

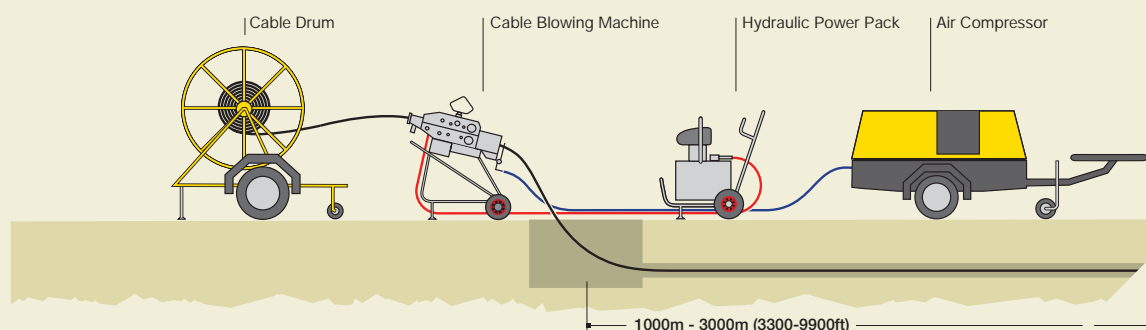
# Fibre Optic Cable Blowing

CBS Products' equipment has been used to install fibre optic cables since 1986. The latest fibre optic cable blowing system has proved to be the safest and fastest method of installing fibre optic cables.

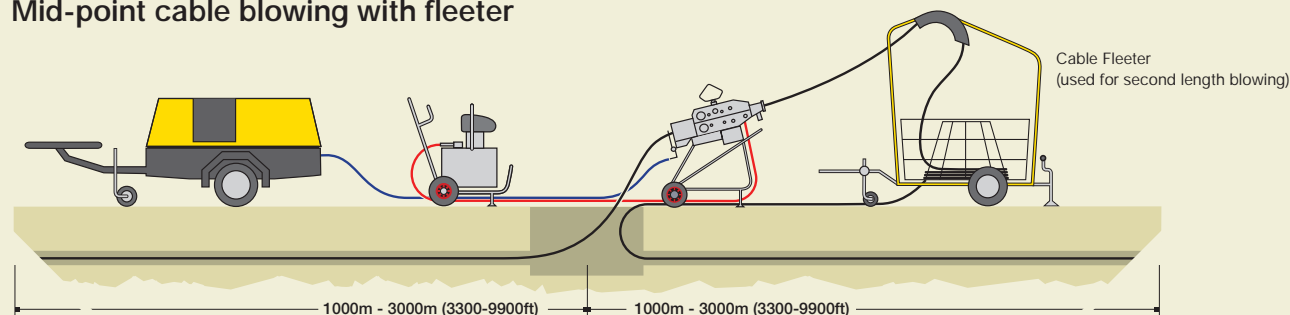
Our patented concept employs compressed air to propel the fibre optic cable through the duct, providing a uniform distribution of pulling force along the cable length. In addition the cable is controlled by a hydraulically powered belt system, providing both smooth control and monitoring. Combined, they provide a safe and optimised method of fibre optic cable installation, delivering more installed cable per day with a reduced workforce.

Designed to be extremely easy to operate without tools, yet simple to adjust to meet site conditions, our simplified fibre optic cable blowing kit ordering procedure ensures all necessary parts are provided for start up.

