Char-Lynn columns can be custom built to your exact specifications. The column and mounting flange is of a sturdy single weldment design. These columns have high thrust and side load capacity with low shaft tortional friction. Columns are painted with low gloss black finish and the shafts are phosphate coated and oil dipped for corrosion protection.

Features

- Low friction bearings to carry thrust and side loads
- Dust boot to protect against dirt and moisture
- Four jacket types are available
- Two lower ends and ten upper ends are available
- Two different horn wire configurations
- Available from 56 to 825 mm [2.2 to 32.5 inch]
- Pre-assembled to steering units per your request

Five Steps for “How to Order Your Column”

1. Select Jacket/Base Type
2. Select Lower Shaft Type
3. Select Upper Shaft End Type
4. Select Length (use suggested standard length)
5. Select Add-On Features
   a) Horn Wire
   b) Wire Ends

Please contact your Eaton Representative if any request differs from our catalog offerings.

### SPECIFICATIONS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Tortional</td>
<td>81Nm</td>
</tr>
<tr>
<td>Rated Bending Moment*</td>
<td>136Nm</td>
</tr>
<tr>
<td>Rated Radial Load**</td>
<td>86kg</td>
</tr>
<tr>
<td>Rated Axial Load</td>
<td>86kg</td>
</tr>
<tr>
<td>Torsional Friction Drag</td>
<td>0.23kg</td>
</tr>
<tr>
<td>Recommended Wheel Nut Torque</td>
<td>47Nm</td>
</tr>
</tbody>
</table>

* Bending moments are taken about the plane of the column mounting surface.
** Radial load at the bearing centerline must not exceed the horizontal bending moment rating.

Use non-soap base grease for column, spline, steering unit interface.
The following 22-digit coding system has been developed to identify all of the configuration options for steering columns. Use this model code to specify a steering column with the desired features. All 22 digits of the code must be present when ordering. You may want to photocopy the matrix below to ensure that each number is entered in the correct box.

<table>
<thead>
<tr>
<th>Nos</th>
<th>Feature</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,3</td>
<td>Product Series</td>
<td>ACK</td>
<td>Steering Column</td>
</tr>
<tr>
<td>4,5</td>
<td>Jacket/Base Type (page</td>
<td>SJ</td>
<td>Standard (38 mm [1.50 inch] O.D.)</td>
</tr>
<tr>
<td></td>
<td>74)</td>
<td>MN</td>
<td>Round Series 5 (38mm [1.5 inch] O.D.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HG</td>
<td>Heavy Wall (41,4 [1.63 inch] O.D.) Tabbed Flange</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SH</td>
<td>Standard With flat Flange (38mm [1.50 inch] O.D.) (No Tabs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TJ</td>
<td>Tilt Column with Flat Flange, Mechanical Push Button</td>
</tr>
<tr>
<td>6</td>
<td>Lower Shaft End (see page 75)</td>
<td>1</td>
<td>12 Tooth Spline for Steering Unit (for Noise Isolator)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>3/4 inch “D” Section</td>
</tr>
<tr>
<td>7,8</td>
<td>Upper Shaft End (see illustrations and specifications page 76, 77)</td>
<td>AJ</td>
<td>Standard for all rigid and tilt columns Available with or without Horn Wire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MJ</td>
<td>Not Available with Horn Wire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EJ</td>
<td>Not Available with Horn Wire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PT</td>
<td>Available with or without Horn Wire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SV</td>
<td>Available with or without Horn Wire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YM</td>
<td>Not Available with Horn Wire</td>
</tr>
<tr>
<td>9,10,11</td>
<td>Jacket Length (Suggested Std. Dim.)</td>
<td>022</td>
<td>56.6 [2.23]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>033</td>
<td>82.8 [3.26]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>058</td>
<td>147.8 [5.82]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>078</td>
<td>197.1 [7.76]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>099</td>
<td>250.7 [9.87]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>108</td>
<td>273.3 [10.76]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>118</td>
<td>298.7 [11.76]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>157</td>
<td>399.8 [15.74]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>178</td>
<td>451.6 [17.78]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>253</td>
<td>642.1 [25.28]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>273</td>
<td>692.4 [27.26]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>298</td>
<td>756.4 [29.78]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>325</td>
<td>826.3 [32.53]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>060</td>
<td>152.4 [6.00]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>080</td>
<td>203.2 [8.00]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>254.0 [10.00]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120</td>
<td>304.8 [12.00]</td>
</tr>
</tbody>
</table>

**BOLT & NUT KITS**

<table>
<thead>
<tr>
<th>Metric Cap Screw Kit</th>
<th>M10 x 1.5 Thread x 20mm Length (Qty 4)</th>
<th>9900157-000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Cap Screw Kit</td>
<td>.375-16 UNC Thread x .75” Length (Qty 4)</td>
<td>9900158-000</td>
</tr>
<tr>
<td>Metric Jam Nut Kit</td>
<td>M18 x 1.5 (Qty 1)</td>
<td>9900159-000</td>
</tr>
<tr>
<td>Hex Nut Kit</td>
<td>13/16-20 NEF (Qty 1)</td>
<td>9900160-000</td>
</tr>
<tr>
<td>Hex Nut Kit</td>
<td>1 1/2 - 12 UNF (Qty 1)</td>
<td>9900161-000</td>
</tr>
</tbody>
</table>

