openreach

ISIS practice
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EPT/COF/D960

Issue 10, 09-May-2023
Use until 09-May-2025

Published by Technical Documentation - Openreach

Privacy- Internal

Openreach Overblow: Equipment & Practice

About this document ...

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Content approval

This is the Issue 10 of this document.
The information contained in this document was approved on 09-May-2023 by Tom Boswell, Senior Manager, Engineer & Innovation

Version History

Version No.	Date	Author	Comments
Issue 10	09-May-2023	Steven Miles	Double overblow and COF260 144F for SDMB5 overblow added.
Issue 9	05-Aug-2021	Matt Harris	Section 9.6 updated.
Issue 8	28-Jun-2021	Matt Harris	Section 7 updated with most recent training course material.
Issue 7	22-Jun-2021	Matt Harris	Section 7 updated with most recent training course material.
Issue 6	19-Apr-2021	Matt Harris	Updated to include SDMB3/4 overblow practice, key componenets and documentation.
Issue 5	20-Jun-2019	Ian Gauntlett	Safety section updated to include risk assessment of pressure performance of 12mm OD / 10mm ID sub-duct. Revised point to point and centre overblow installation practice documents. (IG).
Issue 4	11-Dec-2018	ISIS co-ordinator Openreach Network Engineering	Safety section updated to reference closures designed for closing down sub-duct after an overblow operation. Replacement overblow 25-14 Drop Closure detailed. New sections covering pre-overblow installation survey and installation checks added. Updated point to point and centre overblow installations instructions added. (IG).
Issue 3	08-Feb-2018	ISIS co-ordinator Openreach Network Engineering	Correction to section 3. (IG).
Issue 2	06-Feb-2018	ISIS co-ordinator Openreach Network Engineering	Updated PDF documents included. (IG).
Issue 1	31-Jan-2018	ISIS co-ordinator Openreach Network Engineering	New document (IG).

Table of Content

1 *Introduction*

This document provides information on; overblow equipment for use by Openreach engineers, associated stores items and field practices.

This document contains information produced by Prysmian Cables Ltd. who were instrumental in working with the Openreach Chief Engineer team for the introduction of this equipment and associated practices, and who also delivered initial engineer training.

2 *Overblow Equipment Scope*

The scope of this overblow equipment is for the following installations:

2.1 Single Overblow

- COF260 (72F/5mm) or COF260 (144F/5mm) blown over the top of an existing COF200 or COF202 cable already present in a Sub-Duct Mono-Bore (SDMB) 5.

- COF260 (144F/7.5mm) blown over the top of an existing legacy cable (maximum diameter 19mm) already present in SDMB 4.

- COF260 (144F/7.5mm) blown over the top of an existing legacy cable (maximum diameter 16mm) already present in SDMB 3.

2.2 Double Overblow

- COF260 (72F/5mm) or COF260 (144F/5mm) blown over the top of an COF260 (72F/5mm) or COF260 (144F/5mm) over an existing COF200 or COF202 cable already present in a Sub-Duct Mono-Bore (SDMB) 5.

Important Note 1: When overblowing over COF200 cables, they must only contain 12 to 144 fibres only, i.e. cables containing 192 fibres and above have a diameter too large to enable the installation of COF260 (72F/5mm) or COF260 (144F/5mm) in SDMB5.

Important Note 2: COF260 (72F/5mm) or COF260 (144F/5mm) is not suitable for installation in SDMB3 and SDMB4.

3 *Safety*

Only trained people shall carry out overblow installation activities.

Only approved equipment and associated items shall be used for this operation.

Always carry out an on-site risk assessment before carrying out an installation.

Wear appropriate PPE.

Ensure worksites are correctly guarded.

People MUST NOT be in underground structures during cable blowing operations or when SDMB is pressurised.

Engineers involved with the installation work must establish effective communications between themselves before commencing blowing operations.

Do not open the cable blowing machine, release the drive belt pressure on the cable, dis-assemble SDMB connectors or disconnect the air supply from the compressor whilst pressurised. Always turn off the compressed air supply at the compressor first and let the pressure reduce to atmospheric pressure, this will not be instantaneous.

Do not interfere with the cable whilst engaged in the caterpillar drive mechanism or airbox of the blowing machine.

Closures designed for closing down sub-duct after an overblow operation are not designed to be pressurised. When carrying out an overblow operation, check the remainder of the sub-duct route for such closures, if present remove / undue closure prior to applying air. Re-place closure back in position once the installation has been completed.

