



Features

- **Widest range of engineered pull tapes available in the industry**
- **Available in either polyester or aramid fiber constructions**
- **High strength pull tapes allow direct pulling of many types of cables**
- **Low stretch properties minimize pulling “surges” and increase worker safety**
- **Pre-lubricated to minimize conduit burn-through (cutting) and to lower pulling tension**
- **Printed with sequential footage or metric markings for accurate in-field measurements**

GENERAL DESCRIPTION

ARNCO® manufactures a wide range of high performance Bull-Line™ Pull Tape products to expedite cable installation. Choose from woven polyester tapes or aramid fiber tape products which are available in a variety of strengths and lengths. A single pull tape eliminates the additional labor required for string, rope or winch line combinations. All Bull-Line™ tape is manufactured with the Stiff-Tape™ lubrication coating, resulting in the high-performance pull tape available in the industry. Whatever the choice, Bull-Line™ Pull Tapes have continually provided a superior alternative to plastic pull ropes in cable installations through all types of conduit. ARNCO® Bull-Line™ Pull Tapes meet or exceed all pull line requirements of Bellcore GR-356-CORE “Generic Requirements for Optical Cable Innerduct and Accessories.”

STIFF-TAPE™ POLYESTER or ARAMID Fiber

ARNCO's ongoing research in friction-reduction technologies has resulted in the Stiff-Tape™ lubrication technology, unique to ARNCO® pull tapes. This special surface treatment provides many enhancements over conventional pull tapes including:

- **Lowest coefficient of friction of any pull tape available**
- **Best conduit burn-through (conduit cutting) resistance of any pull tape available**
- **Additional stiffness for easier conduit “blow-in” and less tape “bunch-up”**
- **Superior print stability**
- **Minimal water absorption in wet conduits**



Woven Bull-Line™ POLYESTER Fiber

- *Economical*
- *Best burn-through (conduit cutting) resistance*
- *Good blowability into conduit*
- *Accurate sequential foot or meter markings*
- *Available on reels in a wide variety of continuous lengths*
- *Can also be factory pre-installed into conduit*

Part No.	Minimum Tensile Strength (Pounds / Kilograms)	Approximate Width
WP05	500 / 227	1/4" (6 mm)
WP10	1000 / 455	7/16" (11 mm)
WP12	1250 / 568	1/2" (13 mm)
WP15	1500 / 682	9/16" (14 mm)
WP18	1800 / 818	5/8" (16 mm)
WP25	2500 / 1136	7/8" (22 mm)
WP40	4000 / 1818	5/8" (16 mm)
WP60	6000 / 2727	3/4" (19 mm)

Polyester Bull-Line™ is our most economical pull tape. Polyester Bull-Line™ is very strong and durable, but has higher tensile elongation or stretch than aramid fiber pull tape. The elongation at yield is about 12 to 15%.

Woven Bull-Line™ ARAMID Fiber (ARNCO® Offers Two Variations)**WOVEN ARAMID Fiber (with Polyweft)**

An ARNCO® innovation now used industry wide, longitudinal aramid strands ("warp") are tied together with 90° cross weave of polyester strands ("weft"). Polyester weft is more compliant and "cushions" the aramid strands when placed in tension – aramid fibers alone placed in a cross pattern and put under tension when tape is joined in a knot, can actually cut each other. Aramid pull tapes with Polyweft are actually stronger than comparable constructions made with aramid wefts. Woven aramid fiber with Polyweft is our most popular aramid pull tape – with the same pulling properties as with 100% aramid, but at a reduced cost.

WOVEN ARAMID Fiber (100%)

Made entirely from aramid fibers (both warp and weft strands), woven aramid fiber (100%) has a low flame spread and smoke generation - aramid fibers have a limiting oxygen index (L.O.I.) of 29. Bull-Line pull tape is the right choice for use in riser and plenum applications.

- *High strength, low stretch*
- *Very good burn-through (conduit cutting) resistance*
- *Excellent blowability into conduit*
- *Accurate sequential foot or meter markings*
- *Available on reels in a wide variety of continuous lengths*
- *Can also be factory pre-installed into conduit*

Part No.		Minimum Tensile Strength (Pounds / Kilograms)	Approximate Width
w/Polyweft	100% Aramid		
WK06	WKK06	600 / 273	1/8" (3 mm)
WK10	WKK10	1000 / 455	3/16" (5 mm)
WK12	WKK12	1250 / 568	3/8" (10 mm)
WK15	WKK15	1500 / 682	7/16" (11 mm)
WK18	WKK18	1800 / 818	1/2" (13 mm)
WK25	WKK25	2500 / 1136	3/4" (19 mm)
WK40	WKK40	4000 / 1818	7/8" (22 mm)

Aramid Bull-Line™ has low stretch and less than 4% tensile elongation at yield. Less stretch eliminates surging during cable pulls, and reduces snap-back for greater safety of the pulling crew. With less stretch, tension on the cable can be monitored more accurately over longer distances.

