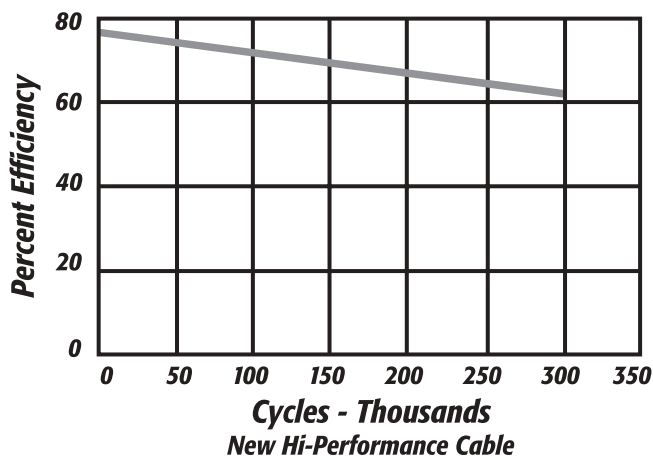
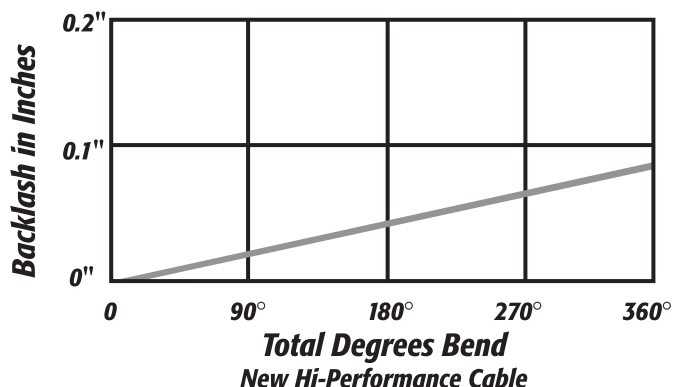


**Felsted Pull HP Cables
Typical Efficiencies**



Severe Routing: 3" Travel Assemblies, 144" Overall Length, 510 Total Bend

**Felsted Pull HP Cables
Typical Backlash vs. Degrees Bend**



EFFICIENCY

The efficiency factor of a cable system helps determine what series of cable to use in a given situation. Affected by the total degrees of bend in the cable, efficiency shows how much input force is needed to produce a desired output load. Use the following formula and tables to calculate.

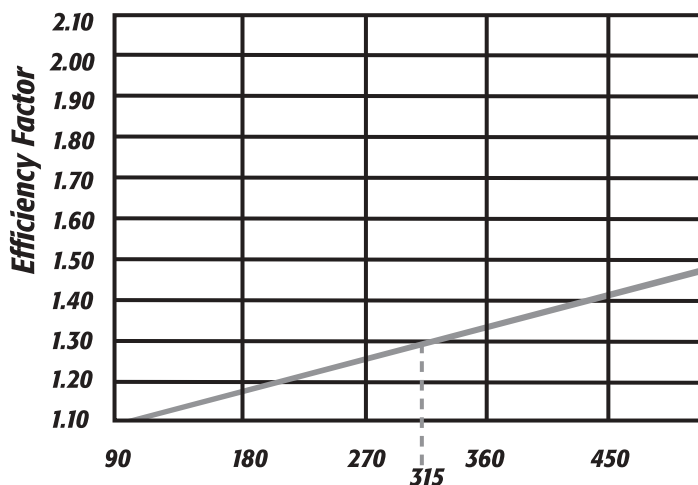
$$\begin{aligned} \text{Input Force} &= \frac{\text{Output Load} \times \text{Efficiency Factor}}{\text{Efficiency Factor}} \\ \text{Output Load} &= \frac{\text{Input Force}}{\text{Efficiency Factor}} \end{aligned} \quad \begin{aligned} \text{OL} &= \frac{\text{IF}}{\text{EF}} \end{aligned}$$

Let's take for example the following application:
You know the system requires an output load of 40 lbs. and the cable follows a path totalling 315° bend. Select the correct efficiency factor from the Efficiency Graph above right (315° bend = 1.30 efficiency factor).