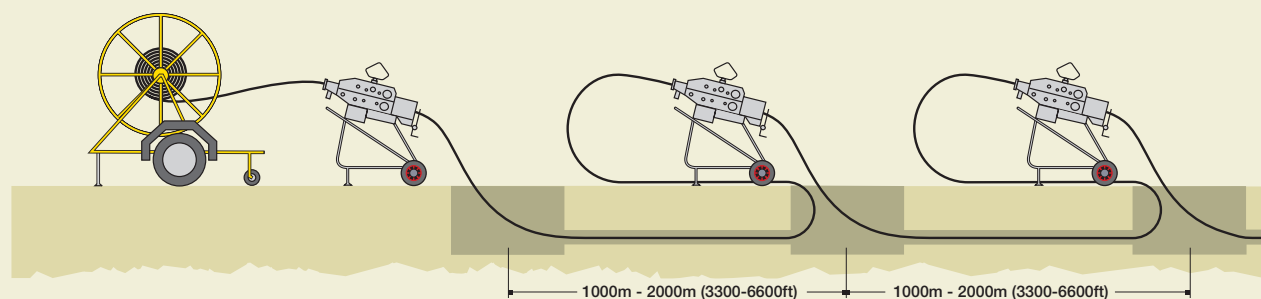
## Single length cable blowing



## Mid-point cable blowing with fleeter



## Series cable blowing



Cable Blowing Machine, Hydraulic Power Pack, and Air Compressor required at each position.

## **Tornado Plus**

### **Cable Blowing Machine**

Duct range 25-63mm, cable range 6-32mm

### **General Description**

The cable blowing machine, comprising an air box and cable pusher, has been designed to provide an effective and safe method of fibre optic cable installation. The system installs fibre optic cable of 6mm (0.25") to 32mm (1.25") overall diameter, at speeds up to 90m/min (300ft / min), into pre-installed ducts. The system operates on the viscous drag principle employing compressed air to install the cable, controlled and assisted by the belt drive system.

The cable is propelled by compressed air, fed into the duct via a venturi principle, while the hydraulically powered belt drive system controls the fibre optic cable. The electronic monitoring system provides read out of speed and distance, gives protection against duct obstructions and includes an emergency stop facility.

The system is mounted on an anti-corrosion treated, sturdy, height adjustable, wheeled, tubular steel trolley. This allows the unit to be wheeled around on site. The C-1200 hydraulic petrol driven power pack provides power. The unit is CE approved.

### **Features**

#### **Fully labelled control panel containing:**

- Power on/off button
- Emergency stop button
- Reset button
- Combined length counter recording in metres (feet) and cable speed read out in metres/min (feet/min)
- Hydraulic pressure read out dial
- Air pressure read out dial
- Hydraulic on/off control valve
- Adjustable speed control for drive belts
- Air supply control on/off with automatic exhaust function

### **Chassis**

- Front mounted wheels for ease of manoeuvrability
- Lightweight anti-corrosion treated tubular steel frame
- Adjustable frame allowing unit to be tilted up to 30°, reducing bending of duct and cable
- Adjustable rear legs for uneven terrain

### **Air Box**

- Manufactured in aluminium
- Range taking of cables from 6mm – 32mm (0.25"-1.25") by means of interchangeable collets with double cable sealing arrangement
- Duct sealing at mouth of air box
- Duct gripping facility designed to obviate duct crushing and distortion
- All seals, except cable seals, have a common diameter cord
- Upper section of air box is retained
- Air box aligned is adjustable for varying cable diameters
- No tools are required to split air box for insertion of cable and duct
- On/off air control valve with automatic air exhaust from duct when in "off" position

### **Storage Case**

Comprising

- Operating Manual
- Instructional Video

### **Cable Feeder**

- Manufactured in cast aluminium
- Hydraulically powered
- Unit lifts and splits to allow insertion of cable between drive belts
- Drive belts are profiled polyurethane, moulded
- Belt tension can be set by means of adjustable chain drive tensioners fitted to the side of the unit
- System relief valve fitted as standard

### **Tool Box**

- 3mm Allen Key
- 4mm Allen Key
- 5mm Allen Key
- 6mm Allen Key
- 3mm dia. Cord x 2.5 metres long
- Silicone Grease
- Super Glue
- Metaflux 70-88 Chain Spray
- Pliers 150mm
- Screwdriver 150mm (slot)
- Knife
- 13-17mm A/F Spanner