Exercise extreme caution when working around coils or drums of moving cable.

(1) Click for the risk assessments associated with this overblow equipment and practices (SDMB3, SDMB4 and SDMB5).

Single Overblow: RA%20SDMB%203%204%20and%205%2(

Double Overblow: Risk Assessment of Double Cable Overb

(2) Click for the Plumett Microjetting Lube document referenced in the risk assessment in (1) above.

Acrobat Document.pdf

(3) Click for the risk assessment of pressure performance of 12mm OD / 10mm ID sub-duct, item code 092791 referenced in (1) above.

RA 10mm ID 12mm OD Sub Duct.docx

4 *Pre-Overblow Installation Survey*

Key to ensuring a successful overblow installation is to carry out a quality survey first.

The object of the survey is to prove the suitability of the route for the overblowing installation practice.

The key points to come out of the survey are:

1) The sub-duct starts and finishes at the relevant locations.

2) The sub-duct is continuous between the relevant locations. For this lift every UG jointing chamber cover along the route to check that the continuity of the sub-duct.

3) There is sufficient space within the sub-duct for the overblown cable. Use Vernier callipers measure the internal diameter (ID) of the sub-duct and the outer diameter (OD) of the incumbent cable.
ID of sub-duct – OD of cable = OD of Overblown cable + ≥2mm.

4) Look for very sharp bends and coils of sub-duct in jointing chambers – these may give rise to problems during overblow and the overblow cable may get stuck or wedged in these areas. If possible, it is recommended to reposition the sub-duct in jointing chambers to enable the overblow cable to experience the least number of bends or deviations as possible.

5) Look for the most advantageous site / route end to carry out the overblow installation including best location for access to the compressor equipment and for vehicle parking.

5 *Compressor Equipment*

Only compressor equipment designed for cable blowing operations are suitable for the overblow practices detailed in this document.

Compressors designed for installing blown fibre (BF) bundle into BF tubing are unsuitable for these operations.

6 *Principal Equipment & Components*

There are many equipment and component items required for these overblow operations. These items are shown in the Prysmian documents contained in section 8, plus a full list is provided in appendix 2 (section 11).

These items are available for ordering via normal stores process i.e. via e-ASC unless stated otherwise below.

Please note that the following principal equipment and component items are only purchased under specific business case agreements to meet the needs of Openreach operational units.

They are not readily available via e-ASC.

These items are;

Item Code	Item Description

092662	Overblowing Blowing Machine
092663	Overblow Y Coupler
092665	Compressor Overblow Outlet Valve
092666	Overblow Pneumatic Hose – Compressor Outlet Valve to Overblow Y Coupler

7 *Overblow Course Material*

Click http://snip.bt.com/xmmf for Openreach overblow training course information.

See below for the Openreach overblow training course material.

Openreach Overblow.zip

8 *Overblow Installation Practices*

8.1 SDMB5 Overblow Cable Datasheet

HERE

Click to view the COF260 72F data sheet for SDMB5 overblow.

HERE

Click to view the COF260 144F data sheet for SDMB5 overblow.

8.2 SDMB3/4 Overblow Cable Datasheet

HERE

Click to view the COF260 144F data sheet for SDMB3/4 overblow.

8.3 Point to Point Overblow installation (SDMB5)

HERE

Click to view the practice in PDF.

8.4 Centre Overblow Installation (SDMB5)

HERE

Click to view the practice in PDF.

8.5 Point to Point Double Overblow installation (SDMB5)

HERE

Click to view the practice in PDF.

8.6 Centre Double Overblow installation (SDMB5)

HERE

Click to view the practice in PDF.

8.7 Point to Point Overblow installation (SDMB3/4)

Please Note: SDMB3/4 overblow requires a higher volume of air. This process requires the use of two van mounted compressors, two Overblow Pneumatic Hose's and the OB Y Hose ¾"/1m.

HERE

Click to view the practice in PDF.

8.8 Centre Overblow Installation (SDMB3/4)

Please Note: SDMB3/4 overblow requires a higher volume of air. This process requires the use of two van mounted compressors, two Overblow Pneumatic Hose's and the OB Y Hose ¾"/1m.

HERE

Click to view the practice in PDF.

8.9 Overblow Blowing Machine Data Sheet

HERE

Click to view the data sheet in PDF.

8.10 Overblow Y Coupler Data Sheet

HERE

Click to view the data sheet in PDF.

8.11 Overblow Cable Swept T Cable Diverter (SDMB5)

8.11.1 Data Sheet

HERE

Click to view the data sheet in PDF.

