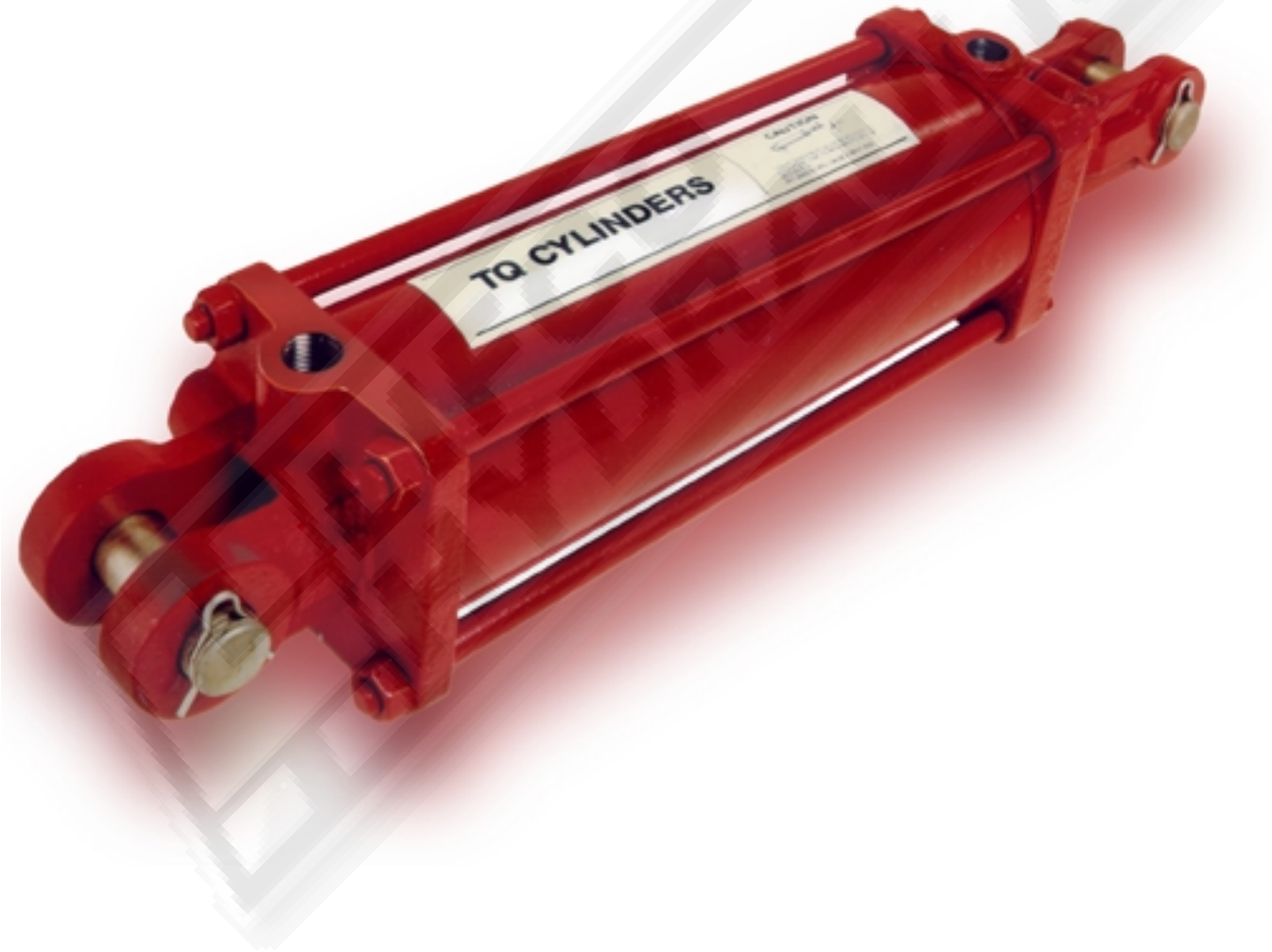
To order this part, call Lifco Hydraulics USA Toll Free at 1-800-952-7849