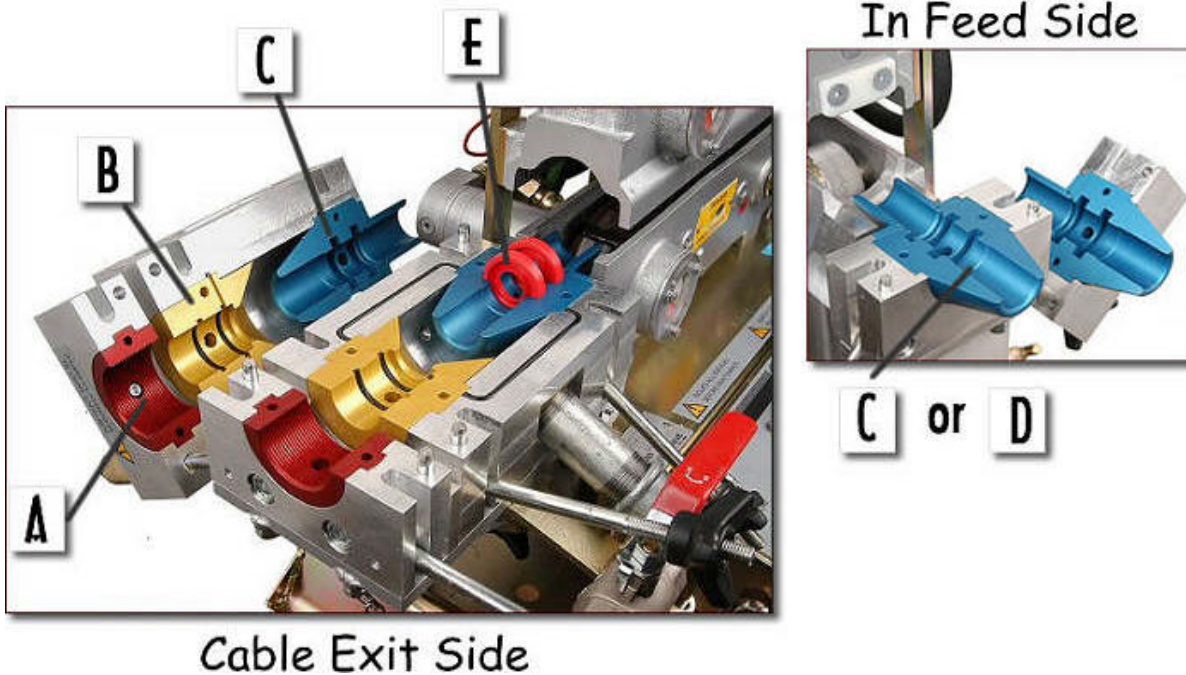


**NB: Please Specify Cable And Duct Diameters When Ordering**

## TORNADO Configuration for Cable Blowing

In order to customise your new "Tornado" to your application, we ask that you pick, one each from the list below, the Duct Clamp Collet (A), the Duct Seal Collet (B), the Cable Collet Assy (C) and the In Feed Cable Collet (D), the Cable Seals (E) and the Cable Seal Plug F).

When ordering, please have Tube and Cable dimensions available.



A) Duct Clamp Collet

Duct O.D	Part No
25mm	C-1258-0200-25
32mm	C-1258-0200-32
38mm	C-1258-0200-38
40mm	C-1258-0200-40
50mm	C-1258-0200-50



B) Duct Seal Collet

Duct O.D	Part No
25mm	C-1257-0202-25
32mm	C-1257-0202-32
38mm	C-1257-0202-38
40mm	C-1257-0202-40
50mm	C-1257-0202-50

C) Cable Collet Assembly & D) In-Feed Cable Collet



Cable Diameter	Part No for Cable Collet Assy (C)	Part No for In-Feed Cable Collet (D)
6-9mm	C-1256-0103-06-09	C-1256-0104-06-09
9-12mm	C-1256-0103-09-12	C-1256-0104-09-12
12-16mm	C-1256-0103-12-16	C-1256-0103-12-16
16-20mm	C-1256-0103-16-20	C-1256-0103-16-20
20-24mm	C-1256-0103-20-24	C-1256-0103-20-24
24-28mm	C-1256-0103-24-28	C-1256-0103-24-28
28-32mm	C-1256-0103-28-32	C-1256-0103-28-32

## TORNADO Configuration for Cable Blowing - Con't/d

### E) Cable Seals (Supplied in Packs of 10 Seals)



Cable Diameter	Part No
6-7.5mm	C-1255-0208-06-07.5
7.5-9mm	C-1255-0208-07.5-09
9-10.5mm	C-1255-0208-09-10.5
10.5-12mm	C-1255-0208-10.5-12
12-14mm	C-1255-0208-12-14-F
14-16mm	C-1255-0208-14-16-F
16-18mm	C-1255-0208-16-18-F
18-20mm	C-1255-0208-18-20-F
20-22mm	C-1255-0208-20-22-F
22-24mm	C-1255-0208-22-24-F
24-26mm	C-1255-0208-24-26-F
26-28mm	C-1255-0208-26-28-F
28-30mm	C-1255-0208-28-30-F
30-32mm	C-1255-0208-30-32-F

