



The Ackermann Screeded Floor System provides adaptable distribution highways in screeded floors.

It is especially useful where locations of dividing walls are not decided or liable to change. The system consists of Underfloor Cable Ducting, Concealed Outlet Boxes, Junction Boxes and Vertical Access Boxes. These can be used together to provide a complete layout in floors with a minimum screed depth of 55mm.

A wide range of accessories provides continuity of cableways and flexibility in locating outlet positions.

- **A fully integrated system designed for maximum cable capacity**
- **Suitable for screeded depth from 55mm to 110mm**
- **Choice of 2 or 3 compartment boxes**
- **Accommodates complementary range of MK Electric power and data accessories**

UNDERFLOOR CABLE DUCTING

- Two sizes available – 90mm x 35mm and 60mm x 25mm
- System includes horizontal and vertical bends, jointing sleeves and fixing clip
- Can be cast direct into the structural slab
- Extruded from PVCu and designed for maximum cable capacity and strength with minimum screed cover
- All ducting is non-corrodible and has a high electrical insulation value
- Comprehensive range of accessories available

JUNCTION BOXES

- Available with twin or triple duct entry
- Boxes allow for 'through', 'tee', 'angle' and 'crossover' configurations
- Elevator/Screeding kits provide method of elevation from 55mm to 110mm and must be used
- Load plates provide an access to junction boxes for future wiring additions

CONCEALED OUTLET BOXES

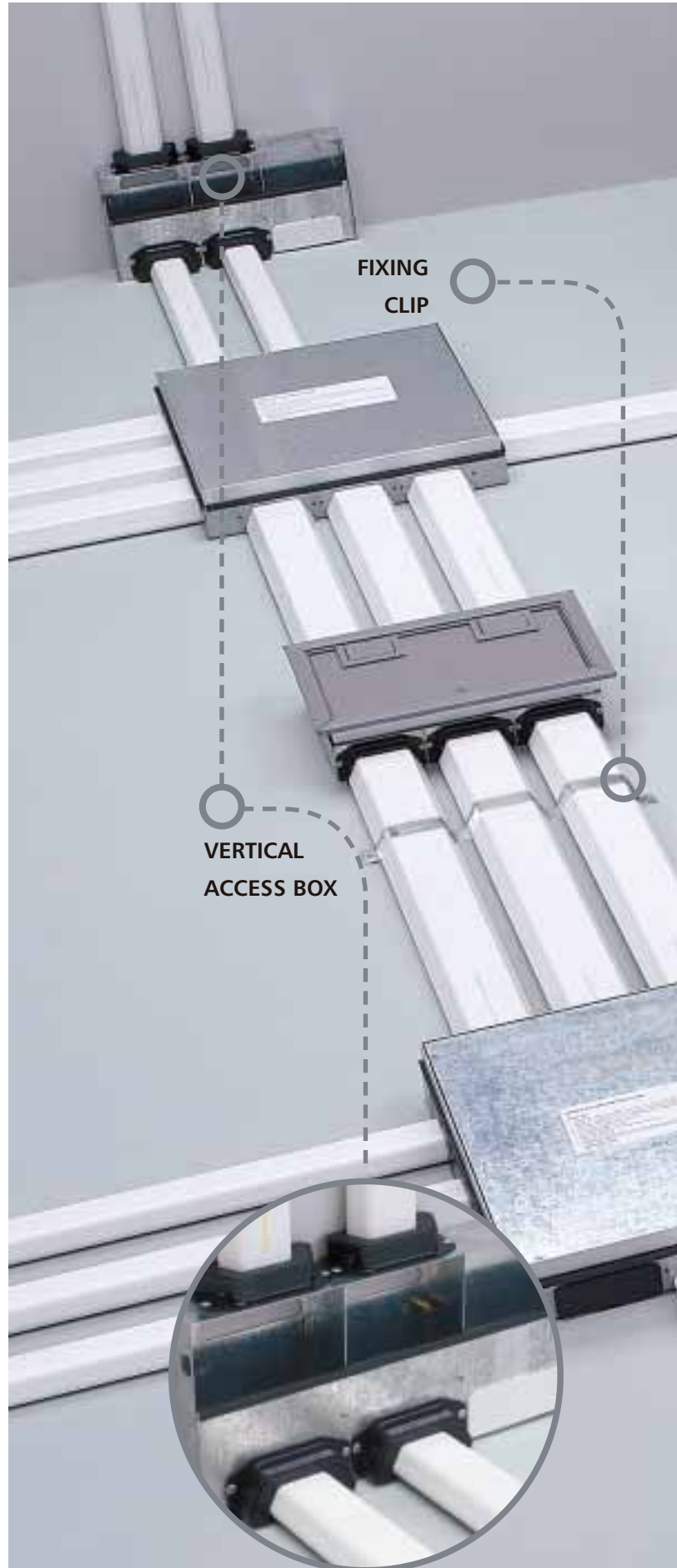
- 2 and 3 compartment versions available
- Extensive range of accessory plates
- Split box construction (lid/base) combined with screed segregator fixing kit allows for screed depths of 55mm to 110mm
- Provides location and connection facilities for power, telecommunication and data service outlets below finished floor level