Vickers®

# Cylinders

# Series TQ Agricultural Cylinders

Nominal Pressure: 2500 psi




Released 10–91

4113A

# Series TQ Hydraulic Cylinders

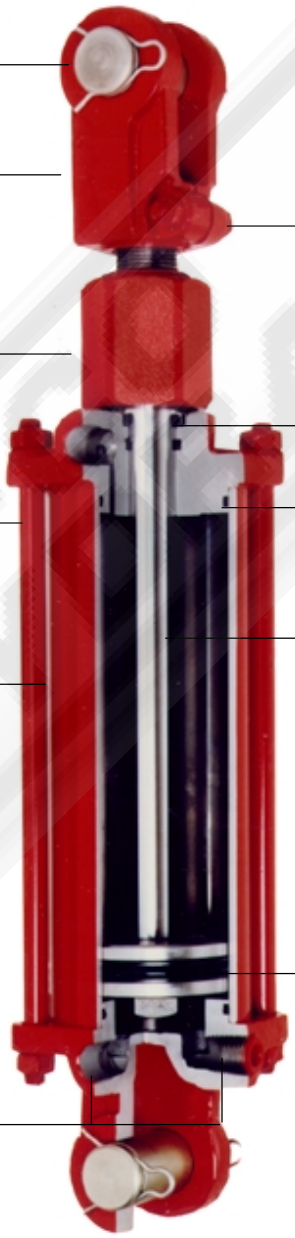
### Designed for Agricultural Applications

- Working pressure to 2500 psi
- Intermittent surge pressures to 3000 psi
- Pressure tested to 4000 psi

### ASAE Standard Cylinders

There are nine Series TQ cylinders designed for use where ASAE 8” and 16” stroke cylinders are required. Part numbers with “ASAE” suffix represent ASAE cylinders. Additional specifications are provided in the main part number table. There are no available options. ASAE 16” stroke cylinders incorporate 1 1/4” diameter clevis pins.

## Features



**Pins** – High tensile steel, zinc plated to prevent corrosion

**Rod Cap, End Clevis, and Rod Clevis** – Ductile iron castings take shock loads without cracking.

**Optional Stroke Control** – On all ASAE cylinders.

**Tie Rods** – High tensile steel to prevent stretching under pressure.

**Body** – Precision finished steel with heavy wall to provide greater wear and strength.

**Ports** – Double ported end clevis for greater flexibility of assembly. Unless otherwise stated, cylinders are assembled with open port aligned with pin.

**Clevis Bolt** – Grade 5 for extra strength

**Wiper Seal** – Nitrile rubber bonded to mental case. Prevents contaminants from entering cylinder.

**“O” Rings** – To eliminate end leakage

**Rod** – High tensile strength, precision ground and polished steel. Hard chrome plated for wear and corrosion resistance.

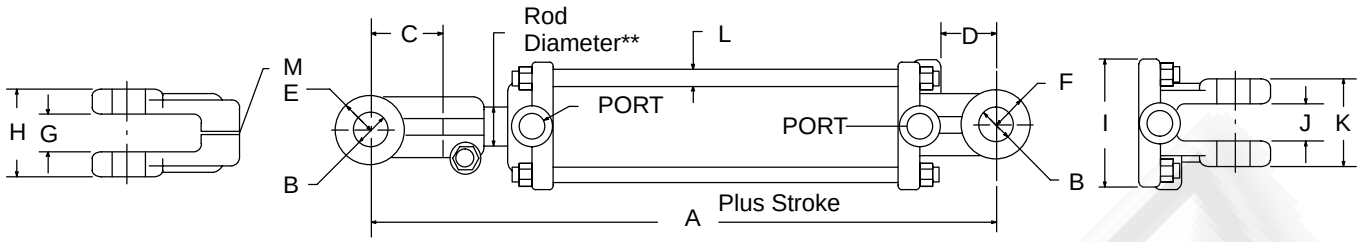
**Piston Seal** – Nitrile 90 Durometer “O” Ring with anti-extrusion rings for longer life.