### F) Cable Seal Plugs



Cable Diameter	Part No
6-7.5mm	C-1256-0206-07.5
7.5-9mm	C-1256-0206-09
9-10.5mm	C-1256-0206-10.5
10.5-12mm	C-1256-0206-12
12-14mm	C-1256-0206-14
14-16mm	C-1256-0206-16
16-18mm	C-1256-0206-18
18-20mm	C-1256-0206-20
20-22mm	C-1256-0206-22
22-24mm	C-1256-0206-24
24-26mm	C-1256-0206-26
26-28mm	C-1256-0206-28
28-30mm	C-1256-0206-30
30-32mm	C-1256-0206-32

All imperial sizes are available on request



## Hydraulic Power Pack

A lightweight, trolley mounted, hydraulic power pack, with pre-set internal system protection relief valve and quick release connectors.

The unit is powered by an air-cooled, 6hp petrol driven engine, delivering 15 litres/min at upto 120 bar from the hydraulic circuit. The circuit is protected with return line and suction filters.

The unit is mounted on a robust, pneumatic wheeled, trolley and is supplied with 2 x 7m storable hydraulic hoses, complete with quick release couplings.

The unit is CE approved.

### SPECIFICATION

<b>Height:</b>	960mm
<b>Length:</b>	820mm
<b>Width:</b>	510mm
<b>Weight (incl. Hoses):</b>	60kg
<b>Hydraulic Tank Capacity:</b>	22 litres

## Universalube

Universalube is a water-based preparation based on wax and silicone polymers. It is easily applied and exhibits excellent coverage.

It is non-toxic, non-flammable and has no physical or chemical effects on cable sheath or sub duct. It can be used on cable blowing or pushing.

### Typical Properties

<b>Appearance:</b>	Milky Mobile Liquid
<b>SG:</b>	Approx 1
<b>Viscosity:</b>	2500 – 4000 cst
<b>PH:</b>	6 - 8



### ORDERING DETAILS

Product No	Description
C-1200-0543-01	Hydraulic Power Pack c/w Trolley – Petrol Driven Engine
C-1200-0543D-01	Hydraulic Power Pack c/w Trolley – Diesel Driven Engine



### ORDERING DETAILS

Product No	Description
C-LUBE-02-F	Universalube Lubricant – 20 Lts

## Compressors

All compressors are fitted with air coolers, condensation separator and air filtration and come mounted on a two-wheel trailer.



### SPECIFICATION

Duct Inner Bore	Model	Make	Output at 12 Bar (174 psi)	Weight	Length over towbar	Width	Height
20-25mm	C-M80-F	Kaeser	215 cfm (6.1m <sup>3</sup> /min)	1480kg	4.50m	1.78m	1.51m
25-32mm	C-M100-F	Kaeser	254 cfm (7.2m <sup>3</sup> /min)	1465kg	4.12m	1.78m	1.51m
32-40mm	C-COMP-F186-1-F	Atlas Copco	370 cfm (10.5m <sup>3</sup> /min)	1883kg	4.5m	1.70m	1.66m
32-40mm	C-COMP-C115-12-f	CompAir	406 cfm (11.5m <sup>3</sup> /min)	1995kg	4.5m	1.8m	1.8m

**Note:** Above are the minimum requirements based on duct diameter. Always select the compressor size to suit the largest duct diameter. For larger duct sizes consult CBS Products Ltd.



### OPTIONAL ACCESSORIES

Product No	Description
C-AIR-HA-24X015	Air Hose Assy fitted with 1inch JAYMAC Couplings x 15M long

## Compressed Air Cooler

Ideally the compressed air entering the Cable Blowing Machine should be cool and moisture free to optimise the cable blowing process. This is achieved by a Compressed Air Cooler.