VERTICAL ACCESS BOXES

- Available with 2 and 3 compartments in two heights
- Selection of duct entry positions including front, rear and top
- Provides draw-in facilities to allow for a change of plane or direction of the ducting
- Allows inter-connection between floor and wall trunking systems, such as Prestige Plus, distribution boards and boxes
- Ducting can be run vertically or horizontally to the box
- Boxes are provided as standard with front duct entry

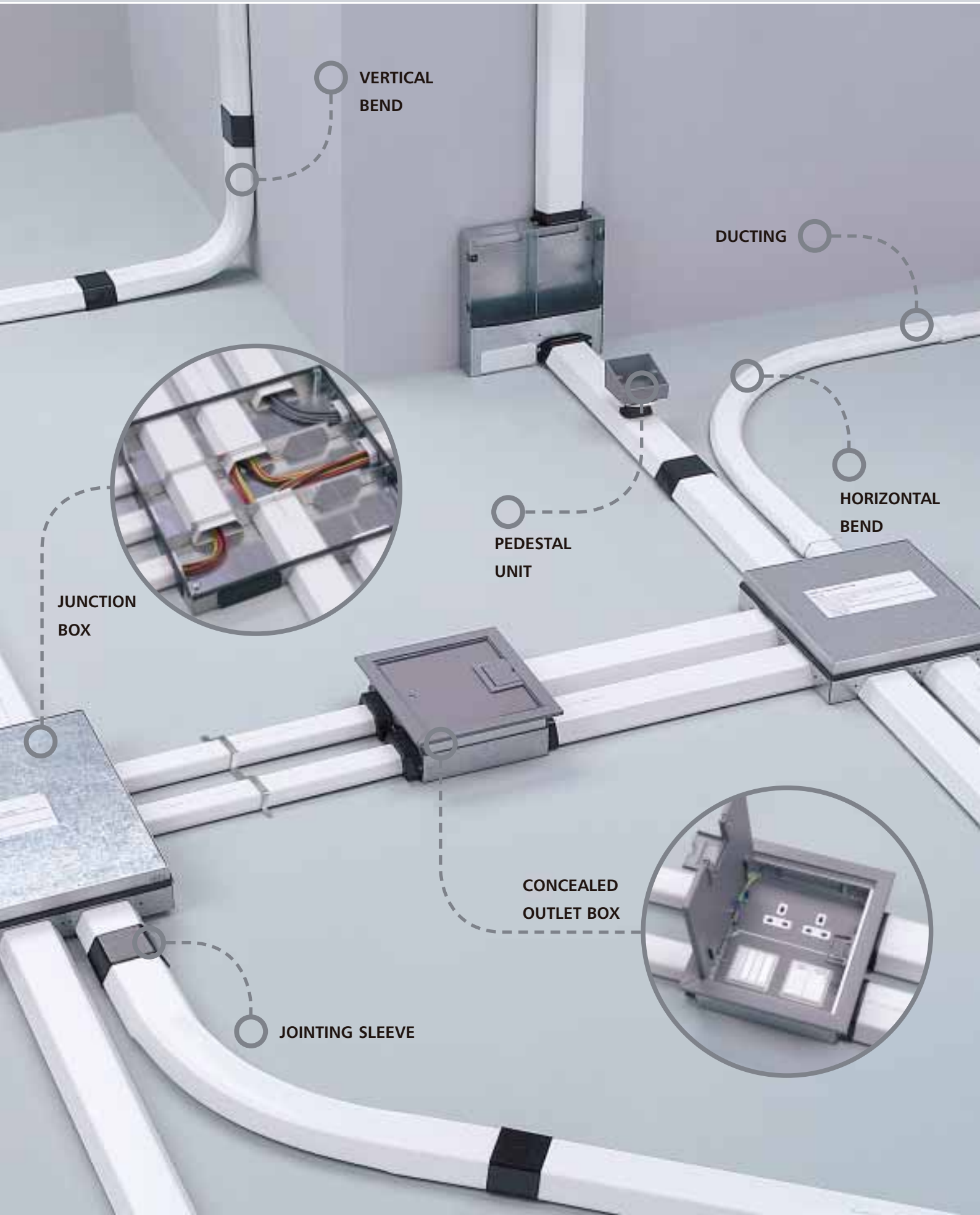
PEDESTAL UNITS

- Provides an alternative connection to service outlets above floor level after it has been screeded



