

WEIR CONCEPTS INC.

PRODUCT GUIDE

WCM HYDRAULIC ACTUATORS SERIES - WCM35 / WCM50 / WCM60 / WCM70 -



EXPECT QUALITY AND RELIABILITY

using our brand name **HYDRAULIC ACTUATORS**

~ WARRANTY AND EXCHANGE PROGRAM ~



Manufactured at Weir Concepts Inc.



Version 4.0



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DETAILS ARE THE DIFFERENCE BETWEEN ORDINARY AND EXCELLENCE



Each WCM Hydraulic Actuator Series Actuator is frozen and tested for a **MINIMUM of 24 HOURS**



Solutions for your company needs

CUSTOM DESIGN AND MANUFACTURING AVAILABLE

STANDARD Range -50°C to 150°C

FEATURES - Design Construction

- Scotch yoke mechanism for high breakaway and reset torque, ideal for quarter turn valves.
- Modular with basic drive case/cylinder combinations to suit most economically field requirements.
- O-Ring pistol type for reliable, positive sealing.
- Double acting for spring return styles.
- Stabilized drive rods where required by side loads.
- Safe, reliable, and field removable spring cartridges.
- Tie rod cylinder construction for simplified maintenance.
- SST pressure cylinder for corrosion resistance.

Weir Concepts offers technical consulting and provides a total end to end solution.

Material

- Durable, lightweight cast aluminum drive cases are standard, ideal for low temperature.
- Ductile iron yokes or stress relieved cast steel drive cases available.
- Filament wound fibreglass pneumatic cylinders (steel cylinders optional); steel hydraulic cylinders.
- LTN seals are standard; special low temperature or fluoroelastomer seals are also available.
- No brass or bronze components.
- Special trims and coating for corrosive applications.

QUALITY AND PERFORMANCE TESTED

WEIR CONCEPTS HYDRAULIC ACTUATOR SERIES OPERATES IN TANDUM AS AN **EMERGENCY SHUTDOWN SYSTEM**

WITH OUR WCSCHP*

*Weir Concepts Self Contained High Pressure Pump



MOUNTING CONTROLS

- Low temperature trim is standard:
-50°C to +150C (LT Buna)
- High temperature is optional:
-20°C to + 200C (H-T Fluoroelastomer/Steel)
-20°C to + 225C (H-T Fluoroelastmer/Steel)

Extreme low temperature is optional:
-65°C to + 150C (Fsi/Polyslide)

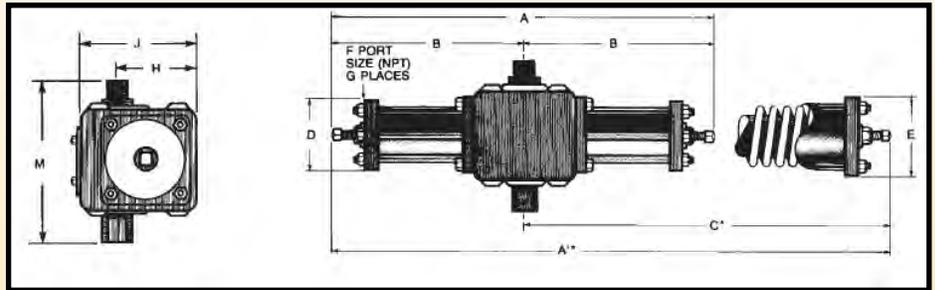


PNEUMATIC OPERATORS

MODEL IDENTIFICATION

| Cylinder Size | Series Number | Cylinders | Model Suffixes (Omitted if Not Applicable) | | | |
|---|-------------------------|--|---|---------------------|--|--------------------------------|
| OO Cylinder Bore Diameter | OO Identifies Series | X Cylinder Arrangement | SR Spring Return Model | OOO Spring Class | Hydraulic | MXX Manual Override Options |
| Omitted here because each cylinder has a unique cylinder bore diameter from 3 1/2" to 7" diameter. | 35 50 60 70 | "S" for one or "D" for two cylinders pressurized per stroke. | A spring provides for "fail safe" operation. Spring Class identifies particular spring | Hydraulic model | "MJ" - single jackscrew and handwheel "MJJ" - Dual jackscrew and handwheel. | |
| DSRH models are exceptions. They use one single acting hydraulic cylinder opposite the designated spring. | | | | | | |