Separate kits are available for purchase to use with steering columns.
Example—see model code page 76

**Position 4-5**
- **SH** Standard with flat flange (No Tabs)

**Position 9, 10, 11**
- 026  66,1 [2.60] (Dimension X)

*Dimension X—see model code page 73 Position 9, 10, 11 (Jacket Length)*

**SJ Standard Wall**
(Available on Square Series 5, Series 10, 20, 25, 40)

**SH Standard Wall**
(Available on Square Series 5, Series 10, 20, 25, 40)

**HG Heavy Wall**
(Available on Square Series 5, Series 10, 20, 25, 40)

**MN**
(Round Series 5 with End Ports Only)
Steering System Components
Columns Lower End Type

Example—see model code page 76

Position 6
1  12 Tooth Spline for Steering Unit

1

6.4 [.25]

Position 6

Column Mounting Flange with Tabs

Column Mounting Flange without Tabs

6.1 [.24]

Column Mounting Flange for Round Series 5 with Side or End Ports

12 Tooth Spline to Fit Char-Lynn® Steering Control Units

3

Position 6

3/4 inch “D” Section (for Noise Isolator)

Noise Isolator (Not Included)

Upper Shaft End EJ (Ref.)

18.8 [.74] Min.

107.8/105.6 [.424/.416]

13.54/13.44 [.533/.529]
Steering System Components
Columns Upper Shaft End

Example—see model code page 76

Position 7-8

EJ  (36 Tooth Straight Serration)
Not available with horn wire

AJ Position 7-8

Position 7-8

MJ Position 7-8

GC Position 7-8

DN Position 7-8

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]
For bending moment calculation when using Eaton wheel product No. 209-1007, wheel rim is 22.1 [.87] above threaded end steering shaft.

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]
For bending moment calculation when using Eaton wheel product No. 209-1007, wheel rim is 22.1 [.87] above threaded end steering shaft.

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]
For bending moment calculation when using Eaton wheel product No. 209-1007, wheel rim is 22.1 [.87] above threaded end steering shaft.

Not Available with Horn Wire

Wide Key

EJ  (36 Tooth Straight Serration)
Not available with horn wire
Steering System Components

Columns Upper Shaft End Continued

Example—see model code page 76

**Position 7-8**

**YM** (.050 : 1 Taper M18 x 1.5 - 6g Thread)

Not available with horn wire

---

**CL Position 7-8**

Not Available with Horn Wire

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>45,50</td>
<td>1.790</td>
</tr>
<tr>
<td>29,36</td>
<td>1.156</td>
</tr>
<tr>
<td>14,27</td>
<td>.562</td>
</tr>
</tbody>
</table>

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]

**M16 x 1.5 - 6g Thread**

40 Tooth Straight Tooth Serration 17.48 [.688] Major Dia.

---

**YM Position 7-8**

Not Available with Horn Wire or Tilt

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>32,0</td>
<td>1.26</td>
</tr>
<tr>
<td>26,9</td>
<td>1.06</td>
</tr>
</tbody>
</table>

**M18 x 1.5 - 6g Thread**

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]

---

**PT Position 7-8**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>30,00</td>
<td>1.181</td>
</tr>
<tr>
<td>15,00</td>
<td>.590</td>
</tr>
</tbody>
</table>

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]

**M18 x 1.5 - 6g Thread**


---

**SV Position 7-8**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>24,90</td>
<td>.980</td>
</tr>
<tr>
<td>14,00</td>
<td>.551</td>
</tr>
</tbody>
</table>

Note: Torque Nut to 41-54 Nm [30-40 lb-ft]

**M18 x 1.5 - 6g Thread**

How to Order your Tilt Column:

Model Code — Steering Columns

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>A</td>
<td>C</td>
<td>127.0 [ 5.00]</td>
<td>127.0 [ 5.00]</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>A</td>
<td>B</td>
<td>190.5 [ 7.50]</td>
<td>101.6 [ 4.00]</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>190.5 [ 7.50]</td>
<td>546.4 [21.51]</td>
</tr>
</tbody>
</table>

*Dim. A (minimum) above pivot is 165.1 [6.5] (with one horn wire)

**Dim. A (minimum) above pivot is 203.2 [8.0] (with two horn wires)
Steering System Components
Columns Horn Wire Electrical

Example—see model code page 76

Position 12-16
1A045  Column with one horn wire

Single Wire

01 Position 18-19

Single Wire

1A045 Position 12-16

Column with 1 Wire

08 Position 18-19

Tinned Bare Wire End

K or T
Position 17
K — Blade Receptacle Insulated —
Compatable with 6,4 [.25] Blade
Per SAE J858a