The air cooler, fitted with an air driven fan, is installed between the compressor and blowing machine.

The air supply is filtered, lubricated and has a water separator with an automatic condensate drain.

Operating at pressures up to 15 Bar, capacity 370cfm.

### SPECIFICATION

#### SHIPPING DIMENSIONS

<b>Length:</b>	1.2m
<b>Width:</b>	0.78m
<b>Height:</b>	1.4m
<b>Weight:</b>	124kg



## ORDERING DETAILS

Product No	Description
C-1226-02	Trolley Mounted Aftercooler Unit



## OPTIONAL ACCESSORIES

Product No	Description
C-AIR-HA-24X015	Air Hose Assy fitted with 1inch JAYMAC Couplings x 15M long

## Cable Fleeter

The Fleeter replaces the manual method of "figure of eighting" cable, and provides protection and security for the cable.

Following installation of the cable in the first leg of the duct route the balance of the cable is removed from the drum and fed into the "Fleeter", thereby releasing the cable end ready for blowing into the second leg.

The Fleeter provides a smooth and simple system whilst ensuring cable protection from pedestrians or vehicles and prevents contamination from mud, soil or dust.

The Fleeter is designed to work in conjunction with the Cable Blowing Machine, which provides the cable feed in and out of the "Fleeter".

The unit accepts 2,000 metres of 13mm cable, allowing drum lengths of 4,000 metres to be utilized.

The Fleeter consists of a road going trailer chassis upon which is mounted a cable storage cassette, rotating cable guide quadrant and duct clamp assembly.

### SPECIFICATION

**Dimensions:** 3.42m long x 2.3m wide x 2.33m high

**Tyre Size:** 145R 10

**Brakes:** Interia type brakes with auto reverse

**Cassette:** 2m x 0.85m high

#### **Rear Corner**

**Steadies:** 2 off

#### **Spirit Level**

**Mounted:** 1 off

**Towing Hitch:** Eye – 30mm, 40mm, 50mm  
Ball Type – 50mm  
*Specify at time of ordering*

**Weight:** 325kg



## ORDERING DETAILS

Product No	Description
C-1265-20-01-R1	Cable Fleeting Device



## Duct Checking Equipment

Direct buried ducts can suffer from compaction, reduction or other obstructions, therefore, before cable installation begins, CBS recommends that each length of duct is checked for continuity and freedom from obstruction. Various items of hardware are available for checking the ducts.

A precision locator supplied with an appropriate duct Sonde(s), allows the duct route to be checked for continuity. The Sonde transmitter is blown along the route length, stopping at any blockage. The blockage is found by locating the Sonde with the locator.

Please state the duct inside dimensions when ordering.



### ORDERING DETAILS

Product No	Description
C-RD-CAT -F	Precision Locator



Each Sonde is supplied with a Stocking, which is fitted over the end of the Duct to catch the Sonde upon exit.

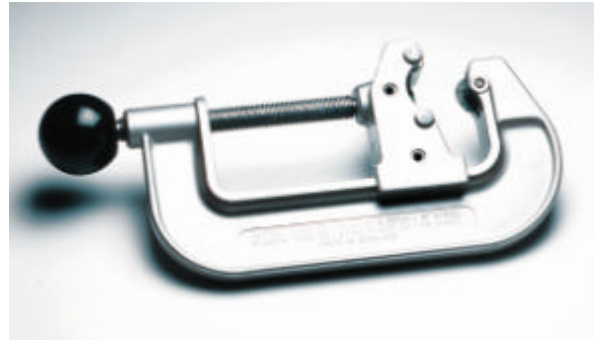


### ORDERING DETAILS

Product No	Description
C-R-SONDE -29	Missile Sonde – 29mm
C-R-SONDE -33	Missile Sonde – 33mm
C-R-SONDE -38	Missile Sonde – 38mm
C-R-SONDE -40	Missile Sonde – 40mm
C-R-SONDE -45	Missile Sonde – 45mm
C-R-SONDE -50	Missile Sonde – 50mm

## Plastic Duct Cutter

Quick and easy to use the adjustable die cast circumferential cutter provides a clean cut of plastic ducts



### SPECIFICATION

Duct Dia Range: 13 – 43mm  
25 – 81mm

### ORDERING DETAILS

Product No	Description
D-291-12-43-F	Duct Cutter 12-43mm
D-291-25-81-F	Duct Cutter 25-81mm
D-291-01-F	Spare Cutter Wheel

## Plastic Duct Slitter

Tool for longitudinal cutting of duct, and removal of spare duct from installed cable



### ORDERING DETAILS

Product No	Description
D-290-F	Plastic Duct Slitter

## Pressurisation Kit

The CBS Duct Pressurisation Kit has been designed to test the integrity of the duct by checking that the duct has no leaks. This will confirm that the duct holds air pressure, prior to cable blowing.

