



An Introduction to Underground Cable Installation

Placing cables underground has traditionally been seen as a more costly solution than an overhead alternative, however lower cost production methods such as XLPE over lead or oil filled cables, improved technologies and installation methods and increased reliability means the cost differential between underground cables and overhead power lines is narrowing.

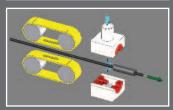
Underground placement is necessary and unavoidable in certain areas for various reasons such as nature and heritage conservation, natural obstacles, aesthetics, space and safety. Placing cables underground has the added benefits of reducing transmission losses, aiding planning consent, eliminating health concerns over electromagnetic radiation and reduced risk of service supply loss through extreme weather. There are a number of methods for underground cable installation, the most common being:

- DIRECT BURIAL: a trench is dug, the cable placed in the trench and then backfilled. Although it is the most economical method with very little force placed on the cable during installation, problems include interactions between cable and soil (eg temperature insulation), damage to cable in installation, difficulty in repairing or replacing the cable.
- WINCHING: a winch bond is fed through a pre-laid duct, connected to the cable and then winched back through the duct to place the cable. Problems with winching can include limited pull lengths, damage to duct from winch rope, damage to cable from rubbing on duct and large pulling forces on cable. This method is normally used for installing heavier electrical cables.
- BLOWING OR JETTING: uses a combination of a fluid such as compressed air forced into a pre-laid duct to create drag on the cable and a pusher mechanism to place the cable into the duct. This method is ideally suited to lighter telecom cables, however advances have been made to apply this method to heavier electrical cables.

If you need further assistance, please do not hesitate to call us on 01234 855855 and we will be pleased to help you.







IMPORTANT SAFETY INFORMATION

The following safety information should be taken into account in conjunction with your company's own operational procedures and policies.

When planning a route ensure that the installation route is as straight and level as possible to reduce damage to cable. Ensure that any bends in the route are suitable for the minimum bending radius of the cable. Ensure that the cable is suitable for the duct size to be used - too large a fill ratio can prevent a successful installation. Software is available to predict maximum cable installation lengths to assist in the accurate planning and design of routes and duct/cable specification.



Caution: Underground cable installation should only be carried out by workers who have been thoroughly trained in correct and safe operating procedures. You should consult your own company's Health and Safety and Working Practices and Procedures before commencing any cable installation work.

Before commencing work, ensure that an adequate risk assessment has been conducted and that care is taken regarding any infrastructure in close proximity such as gas or water mains, electrical cables, railways and roads. Ensure you have a permit to dig if required and that the correct procedures for excavation work are followed.

Before installing the cable, check the cable drum for signs of damage. Ensure that the cable is not damaged as it is pulled off the drum and fed into the duct by using suitable rollers and duct entry chutes taking into account the minimum bending radius of the cable. Ensure that the maximum pulling force is set to a suitable value such that the cable cannot be tensioned greater than the manufacturer's instructions. To assist in reducing the winch force and extending install length, use a suitable lubricant.



Our commitment to you

Clydesdale is the UK's leading specialist in cable installation equipment for the Electricity and Telecommunications industries. Established in 1982, we pride ourselves on having a complete understanding of the tools required and the personal protective equipment (P.P.E.) needed to work safely and correctly within the Electricity and Telecommunication industries.

Our expertise in these markets throughout Europe means that we are able to offer complete bespoke solutions to each situation or requirement as well as full after sales support and advice.

All Clydesdale products are fully accredited (where applicable) to meet the latest standards and we are constantly developing our range to offer you the most comprehensive selection of tools and clothing available.

If you have any questions or require further information please contact our Customer Services Department on +44 (0)1234 855855. We will be pleased to talk to you about your exact requirements.

ISO 9001:2008 Accredited

This represents our commitment to quality, not only through our product range, but also in relation to the services we offer and the internal workings of the company.



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Powering the Future



CLY 750 3-1000

1000kg Multi-Purpose Winch (Model 210)

This particular winch is designed for use on both overhead lines and underground cables. A very compact and lightweight trailer winch, the 210 features a simple yet robust, 25 year proven double capstan design to provide a constant, fixed input point pulling force. The 210 has a dynamometer which allows the maximum pulling force to be adjusted and preset up to 1000kg for specific occasions.

When used on underground cable work, a boom can be used to allow horizontal line pulls below ground (sold separately). It is recommended that a wire rope be used for underground cable work. A rope drum holding 500m of 5mm IWRC wire rope is available separately.

Part No.	Pulling Force (kgs)	Speed (m/min)	Engine	Dimensions (mm)	Weight (kgs)
CLY 750 3-1000	Up to 1,000	0-15	4-Stroke Honda 8HP	L2500, W1270, H1050	260 (w/o rope)



CLY 750 2-2000



CLY 750 2-3000

Underground Cable Winches

The Clydesdale Underground Cable Winches are hydraulically operated machines with variable pulling speed and force.

By having double capstan wheels, these winches differ from a drum winch as follows:

- Always the same uniform pulling force and speed no matter how much cable/rope there
 is on the collecting drum
- Fixed input point, that is, no lateral wander of the cable/rope

Featuring infinite control of speed and pulling force, both forward and reverse, the winches have an automatic rope-layering device which protects the bond and reduces the operating time. A manometer is incorporated to ensure that the maximum pulling force can be set according to the specifications of the cable manufacturer. The winches are supplied with a braked swivel to protect the integral wire bond.

The trailer is fitted with rubber suspension wheel axle, overrun brake with handbrake, adjustable support legs and RTA compliant lighting and is supplied with weatherproof cover.

A boom for winching operations below ground is available for this winch as is an electronic data recorder for accurately measuring pulling force, speed and length.

Part No.	Pulling Force (kgs)	Speed (m/min)	Engine	Wire Rope (mm x m)	Dimensions (mm)	Weight (kgs)
CLY 750 2-2000	Up to 2,000	0-40	Briggs & Stratton 4-Stroke 18HP Electric Start	8 x 500 IWRC	L2370, W1520, H1050	800
CLY 750 2-3000	Up to 3,000	0-55	Lombardini Diesel 28HP Electric Start	12 x 600 IWRC	L3630, W1850, H1250	1600



Mini Winch

The Mini Winch is used for running pilot ropes or small cables through a duct. The winch slots into a manhole opening and the rope is pulled with the assistance of the capstan wheel and its innovative design means that it can be made to fit different types of manhole openings.

