

Control Lever Systems

In This Section

Control Systems

- Transmission Shift Control Systems
- Automatic Transmission Control Systems



Lever Control

- Friction Control Levers
- Mounting Kits & Levers
- Park Break Levers
- Joystick Lever Control



Pedal & Control

A selection of pedal and controls.



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T25 Transmission Controls/Powershift

For powershift transmissions, Arens offers a family of one (T13) ,two (T25) and three (T29) lever controls for such functions as Direction, Speed, Hi-Lo range. The T25 series controls are available in both standard and special configurations to operate Allison, Clark, Warner and ZF transmissions. These controls are ruggedly constructed to meet the demands of the off-highway environment.

Part Numbering System

T25 **2** **4** **C** **070**

T25 First, Second, Third digit
Series

2	Fourth digit			
	1/4"-28		5/16"-24	
Switch	No	Yes	No	Yes
3" Clamp	1	5	2	6
3" Bulkhead	3	7	4	8

4	Fifth digit			
	← front of vehicle (control mounted on right side of driver)			
When lever is moved toward front of vehicle (Cable pushes)	1	2	3	4
	5	6	7	8

C Sixth digit
C = Gate plate style for T25

070 Seventh, Eighth, Ninth digit
Transmission coding

Push-Pull Hilex Imperial 80 and 100 clamp or bulkhead cables can be used .



T50/T60 Hydrostatic Controls

The Arens Hydrostatic transmissions provide self-locking, anti-feedback features providing an ideal means of positioning variable displacement on pumps and motors. The locking unit may be fitted with a variety of standard input levers, linear or non-linear outputs, cable supports, brackets and gate plates allowing the package to be tailored to meet the needs of each vehicle. The T50 series is typically used for a single pump or throttle control. The T60 series has two levers for use either as a combination pump and throttle control or a dual pump (motor) control package.

Part Numbering System

T63 **1** **45** **S** **002**

T63	First, Second, Third digit		
	Levers	Control Action	Locking
T52	1	Linear (1:1)	Self locking
T54	1	Non-Linear	Self locking
T63	2	Linear Z & Linear I	Friction
T64	2	Non-Linear Z & Linear I	Self locking

1	Fourth digit			
	1/4"-28		5/16"-24	
Switch	No	Yes	No	Yes
3" Clamp	1	5	2	6
3" Bulkhead	3	7	4	8

45	Fifth digit			
	← front of vehicle (control mounted on right side of driver)			
When lever is moved toward front of vehicle (Cable pushes)	1	2	3	4
	5	6	7	8

S Sixth digit
R = Gate plate style for T50 series
S = Gate plate style for T60 series

002 Seventh, Eighth, Ninth digit
Gate pattern coding

T73/AT74/T75 Automatic Transmission Controls



Automatic transmissions manufactured by Allison, Chrysler, Ford, GM and Warner were typically controlled by Arrens T70 series controls. The T73 series control features precision detents, positive locking in each range, and illuminated moving range indicator and a convenient and attractive pushbutton T-handle on the input lever. The T75 series control is engineered to provide a stylish design and durable long-life construction. Specifically designed for the Allison 1000, 2000 and 2400 series transmission. This compact, space saving unit houses many features required in today's market.

Options

Side or Top Mount

Mount to dash or console. Industry standard dimensions. Easily replaces most existing transmission controllers.

Display Indicator

The display window is designed for your application and can be backlit with an easy to replace 12 or 24V incandescent bulb - bayonet mount (dimmer available). If remote indication of lever position on a dashboard is preferred, the flag and backlight can be omitted.

Mode Switch

Electrical switch option is available on the lever for an additional function - two-position toggle switch with two 22-gauge long-life, high-flex, wires.

LED Indicator

1 or 2 function 12 volt LED indicators incorporated in the window decal. For example, the shift inhibit indicator and a separate overdrive mode indicator.

Park and/or Neutral Lock Lock control lever in 1 or 2 positions and release with a 12v solenoid, signaling a closed door or depressed brake

Right- or Left-Handed Shifter Standard cable exit positions are 30°, 45°, 60°, 75° or 90°.

Segment

The segment provides detent in all positions. Lever movement maximum range is 90°. Maximum cable movement is 3 inch stroke

Lever Position

Can provide an electrical output signal for each position which can be utilized to power a remote position indicator on the vehicle control panel.

