

openreach

ISIS practice  
For Openreach and Contract Partners

EPT/UGP/E045

Issue 10, 28-Apr-2023  
Use until 28-Apr-2024

Published by Access Engineering & Innovation

Privacy- None

# ***Cabling in Duct Manual***

*Cabling Guides and Rigging*

## ***About this document ...***

### **Author**

The author of this document may be contacted at:

Mark Smith  
Innovation Specialist  
Openreach (BOI)  
Post Point 16/3Adastral Park  
Martlesham Heath  
Ipswich

IP5 3RE

Telephone: +447740816609

Fax:

Email: [mark.27.smith@openreach.co.uk](mailto:mark.27.smith@openreach.co.uk)

### **Content approval**

This is the Issue 10 of this document.

The information contained in this document was approved on 28-Apr-2023  
by Tom Boswell, Senior Manager, Engineer & Innovation

## Version History

Version No.	Date	Author	Comments
Issue 10	28-Apr-2023	Mark Smith	Document republished unchanged, new review date
Issue 9	26-May-2022	Mark Smith	Change of audience and privacy
Issue 8	24-May-2022	Mark Smith	Change of author and approver
Issue 7	03-Mar-2015	Document Manager T	Document migrated onto new platform with no content change
Issue 7	24-Jun-2010	Chief Engineer AEI Technical Documentation Team	Guides Cabling 15 updated. DCC878/SH.
Issue 6	6-Apr-2009	Chief Engineer AEI Technical Documentation Team	Amendment to section 5 guides cabling 1 also change of author & approver
Issue 5	7-Feb-2007	Carl Morrell	References to EPT/UGP/E042 replaced with EPT/UGP/E031
Issue 4	6-Nov-2006	Carl Morrell	Various references to EPT/UGP/E042 removed
Issue 3	3-Mar-2004	Carl Morrell	Change of author and approver
Issue 2	25-Jul-2001	ND Adams	Change of author only

Table of Content

1 INTRODUCTION ----- 5

2 SCOPE ----- 5

3 SAFETY ----- 5

4 CABLE BENDING ----- 5

5 CABLE GUIDES ----- 5

6 RIGGING UNDERGROUND STRUCTURES ----- 14

6.1 CHAIN SECURING 4A, 4B AND 4C ----- 14

7 REFERENCES ----- 16

# 1 *Introduction*

Cable guides are used to protect and guide cables during cabling operations. Properly used, they will reduce the effort required for cabling by aligning the pull in line with the duct and also prevent cable damage from tight bends. Cable guides will also protect the edges of ducts from abrasion during cable installations.

This document details the current range of cabling guides and the general principles of rigging them in underground structures.

# 2 *Scope*

This document describes and details the use of the current range of underground cabling guides.

# 3 *Safety*

Underground cable installation and cabling associated operations **MUST** only be carried out by staff who have had the appropriate training.

Specific safety requirements are included within the practices detailed in this document. These practices should be applied in conjunction with the safety requirements referenced in the Cabling in Duct Manual EPT/UGP/E031.

# 4 *Cable Bending*

Optical and coaxial cables are easily damaged if they are subjected to installation forces beyond their design limits. Bending of cables under tension to less than the prescribed minimum bend radius (i.e. 12 x cable diameter) must therefore be avoided by using the appropriate cabling guides.

For the installation of Blown Fibre Tubing use only those guides recommended for use with Optical Fibre Cables

# 5 *Cable Guides*

**Four types of cable guides are in general use.**

1. Tubular guides which completely enclose the cable.
2. Turning wheels which accommodate large angular deviations.
3. Roller guides
4. Split sleeve guides

The following descriptions detail the use of the current range of cable guides.

**Bellmouth Split 1** (Item Code 110500 for 83 mm duct)

**Bellmouth Split 2** (Item Code 110501 for 90 mm duct)

To protect cables entering ducts from duct edges during cabling operations.



**Guides Cabling 1** (Item Code 126400)

To protect cables entering and leaving 90 mm bore in-line ducts, secured in the duct by clamp screws.