TECHNICAL HOTLINE +44 (0)1268 563720

SCREEDED FLOOR SYSTEMS



VERTICAL
BEND

DUCTING

HORIZONTAL
BEND

PEDESTAL
UNIT

CONCEALED
OUTLET BOX

JOINTING SLEEVE

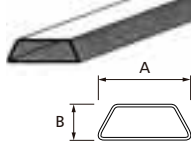
JUNCTION
BOX

DUCTING AND ACCESSORIES



Underfloor ducting is available in two sizes 90mm x 35mm (System SF88100) and 60mm x 25mm (System SF88200). Both are extruded from PVCu and designed for maximum cable capacity and strength with minimum screed cover.

The ducting is intended primarily for installation within the floor screed thickness, but it can also be cast direct into the structural slab, attached to the soffit with access through from the floor above or used for vertical service risers.


DUCTING DIMENSIONS

	LIST NO.	A	B	LENGTH m	SECTIONAL AREA mm ²	APPROX WEIGHT (IN SITU) Kg/m
	SF88100	90mm	35mm	3m	2300	0.63
	SF88200	60mm	25mm	3m	1025	0.43

DUCTING BENDS

	LIST NO.	DUCTING SYSTEM	ANGLE	MEAN CENTRE LINE RADIUS
	PVCu ducting Horizontal bends			
	SF88144	SF88100	90°	465mm
	SF88145	SF88100	45°	456mm
	SF88248	SF88200	90°	450mm
	SF88249	SF88200	45°	450mm
	PVCu ducting vertical bends			
	SF88142	SF88100	90°	100mm
	SF88143	SF88100	45°	100mm
	SF88246	SF88200	90°	95mm
	SF88247	SF88200	45°	95mm

DUCTING CABLE CAPACITY* – POWER CABLES

	NOMINAL CABLE AREA mm ²	NUMBER AND SIZE OF CONDUCTORS mm ²	NUMBER OF CABLES 60mm DUCTING	90mm DUCTING
	1.5	1 x 1.78	57	128
	2.5	7 x 0.67	40	91
	4	7 x 0.85	30	68
	6	7 x 1.04	20	45
	10	7 x 1.35	13	29
	16	7 x 1.70	9	21

*Based on 45% space factor in line with BS 7671 IEE Wiring Regulations.

DUCTING CABLE CAPACITY – DATA CABLES

NOMINAL CABLE DIAMETER mm	NUMBER OF CABLES				BEND RADIUS
	60mm DUCTING		90mm DUCTING		
	@50%	@75%	@50%	@75%	(static on install)
Cat 5e 5mm	30	45	63	95	20mm + 10mm
Cat 6 6mm	25	38	58	87	25mm + 10mm

ACCESSORIES

LIST NO	DESCRIPTION	LIST NO	DESCRIPTION
SF88106	Jointing Sleeve (SF88100)	SF88150	Duct Reducer (COB/VAB - SF88107/SF88200)
SF88206	Jointing Sleeve (SF88200)	SF88010	Direct Outlet (SF88100/SF88200)
SF88107	Ducting Adaptor (CAB/VAB)	SF88011	Direct Outlet Plug (SF88010)
SF88216	2 Compartment Fixing Clip (SF88200)	SF88012	Floor Flange (88010)
SF88217	3 Compartment Fixing Clip (SF88200)	SF88013	Domed Duct Outlet Plug (SF88010)
SF88116	2 Compartment Fixing Clip (SF88100)	SF88101	Junction Box Blank (SF88120/SF88130)
SF88117	3 Compartment Fixing Clip (SF88100)	SF88105	COB/VAB Blank (SF88112/SF88113/SF88152-SF88173)
SF88150	Junction Box Duct Reducer (SF88200)		

JUNCTION BOXES

The junction box should be positioned directly on the structural floor slab. If required, it can also be cast into the structural slab (please contact Customer Services). The box provides access to cables at the intersection of ducting runs or changes of direction. The ducting forms a system of tunnels to segregate services within the junction box.

- The junction box consists of a base and elevating screws for the frame and cover assembly. It is also supplied with a disposable screeding lid
- The junction box elevator/screeding kit provides the method of elevation from 55mm to 110mm
- The frame and assembly cover is to be used in conjunction with the junction box

JUNCTION BOX

	LIST NO.	TYPE	A (mm)	B (mm)	C (mm)	D (mm)
	SF88120	2 x 2	295	295	47	110
	SF88130	3 x 3	410	410	47	110

FRAME AND COVER ASSEMBLY

Flush, frame, load bearing junction box cover of galvanised steel. Mounted on an aluminium extruded support frame.