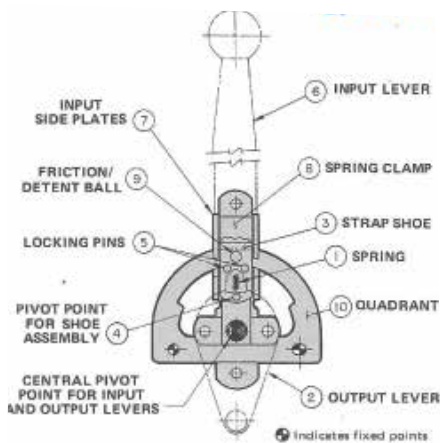
Wiring Harness

Hard wire (electrical option) comes standard with pigtail. Connectors optional.

Transmission Connector Kits Available for top and rear entry.

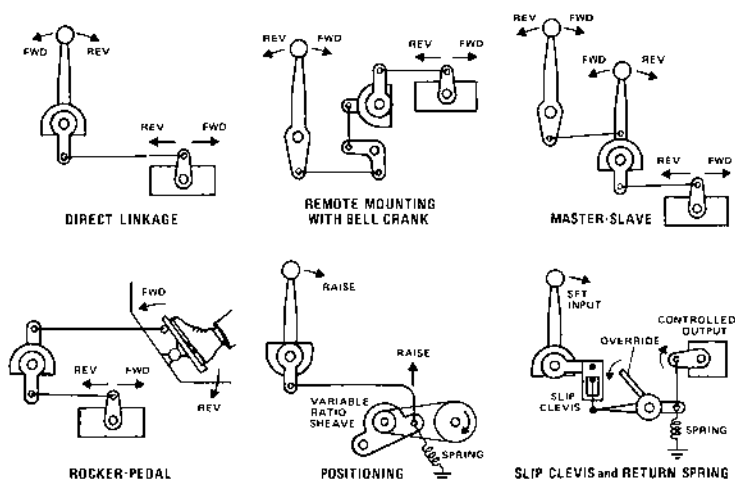
Push-Pull Hilex Imperial 80 and 100 clamp or bulkhead cables can be used

Q14/Q36 Self-locking, Infinite Position Controls



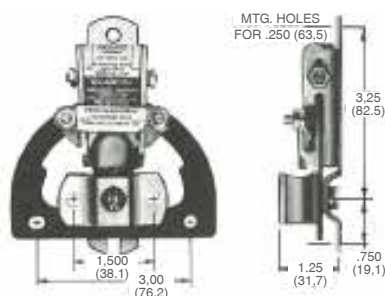
The Arens self-locking control is a unique control lever that "locks where you leave it". It automatically locks out feedback forces without using ratchets, gates, friction pads or unlocking knobs. The operator never needs to make any preliminary unlocking motion to reposition the lever.

Installation Concepts



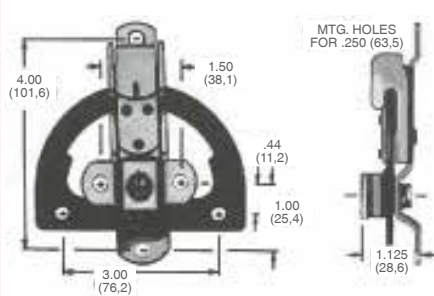
Q14

The Q14 series offers precise control including backlash adjustment to assure ultimate performance throughout its life.



Q36

The Q36 series provides heavier load holding capability as well as the option of position detents.



Friction Control Lever - C72 Series



Typical Complete Assembly with Mounting Bracket

A QUADCO® friction lever control differs from conventional levers in that its friction plate bears on a two-inch radius arc rather than merely squeezing a small washer-pad at the pivot. (A hardened steel ball rolls on the opposite side of the arc to equalize the friction drag.) This design offers several advantages, including more "repeatable" drag, finer adjustment, and more resistance to side loads.

The C72 Series Control is available as a complete assembly or, by starting with the Basic Friction Unit, specialised configurations may be created using standard input and output levers, cable hardware and mounting kits.

