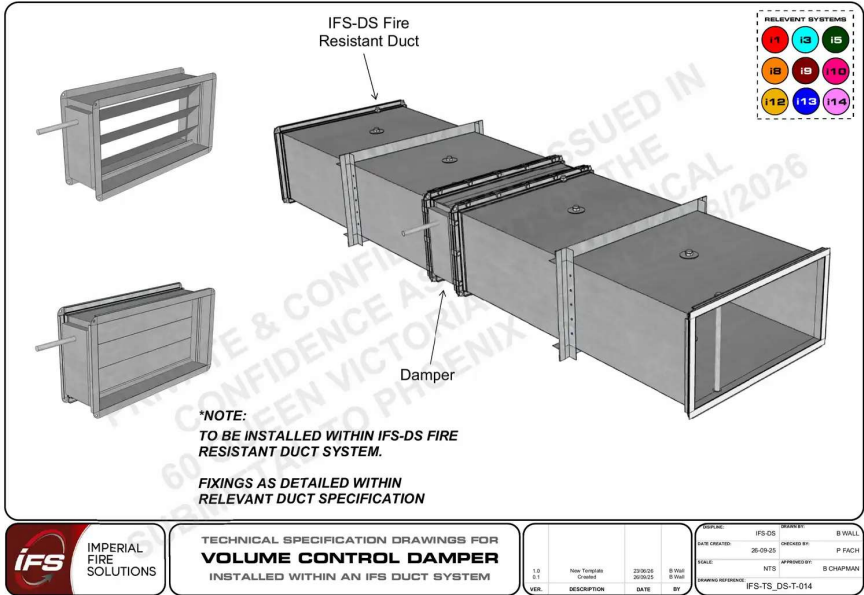
ADVANCED AIR (UK) LTD • ES-167 ISSUE B

1500 Series volume control / smoke damper

A balancing damper for fire or smoke rated ductwork. Fully welded frame with enclosed linkage and bearings, so it can be covered by fire rated spray, boards or panels without affecting operation, or left unprotected. Integrity and stability for up to two hours when fully closed with no power to the actuator; the frame withstands a four hour exposure. Also a tested component in Efectis report EFR-25-002463.

Blades	1.6 mm galvanised mild steel (430 stainless optional), parallel or opposed
Frame	1.6 mm, 200 mm deep (180/195 optional), 30 mm flange (25/35 optional), button-locked corners
Size	100 × 100 mm min. to 1200 × 1800 mm max. single section; larger as multiple sections
Bearings	12.7 mm sintered bronze to 200 °C; stainless to 400 °C or 600 °C optional
Linkage	Fully enclosed, 90° operation, zinc electroplated
Seals	Semi or fully sealed; PVC to 80 °C or silicone to 175 °C optional
Operation	Hand locking quadrant, 230 V / 24 V actuator, pneumatic; RH drive standard

INSTALLATION DRAWING



IFS-TS_DS-T-014

Volume control damper installed within an IFS duct system

To be installed within the IFS-DS fire resistant duct system; fixings as detailed within the relevant duct specification.