WCM35&50 DIMENSIONS AND DATA - PNEUMATIC OPERATORS



CUSTOM DESIGN AND MANUFACTURING AVAILABLE

| MODEL | Dimensions (in) | | | | | | | | | | | Weight (lb.) | Actuator Displacement (in³) | Nominal Stroke (in) | Cylinder Bore (in) |
|---------|-----------------|--------|--------|--------|-------|-------|-----|---|-------|-------|---------|--------------|-----------------------------|---------------------|--------------------|
| | A | A* | B | C* | D | E | F | G | H | J | M | | | | |
| 35 SH | 21 | - | 10-1/2 | - | 3-1/4 | - | 1/4 | 2 | 4-1/4 | 6 | 7-3/8 | 25 | 5.7 | 2-3/4 | 1-5/8 |
| 35 DSRH | - | 31-3/4 | 10-3/8 | 21-3/8 | 3-1/4 | 4-1/4 | 1/4 | 1 | 4-1/4 | 6 | 7-3/8 | 40 | 5.7 | 2-3/4 | 1-5/8 |
| 50 SH | 30 | - | 15 | - | 5 | - | 1/4 | 2 | 5-3/8 | 7-1/2 | 10-5/8 | 70 | 22.1 | 4-1/2 | 2-1/2 |
| 50 DSRH | - | 48-1/2 | 16 | 32-1/2 | 5 | 6 | 1/4 | 1 | 5-3/8 | 7-1/2 | 10-5/8 | 90 | 22.1 | 4-1/2 | 2-1/2 |
| 60 SH | 34 | - | 17 | - | 5-1/2 | - | 1/4 | 2 | 6-1/2 | 9-3/8 | 12-9/16 | 90 | 38.9 | 5-1/2 | 3 |
| 60 DSRH | - | 54 | 18 | 36 | 5-1/2 | 7 | 1/4 | 1 | 6-1/2 | 9-3/8 | 12-9/16 | 150 | 38.9 | 5-1/2 | 3 |
| 70 SH | 40 | - | 20 | - | 5-5/8 | - | 1/4 | 2 | 7-3/4 | 11 | 14-1/2 | 140 | 64.9 | 6-3/4 | 3-1/2 |
| 70 DSRH | - | 65-3/4 | 21 | 44-3/4 | 5-5/8 | 8-1/4 | 1/4 | 1 | 7-3/4 | 11 | 14-1/2 | 260 | 64.9 | 6-3/4 | 3-1/2 |

*Note: Dimensions A and C refer to spring return models.

WEIR CONCEPTS HYDRAULIC ACTUATOR
SERIES OPERATES IN TANDUM AS AN
EMERGENCY SHUTDOWN SYSTEM

WITH OUR WCSCHP*

*Weir Concepts Self Contained High Pressure Pump



MOUNTING CONTROLS

- Low temperature trim is standard:
-50°C to +150°C (LT Buna)
- High temperature is optional:
-20°C to +200°C (H-T Fluoroelastomer/Steel)
-20°C to +225°C (H-T Fluoroelastomer/Steel)

Extreme low temperature is optional:

-65°C to +150°C (Fsi/Polyslide)

NOTE: SPRING RETURN OPERATORS

Calculated torques based on efficiency of 80%, as applied to spring force and piston force.

Higher pressures may be available - consult Weir Concepts for technical service.