## **Series TQ Hydraulic Cylinders** – Part numbers and specifications

| Part Number | Bore x Stroke | Rod Diameter | Dim. between pin centers Retracted – Extended | Clevis Pin Diameter | Cylinder Weight Lbs. |
|---|---|---|---|---|---|
| TQ2008 | 2” x 8” | 1 1/8” | 18 1/4” x 26 1/4” | 1” | 17 |
| TQ2008ASAE | 2” x 8” | 1 1/8” | 20 1/4” x 28 1/4” | 1” | 18 |
| TQ2010 | 2” x 10” | 1 1/8” | 20 1/4” x 30 1/4” | 1” | 20 |
| TQ2012 | 2” x 12” | 1 1/8” | 22 1/4” x 34 1/4” | 1” | 21 |
| TQ2014 | 2” x 14” | 1 1/8” | 24 1/4” x 38 1/4” | 1” | 22 |
| TQ2016 | 2” x 16” | 1 1/8” | 26 1/4” x 42 1/4” | 1” | 23 |
| TQ2018 | 2” x 18” | 1 1/8” | 28 1/4” x 46 1/4” | 1” | 24 |
| TQ2020 | 2” x 20” | 1 1/8” | 30 1/4” x 50 1/4” | 1” | 25 |
| TQ2024 | 2” x 24” | 1 1/8” | 34 1/4” x 58 1/4” | 1” | 27 |
| TQ2508 | 2 1/2” x 8” | 1 1/8” | 18 1/4” x 26 1/4” | 1” | 20 |
| TQ2508ASAE | 2 1/2” x 8” | 1 1/8” | 20 1/4” x 28 1/4” | 1” | 21 |
| TQ2510 | 2 1/2” x 10” | 1 1/8” | 20 1/4” x 30 1/4” | 1” | 22 |
| TQ2512 | 2 1/2” x 12” | 1 1/8” | 22 1/4” x 34 1/4” | 1” | 24 |
| TQ2514 | 2 1/2” x 14” | 1 1/8” | 24 1/4” x 38 1/4” | 1” | 25 |
| TQ2516 | 2 1/2” x 16” | 1 1/8” | 26 1/4” x 42 1/4” | 1” | 27 |
| TQ2518 | 2 1/2” x 18” | 1 1/8” | 28 1/4” x 46 1/4” | 1” | 28 |
| TQ2520 | 2 1/2” x 20” | 1 1/8” | 30 1/4” x 50 1/4” | 1” | 30 |
| TQ2524 | 2 1/2” x 24” | 1 1/8” | 34 1/4” x 58 1/4” | 1” | 33 |
| TQ3008 | 3” x 8” | 1 1/4” | 18 1/4” x 26 1/4” | 1” | 25 |
| TQ3008ASAE | 3” x 8” | 1 1/4” | 20 1/4” x 28 1/4” | 1” | 26 |
| TQ3010 | 3” x 10” | 1 1/4” | 20 1/4” x 30 1/4” | 1” | 27 |
| TQ3012 | 3” x 12” | 1 1/4” | 22 1/4” x 34 1/4” | 1” | 29 |
| TQ3014 | 3” x 14” | 1 1/4” | 24 1/4” x 38 1/4” | 1” | 31 |
| TQ3016 | 3” x 16” | 1 1/4” | 26 1/4” x 42 1/4” | 1” | 33 |
| TQ3016ASAE | 3” x 16” | 1 1/4” | 31 1/2” x 47 1/2” | 1 1/4”” | 34 |
| TQ3018 | 3” x 18” | 1 1/4” | 28 1/4” x 46 1/4” | 1” | 35 |
| TQ3020 | 3” x 20” | 1 1/4” | 30 1/4” x 50 1/4” | 1” | 37 |