	LIST NO.	DUCTING SYSTEM	TYPE	A (mm)	B (mm)
	SF88064	SF88100/SF88200	2 X 2	295	295
	SF88084	SF88100/SF88200	3 X 3	410	410

ELEVATOR/SCREEDING KIT

Elevator /Screeding kits must be ordered to suit the screed depth. The kit comprises of elevator screws to suit a screed range and a screeded skirt.

LIST NO.	JUNCTION BOX TYPE	SCREED DEPTH RANGE (mm)	JUNCTION BOX TYPE	LIST NO.
SF88016	SF88120	55-77	SF88130	SF88017
SF88021	SF88120	63-82	SF88130	SF88022
SF88026	SF88120	73-92	SF88130	SF88027
SF88031	SF88120	83-102	SF88130	SF88032
SF88036	SF88120	93-110	SF88130	SF88037



Junction Box Duct Entry Blank SF88101

Used to blank any unused entry to a junction box base. Can be used to provide conduit connection to Junction Box.



Junction Box Duct Reducer SF88201

Used to reduce duct entry locations from SF88100 size to SF88200 in both internal segregating panels and box sides.

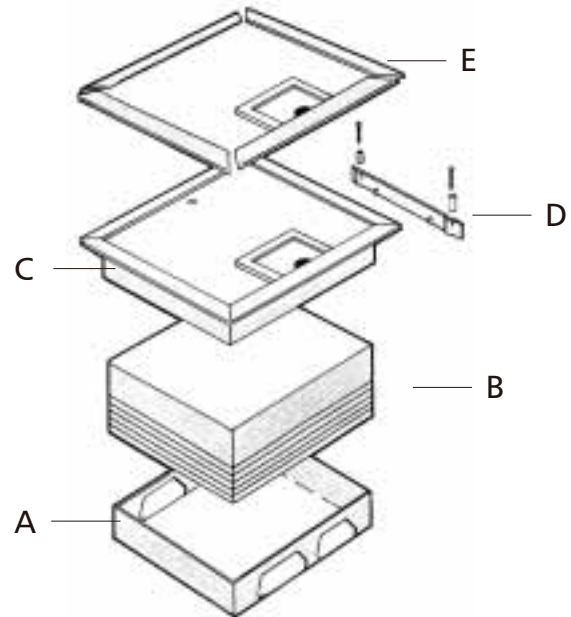
CONCEALED OUTLET BOXES (COB)

The Concealed Outlet Box should be positioned directly on the structural floor slab. If required, it can also be cast into the structural slab (please contact Customer Services). The box provides location and connection facilities for power and data service outlets.

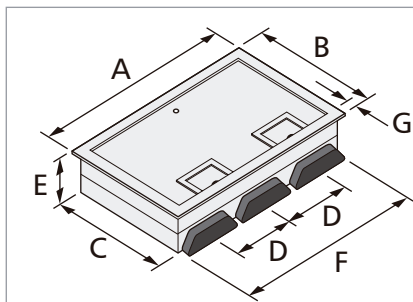
To complete the box assembly a range of plates are available for service outlets in common use, it is supplied with light grey (LGY) cable outlets as standard.

Product Selection Guide:

- Available in two or three compartment enclosures
- Concealed Outlet boxes are supplied as three components A) Base Pan, B) Screeding Block, C) Top Pan
- Segregator/Fixing Kits (D) must be ordered separately for specific screed depth
- Trim Kits (E) are available in two colours and in two thicknesses which provide a lid recess of 6mm and 8mm. Trims must be ordered by box type, colour and thickness
- Suitable for installation in screeds from 55mm to 110mm deep



CONCEALED OUTLET BOXES SF88112 AND SF88113





A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
SF88112 – 2 compartment (see table below for Segregator/Fixing Kit)						
250	221	190	110	55-110	215	20
SF88113 – 3 compartment (see table below for Segregator/Fixing Kit)						
360	221	190	110	55-110	333	20

SEGREGATOR/FIXING KITS

Segregator/Fixing kits must be ordered separately for the specific screed depth.