HYDRAULIC OPERATORS AND SPRING RETURN OPERATORS

WCM HYDRAULIC ACTUATOR SERIES DIMENSIONS AND DATA

| Model | Max. Oper. Pressure (PSIG) | 750PSIG | 1000PSIG |
|--------|----------------------------|-----------|-----------|
| 35SH | 2000 | 3240 | 4560 |
| 50SH | 2000 | 13300 | 17700 |
| 60SH | 2000 | 23200 | 31000 |
| 70SH | 2000 | 39000 | 52000 |
| 23SH | 1500 | 13500 | 18000 |
| 33DH | 1500 | 48700 | 65000 |
| 43DH | 1500 | 97500 | 130,000 |
| 53DH | 1440 | 112,000 | 150,000 |
| 46DH | 1500 | 115,000 | 153,000 |
| 56DH | 1500 | 205,000 | 273,000 |
| 66DH | 1500 | 315,000 | 400,000 |
| 57DH | 1500 | 238,000 | 317,000 |
| 67DH | 1500 | 392,000 | 523,000 |
| 77DH | 1500 | 574,000 | 766,000 |
| 87DH | 1500 | 780,000 | 1,040,000 |
| 97DH | 1500 | 1,020,000 | 1,360,000 |
| 107DH | 1440 | 1,290,000 | 1,500,000 |
| 107DH- | 1440 | 1,500,000 | 1,500,000 |

Note: all torques in lb.in. - minimum torque is 1/2 end

SPRING RETURN OPERATORS

| | | | | | | cal. hyd. loading torque at min operating pressure (lb.in)* | | |
|-------|------|--------|-------|-------|-------|---|------|-------|
| 35DSR | 200 | 275 | 2730 | 1060 | 1530 | 2710 | 1050 | 1500 |
| 50DSR | 800 | 2000** | 9770 | 3870 | 5700 | 8440 | 3200 | 4370 |
| 60DSR | 1000 | 2000** | 16300 | 6400 | 9420 | 12200 | 4630 | 5280 |
| 70DSR | 800 | 2000** | 27700 | 10900 | 15800 | 25800 | 9910 | 13800 |

*Note: Calculated torques based on efficiency of 80%, as applied to spring force and piston force.

WEIR CONCEPTS HYDRAULIC ACTUATOR SERIES OPERATES IN TANDUM AS AN EMERGENCY SHUTDOWN SYSTEM

WITH OUR WCSCHP*

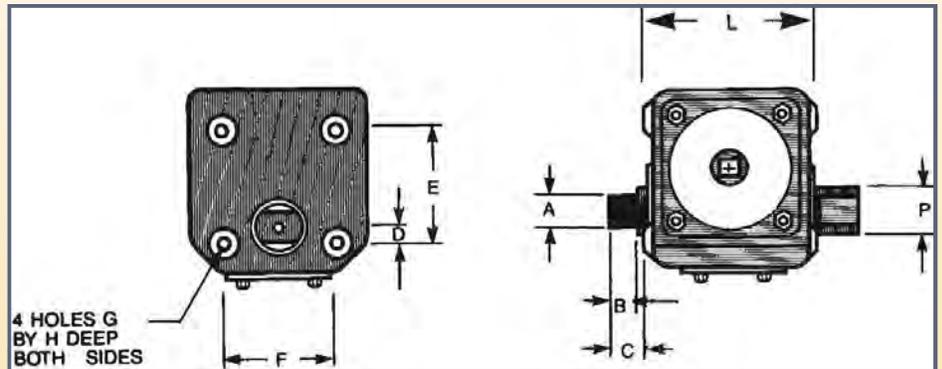
*Weir Concepts Self Contained High Pressure Pump



MOUNTING AND DRIVECASE DIMENSIONS

MOUNTING CONTROLS

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-20°C to + 225C (H-T Fluoroelastomer/Steel)

