

# DATA SHEET

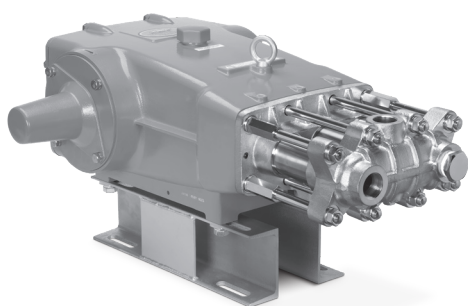
## 60FR PISTON PUMPS



The Pumps with Nine Lives

**Brass Models: 6020, 6040**

**Stainless Steel Models: 6021, 6041**



Model 6040 Shown  
(Box rails and shaft protector included)

### FEATURES

- Triplex Uniflow design provides continuous forward liquid flow for smooth operation.
- Wetted cups and floating pistons are lubricated and cooled by pumped liquid resulting in longer cup life.
- Optional 316 stainless steel manifolds provide added corrosion resistance.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

### SPECIFICATIONS

#### U.S. Measure

#### Metric Measure

#### Models 6020, 6021

|                |              |            |
|----------------|--------------|------------|
| Flow           | 60 gpm       | 227 lpm    |
| Pressure Range | 100–1000 psi | 6.9–69 bar |
| Bore           | 2.205"       | 56 mm      |

#### Models 6040, 6041

|                |              |             |
|----------------|--------------|-------------|
| Flow           | 40 gpm       | 151 lpm     |
| Pressure Range | 100–1500 psi | 6.9–103 bar |
| Bore           | 1.811"       | 46 mm       |

### COMMON SPECIFICATIONS

#### U.S.

#### Metric

|                            |                |                 |
|----------------------------|----------------|-----------------|
| Pump RPM*                  | 500 rpm        | 500 rpm         |
| Inlet Pressure Range       | -8.5 to 40 psi | -0.6 to 2.8 bar |
| Maximum Liquid Temp. (NBR) | 160° F         | 71° C           |

#### Alternative seals available for higher temperatures up to 180° F

|                     |                      |                    |
|---------------------|----------------------|--------------------|
| Stroke              | 2.461"               | 62.5 mm            |
| Crankcase Capacity  | 10 qts               | 9.46 l             |
| Inlet Ports (1)     | 2" NPT(F)            | 2" NPT(F)          |
| Discharge Ports (3) | 1¼" NPT(F)           | 1¼" NPT(F)         |
| Shaft Diameter      | 1.772"               | 45 mm              |
| Weight              | 242 lbs              | 110 kg             |
| Dimensions          | 31.4 x 24.0 x 12.05" | 796 x 610 x 306 mm |

\* Pump Minimum is 100 RPM.

### ALTERNATIVE SEAL CONFIGURATION

| MATERIAL | SUFFIX CODE | MAXIMUM TEMPERATURE |         |
|----------|-------------|---------------------|---------|
| NBR      | —           | 160° F              | (71° C) |
| FPM      | .0110       | 180° F              | (82° C) |

See **Tech Bulletin 002** for inlet conditions and RPM at high-temperature.

$$\text{DETERMINING THE PUMP RPM} \quad \frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{Desired gpm}}{\text{Desired rpm}}$$

$$\text{DETERMINING THE REQUIRED HP} \quad \frac{\text{hp (Electric Brake)}}{1460} = \frac{\text{gpm} \times \text{psi}}{1460}$$

$$\text{DETERMINING MOTOR PULLEY SIZE} \quad \frac{\text{Motor Pulley OD}}{\text{Pump rpm}} = \frac{\text{Pump Pulley OD}}{\text{Motor rpm}}$$