LIST NO.	DESCRIPTION	DEPTH/RANGE
SF88127	2 Compartment Kit	55mm/72mm
SF88132	2 Compartment Kit	70mm/90mm
SF88136	2 Compartment Kit	89mm/110mm
SF88128	3 Compartment Kit	55mm/72mm
SF88133	3 Compartment Kit	70mm/91mm
SF88137	3 Compartment Kit	89mm/110mm

DUCT ADAPTORS/REDUCER

	LIST NO.	DESCRIPTION
	SF88107	Accepts SF88100 ducting
	SF88150	Used to reduce SF88107 to accept SF88200 ducting

BOX TRIM KITS

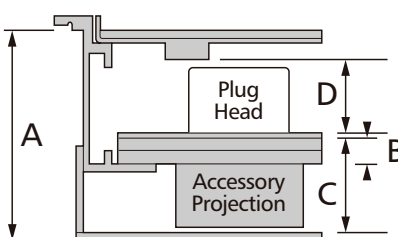
Box trim kits are available in either Light Grey (LGY) or Dark Grey (GRY) and in two thicknesses to provide lid recess depths of either 6mm or 8mm. Note – the floorbox is supplied with Light Grey cable outlets as standard. Dark Grey Trim kits are supplied with replacement Dark Grey cable outlets.

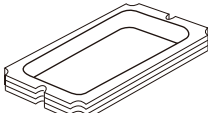
LIST NO.	USED WITH	THICKNESS
SF88612 *	SF88112	2mm
SF88616 *	SF88112	4mm
SF88613 *	SF88113	2mm
SF88617 *	SF88113	4mm

* Note add suffix LGY for Light Grey or GRY for Dark Grey finish trim kit as required. SF88612 LGY is not supplied with cord outlet, all others are.


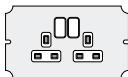

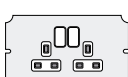
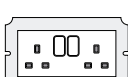

ACCESSORY SPACER

In Screeds between 55mm and 63mm deep, where Concealed Outlet Boxes are installed, accessory spacers are required to ensure clearance between the back of an accessory and the base pan. The pattress consists of three 4mm thick spacers that fit between the accessory plate fixing flange and the accessory plate.

CONCEALED OUTLET BOX ACCESSORY SPACER SF88008				
	Screed Depth A (mm)	Spacer Thickness B (mm)	Base to Plate Back Projection C (mm)	Plate to Lid plug head D (mm)
	55 – 59	8 (2 x 4)	23.5 – 27.5	21
	59 – 63	4 (1 x 4)	23.5 – 27.5	25
	63 – 110	none	23.5 – 70.5	29

	LIST NO	DESCRIPTION
	SF88008	Pack of 3 x 4mm spacers

SERVICED ACCESSORY PLATES

	LIST NO	DESCRIPTION
	SF85622	2G 13A Non Standard Switched Socket Outlet Clean Earth
	SF85671	2G 13A Switched Socket Outlet Dual Earth
	SF85672	2G 13A Socket Outlet Dual Earth
	SF85673	2G 13A Switched Socket Outlet Clean Earth
	SF85634†	2G 13A Switched Socket Outlet (Side Wired)
	SF81695	2G 16A 2P+E German Socket Outlet

† SF85634 Unassembled


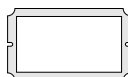


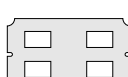
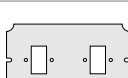


Serviced Accessory plates which incorporate MK Electric's unique 3 pin operated safety shutter and have socket inserts manufactured from a special composite of ABS/ Polycarbonate to give added strength. All MK sockets have double pole switching both live and neutral (Neutral makes first breaks last) providing added safety for the end user.

SF85622 and SF85673 are suitable for clean earth applications.

SF85671 and SF85672 provide a double earth facility.

SF85634 Recommended for screeds below 63mm.

UNSERVICED ACCESSORY PLATES

	LIST NO	DESCRIPTION
	SF81650	Blank Plate
	SF81655*	2G Accessory Plate 120.6mm Fixing Centre
	SF81659	2 x BT LJU/2 Sockets
	SF81660	1G Accessory Plate 60.3mm Fixing Centre
	SF81662	4 x RJ45/LJU6C Data/ Telecom Sockets
	SF85631**	2 x 1G Telephone Sockets
	SF81665	6 x BNC Outlets
	SF81667	4 x RJ45/EURO Telephone / Data Sockets

* SF81655 Plate – Ackermann recommends that an MK Aspect, Logic Plus or Edge plate socket is used.

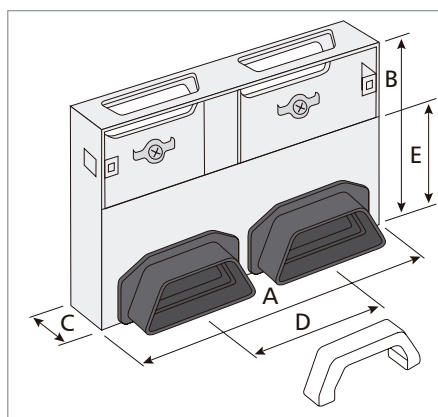
** SF85631 – Accepts 462 WHI single gang master telephone socket and 467 WHI single gang secondary telephone sockets.