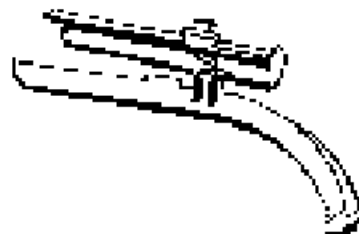
**Note:** Guides cabling 1 has become obsolete; Guides Cabling 2 can be used in its place for both in-line and angled cabling.



**Guides Cabling 2** (Item Code 126401)

To protect cable entering or leaving 90 mm ducts that are not in line. The angular deviation must be less than 30 degrees.

Secured in the duct by clamp screws.



**Guides Cabling 4A** (Item Code 126704)

**Guides Cabling 4B** (Item Code 126027)

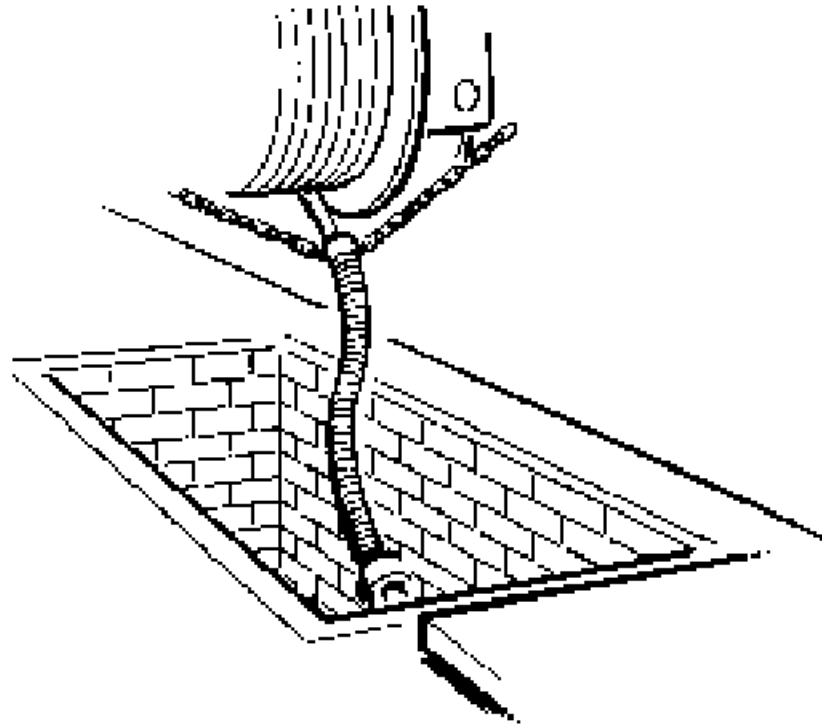
To extend the duct entry to the cable-drum trailer.

Secured to the cable-drum trailer with chains provided.

More than one may be used as necessary.

**Length** - Guide Cabling 4A - 3 metres

Guide Cabling 4B - 1.5 metres



**Guides Cabling 5** (Item Code 126426)

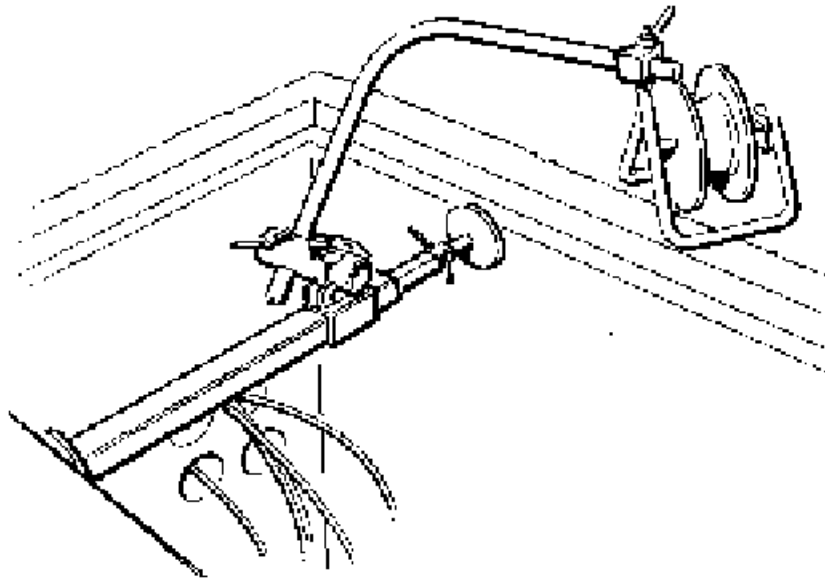
**Not suitable for optical fibre cables**

To guide light cables and ropes over joint box edges at the winch end.