| TQ3024 | 3” x 24” | 1 1/4” | 34 1/4” x 58 1/4” | 1” | 41 |
| TQ3508 | 3 1/2” x 8” | 1 1/4” | 18 1/4” x 26 1/4” | 1” | 29 |
| TQ3508ASAE | 3 1/2” x 8” | 1 1/4” | 20 1/4” x 28 1/4” | 1” | 29 |
| TQ3510 | 3 1/2” x 10” | 1 1/4” | 20 1/4” x 30 1/4” | 1” | 30 |
| TQ3512 | 3 1/2” x 12” | 1 1/4” | 22 1/4” x 34 1/4” | 1” | 33 |
| TQ3514 | 3 1/2” x 14” | 1 1/4” | 24 1/4” x 38 1/4” | 1” | 35 |
| TQ3516 | 3 1/2” x 16” | 1 1/4” | 26 1/4” x 42 1/4” | 1” | 36 |
| TQ3516ASAE | 3 1/2” x 16” | 1 1/4” | 31 1/2” x 47 1/2” | 1 1/4”” | 37 |
| TQ3518 | 3 1/2” x 18” | 1 1/4” | 28 1/4” x 46 1/4” | 1” | 40 |
| TQ3520 | 3 1/2” x 20” | 1 1/4” | 30 1/4” x 50 1/4” | 1” | 42 |
| TQ3524 | 3 1/2” x 24” | 1 1/4” | 34 1/4” x 58 1/4” | 1” | 51 |
| TQ4008 | 4” x 8” | 1 1/4” | 18 1/4” x 26 1/4” | 1” | 34 |
| TQ4008ASAE | 4” x 8” | 1 1/4” | 20 1/4” x 28 1/4” | 1” | 35 |
| TQ4010 | 4” x 10” | 1 1/4” | 20 1/4” x 30 1/4” | 1” | 37 |
| TQ4012 | 4” x 12” | 1 1/4” | 22 1/4” x 34 1/4” | 1” | 40 |
| TQ4014 | 4” x 14” | 1 1/4” | 24 1/4” x 38 1/4” | 1” | 42 |
| TQ4016 | 4” x 16” | 1 1/4” | 26 1/4” x 42 1/4” | 1” | 45 |
| TQ4016ASAE | 4” x 16” | 2” | 31 1/2” x 47 1/2” | 1 1/4”” | 46 |
| TQ4018 | 4” x 18” | 1 1/2” | 28 1/4” x 46 1/4” | 1” | 49 |
| TQ4020 | 4” x 20” | 1 1/2” | 30 1/4” x 50 1/4” | 1” | 53 |
| TQ4024 | 4” x 24” | 1 1/2” | 34 1/4” x 58 1/4” | 1” | 61 |
| TQ5008 | 5” x 8” | 1 1/2” | 20 1/4” x 28 1/4” | 1” | 65 |
| TQ5010 | 5” x 10” | 1 1/2” | 22 1/4” x 32 1/4” | 1” | 68 |
| TQ5012 | 5” x 12” | 2” | 24 1/4” x 36 1/4” | 1” | 77 |
| TQ5014 | 5” x 14” | 2” | 26 1/4” x 40 1/4” | 1” | 82 |
| TQ5016 | 5” x 16” | 2” | 28 1/4” x 44 1/4” | 1” | 86 |
| TQ5016ASAE | 5” x 16” | 2” | 31 1/2” x 47 1/2” | 1 1/4”” | 87 |
| TQ5018 | 5” x 18” | 2” | 30 1/4” x 48 1/4” | 1” | 92 |
| TQ5020 | 5” x 20” | 2” | 32 1/4” x 52 1/4” | 1” | 96 |
| TQ5024 | 5” x 24” | 2” | 36 1/4” x 60 1/4” | 1” | 106 |
| TQ5030 | 5” x 30” | 2 | 42 1/4” x 72 1/4” | 1” | 120 |