8.11.2 Installation Procedure

HERE

Click to view the installation procedure in PDF.

8.12 Double Overblow Cable Swept T Cable Diverter – Deflector Plate (SDMB5)

8.12.1 Data Sheet

HERE

Click to view the data sheet in PDF.

8.12.2 Installation Procedure

HERE

Click to view the installation procedure in PDF.

8.13 Overblow Cable Swept T Cable Diverter (SDMB4)

8.13.1 Data Sheet

HERE

Click to view the data sheet in PDF.

8.13.2 Installation Procedure

HERE

Click to view the installation procedure in PDF.

8.14 Overblow Cable Swept T Cable Diverter (SDMB3)

8.14.1 Data Sheet

HERE

Click to view the data sheet in PDF.

8.14.2 Installation Procedure

HERE

Click to view the installation procedure in PDF.

8.15 Overblow 25-14mm Drop Closure (SDMB5)

This section details the current 25-14mm Drop Closure for SDMB5. It replaced the closure detailed in section 10.

8.15.1 Data Sheet

CI011-02 Openreach Overblo

Click to view the data sheet in PDF.

8.15.2 Installation Procedure

CIG0139-GB-en-v1 - Openreach Installati

Click to view the installation procedure in PDF.

8.16 Double Overblow 25-14mm Drop Closure (SDMB5)

8.16.1 Data Sheet

HERE

Click to view the data sheet in PDF.

8.16.2 Installation Procedure

HERE

Click to view the installation procedure in PDF.

8.17 Overblow 25-14mm Drop Closure (SDMB3/4)

This section details the current 25-14mm Drop Closure for SDMB4 and SDMB3.

8.17.1 Data Sheet

HERE

Click to view the data sheet in PDF.

8.17.2 Installation Procedure

HERE

Click to view the installation procedure in PDF.

9 COF260 Jointing & Splicing

9.1 Jointing Chamber Routing

Route the 14/10mm sub-duct containing the COF260 to the vicinity of the joint closure location. Only enter the cable into the closure, not the sub-duct.

The end of the sub-duct should be near to the closure but not in a position so that when the closure is moved for jointing operations that the cable is subjected to a bending radius less than 50mm.

Secure the sub-duct in accordance with ISIS EPT/ANS/A004.

Click HERE to link to the document.

Please note that the distance from the sub-duct end to joint closure is not detailed as locations of UG plant will vary from one jointing chamber to another.

9.2 Strength Member Cutting

When cutting the strength member of COF260 please refer to ISIS EPT/COF/D957 for the correct tool to use and PPE to wear.

Click HERE for a copy of the document.

9.3 Joint Closures

The recommended closure for COF260 is the TM type closure series detailed in ISIS EPT/COF/D945.

Click HERE to link to the document.

9.4 Stripping Practice

The stripping practice for COF260 72F (5mm), COF260 144F (5mm) and COF260 144F (7.5mm) is detailed in ISIS EPT/COF/D953

Click HERE to link to the practice document.

9.5 Fibre Splicing

For splicing fibres of legacy cables to COF260 and splicing COF260 to COF260, this requires the use of a Sumitomo T71 splicing machine. For this operation, do not change the settings on the T71, use it in standard “auto” mode.

Important Note: Please note that other splicing equipment is unsuitable for this task.

9.6 COF260 144F 5mm Trial Cable (SDMB5)

A small amount of COF260 144F 5mm for SDMB5 overblow has been installed in the Openreach access network for trial purposes. This cable consists of 24 fibre elements per tube and is over a non BT standard colour coding. If this cable is encountered, please refer to the tables below for the associated fibre colour code schemes.

COF260 144F SDMB5 Trial Version 1

Fibre Number	1	2	3	4	5	6	7	8	9	10	11	12
Fibre Colour												
Fibre Desc.	Blue	Orange	Green	Red	Slate	Yellow	Brown	Purple	Black	White	Pink	Turquoise
Fibre Number	13	14	15	16	17	18	19	20	21	22	23	24
Fibre Colour	/	/	/	/	/	/	//	//	//	//	//	//
Fibre Desc.	Orange - 1 Ring Mark	Green - 1 Ring Mark	Red - 1 Ring Mark	White - 1 Ring Mark	Yellow - 1 Ring Mark	Pink - 1 Ring Mark	Orange - 2 Ring Mark	Green - 2 Ring Mark	Red - 2 Ring Mark	White - 2 Ring Mark	Yellow - 2 Ring Mark	Pink - 2 Ring Mark