Specifications

Operating Load at Output: 0 - 100 in-lbs

Input/Output Lost Motion: NIL

Adjustable Friction:

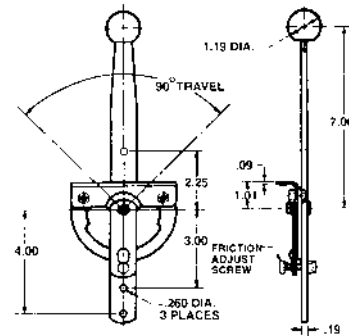
Part No.	Centre Detent	Mounting Bracket
C72727	NO	NO
C72729	YES	NO

Free Running (Dynamic)	Friction Hold (Static)	Detent Breakout *(C72114)
10	9-10	10-11
15	14-15	15-16
20	18-20	20-22
25	22-25	25-30
30	27-30	30-40
**35	32-35	35-50

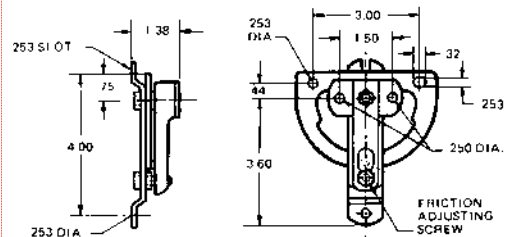
** Maximum recommended Free-Running Torque.

The Free-Running Torque is preset to 20 ± 5 in-lbs. at the factory.

C72000 Series with steel lever



C72111 and C72114 *Basic Friction Units for use with separate input and output levers *C72114 has a centre detent.



Mounting Kits & Levers (continued over page)



Build your own control by selecting:

Housing (Q10270 - for C72 ONLY)

Strap (Q10277)

Input Lever

Output Lever

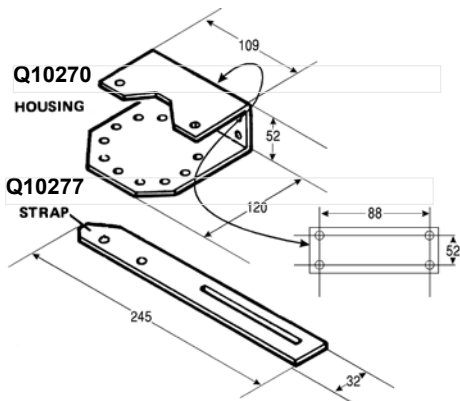
Swivel

Bracket

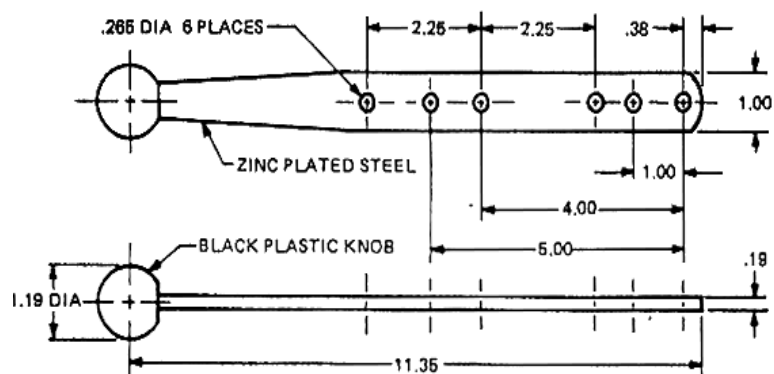
Necessary Attaching Hardware

Choose a basic locking or friction unit to complete your control assembly.

Housing & Strap



Input Lever



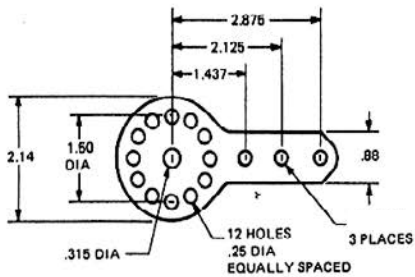
Mounting Kits & Levers (continued)

Output Levers

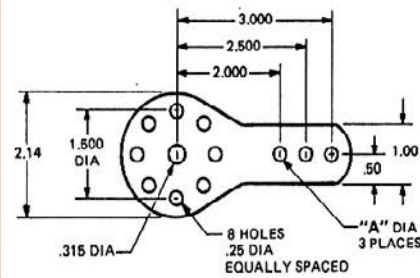
(All Levers Are 0.120 Thick Steel And Zinc Plated)

Q10264 A = .25"

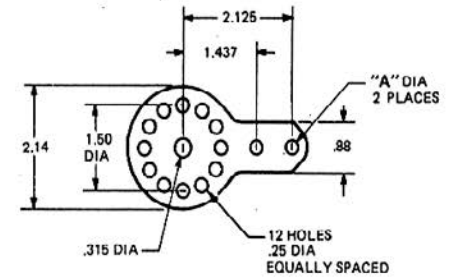
Q10317 A = .31"



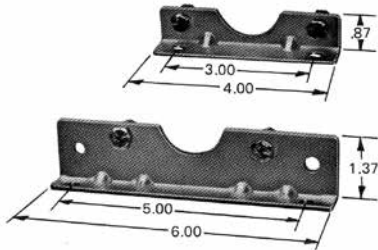
Q30252 A = .25"