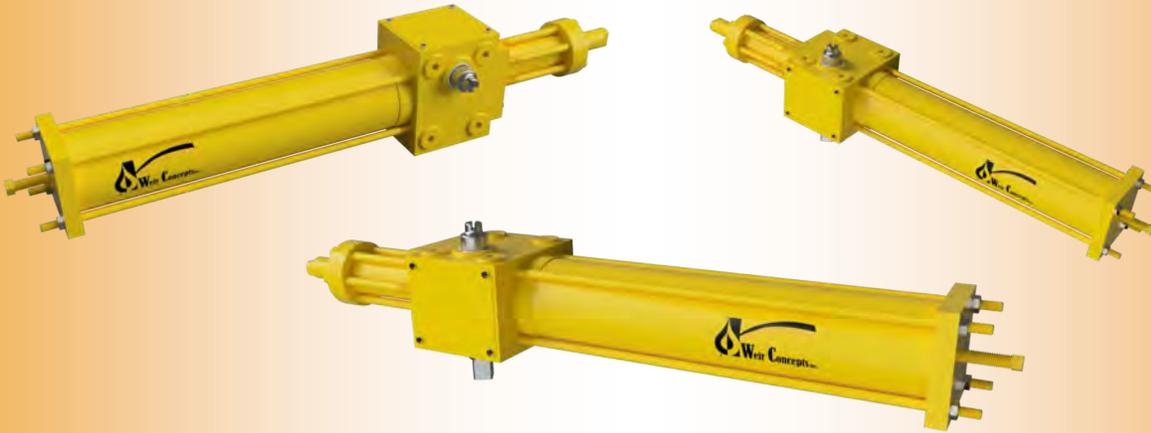


| Operator Series | Dimensions (in) | | | | | | | | | | |
|-----------------|-----------------|-------|-------|-----|-------|-------|----------|-------|-------|--------|--|
| | A | B | C | D | E | F | G | H | P | L | |
| 35 | 7/8 | 1 | 1-3/8 | 7/8 | 4-1/4 | 3 | 3/8-16NC | 1-1/4 | 1-1/4 | 4-5/8 | |
| 50 | 1-1/2 | 1-1/4 | 2 | 1/2 | 4 | 5 | 1/2-13NC | 1-1/2 | 2 | 4-5/8 | |
| 60 | 1-3/4 | 1-3/4 | 1-1/4 | 1/2 | 5-3/8 | 5-3/4 | 5/8-11NC | 1 | 2-1/4 | 8-1/16 | |
| 70 | 2 | 2 | 2-1/2 | 1/2 | 6 | 7 | 3/4-10NC | 1-1/4 | 2-1/2 | 9-1/2 | |



**WEIR CONCEPTS HYDRAULIC ACTUATOR SERIES OPERATES IN TANDUM AS AN
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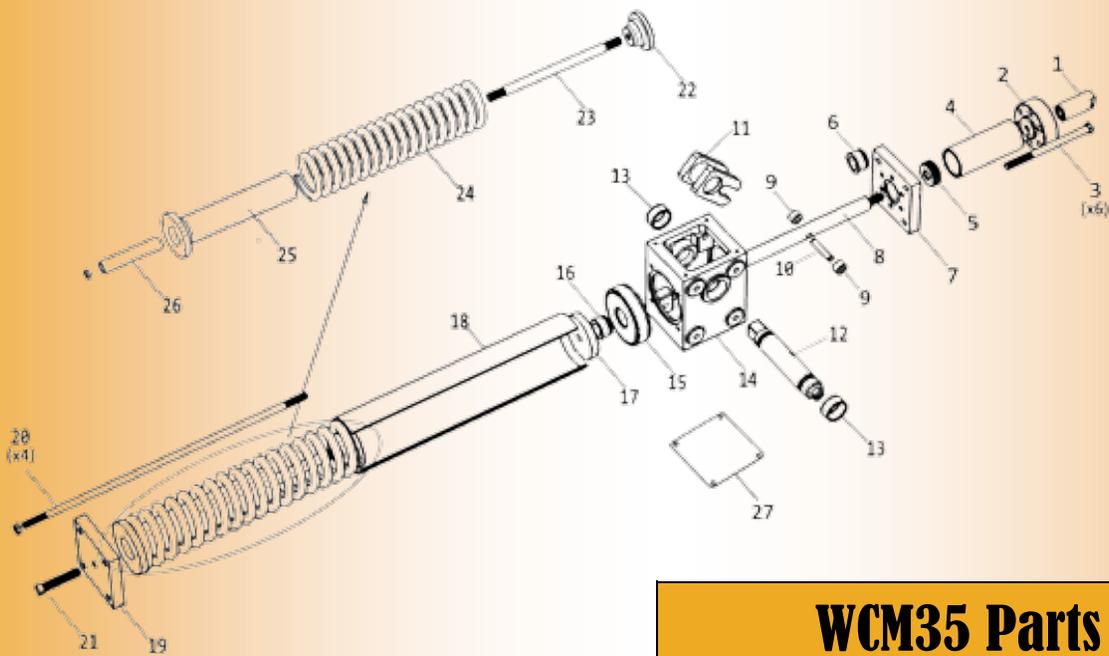
Extreme low temperature is optional:

-65°C to + 150°C (Fsi/Polyslide)



ASK US ABOUT OUR OTHER PRODUCTS LINES

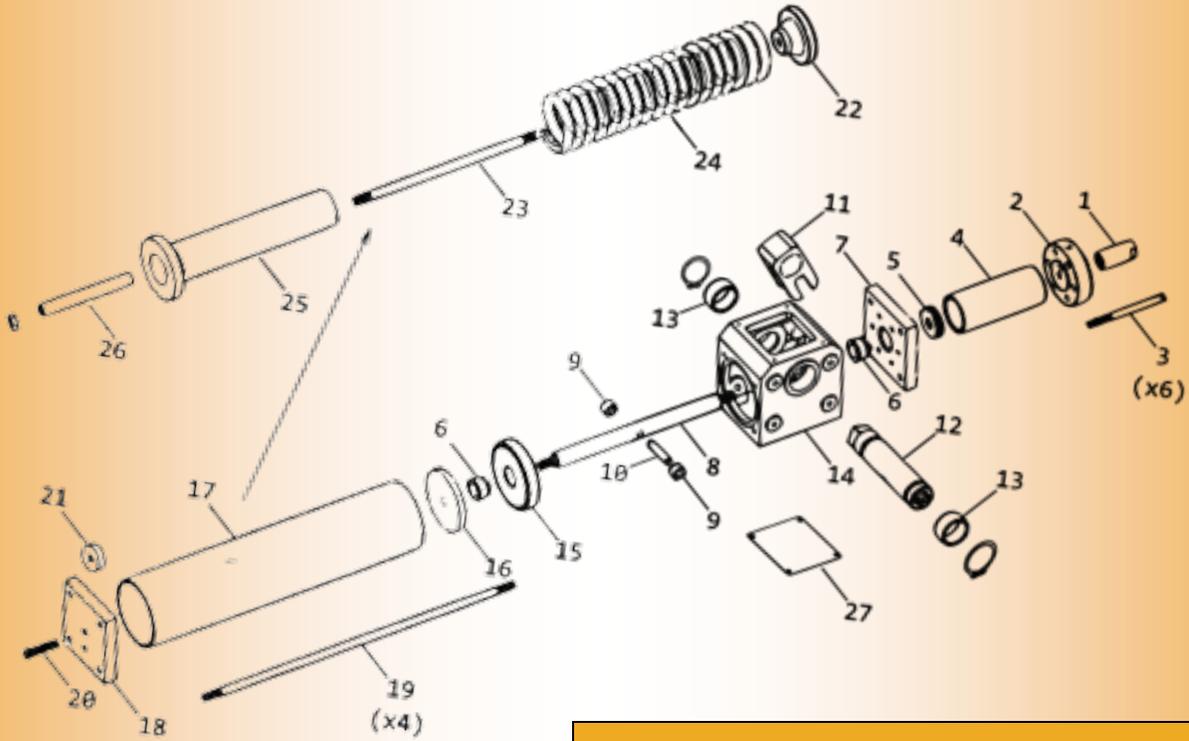
Weir Concepts WCM35



WCM35 Parts List

| | |
|----------|-------------------------|
| WCM35001 | Travel Stop Cover |
| WCM35002 | High Pressure End Cap |
| WCM35004 | High Pressure Cylinder |
| WCM35005 | High Pressure Piston |
| WCM35006 | Spring Plate Bushing |
| WCM35007 | High Pressure End Plate |
| WCM35008 | Piston Rod |
| WCM35009 | Piston Rod Pin Bearing |
| WCM35010 | Drive Rod Pin |
| WCM35011 | Drive Yolk |
| WCM35012 | Drive Shaft |
| WCM35013 | Body Bushing |
| WCM35014 | Body |
| WCM35015 | Spring Body Plate |
| WCM35016 | Spring Plate |
| WCM35017 | Spring Tube |
| WCM35018 | Spring End Cap |
| WCM35019 | Spring Cartridge Stud |
| WCM35021 | Spring Stop Washer |
| WCM35022 | Spring Preload Seat |
| WCM35023 | Spring Preload Stud |
| WCM35024 | Spring - 100 |
| WCM35025 | Spring Preload Barrel |