The engine is a reliable 4 stroke, 2HP Honda and the winch is light enough for one man to carry. The Mini Winch also features an emergency stop button as standard for added safety.



CLY 750 3020

Part No.	Pulling Force (kgs)	Capstan Diam (mm)	Speed (m/min)	Engine	Dimensions (mm)	Weight (kgs)
CLY 750 3020	150	100	0-50	2HP 4-Stroke Honda	640 x 640 x 370	21

ATCC Pilot Rope Bond Blower

Designed to quickly and easily install steel or wire winch bond into pre-laid PVC duct, the ATCC is quickly revolutionising the cable pulling industry.

The ATCC takes compressed air and uses it to effectively push the Duct Bird down the pre-laid duct. The Duct Bird, having already been attached to the winch bond, simply pulls it down the duct. In a recent demonstration it has been proven to pull 500m of 11mm wire winch bond in just 7 minutes.

The ATCC does away with the three-stage rodding process which, up until now, has been the only method available for the placement of the winch bond.

The ATCC Bond Blower will not damage the duct and gives the user complete control of the bond. Available for use on duct IDs of 2" to 6", the ATCC is safe, simple and easy to use and makes use of existing standard compressors which in turn means that winching can commence almost immediately upon arrival to site.

The bond blower is available as two kits - one for duct internal diameters 4" to 6", and the other for duct internal diameters 3" to 6". Both kits weigh just over 30kgs and are supplied in a stainless steel kit box complete with blower head, air hose assembly and Duct Birds.

Part No.	Duct Sizes (")	Kit Weight (kgs)
CLY 730 100	4-6	31
CLY 730 101	3-6	34

Silicone Plus - Cable Pulling Lubricant

Silicone Plus is specially formulated to assist the pulling of cables into plastic ducts under normal temperatures (-5 to 45° C). Available with (NB) or without (NN) small frictionless roller balls it will degrade naturally and will not damage the cable sheathing.

Part No.	Description	Temperature Range
CLY 745 NN-640	Silicone Plus No Balls	-5 to 45°C
CLY 745 NB-640	Silicone Plus With Balls	-5 to 45°C



LY 730 100





CLY 745 NN-640







CLY 000 106/40



CLY 000 206/20

Cable Stockings & Grips

Clydesdale can supply approximately a thousand variants of the cable stocking. Indicated below are details of our common stockings. Contained within this catalogue are details on six varieties of stockings. If the type you require is not shown here please contact Clydesdale or visit www.clydesdale.net for more information. Other varieties of stocking available include the following;

- Double Eye
- Single Eye Fleeting
- Lace Up (split)
- Triple Weave
- Double Eye Lace Up
- Sleeve (Open Ended)
- Closed Loop
- Threaded Anchor
- Light Duty
- Joining Grips
- Made to Order
- Non Conductive

Single Eye Stocking, Double Weave, General Duty

Cable Ø	Part No. (prefix by CLY 000) L = 600 (a) L = 900 (b)		Min Break Load (kgs)	(a)	(b)
6-10	106/06	109/06	1504	0.12	0.32
10-20	106/10	109/10	1860	0.17	0.38
20-30	106/20	109/20	2256	0.20	0.47
30-40	106/30	109/30	3696	0.29	0.52
40-50	106/40	109/40	5490	0.63	0.95
50-65	106/50	109/50	5490	0.65	0.94
65-80	106/65	109/65	7320	0.83	1.20
80-95	106/80	109/80	7320	0.91	1.31
95-110	106/95	109/95	10613	1.30	2.10
110-130	106/110	109/110	10613	1.30	2.10
130-150	106/130	109/130	10613	1.40	2.50
150-180	106/150	109/150	12736	1.45	2.5

Double Eye Stocking, Double Weave, General Duty

Cable Ø	Part No. (prefix by CLY 000)		Min Break	_	nt (kg)
Capie v	L = 600 (a)	L = 900 (b)	Load (kgs)	(a)	(b)
10-20	206/10	209/10	1860	0.25	0.40
20-30	206/20	209/20	2256	0.27	0.42
30-40	206/30	209/30	3696	0.41	0.58
40-50	206/40	209/40	5490	0.60	0.76
50-65	206/50	209/50	5490	0.65	0.84
65-80	206/65	209/65	7320	0.83	1.15
80-95	206/80	209/80	7320	0.85	1.23
95-110	206/95	209/95	10613	1.40	2.3
110-130	206/110	209/110	10613	1.40	2.3

Eg: To order a double eye, double weave stocking with 900mm grip length for a 35mm diam cable, order part no. CLY 000 209/30.



Triple Weave Stocking, for use when extra high loads are needed

Cable Ø	Part No. (prefix Single Eye	k by CLY 000) Double Eye	Length (mm)	Min Break Load (kgs)	Weight (kgs)
6-13	TW1/FE6	TW2/FE6	700	2250	0.22
12-19	TW1/FE12	TW2/FE12	825	3380	0.39
19-25	TW1/FE19	TW2/FE19	1050	5540	0.80
25-32	TW1/FE25	TW2/FE25	1300	9550	1.50
32-38	TW1/FE32	TW2/FE32	1500	11456	1.96
38-48	TW1/FE38	TW2/FE38	1900	11456	2.10
48-63	TW1/FE48	TW2/FE48	1900	15051	2.20

Swivels

Clydesdale offers three types of Swivels - Articulated, Straight and Braked. All are manufactured of high quality tensile steel and galvanised for longevity. Articulated swivels articulate up to 5 degrees to assist when pulling over small pulley blocks or around tight angles.

Special braked swivels should be used on Underground Cable Winches to protect the wire bond. If an unbraked swivel is used, the tension on the bond will cause it to unravel due to the way the bond is wrapped. A braked swivel does not allow this to happen, thus protecting the bond.