COF260 144F SDMB5 Trial Version 2

Fibre Number	1	2	3	4	5	6	7	8	9	10	11	12
Fibre Colour												
Fibre Desc.	Blue	Orange	Green	Red	Slate	Yellow	Brown	Purple	Black	White	Pink	Turquoise
Fibre Number	13	14	15	16	17	18	19	20	21	22	23	24
Fibre Colour	/	/	/	/	/	/	//	//	//	//	//	//
Fibre Desc.	Blue - 1 Ring Mark	Orange - 1 Ring Mark	Green - 1 Ring Mark	Red - 1 Ring Mark	Slate - 1 Ring Mark	Yellow - 1 Ring Mark	Blue - 2 Ring Mark	Orange - 2 Ring Mark	Green - 2 Ring Mark	Red - 2 Ring Mark	Slate - 2 Ring Mark	Yellow - 2 Ring Mark

10 *Appendix 1 - Installation Checks*

If problems are encountered with an overblow installation, the following checks / guide maybe useful to establish the cause of the problem:

1. Check that the route has been surveyed as per the information detailed in section 4 above.
2. Ensure that the correct type of cable is being used for the overblowing operation.
3. Check that the compressor is operating correctly.
4. Determine the compressor is delivering the correct pressure.
5. Ensure all equipment has been set up as per this ISIS.
6. Check that the overblowing machine is set to a maximum push force pressure of **3 Bar** for COF260 72F (5mm), **4.5 Bar** for COF260 144F (5mm) and **5 Bar** for COF260 144F (7.5mm).
7. Check for excess air leaking from the blowing machine or Y coupler.
8. Ensure that air can be heard escaping from Sub-Duct Mono-Bore 5 Guard 1 at the end of the route.
9. Walk the route to check for air leaking from any of the sub-duct connectors that maybe present.
10. Ensure only the correct overblow lubricant has been used and in sufficient quantity.

11 *Appendix 2 - Item Codes*

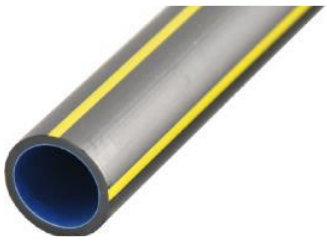
11.1 Overblow Blowing Machine & Y Coupler Spares and Consumables Data Sheet

HERE

Click to view the data sheet in PDF.

11.2 Sub-Duct Jumpers

Item Code	Item Name	Item Description	Additional Information
092791	OB SD Jumper 12/10mm 20 metres	Overblow Sub-Duct Jumper 12/10mm 20 metres	A sub-duct used to couple the overblow blowing machine to the overblow Y coupler. Dimensions 12mm outside diameter and 10mm inside diameter. Supplied in 20 metre lengths. 
092792	OB CP SD 14/10mm 20 metres	Overblow Cable Protection Sub-Duct 14/10mm 20 metres	A sub-duct used to protect the overblow cable from where it exits from the overblow closure to the cable joint closure. Dimensions 14mm outside diameter and 10mm inside diameter. Supplied in 20 metre lengths. 

092794	OB SDMB5 Jumper 20 metres	Overblow SDMB5 Jumper 25/20mm 20 metres	A sub-duct used to connect the Overblowing Cable Deflector to a SDMB5 Guard 1. Dimensions 25mm outside diameter and 20mm inside diameter. Supplied in 20 metre lengths. 

11.3 Swept T, 25-14mm Closure & SDMB5 Guard 1

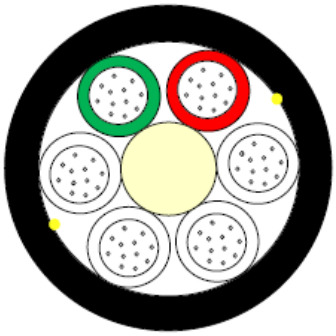
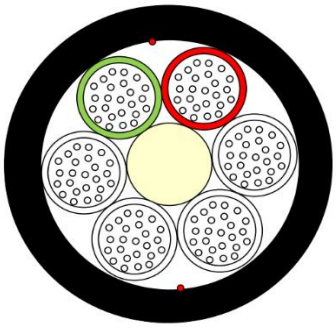
Item Code Number	Item Name	Item Description	Additional Information
092839	SDMB5 Overblow Cable Swept T Diverter	Overblow Cable Swept T	Used during overblow at the route destination end to safely contain and manage the overblow cable into a length of SDMB5 and SDMB5 Guard 1. 
113047 (not yet orderable)	SDMB5 Double Overblow Cable Swept T Diverter – Deflector Plate	Deflector plate.	Used within the SDMB5 Overblow Cable Swept T Diverter (Item Code: 092839) to isolate the incumbent spine and first overblow cable away from the second overblow cable. 