| WCM35026 | Spring Spacer Tube |

Weir Concepts WCM50



WCM50 Parts List

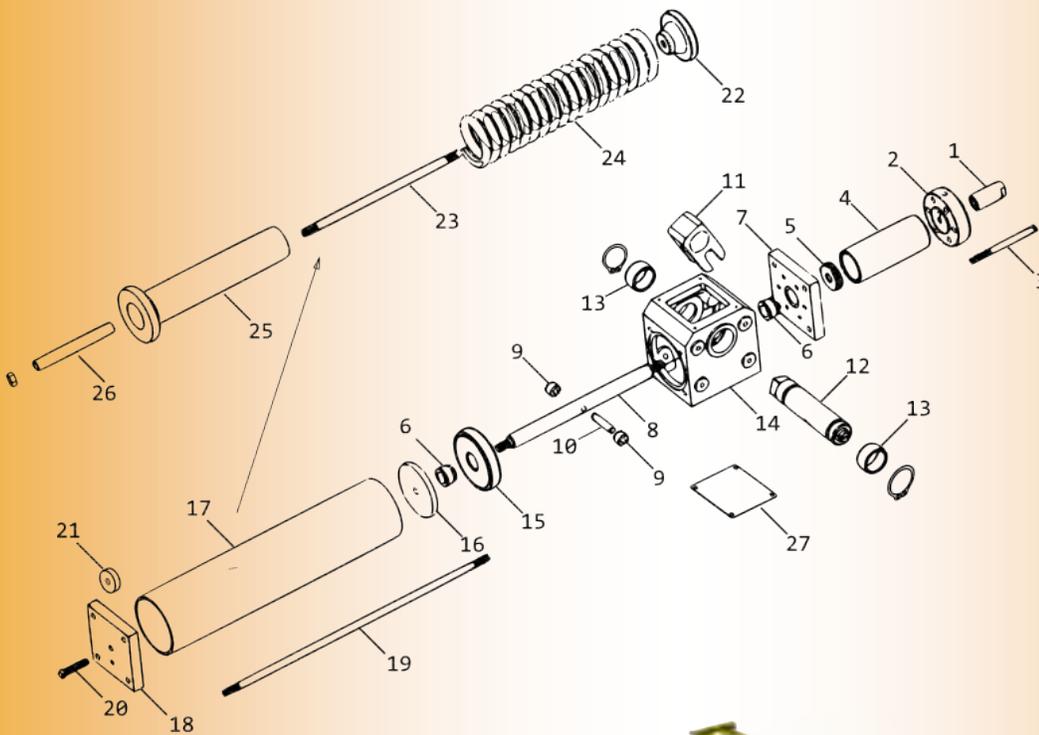
| | |
|----------|-------------------------|
| WCM50001 | Travel Stop Cover |
| WCM50002 | High Pressure End Cap |
| WCM50004 | High Pressure Cylinder |
| WCM50005 | High Pressure Piston |
| WCM50006 | Piston Rod Bearing |
| WCM50007 | High Pressure End Plate |
| WCM50008 | Piston Rod |
| WCM50009 | Piston Rod Pin Bearing |
| WCM50010 | Piston Rod Pin |
| WCM50011 | Drive Yolk |
| WCM50012 | Drive Shaft |
| WCM50013 | Body Bushing |
| WCM50014 | Body |
| WCM50015 | Body Plate |
| WCM50016 | Spring Plate |
| WCM50017 | Spring Tube |
| WCM50018 | Spring End Cap |
| WCM50019 | Spring Cartridge Stud |
| WCM50021 | Spring Stop Washer |
| WCM50022 | Spring Preload Seat |
| WCM50023 | Spring Preload Stud |
| WCM50024 | Spring - 100 |
| WCM50025 | Spring Preload Barrel |
| WCM50026 | Spring Spacer Tube |