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Part No.	Туре	Swivel Diam (mm)	Max Rope Diam (mm)	Length (mm)	Pulling SWL (kgs)	Weight (kgs)
CLY 000 SWIVEL 10	Articulated	20	6	62	800	0.1
CLY 000 SWIVEL 11	Articulated	32	10	125	2000	0.5
CLY 000 SWIVEL 12	Articulated	45	15	195	4000	1.4
CLY 000 SWIVEL 15	Straight	32	15	120	2600	0.5
CLY 000 SWIVEL 16	Straight	45	19	170	6000	1.2
CLY 000 SWIVEL 17	Straight	60	24	220	12000	3
SS 7200 1200	Braked	40	12	120	2000	0.7
SS 7200 1400	Braked	50	16	140	3000	1.1

Wire Winch Ropes

It has been proven by a wide variety of investigations that when pulling cable through a plastic duct that the use of wire pulling bonds significantly reduces the damage to the duct. This is predominantly due to the heat dissipation of the wire rope as opposed to a synthetic rope. The variety and choice of wire rope bonds currently available are far too extensive to list here, please contact us with your requirements. Wire ropes are available with a fibre core or independent wire rope core (IWRC) and various end fittings and eyes.



Powering the Future



CLY 740 DF6-02



WATUCAB







DF6 Hydraulic Cable Pusher

Designed to be used in conjunction with a cable winch or with other cable pushers in cascade, the DF6 has two hydraulically driven drive belts in a V formation and a top 4 roller pressure device which exerts a 'push force' onto the cable without damaging it.

Ideally suited for the installation of cables into pre-laid ducts, this cable pusher can also be used for more conventional cable pulls into trenches and the placing of sub ducts into mainline ducts. It can be used on cables with an outside diameter ranging from 25mm-160mm and is supplied complete with petrol powered hydraulic powerpack, hoses and specified top pressure roller. An electric powerpack is also available.

A new WATUCAB cable installation technique has been developed for power cables and uses a number of tandem DF6 Pushers in combination with water forced down the duct allowing cable installation lengths to be doubled compared to traditional winching methods. Please contact Clydesdale for more information.

Part No.	Cable Diam (mm)			
CLY 740 DF6-01	25-50			
CLY 740 DF6-02	28-90			
CLY 740 DF6-03	45-130			
CLY 740 DF6-04	55-160			
Information below is common to all versions				
Max Push Force (kN)	6			
Speed (m/min)	6-21			
Dimensions (mm)	L1155, W380, H697			
Weight (kgs)	158 (DF6 and powerpack)			
Hydraulic Hose Length (m)	7			

Glass-Fibre Duct Rod

Clydesdale glass fibre duct rods are now available in two styles: a standard orange version for jobs such as running pilot ropes for cable winching, running cables in buildings or duct clearing and a black copper core version featuring a copper core wire to allow use with route tracing tools such as a CAT & Genny.

The coating of weather and cold resistant HD Polyethylene gives the rod extreme durability and a very low co-efficient of friction. The rod itself is available in 3*, 6, 9 & 11mm diameters and almost any length thus allowing you to pick the perfect size for any particular job. When ordered complete with a frame, a Lead-in Ball Head (6mm Rod) or Lead-in Head with Shackle is fitted as standard. Order using the following part numbering system:

Prefix	Rod Diam	Rod Length	Version	Frame
CLY 8	DD	LL	0 or 5	FFFF
	03, 06, 09 or 11 I diameter in mm.	Substitute required rod length for LL in metres x 10.	Insert 0 for Copper Core Wire or 5 for Standard.	Insert last four numbers of frame part no. if a frame is required. (See Page 9)

Eg: To order a standard 80m long rod of 9mm diameter on a wheeled frame, use part no. CLY 809 085 0801.

^{*3}mm rod not available in copper core wire version.

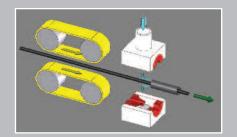


Duct Rod Accessories

Key	Description	Part Number (ZZ 800)					
		3mm Rod (M5)	6mm Rod (M6)	9mm Rod (M12)	11mm Rod (M12)		
1	Horizontal Frame	~	0500 (30-80m)	~	~		
2	Vertical Frame	~	0551 (30-80m)	0800 (30-80m)	1200 (100-200m)		
3	Vertical Frame w/Wheels	~	0552 (30-80m)	0801 (40-80m)	1201 (100-200m)		
				1201 (100-200m)	1202 (250-300m)		
4	End Fitting Male Thread (Resin Fit)	0301	0601	0901	1101		
5	Coupling Joint (Resin Fit)	0302	0602	0902	1102		
6	6mm Lead-in Eyelet	0303	~	~	~		
7	15mm Lead-in Ball Head	~	0603	~	~		
8	50mm Lead-in Roller Head	~	~	0903	0903		
9	40mm Lead-in Bullet Head	~	~	0903B	0903B		
10	Flexi Lead-in Ball Head	0304	0603F	~	~		
11	Swivel Connector	~	0604	0904	0904		
12	Lead-in Head w/Shackle	~	0605	0905	0905		
13	330mm Nylon Duct Brush	0906 080 (Diam 80mm)					
		0906 097 (Diam 97mm)					
			0906 117 ((Diam 117mm)			
14	Remote Connector	~	~	0907 120 (100-120mm Duct)			
				0907 200 (125-200mm Duct)			
15	Devcon Epoxy Resin		0	010			
16	Frame Counter	~	0001	(0002		







Cable Blowing / Jetting Systems

Cable laying with Clydesdale Jetting Equipment consists of using a mechanical feeder to push a cable into a duct, through which flows a powerful air stream. This high-speed airflow exerts a drag on the entire surface of the cable, assisting its progress.

As the cable is not pulled, but pushed and carried along by the airflow it moves easily through the duct following any undulations or changes of direction. As no tractive force is exerted at the front of the cable, it is not subjected to the usual stresses encountered with conventional methods.

This jetting creates a method of efficient installation of long sections of fibre optic, coaxial, multi-pair or even power cables.

The compressor required for the MINIJET®/CABLEJET®/SUPERJET® systems must have the following characteristics:

12 bar max pressure (minimum 8 bar) and 10m³/min flow rate for placing cables in ducts with an internal diameter of up to 42mm. To secure performance when ambient temperature exceeds 30°C, the use of a built in Aftercooler is recommended. A separate Aftercooler can be supplied, should the compressor not be equipped with an Aftercooler.

Any of the machines can be used in a cascade method, and as there is no limit to the amount of machines that can be cascaded, almost limitless lengths can be installed using this method.

Please contact Clydesdale if you would like a demonstration.



ULTIMAZ®

The ULTIMAZ® Blowing Head is designed for jetting or pushing/pulling indoor and outdoor FTTH drop micro-cables with a diameter of between 0.8mm and 4.0 mm. It is powered by most types of existing electrical drills and screwdrivers with an output torque exceeding 0.3 Nm at 250-500 RPM.