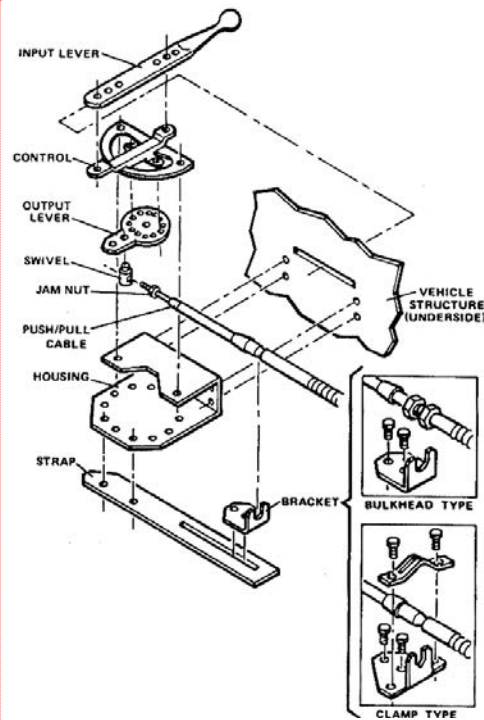
Q10263 = .25"



Mounting Brackets



Q10320.....use with integral assemblies
Q30251.....use with basic locking unit



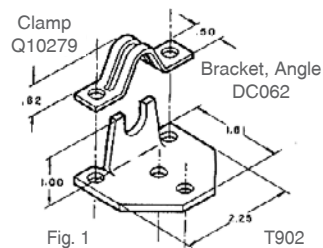
Cable Anchors For Push Pull Cables



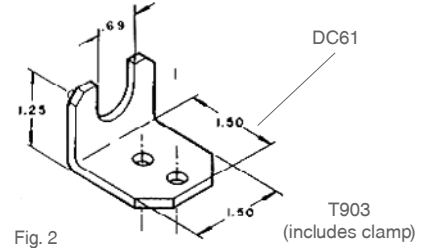
Part No. * Grooved Conduit Fig. 1	Cable Type & Rod End Size	Part No. Threaded Conduit Fig. 2
T902	#80 10-32	DC062
T903	#100 1/4 -28	DC61
T903	#120 5/16-24	DC61

* T902 set includes: 1 ea. DC062 Bracket, 1 ea. Q10279 Clamp, 2 ea. 1/4-20 x 1.0" Screws and Locknuts

Single Cable-Grooved Conduit



Single Cable-Threaded Conduit



B40 Park Brake Levers



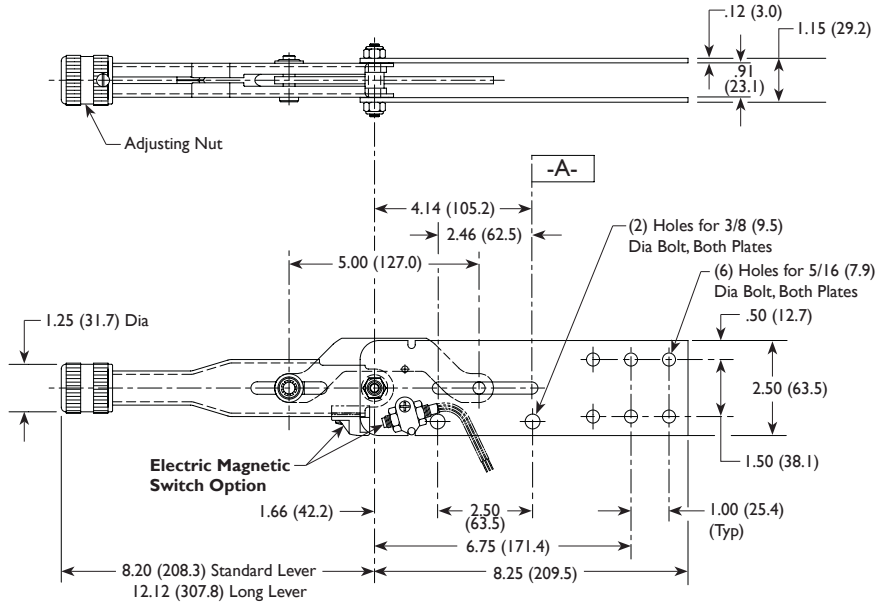
The B40 series overcenter locking lever is specifically designed to meet the requirements of mechanical parking brakes on both Off and On highway heavy duty vehicles. The levers are available for either floor or side mounting. All incorporate an adjustment knob in the handle. While the lever is normally for actuating parking brakes, it can also be used as an inexpensive pull-only throttle or valve control.