## Series TQ Hydraulic Cylinders Dimensional Data

in (mm)




| Bore Dia | A* | B* | C | D | E | F | G | H | I | J | K | L | M UNF | Ports NPTF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.00 (51) | 10.25 (260) | 1.015 (25.8) | 2.125 (53.9) | 1.625 (41.3) | 1.000 (25.4) | 1.000 (25.4) | 1.125 (28.6) | 2.500 (63.5) | 2.750 (69.8) | 1.125 (28.6) | 2.500 (63.5) | .375 (9.5) | 1 1/8 - 12 | 3/8 |
| 2.50 (64) | 10.25 (260) | 1.015 (25.8) | 2.125 (53.9) | 1.625 (41.3) | 1.000 (25.4) | 1.000 (25.4) | 1.125 (28.6) | 2.500 (63.5) | 3.125 (79.4) | 1.125 (28.6) | 2.500 (63.5) | .375 (9.5) | 1 1/8 - 12 | 3/8 |
| 3.00 (76) | 10.25 (260) | 1.015 (25.8) | 2.125 (53.9) | 1.625 (41.3) | 1.125 (28.6) | 1.000 (25.4) | 1.125 (28.6) | 2.625 (66.7) | 3.750 (95.3) | 1.125 (28.6) | 2.500 (63.5) | .500 (12.7) | 1 1/4 - 12 | 1/2 |
| 3.50 (89) | 10.25 (260) | 1.015 (25.8) | 2.125 (53.9) | 1.625 (41.3) | 1.125 (28.6) | 1.125 (28.6) | 1.125 (28.6) | 2.625 (66.7) | 4.125 (104.8) | 1.125 (28.6) | 2.500 (63.5) | .500 (12.7) | 1 1/4 - 12 | 1/2 |
| 4.00 (102) | 10.25 (260) | 1.015 (25.8) | 2.125 (53.9) | 1.625 (41.3) | 1.125 (28.6) | 1.125 (28.6) | 1.125 (28.6) | 2.625 (66.7) | 4.625 (117.5) | 1.125 (28.6) | 2.625 (66.7) | .500 (12.7) | 1 1/4 - 12 | 1/2 |
| 5.00 (127) | 12.25 (311) | 1.015 (25.8) | 2.125 (53.9) | 2.250 (57.2) | 1.250 (31.8) | 1.500 (38.1) | 1.250 (31.8) | 2.625 (66.7) | 6.000 (152.4) | 1.250 (31.8) | 3.500 (88.9) | .625 (15.9) | 1 1/4 - 12 | 1/2 |

* Expect 8” & 16” ASAE cylinders listed on page 3
** See page 3 for rod diameters

## Cylinders Size Selection

To select a cylinder for an application, first determine the maximum push and/or pull force required to do the job. Then use the chart below to select the cylinder that gives the necessary force. Please note that although the force requirements derived by formula are theoretically correct, other factors must be considered. One factor is pressure drop. Working pressure at the cylinder port will be less than at the pump outlet. This should be allowed for in your calculations. A margin for overcoming friction in the cylinder must also be added.

In addition, a certain amount of force exerted by a cylinder is counteracted by friction developed through the seals and, to a lesser extent, by the weight of the piston itself. The amount of force required to counteract these forces in TQ cylinders has been reduced to 5% or less of the cylinder’s theoretical power, without sacrificing sealing quality.