The ULTIMAZ® has been designed to be lightweight, compact and easy to use. Low compressed air consumption means jetting with the ULTIMAZ® is possible using easily portable compressed gas bottles. These factors combined means the ULTIMAZ® can give a large increase in productivity.

See Page 13 for seals and inserts which are supplied separately.

Part No.	Pushing Force (N)	Recommended Speed (m/min)	Diam of Micro Cable (mm)	Duct Outer Diam (mm)	Max Pressure (bar)	Dimensions (mm)	Weight (kgs)
CLY 740 ULTIMAZ V20	0-20 (adjustable)	40	0.8-4.0	3.0-12.7	12	188 x 101 x 148	1.7
CLY 740 ULTIMAZ F*	1-15 (fixed)	40	0.8-4.0	3.0-12.7	12	193 x 101 x 156	1.4

ULTIMAZ F^* is equipped with a torque limiter with fixed setting providing a maximum pushing force ranging between 1 and 15 N in accordance with the customer request. For example: ULTIMAZ F5 has a maximum pushing force of 5 N.



MICROJET®

The MICROJET® is designed to blow or float telecom and data cables (fibre optic/coaxial/multipair) into preinstalled microducts and can be used for several methods of installation; cable thruster, puller or a push/pull device by jetting in compressed air.

It is available in several different versions with either a low voltage electric motor or a pneumatic motor powering the drive wheels. It is available with or without a patented adjustable magnetic clutch for installing smaller, delicate cables.

See Page 13 for seals and inserts which are supplied separately.

The PRM-196 version has a detachable adjustable magnetic clutch. This allows the machine to be used for fibre bundle installation with the clutch fitted for infinite pushing force control and microduct installation using direct drive with the clutch removed for increased pushing force.



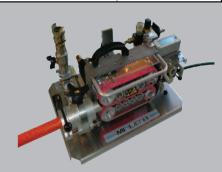
Part No.	CLY 740 100 2	CLY 740 100 3	CLY 740 100 4	CLY 740 100 1
Description	EM-25	PRM-196*	PRM-140	ER-60
Motor	Electric	Pneumatic	Pneumatic	Electric Motor
Drive	Adjustable Magnetic Clutch	Detachable Magnetic Clutch/Direct Drive	Direct Drive	Direct Drive
Pushing Force (N)	25	25/150	150	60
Max Speed (m/min)	50	50/120	120	60
Recommended Speed (m/min)	30-40	20/50	50	40
Cable Diam (mm)	<3.5	<3.5/3.0-8.0	3.5-8.0	2.5-6.0
Duct Outer Diam (mm)	3.0-8.0	3.0-8.0/7.0-12	7.0-12	7.0-12
Max Pressure (bar)	16	16	16	12
Dimensions (mm)	L240, W150, H90	L280, W250, H335	L260, W250, H270	L240, W150, H190
Weight (kgs)	6.5	6.7	6	5

MINIJET®

The MINIJET® is designed for blowing or floating telecommunication cables (optical fibre, coaxial or multipair) into preinstalled ducts. The machine is based upon the proven CABLEJET® and has been designed for ease of use and requires no tools and minimum maintenance. It has a very simple, quick belt change operation and up to 3000m of cable can be blown at a time dependant upon the duct and route quality. The MINIJET® is also capable of blowing a bundle of microducts.

See Page 13 for seals and inserts which are supplied separately.

Part No.	CLY 740 MINIJET
Pushing Force (N)	0-300
Max Speed (m/min)	100
Recommended Speed (m/min)	60
Cable Diam (mm)	4.0-16
Duct Outer Diam (mm)	8.0-40
Max Pressure (bar)	16
Dimensions (mm)	L520, W375, H380
Weight (kgs)	20



CLY 740 MINIJE





CLY 740 2001



CLY 740 3001

CABLEJET®

The pneumatic CABLEJET® is designed for blowing or floating telecom cables (mainly optical fibre, but also small coaxial and multipair cables) into preinstalled ducts. It can install cable lengths of between 1000m to 3000m at a speed of up to 80m per minute.

The CABLEJET® is a very compact cable laying machine and comes supplied with a storage box for the CABLEJET®, tools and accessories, air hose and connectors, speed and distance counter, user manual and Jetlube.

See Page 13 for seals and inserts which are supplied separately.

Part No.	CLY 740 2001
Pushing Force (N)	300
Max Speed (m/min)	80
Recommended Speed (m/min)	60
Cable Diam (mm)	9.0-18
Duct Outer Diam (mm)	20-63
Max Pressure (bar)	12
Dimensions (mm)	L520, W320, H230
Weight (kgs)	21

SUPERJET®

The SUPERJET® is designed for installing similar cables to the CABLEJET®, but has a chain pushing mechanism and a greater pushing force allowing placement of larger diameter armoured, fibre optic, coaxial multipair and power cables. Available as either Pneumatic or Hydraulic, it is supplied with a storage box for SUPERJET®, tools and accessories, air hose and connectors, speed and distance counter, user manual and Jetlube.

Using adaptor kits for the chains, the SUPERJET® can also be used to install bundles of microducts of 7 or 10mm in diameter. The hydraulic version uses a hydraulic powerpack (supplied separately) to drive the motors and compressed air for jetting while the pneumatic version uses compressed air for both functions.

See Page 13 for seals and inserts which are supplied separately.

Part No.	CLY 740 3001	CLY 740 3001 P
Description	Hydraulic	Pneumatic
Pushing Force (N)	700	600
Max Speed (m/min)	60	60
Recommended Speed (m/min)	40	40
Cable Diam (mm)	10-28*	14-24
Duct Outer Diam (mm)	20-63	20-63
Max Pressure (bar)	12	12
Dimensions (mm)	L915, W260, H410	L900, W345, H350
Weight (kgs)	37	35

^{*10-42}mm is also available - please contact us for more details.