Used with a Clamp Guide 2A.

**Clamp Guide 2A** (Item Code 126481)

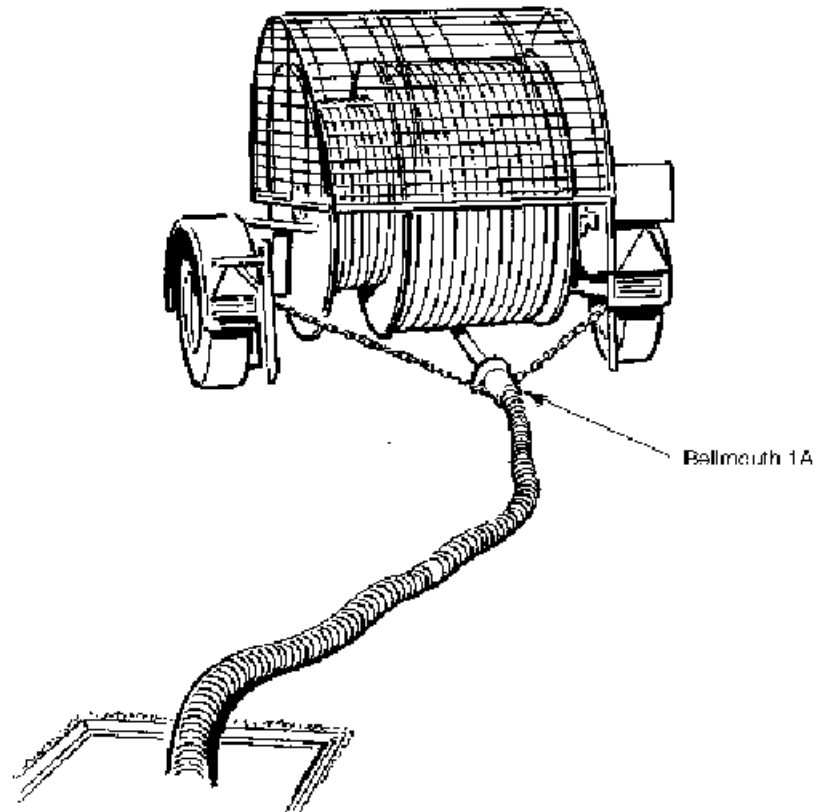
An extendible steel compression strut used to secure Guides Rod Flexible 3 and 4, and Guide Cabling 5 in a jointing chamber during cable installation:

**Guides Cabling 6A** (Item Code 126512)**Guides Cabling 6B** (Item Code 126513)

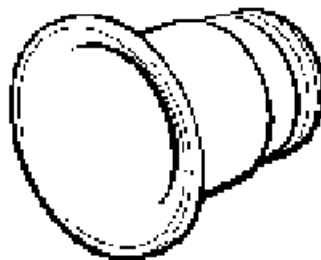
Flexible tube with a 90 mm (approximately) bore for guiding large cables. Used with Bellmouth 1A to extend the duct entry to the cable-drum trailer. A number of these guides may be connected together. It may be connected to the trailer with a length of drawrope or chains.