Part No. Description

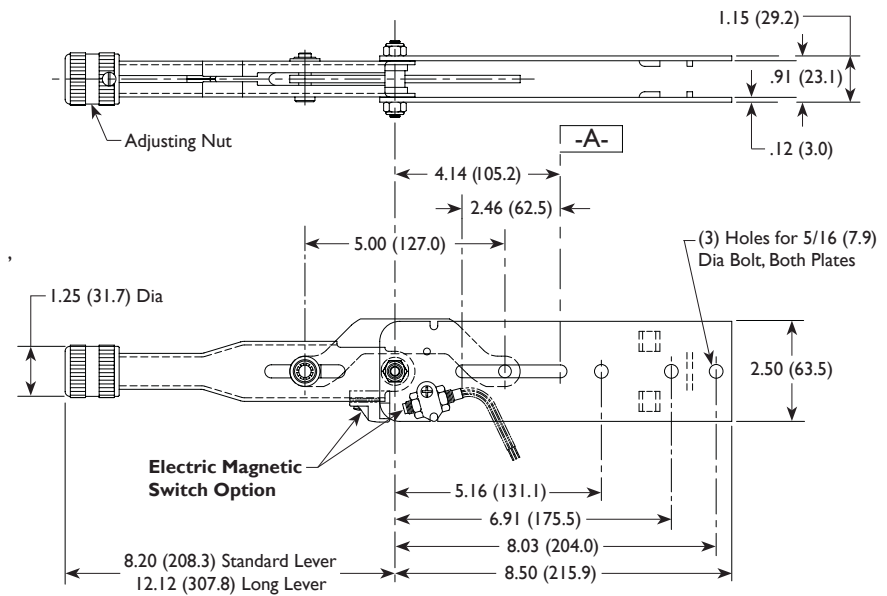
- B40008.....Side mount
- B40013.....Side mount/dual output
- B40010.....Flange mount rigid (refer Model 202 dimensions)
- B40023.....Flange mount/dual output (refer Model 205 dimensions)
- 19031622.....Ratchet brake lever (refer Model 316 dimensions)

Custom cables can be made to suit levers.