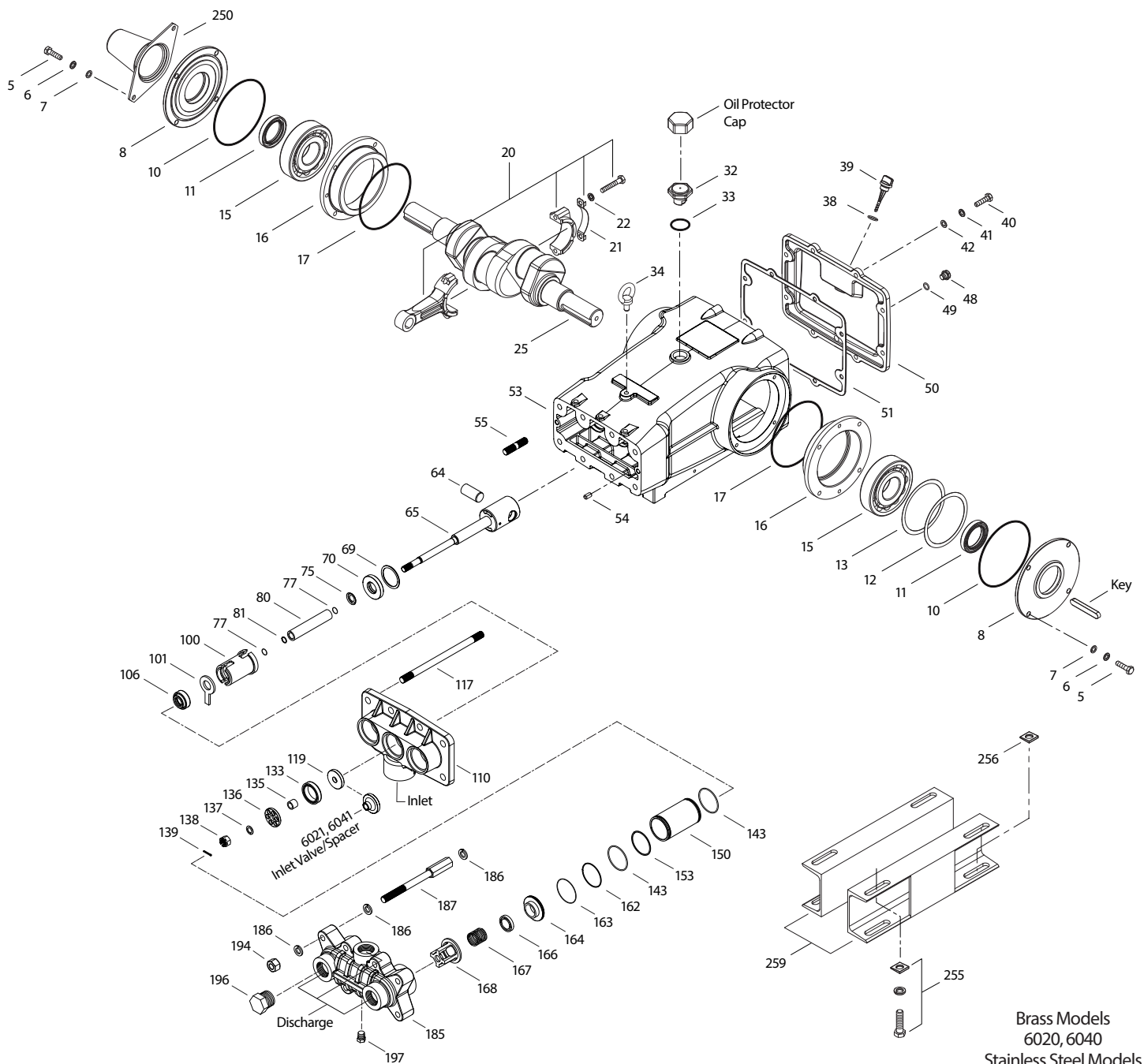
Refer to pump **Service Manual** for repair procedure and additional technical information.