Bore	90 mm
Length	6A - 1.5 metres
	6B - 3 metres





**Bellmouth 1A** (Item Code 126514)

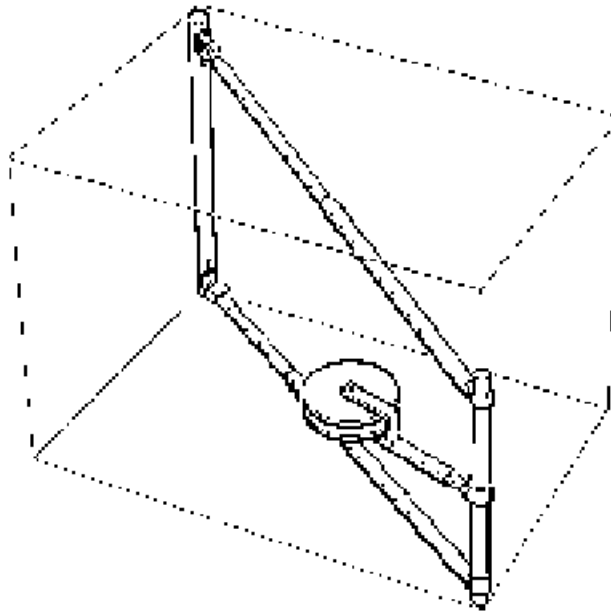


### **Guides Cabling 12**

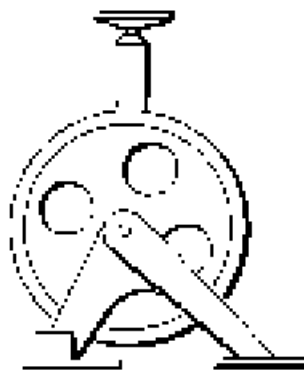
#### **Not suitable for optical fibre cables**

To turn cables of less than 78 mm dia. in manholes to give an angular deviation of up to 135 degrees in the horizontal plane. A wheel is supported in an adjustable framework.

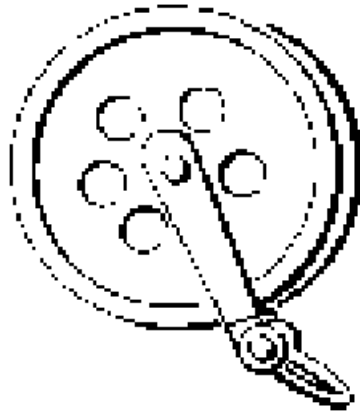
Manufactured to BT drawings CN 11268, CN 11269, Available on local purchase only.

**Guides Cabling 13A** (Item Code 126634)**Not suitable for optical fibre cables.**

To turn cables of less than 32 mm dia. in surface boxes to give an angular deviation of about 90 degrees in the horizontal plane. A wheel is supported in an 'A' frame with an adjustable clamp.

**Guides Cabling 14****Not suitable for optical fibre cables.**

To turn cables of less than 78 mm dia. in manholes and joint boxes where anchor points are provided, to give an angular deviation of up to 135 degrees. Can be used horizontally, but it is intended for use vertically to allow cable to be pulled smoothly into position.

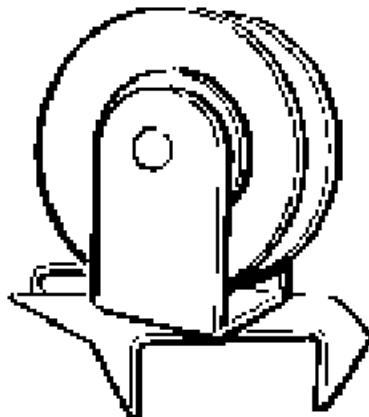


**Guides Cabling 15**

**Not suitable for optical fibre cables.**

To guide small cables and cabling ropes over manhole edges.

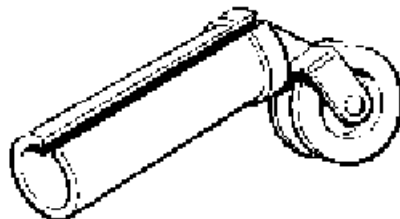
The item is available via i-BUY, see eASC item listing for further details.



**Guides Cabling 17A (Item Code 127259)**

**Not suitable for cables**

To guide cabling ropes into, or out of, the duct mouth.

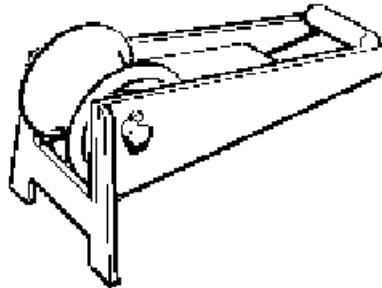


**Rollers -Rope Guiding Surface Type (Item Code 122690)**

**Not suitable for cables**

Used to guide drawropes and cabling ropes out of jointing chamber entrances to prevent damage to the rope.