VERTICAL ACCESS BOXES (VAB) AND ACCESSORIES

The vertical access box provides draw-in facilities to allow for a change of plane or direction of the ducting and connection to skirting trunking systems, distribution boards, boxes etc. Conduit can be run vertically or horizontally from the box. Boxes are available as standard with front ducting entry. Other entry positions are punched and fitted with blanking pieces.

VERTICAL ACCESS BOXES

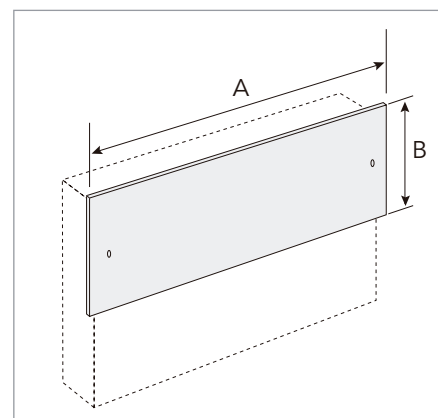
When using vertical access boxes with 2 or 3 compartment skirting trunking, boxes with dimension B = 270 should be used to give maximum accessibility.



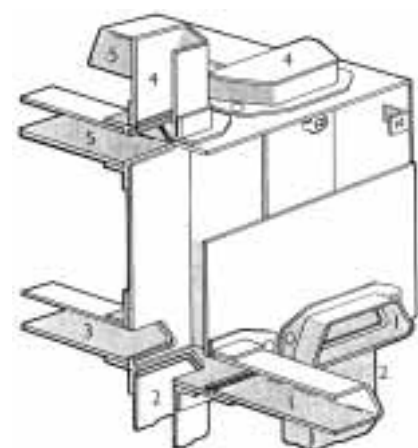
LIST NO.	TYPE	DIMENSIONS IN mm				
		A	B	C	D	E
Shallow						
SF88152	Twin	260	170	50	110	100
SF88153	Triple	370	170	50	110	100
Full Access						
SF88172	Twin	260	270	50	110	100
SF88173	Triple	370	270	50	110	100

COVER PLATES FOR VERTICAL ACCESS BOXES

Manufactured from galvanised steel.



LIST NO.	TYPE	DIMENSIONS		LIST NO.	TYPE	DIMENSIONS	
		A (mm)	B (mm)			A (mm)	B (mm)
Overlapping Shallow				Flush Shallow			
SF88180	Twin	280	80	SF88176	Twin	260	70
SF88181	Triple	390	80	SF88177	Triple	370	70
Overlapping Full Access				Flush Full Access			
SF88188	Twin	280	180	SF88184	Twin	260	170
SF88189	Triple	390	180	SF88185	Triple	370	170



Vertical Access Boxes are supplied with duct entry adaptors for location 1. Locations 2, 3, 4 & 5 are punched and fitted with blanking pieces. To use these entries the appropriate number of duct entry adaptors SF88107 and SF88150 (where required) must be ordered.

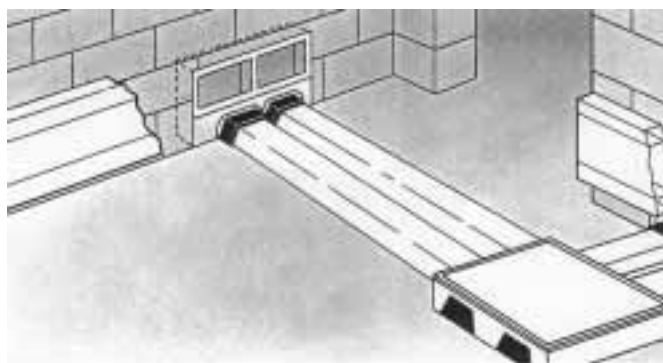
Connection to skirting trunking systems

To connect the underfloor ducting system to skirting trunking, use the vertical access box.

Mount the vertical access box, without its cover plate, directly behind the trunking. Access through the back of the trunking is made by cutting out a section with a hole-cutter or padsaw.

Threshold units

Threshold units to carry skirting level cabling across door openings can be fabricated from standard junction boxes or standard ducting bends connected to vertical access boxes. Alternatively, short sections of ducting may be cut and mitred on site, and joints sealed with PVC tape.



PEDESTAL UNITS

Pedestal units and accessories provide for the location and connection of service outlets above the finished floor level after the floor has been screeded and finished. The pedestal units allow services to be positioned anywhere along the line of the ducting.