CLYDESDALE Powering the Future

<u>e</u>	Cable L	Cable Lip Seal Cable		e Insert Duct Insert			Duct 0-Ring	
Machine	Cable Range	Part Number	Cable	Part Number	Max Duct OD	Max Cable	Part Number	Part Number
Mac			Diameter			Diameter		
	1.4-2.3	N276 037	1.1	N276 040	5	-	-	N276 018
	1.4-2.3	N276 037	1.5	N276 041	5	-	-	N276 018
l l	2.4-3.3	N276 036	2.5	N276 032	3	-	-	N276 020
naz					4	-	-	N276 019
Ultimaz	3.4-4.3	N276 042	4	N276 033	5	-	-	N276 018
-					6	-	-	N276 017
	3.4-4.3	N276 042	4	N276 034	7	-	-	N276 016
	0.0.1.1	N070 440	1.0	N070 057	8	-	-	N276 012
	0.8-1.1	N273 116	1-3	N273 057	3	1.8	N273 083	N273 069
	1.1-1.4	N273 132 N273 061			5	2.8 1.8	N273 110 N273 108	N273 111 N273 066
	1.4-2.3 2.4-3.3	N273 061 N273 062			5	2.8	N273 106 N273 084	N273 066
	EPFU 1.08	N273 002 N273 152			6	3.0	N273 004 N273 072	N273 066
	EPFU 1.1	N273 120			7	1.8	N273 072	N273 050
jet	EPFU 1.45	N273 147			8	2.8	N273 129	N273 055
Microjet	EPFU 1.5	N273 144			0	2.0	14270 123	14270 000
Ξ	3.4-4.3	N273 049	4-8	N273 127	7	4.8	N273 115	N273 050
	4.4-5.3	N273 051	. 0		8	3.8	N273 070	N273 055
	5.4-6.3	N273 085			8	5.6	N273 060	N273 055
	6.4-7.3	N273 113			10	7.5	N273 119	N273 052
	7.4-8.0	N273 121			12	8.0	N273 128	N273 056
					14	8.5	N273 170	N273 038
	3.4-4.3	N273 049	4-5	N274 064	8	-	N274 044	N273 055
	4.4-5.3	N273 051			10	-	N274 045	N273 052
	5.4-6.3	N273 085	6-8	N274 051	12	-	N274 046	N273 056
ا یا ا	6.4-7.3	N273 113			14	-	N274 056	N274 038
Minijet	7.4-8.0	N273 121			15	-	N274 047	-
Ξ	8.5-10.7	N274 011	9-12	N274 052	16	-	N274 054	N274 026
	10.8-12.4	N274 012	40.40	N074.050	20	-	N274 048	- NO74 000
	12.5-14.7	N274 013	13-16	N274 053	25 32	-	N274 049	N274 029
	14.8-16.0	N274 014			40	-	N274 050 N274 072	N274 030
	7	N270 169	1-9	N270 106	20	-	N270 104	-
	8.5	N270 103	1 3	11/2/0 100	25	-	N270 104 N270 105	-
	10	N270 123	9-11	N270 074	29	-	N270 102	_
	10	11270 120	11-12.5	N270 075	32	-	N270 066	-
	12	N270 124			34	-	N270 067	-
	14	N270 125	12.5-14	N270 076	35	-	N270 260	-
	15	N270 126	14-15.5	N270 077	36	-	N270 234	-
	16	N270 151	15.5-18	N270 099	37	-	N270 068	-
ᇥ	18	N270 128			40	-	N270 069	-
erj			17.5-22	N270 079	42	-	N270 070	-
Sup	19	N270 127			44	-	N270 249	-
ţ;	20	N270 144			46	-	N270 173	-
leje	22	N270 145		N070 000	48	-	N270 071	-
Cablejet / Superjet	00	N070 100	22-24	N270 080	50	-	N270 072	
	23 25	N270 129 N270 130	24.20	N270 096	57 60	-	N270 235 N270 073	-
	28	N270 130 N270 146	24-28	NZ/ U U90	60 63	-	N270 073 N270 100	-
	20	11/2/0 140	28-32	N270 230	03	-	11/2/0 100	
	30	N270 226	20.02	11/2/0/200				
	32	N270 220						
	02		32-38	N270 225				
	35	N270 228	00	5 225				
	38	N270 229						





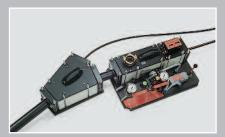
CLY 745 6000



Sonic Head



Cable End Cap



CLY 740 N271 011

Jetlube Cable Blowing Lubricants

Specifically designed to be used whilst blowing cables into air tight ducts, Jetlube reduces the frictional drag on both cable and duct thus increasing the installed distance significantly. Jetlube can also be used to pre-lubricate the duct prior to the blowing process which will also clean it effectively.

Part No.	Description	Temperature Range
CLY 745 6000	12 x 95cl bottles	-5 to 45°C
CLY 745 JW-95	12 x 95cl bottles	-30 to 45°C

Sonic Head

The Sonic Head is an open shuttle, which allows the air stream to flow through its centre bore. Its use is recommended under the following circumstances:

- When the cable diameter is very small compared to the internal diameter of the duct
- When the cable lacks stiffness. The Sonic Head exerts a low pulling force at the front end
 of the cable (only a few kg), thus improving the system performance

Part No.	Duct Internal Diam (mm)	Weight (kgs)
CLY 741 N271.00 0	29-32	0.21
CLY 741 N271.00 1	32-40	0.31
CLY 741 N271.00 2	40-51	0.61

Cable End Cap (Bullet)

Manufactured from aluminium, these cable bullets are designed to protect the end of the cable, and also to guide the cable along its desired route.

Part No.	Cable Diam (mm)
CLY 741 C70 QC0 11	10-12
CLY 741 C70 QC0 13	12-14
CLY 741 C70 QC0 15	14-16
CLY 741 C70 QC0 17	16-18
CLY 741 C70 QC0 19	18-20

The 'Y' Connector

The 'Y' Connector is a CABLEJET® and SUPERJET® accessory designed for the placement of an additional cable in an already occupied duct (subject to available space). One branch of the 'Y' Connector is attached to the CABLEJET® or SUPERJET® and is used to place the additional cable. The other branch is used to seal off and hold the first cable.

Duct and cable inserts supplied separately.

Part number	Duct OD (mm)	Cable Diam (mm)	Max Pressure (bar)	Weight (kgs)
CLY 740 N271 011	20-63	9-36	12	13



Jetplanner Software

The Jetplanner Software allows accurate planning and design of cable routes at the click of a mouse. Variables such as cable weight, diameter and stiffness are considered along with duct diameter and topography. The Jetplanner then calculates maximum jetting distances for the particular circumstances, allowing for accurate design of joints, manhole positions and cable types and lengths. The Jetplanner Software is an invaluable tool for the serious installer.