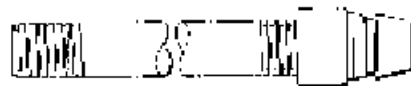
Consists of a metal roller mounted on a frame which has two lugs for location.



**Guides Rod Flexible 3** (Item Code 126772)

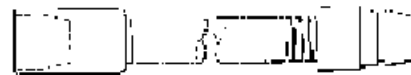
For vehicle mounted rodding systems, as a guide for Rod, Duct 3. As a rope guard when winching. Flexible tube 3 m long, with one end plain and the other end having a fitting for connection to the rodding machine or Guide, Rod Flexible 4. It may also be used for hand rodding to extend the ductmouth to a more ergonomic height.

See EPT/UGP/E043



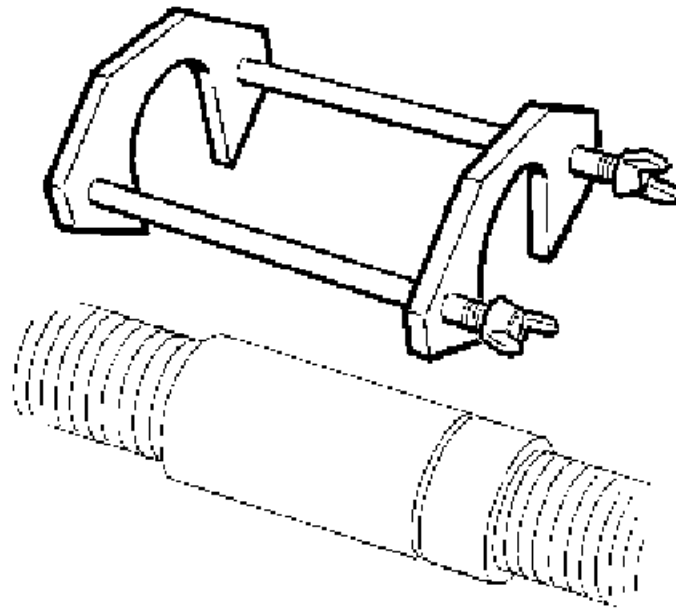
**Guides Rod Flexible (GRF) 4** (Item Code 126773)

Similar to Guide, Rod Flexible 3 but with one end which accepts GRF 3 fitting for connection to the rodding machine or another GRF 4. Guides are joined (3 and 4) using Clamp 13A.



**Clamp 13A** (Item Code 126971)

For connecting lengths of Guide Rod Flexible 3 and 4.



**Guides Cabling 16A (Fitting)** - Item Code 126911

**Guides Cabling 16A (Support Kit)** - Item Code 126976

*Note:* Guide Cabling 16A replacement assembly tools available on local purchase from: Abingdon King Dick Limited, Kings Road, Tyseley, Birmingham B11 2AE Telephone: 0121 706 2881.

A lightweight turning wheel assembly for guiding optical fibre cables. May be used horizontally or vertically. Not suitable for pulls exceeding 1 tonne (capacity of R&LC Winch).

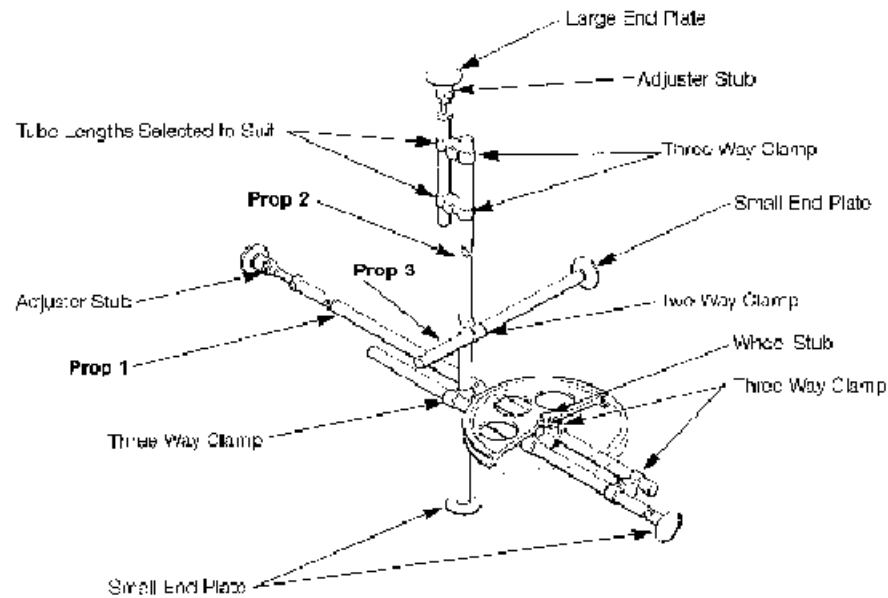
#### **Assembly of the Guide Cabling 16A**