- Pedestal units will provide location for service outlets in common use
- Pedestal units are available for mounting on the horizontal plane only
- When fitting to the underfloor ducting system, a SF88012 fixing flange is required in conjunction with a SF88010 direct outlet
- Direct Outlet Plug (SF88011) or Domed Duct Outlet Plug (SF88013) can be used to blank off direct outlets until such time as pedestal units are to be used

PEDESTAL UNIT DIMENSIONS (for use with ducting systems SF88100 and SF88200)

	LIST NO.	DESCRIPTION	DIMENSIONS mm			
			A	B	C	D
	SF88311	Horizontal, 1 gang	85	82	50	25
	SF88321	Horizontal, 2 gang	145	82	50	25

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System Design

Two parameters must be known before starting to design an Ackermann Screeded system, depending on the services to be installed:

- Whether a two or three duct system is required
- The depth of the screed into which the system is to be installed (the minimum depth for the Ackermann Screeded Floor Ducting System is only 55mm)

Layout

In order that the installation may exhibit the desired flexibility, the ducting is usually laid out on a grid or comb pattern of single, double or triple runs.

Grid pattern –

- Widely used in shallow screed utilising 60mm x 25mm ducting
- Capacity can be increased by returning individual ring mains through different runs of ducting, which in itself makes for easier installation

Comb pattern –

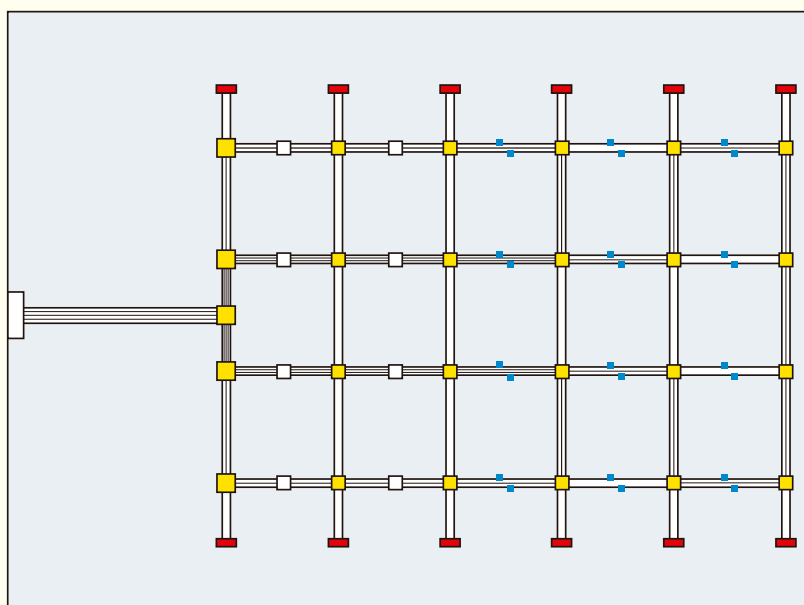
- Ideal for screed depths over 60mm
- Allows the use of 90mm x 35mm ducting
- Using less ducting, this system offers an extremely cost effective solution

Floor Plan – Grid Pattern

- Junction boxes
- Vertical access boxes
- Pedestal units

A typical grid pattern showing the use of junction boxes and vertical access boxes with pedestal units.

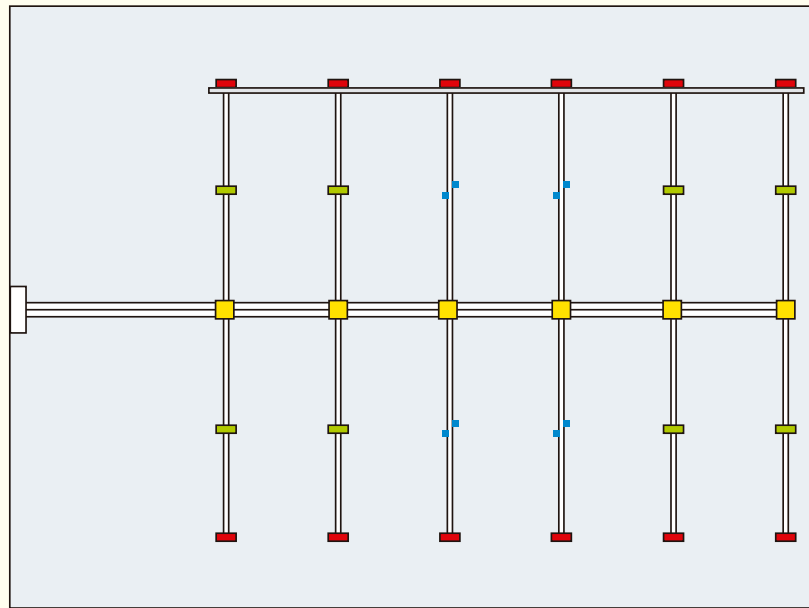
The same pattern can also be used with concealed outlet boxes.