Part No.	Description
CLY 740 5001	Jetplanner Software CD-ROM



The Figaro/Figarino is a useful accessory to the jetting process, particularly when the drum length to be installed exceeds the installation capacity of the jetting machine. After jetting in one direction the cable can be unwound from the drum or 'fleeted' into the Figaro/Figarino using the jetting machine. Once fully fleeted, the cable can then be jetted in the opposite direction effectively doubling the installed cable length without the need for a joint.

The Figaro/Figarino helps to avoid the use of cumbersome and space consuming 'Figure of Eight Fleeting' and coils the uninstalled cable off the drum, placing it safely in a basket at up to 100m/min. Both units can be easily dismantled into 4 pieces for easy transportation or can be supplied trailer mounted.

Part No.	CLY 740 4001	CLY 740 4002
Description	Figaro	Figarino
Jetting Machine	Cablejet/Superjet/Minijet	Minijet/Microjet
Cable Diam (mm)	6-24	3-7.5
Max Speed (m/min)	100	100
Diameter (m)	2.275	1.200
Height (m)	2.020	1.150
Weight (kgs)	160	45
Storage Capacity (m) (Per Cable Diam (mm))	4600 (3) / 2000 (6) 1500 (7)	8000 (7) / 6200 (8) / 4000 (10) 2800 (12) / 2000 (14) / 1200 (18)

Utility Work Gloves

Clydesdale has a range of performance Work Gloves constructed of a high quality blend of synthetic and natural materials designed to be breathable, washable, form-fit, durable, and comfortable. Available in sizes S-XXL.

Part No.	Description
CLY 500 KLG	Cut Resistant Kevlar All Purpose Utility Glove
CLY 500 SPP	Padded Palm HD Purpose Utility Glove



CIY 740 5001



CIY 740 4001





CLY 500 KLG



CLY 500 SPP





CLY 682 500



CLY 682 503



CLY 682 505



CLY 682 506



Underground Cable Roller – Straight

Made from a galvanised steel frame, this cable roller is designed to be placed over pre-laid cables up to 85mm in diameter. The main roller is mounted on shielded and waterproof ball bearings.

Part No.	Max Cable Diam (mm)	Weight (kgs)	Dimensions (mm)
CLY 682 500	190	5	W245 x L300 x H225

Underground Cable Roller - Angle

Made from a galvanised steel frame, the main roller is mounted on shielded and waterproof ball bearings. It is supplied as single sections which are pinned together to create a rolling radius around sharp angles. Replacement pins are also available (CLY 682 503 01).

Picture opposite shows two rollers.

Part No.	Description	Max Cable Diam (mm)	Weight (kgs)	Dimensions (mm)
CLY 682 503	Roller c/w Pin	190	15	W370 x L547 x H357

Underground Cable Roller Straight – Large

Designed to guide the cable pay out between drum and duct entry, this roller is fully galvanised with ball bearing mounted steel rollers in a high quality steel frame.

Part No.	Max Load (daN)	Weight (kgs)	Dimensions (mm)
CLY 682 505	200	12	W1000 x L500 x H500

Cable Protecting Chute with Manhole Support

Galvanised steel cable chute with support suitable for locating on the edge of manholes.

Part No.	Weight (kgs)
CLY 682 506	2.5

Duct Entry Chute with Roller

This chute locks into the duct mouth like the standard duct entry chute but with the added benefit of an aluminium roller on ball bearings.

Part No.	Duct Diam (mm)	Weight (kgs)
CLY 682 508/1	60	4
CLY 682 508/2	80	4.5
CLY 682 508/3	100	5
CLY 682 508/4	120	6
CLY 682 508/5	140	7
CLY 682 508/6	160	7.5



Duct Entry Chute

Made from galvanised steel, the hinged duct entry chute fits into the duct mouth and tightens in place with the thumb screw.

The cable protecting chute locks into place in the duct mouth with the screw lock system. Suitable for duct mouth with an internal diameter of 100mm.

Part No.	Туре	Max Duct Diam (mm)	Weight (kgs)
CLY 682 507/1	Standard	80	1.7
CLY 682 507/2	Standard	100	2
CLY 682 507/3	Standard	120	2.5
CLY 682 507/4	Standard	150	2.8
CLY 682 702	Cable Protecting	100	2.8



The CLY 682 601/AL is an aluminium ball bearing roller on a galvanised steel frame designed to locate on the edge of a manhole. The CLY 682 605/AL has three aluminium rollers on ball bearings fitted to a steel frame which can locate on the edge of a manhole or similar step.

Part No.	Description	Dimensions (mm)	Weight (kgs)
CLY 682 601/AL	Manhole Guide Roller	350 x 248 x 250	2
CLY 682 605/AL	Manhole Cable Guide Triple Roller	522 x 390 x 240	3

Angle Roller Duct Entry

Manufactured from aluminium rollers on a galvanised steel frame, these duct entry devices locate in the duct mouth and can be pinned in place to facilitate cable installation. Maximum cable diameter is 126mm with a cable bend radius of 840mm. Duct size is varied by changing the duct entry sleeves.

Part No.	Duct Diam (mm)	Dimensions (mm)	Weight (kgs)
CLY 682 604 AL/1	80	500 x 505 x 150	24
CLY 682 604 AL/2	100	500 x 505 x 150	24.5
CLY 682 604 AL/3	120	500 x 505 x 150	25
CLY 682 604 AL/4	140	500 x 505 x 150	26

Cable Duct Entry with Surrounding Rollers

Cable duct entry chute fitted with four rollers around the entrance. The top roller can be opened to drop the cable into position within the device.

Part No.	Duct Diam (mm)	Weight (kgs)
CLY 682 608/2C	80	4.4
CLY 682 608/3C	100	5.5
CLY 682 608/4C	120	6
CLY 682 608/5C	140	6.8
CLY 682 608/6C	160	7.5



CLY 682 702





CLY 682 604 AL/1



CLY 682 608/2C





CIY 760 350

Drum Trailers

All Cable Drum Trailers manufactured and supplied by Clydesdale are designed and tested to comply with the latest standards. All our Cable Drum Trailers are CE marked and come complete with a full lighting pack to allow them to be used safely and legally on highways within the EC (should you wish to use a Clydesdale Cable Drum Trailer outside of the EC then please consult your local authorities for any specific requirement for your location).