The kit comprises of a pressure regulator with gauge and valves. The system connects to the compressor and the duct for pressurising. Once up to pressure the air in the duct is locked in and the pressure monitored.



## ORDERING DETAILS

Product No	Description
C-1262	Pressurisation Kit
C-1262-50	50mm Duct Connector
C-1262-40	40mm Duct Connector
C-1262-32	32mm Duct Connector
C-1262-25	25mm Duct Connector

Other sizes of duct connector are available, please consult.

## Tube Blowing Conversion Kits

The tube blowing conversion kits are initially used to convert an existing Tornado Cable Blowing Machine into a Tube Blowing Machine for installing micro tubes into ducts. If additional Tube Bundle Configurations were required, additional Tube Kits would be needed.

### Each Conversion Kit Contains: -

- 2 off - Hydraulic Motors
- 2 off - Drive Chassis (upper & lower)
- 1 off - Tube Guide Collet
- 1 off - Tube Guide & Screws
- 1 off - Roller Bracket Assembly
- 1 off - Venturi Collet



### Tube Conversion Kits

Tube Bundle Configurations	Tube Kit Codes
3 x 12mm	C-1250-CON-3x12
4 x 12mm	C-1250-CON-4x12
7 x 10mm	C-1250-CON-7x10
5 x 10mm	C-1250-CON-5x10
4 x 10mm	C-1250-CON-4x10
3 x 10mm	C-1250-CON-3x10
10 x 7mm	C-1250-CON-10x7
7 x 7mm	C-1250-CON-7x7
6 x 7mm	C-1250-CON-6x7

**Other Tube Bundle Configurations available on request (please consult)**



## 'J' Junction Box

The CBS Cable Overblowing Junction Box has been designed to install a new cable into an existing occupied sub-duct (subject to space being available). Or alternatively used for blowing micro tubes over previously installed cable.

The Cable Overblowing Junction Box comprises a robust aluminium base and lid that form a pressurised air chamber into which one end of an existing occupied sub-duct can be attached.

The existing cable can exit the Cable Overblowing Junction Box from either of the two branches to suit the best installation, the vacant branch is then connected to a CBS Cable Blowing Machine via a short slave length of sub-duct for the installation of the extra cable.

A range of customer selected cable seals, cable collets and sub-duct collets are available for cable or duct tube installation using the CBS Overblowing Junction Box.

### SPECIFICATION

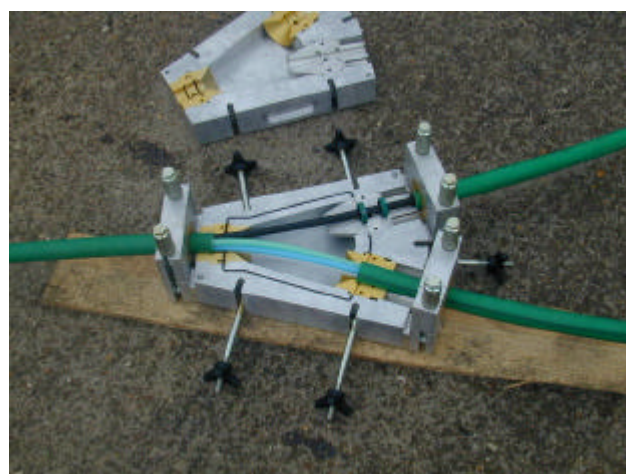
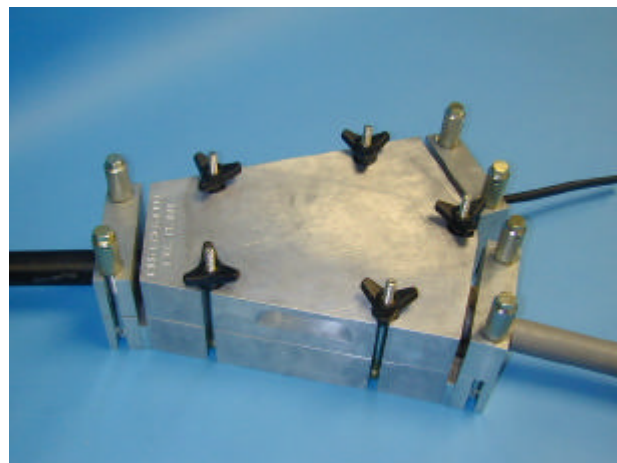
#### **Cable Diameters**