The following rules should be applied when erecting the assembly:

- Position the props such that all forces tending to move the wheel are resisted.
- Position the wheel such that the cable emerges from the duct clear of the duct mouth.

Prop 3 (see illustration) should be positioned at such a height that the wheel lies between it and Prop 1.

*Figure 1 Typical Arrangement for Guide Cabling 16A*



## 6 *Rigging Underground Structures*

Rigging a jointbox or manhole is an essential preparation for cabling. A correctly rigged structure is one that enables the cabling winch to pull in line with the duct whilst safely containing the resultant reaction forces.

The method of rigging will depend upon the position of the duct and the conditions in and around the jointing chamber. Some cable guides (e.g. Guides Cabling 14) and snatch blocks require the use of rigging chains to position them. Other types of cable guides (e.g. Guides Cabling 1, 2, 12, 13A) are adjustable and self-supporting within the underground structure.

For every set-up the rigging should be arranged such that in the event of failure, no damage will be caused to plant.

**Caution:** Snatch blocks and other cabling aids must only be attached to anchor irons, not steps, cable supports or any other item of manhole furniture. Do not attempt to guide cables through snatch blocks, their pulley diameter is only suitable for use with cabling ropes.

### 6.1 Chain Securing 4A, 4B and 4C

#### Chain Securing 4A, 4B, 4C

Chain Securing 4A, 4B and 4C are the chains recommended for general rigging in underground structures. They comprise of a chain with a self locking chain shortening clutch at one end. Two chains are usually sufficient to cater for most rigging applications. These chains are supplied with a set of operating instructions and a test certificate.

Details of the chains are as follows:

Chain Securing 4A (Item Code 127557) 3 metre chain

Chain Securing 4B (Item Code 129312) 4 metre chain

Chain Securing 4C (Item Code 129313) 5 metre chain

*Figures 2 to 5 below show typical rigging set-ups for winching at manholes and jointboxes.*

Figure 2

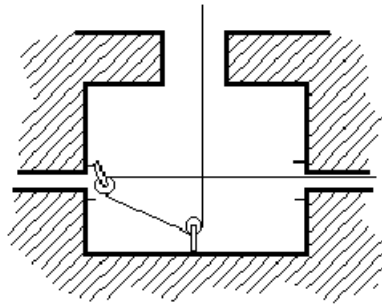


Figure 3

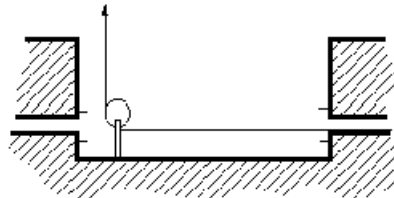


Figure 4

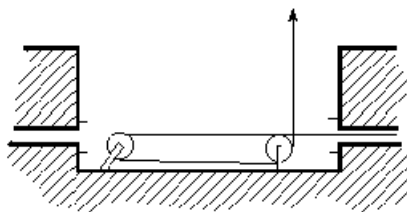
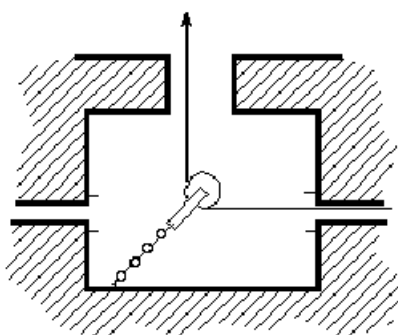


Figure 5



## 7 ***References***

EPT/UGP/E031

Cabling in Duct Manual - Introduction and Index

END OF DOCUMENT