B40008 Dimensions



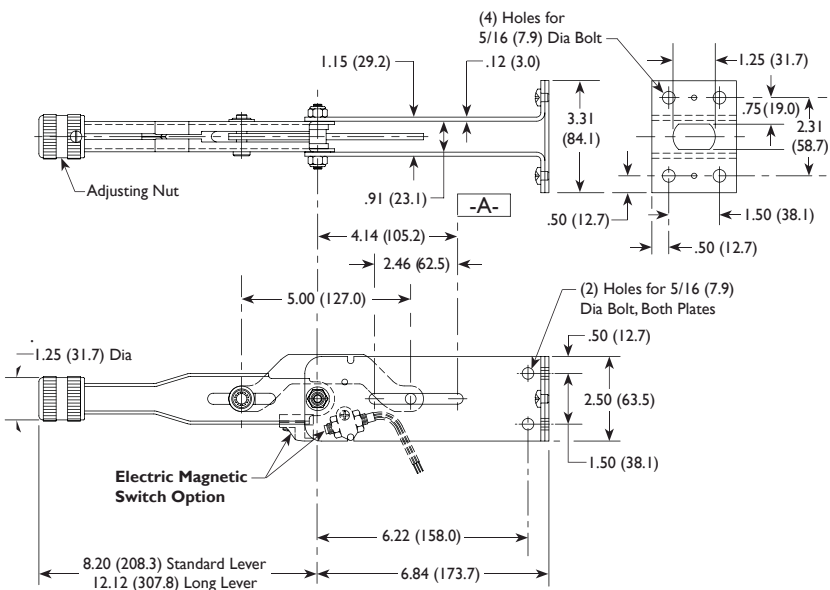
B40013 Dimensions



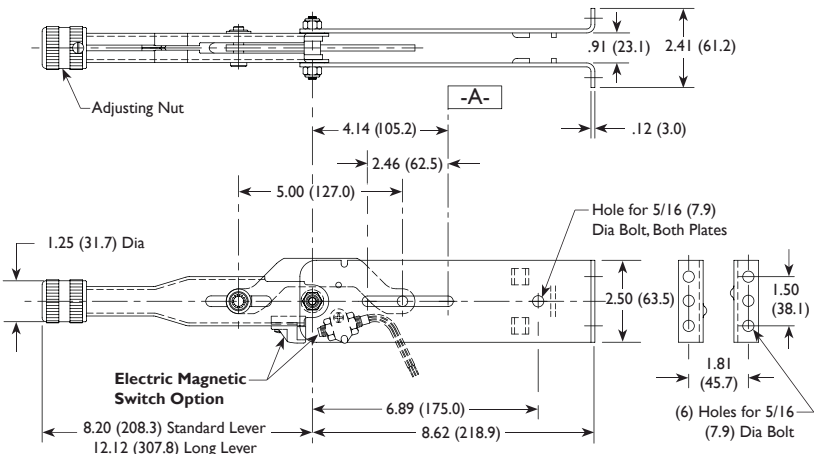
B40 Park Brake Levers



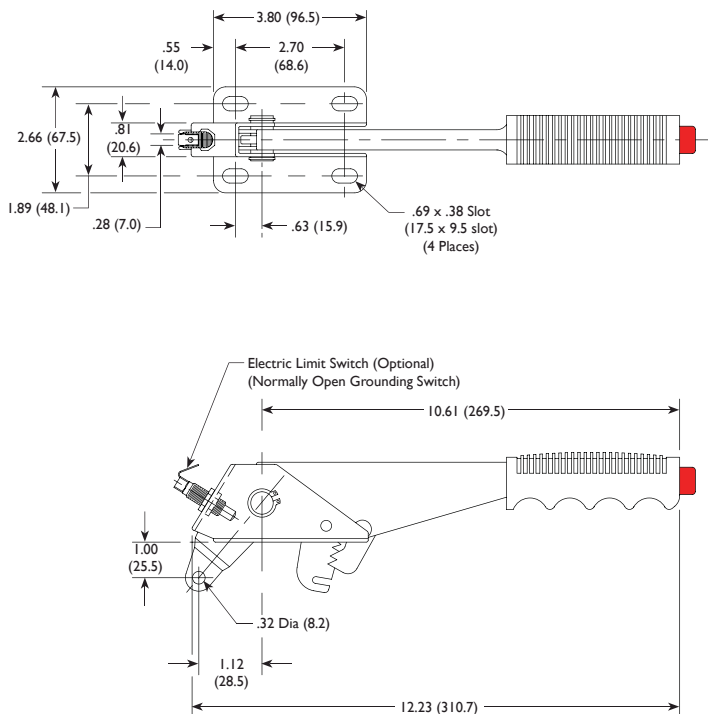
B40010 Dimensions



B40023 Dimensions



19031622 Dimensions





C61 Joystick Lever Controls/Part Numbering System

The Joystick or dual axis control provides two symmetrical 1 inch stroke outputs for push-pull cable connections. One lever / Two outputs.

Features

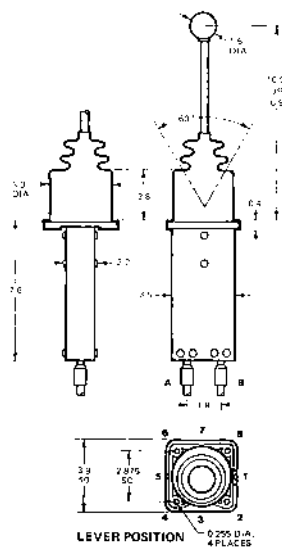
- ± 0.50 inch Output Stroke.
- Symmetrical ± 30° Input Motion
- Either "+" or "x" Axis Orientation
- Centering Springs - each Output
- Working Loads up to 100 lbs. on each Output
- Push-Pull Cable, standard 2 inch Stroke (Hi-Lex Series 100 or 120)

Options

- Grip - with Electrical Switches
- 1 Inch Stroke Cable
- Input Motion Restrictor
- Bent Input Levers
- Rod Linkage Output

Part No.....C6122A000

Dimensions



Part Numbering System

C61 **2** **1** **A** **000**

C61 Basic Series - Push Pull Cable

2 Connection (cable size/style)

1	10-32 Bulkhead
2	1/4-28 Clamp
3	5/16-24 Bulkhead

Rod Linkage Thread Size

8 - 9/16"-18UNF

1 Input Lever Length

1	6.9" Ball Knob (A)
2	10.9" Ball Knob (A)
3	9.5" Grip (B, C or D)