Woven Tone Tape™

POLYESTER or ARAMID Fiber

- *Incorporates a tracer wire for signal locating*
- *Corrosion resistant fibers and conductor*
- *Wire conductors can be easily spliced in the field*
- *Accurate sequential foot or meter markings*
- *Can be factory pre-installed into conduit*

Part No.	Description
WP12 LC	1250 lb. Woven Polyester Tone-Tape™
WK12 LC	1250 lb. Woven Aramid Tone-Tape™
Available in other strengths upon request.	

Tone-Tape™ is available in both woven polyester and aramid constructions. Installation of Tone-Tape™ into an empty plastic conduit or with dielectric cable will allow easy locating of these components in the future using commonly available radiodetection equipment. Tone-Tape™ is a fully functional pull tape and can be used for measuring and cable pulling purposes.

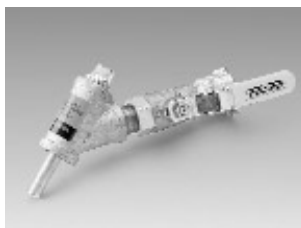
ORDERING INFORMATION

REEL LENGTHS: Standard reel lengths are 3000, 5000, and 10,000 feet. ARNCO® can also provide alternative lengths from 500 feet up to 100,000 feet. All tapes are printed with accurate foot (or meter) markings and come pre-lubricated, unless otherwise specified.

NOTE: Bull-Line™ Pull Tapes are woven to tensile strength requirements, not to a set width dimension. Accordingly, pull tape widths may vary slightly between different lots of a given tensile rating. ARNCO® guarantees that Bull-Line™ Pull Tapes break in excess of the minimum tensile strength rating.

IMPORTANT: Knot-tying procedures are extremely important - an improper knot can significantly reduce the breaking strength of a pull tape during an actual cable pull. The Bull-Knot was developed to be simple to tie yet provide consistent high strength. In laboratory tensile testing and actual field use, the Bull-Knot has proven to be more reliable and outperforms other pull tape knots. Bull-Knot Joining Procedures are included with every reel of ARNCO® pull tape.

TAPE ACCESSORIES



Tape Insertion Gun (pneumatic)



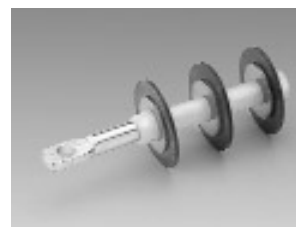
Tape Insertion Gun Seal-Offs



Missile Line Carriers



Foam Line Carriers



Pull Line Darts



Inflatable Pull Line Carriers

WHICH TYPE OF PULL LINE IS BEST FOR YOU?

There's really no comparison in performance between pull tapes and plastic poly-ropes. Bull-Line(tm) pull tapes are superior in cable pulling effectiveness as well as protection of conduit and innerduct systems. However, choosing which type of pull tape is best suited for your application may not be as obvious. There are clear advantages to both aramid and polyester based pull tapes. Use the following guide to determine which Bull-Line™ pull tape is best for you.

Property	Woven Aramid Pull Tapes	Woven Polyester Pull Tapes	Plastic "Poly-Ropes"
TENSILE STRENGTH			
Strength/Weight Ratio	Very High	Medium	Low
% Elongation at Yield	<4%	<15% >400%	
COEFFICIENT OF FRICTION			
ARNCO Bull-Line™	<0.12	<0.10	N/A
<i>Coefficient of friction is significantly affected by pulling speed and load. Pull lines can contribute significant frictional drag during difficult plus. Bull-Line™ pull tapes have the lowest coefficient of friction of any available pull tape.</i>			
Conduit Burn-Through			
(Cutting) Resistance	Good	Best	Poor
<i>Bull-Line™ pull tapes have superior resistance to conduit burn-through. Plastic "poly-ropes" are very load-sensitive, and can easily melt and fuse into the conduit.</i>			
Blowability into Conduit	Excellent	Very Good	Very Good
<i>Bull-Line™ lubrication treatment minimizes pull tapes "bunch-up" when air-blowing into conduit.</i>			
Reusability	Fair/Good	Best	Good
WEATHERABILITY			
UV Resistance	Good	Best	Good
Water Resistance	Good	Good	Good
Accuracy of Markings	Best	Very Good	(Cannot Mark)
OVERALL EFFECTIVENESS			
Longer Cable Pulls	Best	Good	Poor
Shorter Cable Pulls	Best	Very Good	Poor/Fair
Safety	Best	Very Good	Poor

NOTE: ARNCO Corporation has made every attempt to assure that the information contained in this product bulletin is accurate. The information supplied may change without notice. This information is intended to inform the reader of the typical characteristics of the pipe and accessories that are described and should not be considered complete with regard to design considerations. Contact an ARNCO representative regarding any questions about this document and to determine if the information contained within is current.

KNOT EFFICIENCIES

KNOT	Breaking Strength	% Efficiency
Control - No Knot	2530	100.0
Square Knot (reef)	693	27.4
Bowline	969	38.3
*Double-Ply Retraced Overhand	1250	49.4

*Bull-Knot: Easy to tie, but unique; occupies little volume; difficult to tie poorly; tensile consistently one of the best

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