105363	SDMB3 Overblow Cable Swept T Diverter	Overblow SDMB3 Cable Swept T	Used during SDMB3 overblow at the route destination end to safely contain and manage the overblow cable into a length of SDMB5 and SDMB5 Guard 1. 
105365	SDMB4 Overblow Cable Swept T Diverter	Overblow SDMB4 Cable Swept T	Used during SDMB4 overblow at the route destination end to safely contain and manage the overblow cable into a length of SDMB5 and SDMB5 Guard 1. 
093108	SDMB 5 Overblow 25-14mm Drop Closure Sealed	Overblow OB 25-14mm Drop Closure Sealed	A closure with internal seal used once a COF260 cable has been overblown into a length of SDMB5. The closure interfaces with 1x COF200, 1 x COF260, SDMB5 and Overblow Cable Protection Sub-Duct 14/10mm 20 metres. The closure ensures that the COF260 cable is correctly managed and mechanically protected in UG chambers. 
113046 (not yet orderable)	SDMB5 Double Overblow 25-14mm Drop Closure Sealed	Double Overblow OB 25-14mm Drop Closure Sealed	A closure with internal seal used once a COF260 cable has been overblown into a length of SDMB5. The closure interfaces with 1 x COF200, 2x COF260, SDMB5 and Overblow Cable Protection Sub-Duct 14/10mm 20 metres. The closure ensures that the COF260 cable is correctly managed and mechanically protected in UG chambers.

			
105371	OB SDMB3/4 -14mm Drop Closure	Overblow SDMB3/4 - 14mm Drop Closure	A closure for use once an overblow cable has be blown into a length of SDMB3 or 4 over the top of an existing legacy cable. The closure interfaces with the legacy cable, overblow cable, SDMB3 or 4 and Overblow Cable Protection Sub-Duct 14/10mm 20 metres (item code 092792). The closure ensures that the overblow cable is correctly managed and mechanically protected in UG chambers. 
076053	Sub-Duct Mono-Bore 5 Guard 1	Sub-Duct Mono-Bore 5 Guard 1	This fits on to the furthest end of the sub-duct route and prevents any internal foreign bodies being ejected but allows the passage of air during cable blowing. 

11.4 COF260 Cable Range

Item Code	Item Name	Item Description	Additional Information
087368	COF260 72 Fibre SDMB5 OB Cable	Cable Optical Fibre 260 72 Fibre Sub-Duct Mono-Bore 5 (SDMB5) Overblow Cable.	COF260 72 is a non-metallic construction 5mm diameter 72 fibre micro cable for overblowing on top of COF200 (12 to 144 fibre) cable or COF202 (12 and 24 fibre) cable that is already present in SDMB5. Unsuitable for direct installation in underground ducts. Unsuitable for pulled installation using a cabling rope. Unsuitable for installation in SDMB3 or SDMB4.

			
113048	COF260 144 Fibre SDMB5 OB Cable	Cable Optical Fibre 260 144 Fibre Sub-Duct Mono-Bore 5 (SDMB5) Overblow Cable.	COF260 144 is a non-metallic construction 5mm diameter 144 fibre micro cable for overblowing on top of COF200 (12 to 144 fibre) cable or COF202 (12 and 24 fibre) cable that is already present in SDMB5. Unsuitable for direct installation in underground ducts. Unsuitable for pulled installation using a cabling rope. Unsuitable for installation in SDMB3 or SDMB4. 
105375	COF260 144 Fibre SDMB3/4 OB Cable	Cable Optical Fibre 260 144 Fibre Sub-Duct Mono-Bore 3/4 (SDMB3/4) Overblow Cable.	COF260 144 is a non-metallic construction 7.5mm diameter 144 fibre micro cable for overblowing on top of legacy cable that is already present in SDMB3 or SDMB4. Unsuitable for direct installation in underground ducts. Unsuitable for pulled installation using a cabling rope. Unsuitable for installation in SDMB5. 