A Input Lever Length

A	Ball Knob
B	Anatomic Grip
C	Grip with SPST Push Button Switch
D	Grip with DPDT Rocker Switch

000 Special Designators



C84/C85 Hydraulic Single Axis Controls/Part Numbering System

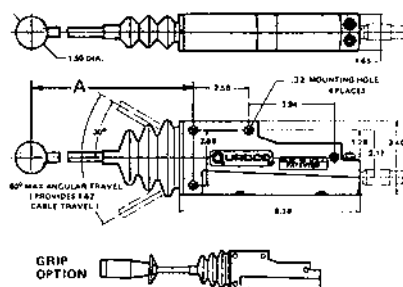
The single axis lever control provides precise, dependable remote control of high pressure hydraulic valves. The lever action is transmitted to the hydraulic valve by a standard push-pull cable. The control is rugged with oversized load bearing members. Controls are stackable. The C84 series provides a right angle control. The C85 series provides an in-line control.

Standard Features

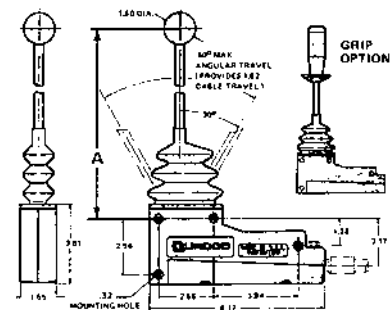
- ± 0.81 inch (20mm) Output Stroke.
- Maximum Working Load:
 - 1/4-28 End Rod Cable - 100 lbs (230N)
 - 5/16-24 End Rod Cable - 200 lbs (450N)
- Pre Loaded Centre Return Spring.
- Symmetrical Lever Action; $\pm 30^\circ$ Maximum lever on Mounting Centre Line.
- Enclosed Operating Assembly.
- Uses Standard Configuration,

Push-Pull Cable -
Clamp Type, 2 inch Stroke
Either 1/4-28 or 5/16-24 End Rod
(Hi-Lex Series 100 or 120)

Dimensions C85 - In Line Control



C84 - Right Angle Control



Part Numbering System

C8 **5** **2** **1** **A** **000**

C8 Basic Series

5 Lever Position	
5	In Line with Cable
4	90° to Cable

2 Spring Pack	
1	None
2	Centre Return

1 Lever Length	
1	C85 = 200mm, C84 = 222mm
2	C85 = 286mm, C84 = 300mm
3	C85 = 368mm, C84 = 387mm

A Cable Size	
A	1/4-28 Threaded Rod End, 100 Series Cable
B	C85 = 286mm, C84 = 300mm
C	C85 = 368mm, C84 = 387mm

000

Economical Valve Control

FLEXIBLE DRIVE AGENCIES



2301025P & 2301028P



2301025W

The FDA remote valve actuating system is a versatile means of providing precise and dependable control of high pressure hydraulic valves.

With this system the valve can be located where they operate best and are most convenient to install. Safety is always a consideration for designers and these controls eliminate the dangers of installing high pressure, high temperature oil lines and valves at the operators control station.

These controls can be used Singulary or stacked for multiple valve function. The dual axis model provides independent or simultaneous operation of two hydraulic valves depending upon the control lever movement.

An example of such a control action would be to control the lift and swing of a back hoe.

Single Axis Valve Control

Mechanical Push Pull Cable Actuating.
Stroke: 12mm each direction
Max. Load: 400N
Part No.....2301025P

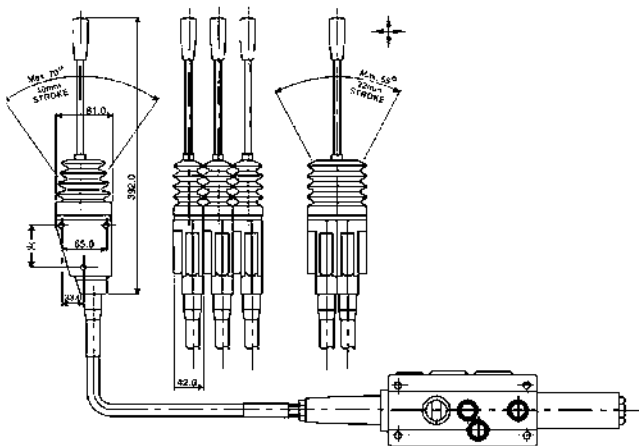
Dual Axis Valve Control

Mechanical Push Pull Cable Actuating.
Stroke: 12mm each direction
Max. Load: 300N
Part No.....2301028P