The maximum diameter of a new cable for installation is dependent on the diameter of the existing cable and the duct size.

<b>Cable Range Limit:</b>	6 – 20mm O/D
<b>Duct Range Limit:</b>	40 – 63mm O/D
<b>Installation Principle:</b>	Viscous Drag
<b>Max Operating Pressure:</b>	12 Bar
<b>Length:</b>	455mm
<b>Width:</b>	330mm
<b>Height:</b>	180mm

<b>Weight:</b>	25kg (no collets)
	29kg (with collets)

<u>Duct Inner Dia</u>	<u>Minimum Flow Acceptance</u>	
0 upto 25mm	4m <sup>3</sup> /min	150 cfm
26 upto 30mm	5m <sup>3</sup> /min	185 cfm
31 upto 35mm	7m <sup>3</sup> /min	250 cfm
36 upto 40mm	10m <sup>3</sup> /min	375 cfm
41 upto 44mm	12m <sup>3</sup> /min	450 cfm



### ORDERING DETAILS

<b>Product No</b>	<b>Description</b>
C-1254-001-01	Junction Box

**NB: Please specify Duct and Cable Sizes when ordering**

## C-1253 CABLE OVERBLOWING JUNCTION BOX

The CBS Cable Overblowing Junction Box has been designed to install a new cable or duct-tubes into an existing occupied sub-duct (subject to space being available).

The Cable Overblowing Junction Box comprises a robust aluminium base and lid that form a pressurised air chamber into which one end of an existing occupied sub-duct can be attached. The existing cable can exit the Cable Overblowing Junction Box through an opening that has 3 cable seal slots, one of which will house the seal to suit the size of the existing cable. The third branch is then connected to a CBS Cable Blowing Machine via a short slave length of sub-duct for the installation of the extra cable or tube(s).

A range of Overblowing junction boxes are available to suit the outside diameter of the sub-duct.

### CABLE DIAMETERS

The maximum diameter of a new cable / tube(s) for installation is dependent on the diameter of the existing cable and duct bore.

It is the responsibility of the operator to ensure that the cable / tube(s) to be installed are compatible with the existing sub-duct and installed cable configuration.

Cable range limit 9-20 mm O.D.

Duct range (Note: one duct O.D. size per unit)

Minimum 25 mm O.D

Maximum 50 mm O.D

### INSTALLATION PRINCIPLE

Viscous Drag



### PNEUMATIC SYSTEM

Max. operating pressure 12 Bar

### For Ducts with an Inner Diameter of: Minimum Flow Acceptable

0 up to 25mm	: 4m <sup>3</sup> /min	150 CFM
26 up to 30mm	: 5m <sup>3</sup> /min	185 CFM
31 up to 35mm	: 7m <sup>3</sup> /min	250 CFM
36 up to 40mm	: 10m <sup>3</sup> /min	375 CFM
41 up to 44mm	: 12m <sup>3</sup> /min	450 CFM

### DIMENSIONS

LENGTH:	295 mm
HEIGHT:	74 mm
WIDTH:	170 mm
WEIGHT:	4 kg

### ORDERING DETAILS

Product No	Description
C-1253-25	25mm Duct o.d.
C-1253-32	32mm Duct o.d.
C-1253-38	38mm Duct o.d.
C-1253-40	40mm Duct o.d.
C-1253-50	50mm Duct o.d.

Other sizes available on request.

For unit with interchangeable collet sizes see C-1254.