*Note: WCSCHP - Weir Concepts Self Contained High Pressure Pump

Weir Concepts WCM60



WCM60 Hydraulic Actuator Assembly



- WCM60001 - Travel Stop Cover
- WCM60002 - High Pressure End Cap
- WCM60003 - High Pressure Bolt
- WCM60004 - High Pressure Cylinder
- WCM60005 - High Pressure Piston
- WCM60006 - Piston Rod Plate Bushing
- WCM60006 - Spring Plate Bushing
- WCM60007 - High Pressure Body Plate
- WCM60008 - Piston Rod
- WCM60009 - Piston Rod Pin Bearing
- WCM60010 - Piston Rod Pin
- WCM60011 - Drive Yolk
- WCM60012 - Drive Shaft
- WCM60013 - Body Bushing
- WCM60014 - Body
- WCM60015 - Spring Body Plate
- WCM60016 - Spring Plate
- WCM60017 - Spring Tube
- WCM60018 - Spring End Cap
- WCM60019 - Spring Cartridge Stud
- WCM60020 - Spring Set Screw
- WCM60021 - Spring Stop Washer
- WCM60022 - Spring Preload Seat
- WCM60023 - Spring Preload Stud
- WCM60024 - Spring-100
- WCM60025 - Spring Preload Barrel
- WCM60026 - Spring Spacer Tube
- WCM60027 - Name Plate