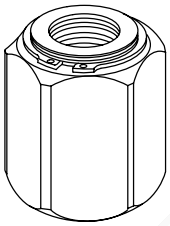
| Cylinder Bore | Rod Diameter | HYDRAULIC PRESSURE (psi) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 250 | 500 | 750 | 1000 | 1250 | 1500 | 2000 | 2500 |
| 2” | Push<br>1 1/8”<br> | 785<br>536 | 1570<br>1073 | 2355<br>1610 | 3141<br>2147 | 3926<br>2684 | 4711<br>3221 | 6281<br>4295 | 7851<br>5363 |
| 2 1/2” | Push<br>1 1/8”<br>1 1/4” | 1227<br>978<br>920 | 2454<br>1957<br>1840 | 3681<br>2936<br>2761 | 4908<br>3914<br>3681 | 6135<br>4893<br>4601 | 7362<br>5872<br>5522 | 9816<br>7829<br>7363 | 12270<br>9786<br>9203 |
| 3” | Push<br>1 1/4”<br>1 1/2” | 1767<br>1460<br>1325 | 3534<br>2920<br>2650 | 5301<br>4380<br>3975 | 7068<br>5841<br>5301 | 8835<br>7301<br>6626 | 10602<br>8761<br>7951 | 14136<br>11681<br>10601 | 17670<br>14601<br>13251 |
| 3 1/2” | Push<br>1 1/4”<br>1 1/2” | 2405<br>2098<br>1963 | 4810<br>4196<br>3926 | 7215<br>6294<br>5889 | 9621<br>8394<br>7854 | 12026<br>10492<br>9617 | 14431<br>12590<br>11780 | 19241<br>16786<br>15706 | 24051<br>20982<br>19632 |
| 4” | Push<br>1 1/4”<br>1 1/2” | 3141<br>2834<br>2699 | 6282<br>5668<br>5398 | 9423<br>8502<br>8097 | 12566<br>11339<br>10799 | 15707<br>14173<br>13498 | 18848<br>17007<br>16197 | 25130<br>22675<br>21595 | 31412<br>28343<br>26993 |
| 5” * | Push<br>1 1/2”<br>2” | 4908<br>4467<br>4123 | 9616<br>8934<br>8246 | 14724<br>13401<br>12369 | 19635<br>17868<br>16494 | 24543<br>22335<br>20617 | 29451<br>26802<br>24720 | * | * |

* 5” bore size is limited to 1500 psi maximum operating pressure.

# Series TQ Hydraulic Cylinders Accessories

## Adjustable Stroke Control Kits

Provide approximately 3” of stroke adjustment



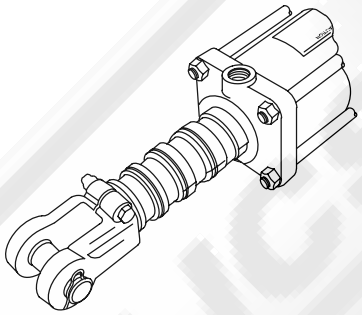
| Part Number | Piston Rod Diameter | Shipping Weight (lbs.) |
|---|---|---|
| 5111-F | 1 $^{1}/_{8}$” | 2 |
| 5111-G | 1 $^{1}/_{4}$” | 3 |
| 5111-J | 1 $^{1}/_{2}$” | 4 |

## Stroke Control Spacer Kits

Each kit consists of the following

One $^{3}/_{4}$” wide spacer — One 1 $^{1}/_{4}$” wide spacer

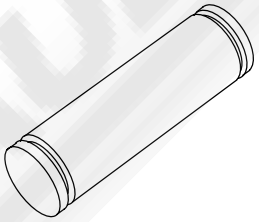
Two 1” wide spacer — One 1 $^{1}/_{2}$” wide spacer



| Part Number (Unplated) | Part Number (Plated) | Piston Rod Diameter | Shipping Weight (lbs.) |
|---|---|---|---|
| 5112-F | 5112-F-P | 1 $^{1}/_{8}$” | 4 |
| 5112-G | 5112-G-P | 1 $^{1}/_{4}$” | 4 |
| 5112-J | 5112-J-P | 1 $^{1}/_{2}$” | 4 |

## Clevis Pins

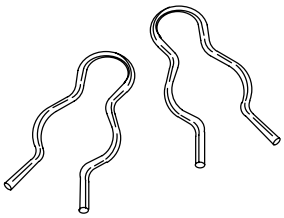
Package of 2 pins and 4 hair pin retainers



| Part Number | Size |
|---|---|
| TQ830100 | 1” x 3 $^{1}/_{16}$” |
| TQ830140 | 1$^{1}/_{4}$” x 3 $^{1}/_{16}$” |

### Hair Pin Retainers

Package of 12 retainers. Used on TQ830100



| Part Number | Size |
|---|---|
| 5113-0100 | For 1” clevis pin |