All trailers manufactured and supplied by Clydesdale are constructed from high quality steel and are hot dip galvanised to ensure the longest possible useful life. All of our trailers are also equipped with full road suspension with overrun (auto reverse), parking brakes and comply in full with current RTA regulations.

350kg Service Cable Drum Trailer

Used to transport and pay out service cable, the baby trailer is designed to be towed behind a small van or car (Ford Escort or equivalent). The drum is raised and lowered by using the hand winch which is geared to reduce operator fatigue. The trailer is supplied with drum locking collars to secure the drum onto the drumshaft as standard ensuring safe transportation of the drums. This trailer is supplied with a 50mm ball head as standard however a 40mm eye option is also available.

Part No.	Drum Diam (m)	Max Drum Width (m)	SWL (kgs)	Laden Dimensions (m)	Unladen Weight (kgs)
CLY 760 350	0-0.8	0.54	350	L2.26 x W1.56 x H1.12	165



CLY 760 1300

1300kg Cable Drum Trailer

Simple to use, maintain and manoeuvre, this cable drum trailer or cable reel trailer is ideal for use on either overhead line or underground cable installations.

The drum is raised and lowered by using the hand winch which is geared to reduce operator fatigue and has a load holding brake for safety. The rear prop legs are used to ensure total stability when trailer is in use. A 40mm eye is fitted as standard, however a 76mm eye or 50mm ball head are also available.

The trailer comes complete with a newly revised mechanically operated screw calliper and disc brake as standard which is used to easily control the speed of the drum during pay out. This new brake design provides our best ever braking torque exceeding even a hydraulic calliper setup to give enhanced cable tensioning control when paying out conductor, whilst being extremely robust and requiring very little maintenance.

Part No.	Drum Diam (m)	Max Drum Width (m)	SWL (kgs)	Laden Dimensions (m)	Unladen Weight (kgs)
CLY 760 1300	0-2	1.1	1300	L2.90 x W1.99 x H2.50	400



2500kg Cable Drum Trailer

Specifically designed to handle the larger drums used on underground cable installations, the drum is raised by means of a single pump handle. This pump activates both the left and right side rams (simply adjust each side to give extra flow as required) so as to provide a smooth and level raising of the drum.

The drum is then hydraulically and mechanically locked in the raised position by closing the control valves and engaging two heavy duty shoot bolts. When you need to lower the drum, simply unlock the shoot bolts and release the hydraulics to lower the drum in a controlled manner.

As an optional extra a drum brake can be fitted to the trailer to control cable payout. The trailer is fitted with a 40mm eye as standard; however a 76mm eye or 50mm ball head are also available.

Several design improvements have recently been made including the shoot bolt drum locking mechanism, mudguard deflector wings, wiring and hydraulic hosing routing inside chassis for protection. The drum slides have also been improved with hinged, shoot bolt fastened gates to make loading and unloading quicker and easier.



CLY 760 2500

Part No.	Drum Diam (m)	Max Drum Width (m)	SWL (kgs)	Laden Dimensions (m)	Unladen Weight (kgs)
CLY 760 2500	0.7-2.6	1.4	2500	L3.56 x W2.30 x H2.97	700

Duct/Pipe Coil Trailer

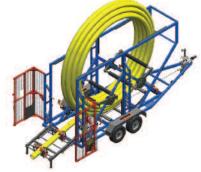
The new Clydesdale Duct/Pipe Coil Trailer has been developed in conjunction with one of the leading utility solution providers in the UK to include innovative new features purposely designed to reduce operator injuries caused by the release of energy from coiled PE pipe used in gas, water and electricity industries.

The Duct/Pipe Coil Trailer is able to carry up to 100m of 180mm pipe/duct and can be loaded with four coils of $100m \times 63mm$ pipe. The trailer is fully RTA compliant with 12V LED guarded lighting for added visibility and low maintenance.

Other features include:

- Low maintenance full beam rubber torsion twin axles with overrun auto reverse brakes
- Robust hand operated hydraulic system
- Hot dip galvanised frame for superior corrosion protection
- Fully CE marked to European and British Standards
- No loose parts that can be misplaced









Part No.	Max Coil Diam (m)	Max Coil Width (m)	Pipe Diam Range (mm)	Max Coil Weight (kgs)	Laden Dimensions (m)	Unladen Weight (kgs)
CLY 765 0180	4.0	1.028	63-180 (SDR 11 or 17)	1500	L6.4 x W2.3 x H4.5	1100

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Drum Cradle

A hot dip galvanised frame, ideal for transporting drums around depot yards. The Clydesdale version can be taken apart for easy storage.

CLY 640 115

Part No.	SWL (kgs)	Max Drum Width (mm)	Drum Diam (mm)	Cradle Weight (kgs)
CLY 640 115	2000	600	700-1400	65



CLY 640 1000



CLY 640 10002

Roller Drumstands

The simplest type of Drumstand available is the Roller Type Drumstand which is ideal for use within the depot for the measuring of cable lengths. As this type of Drumstand has no brake mechanism, care should be taken not to spin the drum at too high a speed. Rated to take a drum of almost any diameter or width the only restriction is its SWL of 1000kgs.

Part No.	Dimensions (mm)	SWL (kgs)	Weight (kgs)
CLY 640 1000	L1000 x W220 x H140	1000	14 (per pair)

Hydraulic Cable Drumstand

The Hydraulic Cable Drumstand is the more traditional type of cable Drumstand used extensively for many years now and is often seen as the lower cost alternative to the revolutionary Ratchet type. Pumping the hydraulic rams on each side of the stand will raise the drum smoothly and easily.

Part No.	Drum Diam (mm)	SWL (kgs)	Assembled Weight (kgs)
CLY 640 3002	900-2400	3000	65
CLY 640 4002	1100-1800	4000	157
CLY 640 6002	900-2400	6000	125
CLY 640 10002	900-3000	10000	515



Ratchet Operated Drumstand

This unique 'patented' design of cable Drumstand avoids the problems associated with hydraulic ram type Drumstands with the use of a ratchet mechanism to lift the shaft vertically. Instead of pumping the hydraulic ram you simply turn the mechanical lever. This is a lot easier on the operatives back, as well as raising the drum in a smoother manner.