## PARTS LIST

| ITEM | PART NUMBER |                 | DESCRIPTION |        | QTY  |     |
|------|-------------|-----------------|-------------|--------|--|-----|
|      | 6020,6021   | MATL 6040, 6041 | MATL        |        |  |     |
| 5    | 126532      | STCP R          | 126532      | STCP R | Screw, HH (M10 x 40) (See Tech Bulletin 074)   | 8   |
| 6    | 126231      | STCP R          | 126231      | STCP R | Lockwasher (M10)   | 8   |
| 7    | 126574      | STZP R          | 126574      | STZP R | Washer, Flat (M10)   | 8   |
| 8    | 29443       | ALE             | 29443       | ALE    | Case, Bearing, Outer (See Tech Bulletin 118)   | 2   |
| 10   | 29444       | NBR             | 29444       | NBR    | O-Ring, Bearing Case-70D   | 2   |
| 11   | 11443       | NBR             | 11443       | NBR    | Seal, Oil, Crankshaft  | 2   |
| 12   | 126594      | STCP R          | 126594      | STCP R | Washer, Shim (M120 x 0.3)  | 0-2 |
| 13   | 126595      | STCP R          | 126595      | STCP R | Washer, Shim (M120 x 0.5)  | 0-2 |
| 15   | 29441       | STL             | 29441       | STL    | Bearing, Roller  | 2   |
| 16   | 29442       | STL             | 29442       | STL    | Case, Bearing, Inner   | 2   |
| 17   | 29444       | NBR             | 29444       | NBR    | O-Ring, Bearing Case-70D   | 2   |
| 20   | 126612      | BBHS            | 126612      | BBHS   | Rod, Connecting (Includes: 21, 22) (See Tech Bulletin 074)   | 3   |
| 21   | 126560      | STCP R          | 126560      | STCP R | Washer, Locking  | 3   |
| 22   | 126593      | STCP R          | 126593      | STCP R | Washer, Shim   | 6   |
| 25   | 29440       | FCM             | 29440       | FCM    | Crankshaft, Dual End (M65.5)   | 1   |
| 32   | 43211       | ABS             | 43211       | ABS    | Cap, Oil Filler  | 1   |
| 33   | 14177       | NBR             | 14177       | NBR    | O-Ring, Cap-70D  | 1   |
| 34   | 126743      | STCP R          | 126743      | STCP R | Bolt, Eye (M12) (For Lifting Pump Only)  | 1   |
| 38   | 129343      | RBR             | 129343      | RBR    | Gasket, Flat Flex  | 1   |
| 39   | 27769       | ABS             | 27769       | ABS    | Dipstick   | 1   |
| 40   | 126531      | STCP R          | 126531      | STCP R | Screw, HH (M10 x 30) (See Tech Bulletin 074)   | 8   |
| 41   | 126231      | STCP R          | 126231      | STCP R | Lockwasher (M10)   | 8   |
| 42   | 126574      | STZP R          | 126574      | STZP R | Washer, Flat (M10)   | 8   |
| 48   | 25625       | STCP            | 25625       | STCP   | Plug, Drain (1/4" x 19 BSP)  | 1   |
| 49   | 23170       | NBR             | 23170       | NBR    | O-Ring, Drain Plug-70D   | 1   |
| 50   | 29438       | ALE             | 29438       | ALE    | Cover, Rear (See Tech Bulletin 118)  | 1   |
| 51   | 129386      | NBR             | 129386      | NBR    | Gasket, Rear Cover   | 1   |
| 53   | 133667      | ALE             | 133667      | ALE    | Crankcase with Guide Pins (Includes: 34, 54) (See Tech Bulletin 118)   | 1   |
| 54   | 43282       | S               | 43282       | S      | Pin, Guide   | 3   |
| 55   | 126554      | STCP R          | 126554      | STCP R | Stud (M16 x 72)  | 4   |
|      | 89615       | S               | 89615       | S      | Stud (M16 x 70) (Models 6021, 6041)  | 3   |
| 64   | 29481       | CM              | 29481       | CM     | Pin, Crosshead   | 3   |
| 65   | 43809       | SSZZ            | 43809       | SSZZ   | Rod, Piston  | 3   |
| 69   | 126588      | STCP R          | 126588      | STCP R | Washer, Oil Seal   | 3   |
| 70   | 29454       | NBR             | 29454       | NBR    | Seal, Oil, Crankcase   | 3   |
| 75   | 29340       | S               | 29340       | S      | Slinger, Barrier   | 3   |
| 77   | 13967       | NBR             | 13967       | NBR    | O-Ring, Sleeve   | 6   |
| 80   | 43129       | SCP             | 43129       | SCP    | Sleeve (M25)   | 3   |
|      | 43271       | S               | 43271       | S      | Sleeve (M25) (Unchromed)   | 3   |
|      | 700923      | SS              | 700923      | SS     | Sleeve (M25) (Models 6021, 6041)   | 3   |
| 81   | 29455       | PTFE            | 29455       | PTFE   | Backup Ring, Sleeve  | 3   |
| 100  | 29456       | AL              | 29456       | AL     | Retainer, Seal   | 3   |
| 101  | 43136       | —               | 43136       | —      | Wick, Oil (M25)  | 3   |
| 106  | 43130       | NBR             | 43130       | NBR    | Seal, LPS Ungreased (M25)  | 3   |
| 110  | 43283       | BBCP            | 43283       | BBCP   | Manifold, Inlet  | 1   |
|      | 29805       | SS              | 29805       | SS     | Manifold, Inlet (Models 6021, 6041)  | 1   |
| 117  | 88902       | STCP            | 88902       | STCP   | Stud (M16 x 277) (See Tech Bulletin 074)   | 4   |
| 119  | 29460       | S               | 43200       | S      | Valve, Inlet (Models 6020, 6040)   | 3   |
|      | 700942      | SS              | 703444      | SS     | Valve, Inlet with Spacer (Models 6021, 6041)   | 3   |
| 133  | 29461       | NBR             | 43201       | NBR    | Cup-Piston Assembly with S-Piston  | 3   |
| 135  | 29463       | S               | 29463       | S      | Spacer, Piston (No Spacer Required for Models 6021, 6041)  | 3   |
| 136  | 29464       | S               | 43203       | S      | Retainer, Piston   | 3   |
| 137  | 44272       | SS              | 44272       | SS     | Washer, Conical (M14)  | 3   |
| 138  | 29465       | S               | 29465       | S      | Nut, Slotted (M14) (See Tech Bulletin 074)   | 3   |
| 139  | 29354       | S               | 29354       | S      | Cotterpin (M2.5 x 25)  | 3   |
| 143  | 12392       | NBR             | 12392       | NBR    | O-Ring, Cylinder-70D   | 6   |
| 150  | 29466       | SCP             | 43204       | SCP    | Cylinder   | 3   |
|      | 43279       | S               | 43392       | S      | Cylinder (Unchromed)   | 3   |
|      | 700921      | SS              | 700922      | SS     | Cylinder (Models 6021, 6041)   | 3   |
| 153  | 23116       | PTFE            | 23116       | PTFE   | Backup Ring, Cylinder  | 3   |
| 162  | 43206       | PTFE            | 43206       | PTFE   | Backup Ring, Seat  | 3   |
| 163  | 29471       | NBR             | 29471       | NBR    | O-Ring, Seat   | 3   |
| 164  | 43205       | S               | 43205       | S      | Seat (Flat Valve)  | 3   |
| 166  | 29468       | S               | 29468       | S      | Valve (Flat Valve)   | 3   |
| 167  | 29469       | S               | 29469       | S      | Spring   | 3   |
| 168  | 43143       | S               | 43143       | S      | Retainer, Spring   | 3   |
| 185  | 29472       | BBCP            | 29472       | BBCP   | Manifold, Discharge  | 1   |
|      | 29806       | SS              | 29806       | SS     | Manifold, Discharge (Model 6021, 6041)   | 1   |
| 186  | 126569      | STCP R          | 126569      | STCP R | Lockwasher (M16)   | 12  |
| 187  | 29473       | STCP            | 29473       | STCP   | Bolt (M16 x 225)   | 4   |
| 194  | 126525      | STCP R          | 126525      | STCP R | Nut, Hex (M16) (See Tech Bulletin 074)   | 8   |
|      | 81291       | S               | 81291       | S      | Nut, Hex (M16) (Models 6021, 6041) (See Tech Bulletin 074)   | 8   |
| 196  | 29476       | BBCP            | 29476       | BBCP   | Plug (1 1/4" NPT[M])   | 1   |
| 197  | 22187       | BBCP            | 22187       | BBCP   | Plug (3/8" NPT[M])   | 1   |
|      | 701078      | SS              | 701078      | SS     | Plug (3/8" NPT[M])   | 1   |
| 250  | 29445       | ALE             | 29445       | ALE    | Protector, Shaft (See Tech Bulletin 118)   | 1   |
| 255  | 33243       | STZP            | 33243       | STZP   | Mount, Direct  | 1   |
| 256  | 29649       | STCP            | 29649       | STCP   | Washer, Slant (M16) (To Shim and Align Mounting Bolts [Not Included] Through the Box Rail and Mounting Base) | 4   |
| 259  | 126604      | STCP R          | 126604      | STCP R | Rail, Box  | 2   |