11.5 Overblow Survey Vernier Calliper

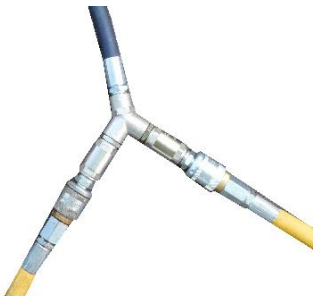
Item Code	Item Name	Item Description	Additional Information
092786	OB Survey Vernier Calliper	Overblow Survey Vernier Calliper	Used during the survey of a potential overblow route to establish the outside diameter of the existing installed fibre cable and the sub-duct that it is installed in. 

11.6 Spares and Repairs

Item Code	Item Name	Item Description	Additional Information
092790	OB Cable Lubricant 1 Bottle 240ml.	Overblow Cable Lubricant 1 Bottle 240ml.	A lubricant that is applied into an existing sub-duct containing a fibre cable to maximise the overblow cable installation distance. 
104299	OB Machine Lubricant Oil 0.5L	Overblow Machine Lubricant Oil 0.5L	 Overblow blowing machine oil for the pneumatic motor.
104300	OB Y Coupler Bolts x 2	Overblow Y Coupler Bolts x 2	 Overblow Y

			coupler bolts for replacement of lost or damaged bolts.
104301	OB BM Drive Belts 1 Pair	Overblow Blowing Machine Drive Belts 1 Pair	 Overblow blowing machine drive belt for replacement of an existing damaged belt.
104302	OB BM Cable Guides 4 – 8mm	Overblow BM Cable Guides 4 – 8mm	 Overblow blowing machine glands for cable diameters between 4 and 8mm (e.g. COF260)

11.7 Y Hose

Item Code	Item Name	Item Description	Additional Information
105373	OB Y Hose ¾”/1m	Overblow Y Hose ¾” bore / 1m length for coupling 2 air sources together.	A Y Hose for coupling 2 air sources together to increase air capacity for overblowing in subduct. 

11.8 Overblow Blowing Machine Seals

Item Code	Item Name	Item Description	Additional Information
105377	OB BM SD3/4 COF260 144F Sealx6	Overblow Blowing Machine SDMB 3/4 COF260 144F (7.5mm) Cable Seal (Pack of 6)	A seal applied around COF260 144F (7.5mm) cable to prevent air leaks at the air box / cable interface in the overblow blowing machine when overblowing into SDMB3/4. Supplied in a pack of 6. 

11.9 Overblow Y Coupler Seals

Item Code	Item Name	Item Description	Additional Information
113045 (not yet orderable)	Double OB Y Coupler Seal	Double OB Y Coupler Seal	A split seal applied around the existing installed spine cable and overblow cable in SDMB5. 
105380	OB Y Coupler Leg Cbl 14mm Seal	Overblow Y Coupler Legacy Cable (14mm Diameter) Seal for SDMB3/4 Overblow	A split seal applied around the existing installed legacy 14mm diameter cable to provide an air-tight seal for SDMB3/4 Overblow Pack of 6. 

		Pack of 6	
105382	OB Y Coupler Leg Cbl 15mm Seal	Overblow Y Coupler Legacy Cable (15mm Diameter) Seal for SDMB3/4 Overblow Pack of 6	A split seal applied around the existing installed legacy 15mm diameter cable to provide an air-tight seal for SDMB3/4 Overblow Pack of 6. 
105410	OB Y Coupler Leg Cbl 16mm Seal	Overblow Y Coupler Legacy Cable (16mm Diameter) Seal for SDMB3/4 Overblow Pack of 6	A split seal applied around the existing installed legacy 16mm diameter cable to provide an air-tight seal for SDMB3/4 Overblow Pack of 6. 
105411	OB Y Coupler Leg Cbl 17mm Seal	Overblow Y Coupler Legacy Cable (17mm Diameter) Seal for SDMB3/4 Overblow Pack of 6	A split seal applied around the existing installed legacy 17mm diameter cable to provide an air-tight seal for SDMB3/4 Overblow Pack of 6. 
105412	OB Y Coupler Leg Cbl 18mm Seal	Overblow Y Coupler Legacy Cable (18mm Diameter) Seal for SDMB3/4 Overblow Pack of 6	A split seal applied around the existing installed legacy 18mm diameter cable to provide an air-tight seal for SDMB3/4 Overblow Pack of 6. 

105413	OB Y Coupler Leg Cbl 19mm Seal	Overblow Y Coupler Legacy Cable (19mm Diameter) Seal for SDMB3/4 Overblow Pack of 6	A split seal applied around the existing installed legacy 19mm diameter cable to provide an air-tight seal for SDMB3/4 Overblow Pack of 6. 

END OF DOCUMENT