Floor Plan – Comb Pattern

- Junction boxes
- Vertical access boxes
- Concealed outlet boxes
- Pedestal units
- Skirting Trunking

A typical comb pattern showing the use of junction boxes and vertical access boxes with concealed outlet boxes or pedestal units.



Planning

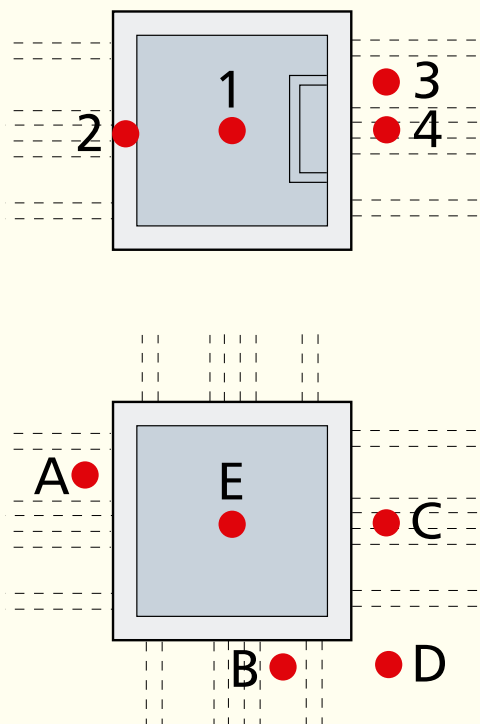
- **Ducting centres** – 110mm pitch is standard making it possible to use SF88100 ducting (90mm x 35mm) for the primary feed and SF88200 ducting (60mm x 25mm) for the secondary or lateral feeds. Reducers convert ducting entries to accept smaller ducting
- **Ducting** – Should be laid onto level structural slabs. If the tolerance in the level of the structural slab or screed thickness is likely to exceed 15mm, contact the Ackermann Customer Services Department
- **Long runs of ducting** – Access should be provided by using junction boxes as draw-in boxes. This can be achieved simply by blanking off the unwanted side entries with blanking pieces (SF88101). It is recommended that access points are not spaced at greater intervals than 20 metres
- **Boxes** – These should always be installed in screed thickness in excess of the box minimum dimensions
- **Masking** – Use PVC tape only when masking junction boxes for installation into deep screeds
- **Change of direction** – Provided for by using horizontal ducting bends, which are available in 90° or 45° angles
- **Change of plane** – Provided for by using vertical ducting bends (available in 90° or 45° angles) or the vertical access box
- **Concealed outlet boxes** – Provide service outlets below the finished floor level

Loading Detail

CONCEALED OUTLET BOX IN UNREINFORCED SCREED								
COB List No.	Screed depth mm	Screed Cover mm	Test position					
			2	2	3	3	4	4
			kN	lbf	kN	lbf	kN	lbf
SF88112	60	25	19.5	4383	10.3	2316	18.3	4144
SF88112	67	32	19.5	4383	6.6	1484	19.0	4217
SF88113	60	25	16.5	3709	14.0	3147	20.0	4196
SF88113	67	32	20.0	4496	12.8	2078	17.0	3002

JUNCTION BOX IN UNREINFORCED SCREED										
JB List No.	Screed depth mm	Screed Cover mm	Test position							
			A		B		C		D	
			kN	lbf	kN	lbf	kN	lbf	kN	lbf
SF88120	60	25	2.1	472	9.4	2113	20.8	4676	42	9442
SF88120	72	42	4.5	1012	19.2	4316	15.9	7913	35.2	7913
SF88130	60	25	2.1	472	5.0	1124	7.2	1619	7.7	1731
SF88130	72	42	4.5	1012	5.6	1269	12.5	2810	18.5	4159

LID DEFORMATION IN ACCORDANCE WITH PSA MOB		
COB List No.	Test position	25mm Permanent deformation
SF88112	1	2.8kN 629 lbf
SF88113	1	5.0kN 1124 lbf
SF88120	E	8.0kN 1798 lbf
SF88130	E	6.0kN 1349 lbf



British Standards

The screeded floor system fully complies with the requirements of BS 4678: Part 4:1982 (1988), specification for cable trunking made of insulated material BS 4662:1970 (1989), specification for boxes for the enclosure of electrical accessories.

IEE Wiring Regulations

This system can be installed to comply with the latest edition of BS 7671 (the IEE Wiring Regulations).

Quality Assurance

The system is manufactured to BS EN ISO 9001:2000.