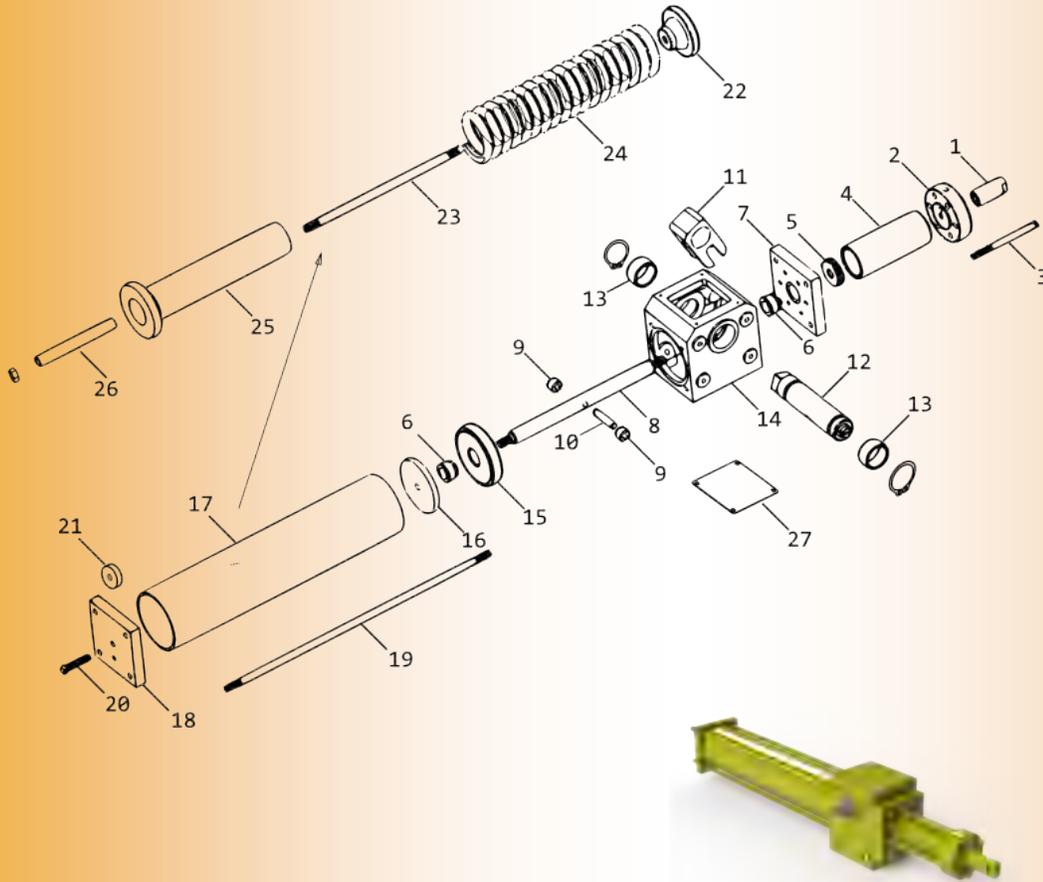


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WCM Hydraulic Actuator Series: 35 / 50 / 60 / 70

Weir Concepts WCM70

WCM70 Hydraulic Actuator Assembly



- WCM70001 - Travel Stop Cover
- WCM70002 - High Pressure End Cap
- WCM70003 - High Pressure Bolt
- WCM70004 - High Pressure Cylinder
- WCM70005 - High Pressure Piston
- WCM70006 - Piston Rod Plate Bushing
- WCM70006 - Spring Plate Bushing
- WCM70007 - High Pressure Body Plate
- WCM70008 - Piston Rod
- WCM70009 - Piston Rod Pin Bearing
- WCM70010 - Piston Rod Pin
- WCM70011 - Drive Yolk
- WCM70012 - Drive Shaft
- WCM70013 - Body Bushing
- WCM70014 - Body
- WCM70015 - Spring Body Plate
- WCM70016 - Spring Plate
- WCM70017 - Spring Tube
- WCM70018 - Spring End Cap
- WCM70019 - Spring Cartridge Stud
- WCM70020 - Spring Set Screw
- WCM70021 - Spring Stop Washer
- WCM70022 - Spring Preload Seat
- WCM70023 - Spring Preload Stud
- WCM70024 - Spring-100
- WCM70025 - Spring Preload Barrel
- WCM70026 - Spring Spacer Tube
- WCM70027 - Name Plate

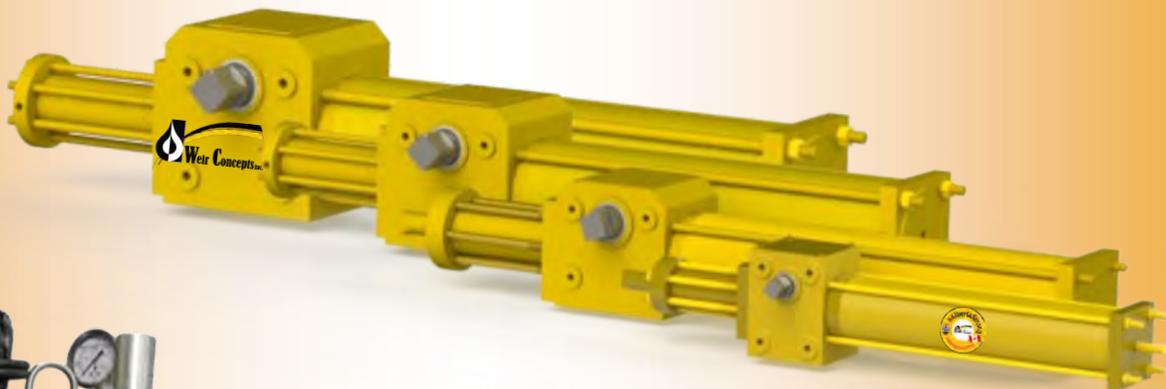


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WCM Hydraulic Actuator Series: 35 / 50 / 60 / 70

PRODUCT GUIDE

WEIR CONCEPTS WCM HYDRAULIC ACTUATOR SERIES: WCM 35/50/60/70



DISPLAYED here with our Weir Concepts Self Contained High Pressure Pump (WCSCP)



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