Attenuators

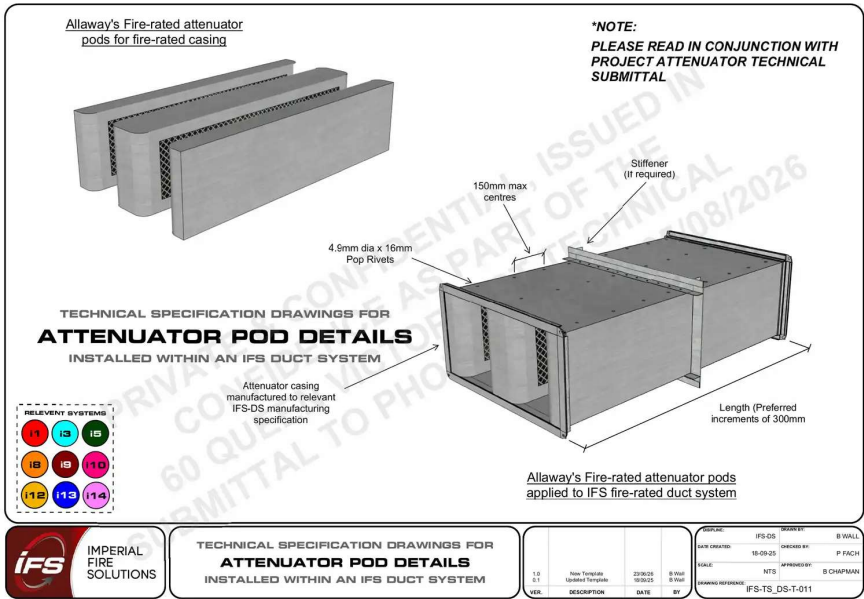
ALLAWAY ACOUSTICS · DATA SHEET A10H

Rectangular attenuator, loose splitter elements

Allaway fire-rated pods fitted into an attenuator casing manufactured to the IFS-DS specification. Read with the project attenuator technical submittal.

Models	SP: central splitters and side linings · SL: side linings only
Lengths	Nominal 600–3000 mm in 300 mm steps (actual 570–2940 mm)
Size	Width above 199 mm, height above 99 mm; made to order
Infill	Sound absorbent, encapsulated in glass cloth and perforated steel, aerodynamic fairings
Suffixes	G galvanised · S 316 stainless · H1 high temperature (2 hour / 300 °C) · K paint · J horizontal · M Melinex · F fitted at works · Z modular
Fitting	Elements 5 mm under height; fitted tight with equal airways. Casing: 4.9 × 16 mm pop rivets at max. 150 mm, stiffener if required
Performance	Tested to ISO 7235; tolerance < 1.0%

INSTALLATION DRAWING



IFS-TS_DS-T-011

Attenuator pod details installed within an IFS duct system

Allaway fire-rated pods in a casing to the IFS-DS specification; preferred lengths in 300 mm increments; 4.9 × 16 mm pop rivets at 150 mm max. centres; stiffener if required.

Maintenance

Fire resistant ductwork is a passive fire-resistant system. The ASFP and BS 9999:2017 recommend scheduled periodic inspection, and article 17 of the Regulatory Reform (Fire Safety) Order 2005 requires it to be kept in efficient working order and good repair. The inspection period may vary by project and specification.

ANNUAL VISUAL INSPECTION

Without a contract-specific regime, carried out by others to the specified regime or the fire safety manual:

- 1. Have post-handover services been supported from the suspension system designed solely for the fire-resistant ductwork?
- 2. Does the external fire insulation show any signs of damage?
- 3. Dust or debris must be prevented from accumulating on the insulation or duct surface.
- 4. Are all access panels installed correctly and still accessible?
- 5. Kitchen extract systems need a dedicated cleaning regime to BESA TR19 and DW 172.

BS EN 12101-7:2011, ANNEX A, TABLE A.1

01	Check ducting for damage	☐
02	Check connection between duct sections and ancillary components	☐
03	Check penetration seal at compartment boundaries	☐
04	Check duct cleanliness and clean where necessary	☐
05	Check the condition of seals, rectify and report where necessary	☐
06	Confirm the duct fulfils its function as part of the smoke control system	☐

Annual, or more often if the specification demands. The whole smoke control system should be checked under its O&M requirements; inspection provision sits in the contract documentation.

Return your status

Please return a formal status within 15 days of issue (by 9 September 2026).

PARTY	STATUS (A / B / C / D)	NAME	SIGN	DATE
M&E Contractor				
Main Contractor				
Services Consultant				

A Approved · B Approved with comments · C Revise & resubmit · D Rejected



Imperial Fire Solutions is a division of Imperial Ductwork Services Ltd.
Registered office: Numeric House, 98 Station Road, Sidcup, Kent, DA15 7BY. Registered in England No. 03402613.
Q-15008 Rev 7 | 06/2025 · Originator: Ben Stocker & Mark Crafter