Formula: Output x Efficiency Factor = Input Required
40 lbs. x 1.30 = 52.0 lbs. Input Required

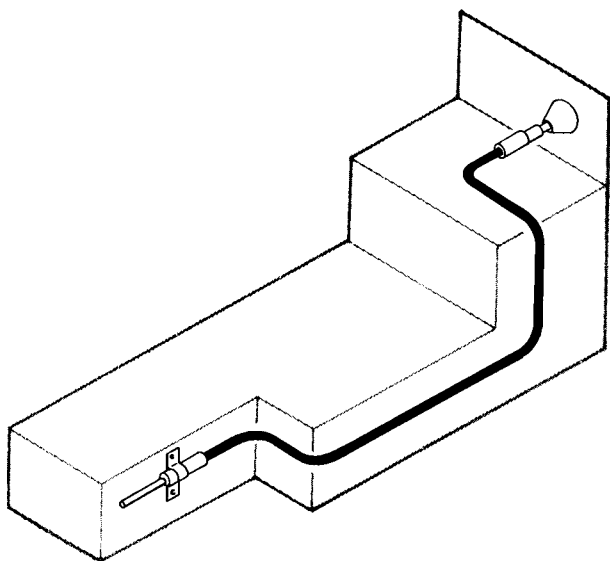
In the above example, the cable configuration with 315 total bend, 52.0 lbs. input force is needed to produce the required 40 lbs. output. Based on this data alone, an HP Cable 3 Series would be recommended.

Efficiency Graph



Total Degrees Bend in Cable Path

Total degrees Bend in Cable Path	90	180	270	360	450
Efficiency Factors	1.10	1.18	1.27	1.35	1.43



Routing/Measuring

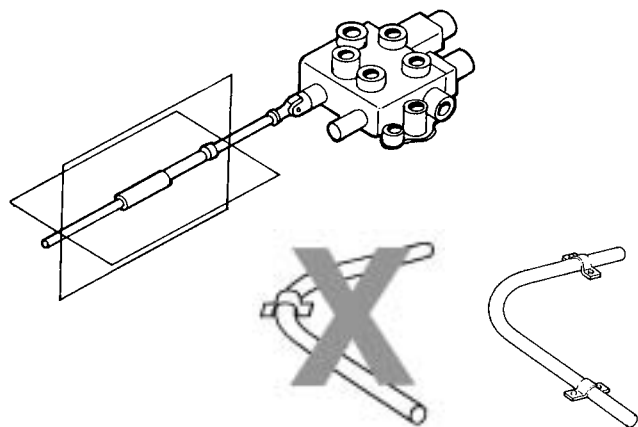
Measure the cable along the path it will take from the points where the cable hubs will be anchored. Follow the actual cable path as closely as possible, allowing for the largest practical bend radii.

Optimum Life Bend Radii	
Series	Operating Life Minimum
3	3 inches*
4	5 inches
6	7 inches
8	10 inches

* HP Core: Solid Core has 6" Bend Radii

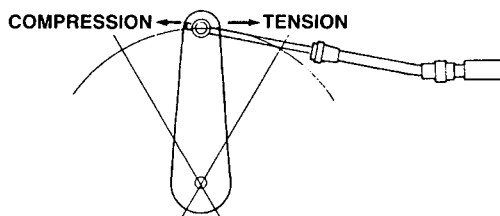
Installation Notes: Control & Work End

Where a Felsted Brand cable is to be connected to objects requiring linear movement only (e.g. spool valves), maximum life and efficiency is achieved by accurately aligning, in both planes, the cable hubs and the controlled object. See illustration:

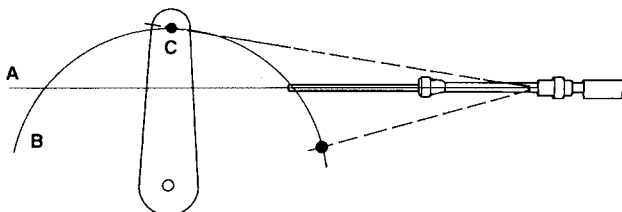


It is important to securely anchor the cable hubs. Looseness of the mounting bracket will be perceived as lost motion "sponginess" and will inhibit detent feel.

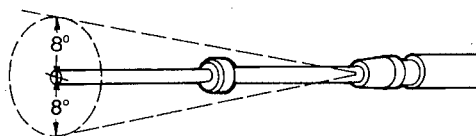
Also, clamping in the bend area may reduce bend radii under operating loads. Clamping at tangents to the bend is preferred.



For highest efficiency and long life in lever actuating operations, install the cable so that the highest loads are operated with tension (pulling), rather than compression (pushing).



Where the cable is connected to a lever, the cable will be mounted so that it lies on a plane (A) midway on the arc (B) described by the movement of the connection point on the lever (C).



All Felsted cables with rod and sleeve type end fittings have a built-in swivel to handle deflections up to 8°.