114,3 [4.50]

35.8 [1.41]

T — SAE J928 Type I 3.96 [.156].
Female Wire End

Two Wire


2B045 Position 12-16

Column with 2 Wires

08 Position 18-19

Two Wires

One Horn Button with Wire Eyelet
(Select with Two Horn Wires)

Tinned Bare Wire Ends

K or T
Position 17
K — Blade Receptacle Insulated —
Compatable with 6,4 [.25] Blade
Per SAE J858a

114,3 [4.50]

35.8 [1.41]

T — SAE J928 Type I 3.96 [.156] Dia.
Female Wire End

Tinned Bare Wire Ends

Two Wires

One Horn Button with Wire Eyelet
(Select with Two Horn Wires)
Inspect for Minimum Clearance at Assembly

**Square Series 5 and Series 10**
Must use two bolts through mounting bracket or bulkhead and two bolts through just the steering column or four bolts through mounting bracket or bulkhead.

**Series 20, 25**
Must use four bolts through mounting bracket or bulkhead.
Steering System Components
Columns Product Information

**Round Series 5**
Must use three bolts minimum.

**Series 40**
Must use three bolts Into steering control unit mounting bosses opposite port face.

*Note:* Series 40 is too heavy for column mounting — use column with or without mounting tabs
**Steering System Components**

**Steering Wheels and Accessories**

**Horn Button Kit**
No. 208-1013

For Char-Lynn® steering column with serrated upper shaft end AJ or MJ and Char-Lynn® 430 mm [17 inch] steering wheel.

**Cap**
No. 209-1005

Char-Lynn® steering wheel hub cavity cap, for no horn installations used on steering wheel 209-1007

**Steering Wheel**
No. 209-1007

Molded black wheel with three equally spaced spokes, (relatively flat, without recessed hub) diameter 430 mm [17 inch] for column with upper shaft end AJ or MJ.

**Note:** Steering wheel hub has tapped holes for wheel puller.

## Nut, Hex

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Upper Shaft End Configuration</th>
<th>Thread Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>14517</td>
<td>PT, SV</td>
<td>M18 x 1,5</td>
</tr>
<tr>
<td>14593</td>
<td>MJ</td>
<td>M20 x 1,5</td>
</tr>
<tr>
<td>14603</td>
<td>CK, CL</td>
<td>M16 x 1,5</td>
</tr>
<tr>
<td>21084</td>
<td>AJ</td>
<td>13/16-20 UNF</td>
</tr>
</tbody>
</table>
Steering System Components
Steering Wheels and Accessories

New Steering Wheels
Eaton Char-Lynn, offers three new steering wheels each with different features:

209-1022: 350mm [14in] diameter, 3-spoke steering wheel with horn button option.
209-1023: 362mm [15in] diameter, 3-spoke steering wheel with knob standard and optional horn button.
209-1024: 400mm [16in] diameter, 3-spoke steering wheel with soft feel and horn button option. Note: All steering wheels are compatible with column upper shaft end AJ.

Horn Buttons
9900416
For Char-Lynn, steering column with upper shaft end AJ and steering wheel 209-1022 and 209-1023.
9900417
For Char-Lynn, steering column with upper shaft end AJ and steering wheel 209-1024.

Caps
9900308
Char-Lynn, steering wheel hub cavity cap, for no horn installations. Used on steering wheel 209-1022 and 209-1023.
9900415
Char-Lynn, steering wheel hub cavity cap, for no horn installations. Used on steering wheel 209-1024.
Steering System Components
Steering Wheels and Accessories

This Noise Isolator is Available from Eaton—Part Number 208-1017-002

Note: Two screws (3/8-24 UNF x 31,8 [1.25] long — not included) are required to join isolator to mating steering columns. Torque screws to 41 Nm [360 lb-in].

This Splined Lower Shaft End Part (as shown below) is Available from Eaton—Part Number 8063

Want to Make your Own Column? You Must use these Spline Specs. Lower Shaft End

<table>
<thead>
<tr>
<th>Fit</th>
<th>Flat Root Side Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Teeth</td>
<td>12</td>
</tr>
<tr>
<td>Pitch</td>
<td>16/32</td>
</tr>
<tr>
<td>Pressure Angle</td>
<td>30°</td>
</tr>
<tr>
<td>Class of Fit</td>
<td>Special</td>
</tr>
<tr>
<td>Circular Tooth Thickness</td>
<td>Max. Effective 2,428 [.0956]</td>
</tr>
<tr>
<td></td>
<td>Min. Actual 2,362 [.0930]</td>
</tr>
<tr>
<td>Splined End—AISI 8620 Mt’l Case hardened to RC 40-50</td>
<td></td>
</tr>
</tbody>
</table>

12 Tooth Spline Specification (left)
Can be press fit and welded into a 22,22 [.875] OD x 2,16 [.085] wall steel tube.