Optional Parts and Accessories listed on pages 3. Standard and Optional Seal, Sleeve and Seal, Cup, Piston and Valve Kits listed on Page 4.

# EXPLODED VIEW



Brass Models  
6020, 6040  
Stainless Steel Models  
6021, 6041  
May 2022

## OPTIONAL PARTS AND ACCESSORIES

| PART   | DESCRIPTION                             | QTY |
|--------|---|-----|
| 43048  | Key (M14 x 9 x 90)                      | 1   |
| 828710 | Protector, Oil Cap with Foam Gasket     | 1   |
| 990014 | Hub, "B", 45mm (Not Shown)              | 1   |
| 30429  | Oiler, 10 oz (Not Shown)                | 3   |
| 10070  | Gasket, Oiler (Not Shown)               | 3   |
| 34314  | Kit, Oil Drain (3/8" x 48") (Not Shown) | 1   |

## SERVICE PARTS

| PART         | DESCRIPTION   | QTY |
|--------------|---|-----|
| <b>30484</b> | Kit, Seal – Standard NBR  | 1   |
| <b>30441</b> | Kit, Valve – Standard NBR   | 1   |
| 6102         | Oil, Jug (2.5 gal) ISO 68 Hydraulic<br>(Fill to Specified Crankcase Capacity Prior to Start-up) | 1   |
| 6124         | Gasket, Liquid (3 oz)   | 1   |
| 6139         | Anti-seize, Lubricant (8 oz) (Models 6021 and 6041)   | 1   |

**Bold part numbers are unique to a particular pump model. Italics are optional items.**

R Components comply with RoHS Directive. For additional technical information see [www.catpumps.com/literature/tech-bulletins](http://www.catpumps.com/literature/tech-bulletins).