CLY 640 150

Part No.	Drum Diam (mm)	Max Drum Width (mm)	SWL (kgs)	Assembled Dimensions (mm)	Net Weight (kgs)
CLY 640 150	900-1800	1200	3000	L1220 x W360	113

Aluminium Drumstands

Made from Aluminium to reduce weight and with the wheels mounted on the base, these Drumstands are ideal for the stores environment or where the drum is changed on a more regular basis. Its design means that an enormous range of cable drum sizes can be managed, however, due to vertical positioning the stand can only be used on flat surfaces. Available in two sizes 4000kgs & 6000kgs.

Part No.	Part No. Drum Diam (mm)		Weight (kgs)
CLY 640 4000AL	900-2000	4000	38 (per pair)
CLY 640 6000AL	900-2800	6000	54 (per pair)

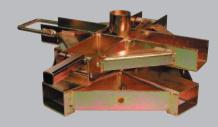


LY 640 4000AL

Vertical Roller Drumshaft - 'RUBE'

Ideal for dispensing service cable either in stores or out in the field, the RUBE has many unique features which are often copied but never to the high quality that Clydesdale prides itself upon. The RUBE has roller race suspension ensuring ease of movement, it is easy to use because of its integral handle and pull out extender arms and it is also self-balanced as well as being galvanised for long life.

Part No.	SWL (kgs)	Max Drum Diam (mm)	Weight (kgs)
CLY 640 1076	2000	600	13.5



CLY 640 1076

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CLY 640 930 300 8



CLY 640 930 3019



CLY 640 930 2930



CLY 640 930 2970



CLY 640 930 2955

Link Lifters

Designed to be used as a pair in conjunction with a two-legged chain strop, these Link Lifters are available in two versions dependant upon drum diameter. Both types have a SWL of 6000kgs.

Part No.	Drum Diam (m)	SWL (kgs)	Weight (kgs)
CLY 640 930 300 5	1.1-1.6	6000	3.3 (Pair)
CLY 640 930 300 6	1.8-3.0	6000	6.5 (Pair)

Bucket Mounted Drum Lifter

The Bucket Mounted Drum Lifter is ideal for use in depots or new locations where bucket trucks or JCBs are readily available. Bucket sizes determine that the maximum width of drum that can be transported is 1210mm. Kit comprises bucket attachment, chain straps and bearing mounted drum shaft. Not suitable for road transportation under RTA regulations.

Part No.	Max Drum Diam (m)	Max Drum Width (m)	SWL (kgs)	Weight (kgs)
CLY 640 930 3019	2.4	1.21	3000	25

Rotating Drum Lifters

Simply insert the cable drum lifting unit into the centre hole of the drum and the retractable arms will grip the inner skirt of the drum. The inner components are mounted on bearings to allow smooth rotation of the drum.

Part No.	SWL (kgs)	Max Spindle Hole Diam (mm)	Weight (kgs)
CLY 640 930 2930	1200	75	3.5
CLY 640 930 2945	2200	110	8
CLY 640 930 2950	4000	130	20

Rotating Drum Lifter Feeder Arm

Designed to be used in conjunction with any Clydesdale Rotating Drum Lifters (sold separately), the arm rotates with the drum allowing the cable or conductor to be fed off the drum. The arm also acts as a brake on the drum, although obviously tensioning is not possible. Kit comprises arm and roller pieces.

Part No.	Weight (kgs)	
CLY 640 930 2970	3	

Lifting Shoes

Lifting Shoes are a simpler version of the rotating drum lifter which work on the same principle except they are not bearing mounted.

Part No.	SWL (kgs)	Drum Diam (mm)	Weight (kgs)
CLY 640 930 2955	1300	400-1600	3.5
CLY 640 930 2960	2800	1100-3000	6.5



Duct Sealant Kit

The FST Duct Sealant Kit is a proven method of sealing a duct. Simply insert the two foam damming strips into the end of the duct and then inject the sealant into the resulting gap. The two-part foam will set almost immediately to form a permanent seal. Additional sealant, foam damming strips and wipes are available.

Each kit contains: 1 x 6oz cartridge, 2 x 24" Foam damming strips, 3 x Mixing nozzles, 1 x Pair disposable gloves, 1 x Positioning rod for foam dam, 1 x Pre-treating wipe (CD-1), 1 x Resealing cap, 1 x Instruction sheet.

Part No.	Description	
CLY 745 FST	Duct Sealant Kit	



Clydesdale is able to supply most tools necessary for the digging of trenches, pole holes and other pits. Illustrated here is just a brief array of the products available. Variations include fibreglass handles and shafts, as required under certain safety notices.

Part No.	Description	Handle Length (mm) Fibreglass	Blade Depth x Width (mm)
CLY 120 001	Square Mouth Shovel	712 / Yes	320 x 255
CLY 120 002	Tapered Mouth Shovel	712 / Yes	320 x 215
CLY 120 003	Rounded Mouth Shovel	712 / Yes	320 x 267
CLY 120 004	Trenching Shovel	712 / Yes	280 x 190
CLY 120 005	Cable Layers Shovel	712 / Yes	280 x 114
CLY 120 006	Newcastle Draining Shovel	712 / Yes	320 x 267
CLY 120 007	Trenching Fork	712 / Yes	310 x 210
CLY 120 008	12lb Rammer / Punner	1140 / No	n/a
CLY 120 009	Rabbitting Spade	1675 / No	320 x 124

Cable Avoidance Tool and Signal Generator (CAT & Genny)

The Cable Avoidance Tool (CAT) is used to detect the signal generated by the signal generator (Genny). The Genny is placed at the end of a duct rod and pushed through a duct, then when the blockage is reached the CAT is used to detect its location and hence valuable time is saved. Also can be used when the route of a duct is not plotted, simply use the CAT to follow the route of the Genny plotting as you go.

Part No.	Description
CLY 305 10-01	Cable Avoidance Tool (CAT)
CLY 305 10-02	Signal Generator (Genny)







Powering the Future

Clydesdale Ltd

Wally Sample House, 3 Sunbeam Road

Woburn Road Industrial Estate

Kempston, Bedfordshire

MK42 7BZ, United Kingdom

t: +44(0)1234 855855

f: +44(0)1234 855800

e: sales@clydesdale.net

www.clydesdale.net

Underground Cable Installation

Overhead Line Construction

Insulated Tools

Arc Flash

Live Line Equipment & Accessories

Overhead Line Hardware

Cable Preparation



Other Clydesdale brochures are available.

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