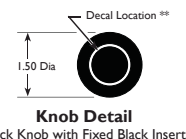
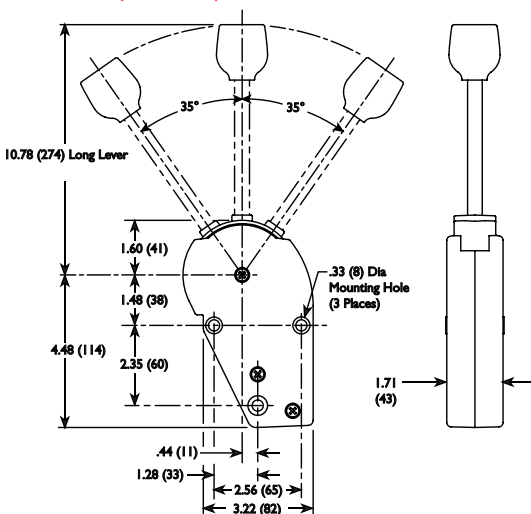
Non-Locking Single Axis Remote Valve Control

Mechanical Push Pull Cable Actuating.
Stroke: 19mm each direction
Max. Load: 440N
Part No.....2301025W

Dimensions (2301025P & 2301028P)



Dimensions (2301025W)



Knob Detail
Black Knob with Fixed Black Insert



****Decal Sheet**
(Shipped with Control)

Control Cable

Use Hi-Lex Cable Code "R" with any standard 100 series Hi-Lex output end. Hydraulic Valve Adaptor - are available to suit a number of valves. Controls can be stacked for multiple valve installations. Maximum stroke 24mm.

Code D + Code R

Use code D with remote actuators 2301025P or 2301028P. When using with end code `R`, order as Part No. 2402219 x `length in mm`. For e.g. 24022192000

Code S + Code R

Similar to Code D except for use with metric remote actuators. When using with end code `R`, order as Part No. 2402219M x `length in mm`. For e.g. 2402219M3000

Code V

For use with VOFA brand actuators only. Use in combination with code `D` and order as Part No.2402135 x `length in mm`. For e.g. 24021354000.

Vofa Remote Control Actuators

FLEXIBLE DRIVE AGENCIES

This cable actuator provides an ideal lever control to be used with the Series 80 type Hi-Lex controls for such applications as throttle control, one way hydraulic valves, P.T.O. Units & light duty lever operations.

Uses Code W cable end

Specifications

Mechanical rack and pinion operation

Stroke — up to 60mm.

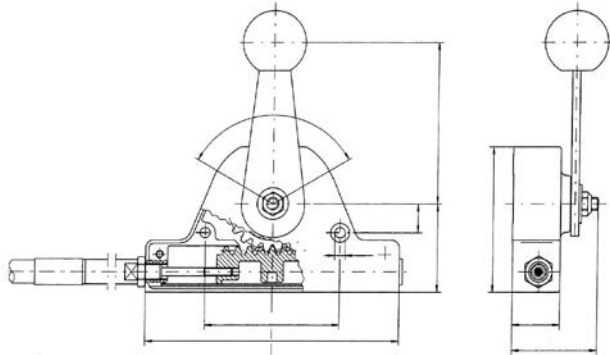
Loads — 300N maximum.

Weight — 0.65kg.

Control Cable — Use Hi-Lex Cable Code W with any standard Series 80 or Series 100 output end.

Part No......2301027

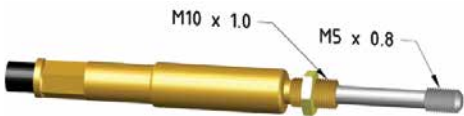
Dimensions



Cable End - Code W

FLEXIBLE DRIVE AGENCIES

M5 - comes with M8 x 1.25 adaptor



Throttle Pedal - Mechanical & Cable/Throttle Control Cables

FLEXIBLE DRIVE AGENCIES

Technical Data

Max. Cable Stroke with full pedal travel.....2" (50.8mm) Connecting rod trunnion supplied with pedal
Cable connections:

Cable Part No.	Pedal End	Other End	Cut Out Size
2301029M (Throttle Pedal)			
2402216.....	Clamp Fitting.....	Clamp Fitting	
2402224.....	Clamp Fitting.....	B/Head Fitting	
2402609.....	B/Head Fitting.....	B/Head Fitting	



Control pedals are mainly used to control the speed of all types of engines. Hi-Lex MS102C connection can be used if a push pull action is required.

2402216



2402224