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BBP=Brass/Chrome Plated BBHS=Brass/High Strength CM=Chrome-Moly  
FCM=Forged Chrome-Moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) PE=Polyethylene PTFE=Pure Polytetrafluoroethylene RBR=Rubber S=304SS  
SCP=304SS/Chrome Plated SS=316SS SSZZ=316SS/Zamak STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated  
TG=PTFE Graphite Compound (GIT) ST4=Special PTFE4

**Kits - Additional Seal Kits, Sleeve and Seal Kits, Cup Kits, Piston Kits and Valve Kits listed on Page 4.**

**SEAL KITS** One (1) seal kit required per pump

| Pump Models            | NBR (STD)    |
|------------------------|--------------|
| 6020, 6021, 6040, 6041 | <b>30484</b> |

| ITEM (Included in Seal Kits) |         | DESCRIPTION        | QTY |
|------------------------------|---------|--------------------|-----|
| 101                          | 43136   | Wick, Oil          | 3   |
| 106                          | 43130 * | Seal, Low-Pressure | 3   |
| 139                          | 29354   | Cotterpin          | 3   |
|                              | 30168   | Paper, Abrasive    | 1   |

\* Use PN 43132 for FPM

**SLEEVE AND SEAL KIT** One (1) sleeve and seal kit required per pump

| Pump Models            | NBR (STD)    |
|------------------------|--------------|
| 6020, 6021, 6040, 6041 | <b>30485</b> |

| ITEM (Included in Sleeve and Seal Kits) |          | DESCRIPTION         | QTY |
|---|----------|---------------------|-----|
| 75                                      | 29340    | Slinger, Barrier    | 3   |
| 77                                      | 13967 ** | O-Ring, Sleeve      | 6   |
| 80                                      | 43129    | Sleeve              | 3   |
| 81                                      | 29455    | Backup Ring, Sleeve | 3   |
| 101                                     | 43136    | Wick, Oil           | 3   |
| 106                                     | 43130 *  | Seal, Low-Pressure  | 3   |
| 139                                     | 29354    | Cotterpin           | 3   |

\* Use PN 43132 for FPM, \*\* Use PN 14308 for FPM

**CUP KITS** One (1) cup kit required per pump

| Pump Models | NBR (STD)    | NBR (SS)       | NBR (STD)    |
|-------------|--------------|----------------|--------------|
| 6020        | <b>30440</b> |                |              |
| 6021        |              | <b>700973*</b> |              |
| 6040, 6041  |              |                | <b>30433</b> |

| ITEM (Included in Cup Kits) |          |          |          | DESCRIPTION          | QTY |
|-----------------------------|----------|----------|----------|----------------------|-----|
| 133                         | 29461    | 76609    | 43201    | Assembly, Cup-Piston | 3   |
| 139                         | 29354    | 29354    | 29354    | Cotterpin            | 3   |
| 143                         | 12392 ** | 12392 ** | 12392 ** | O-Ring, Cylinder     | 6   |

\* ST4 cup material with FPM O-Ring, \*\* Use PN 13279 for FPM

**PISTON KITS** One (1) piston kit required per pump

| Pump Models | NBR (STD)    | NBR (SS)      |
|-------------|--------------|---------------|
| 6020        | <b>30439</b> |               |
| 6021        |              | <b>701039</b> |

| ITEM (Included in Piston Kits) |         |         |  | DESCRIPTION          | QTY |
|--------------------------------|---------|---------|--|----------------------|-----|
| 119                            | 29460   | 700942  |  | Valve, Inlet         | 3   |
| 133                            | 29461   | 76609   |  | Assembly, Cup-Piston | 3   |
| 135                            | 29463   |         |  | Spacer, Piston       | 3   |
| 136                            | 29464   | 29464   |  | Retainer, Piston     | 3   |
| 137                            | 44272   | 44272   |  | Washer, Conical      | 3   |
| 138                            | 29465   | 29465   |  | Nut, Slotted         | 3   |
| 139                            | 29354   | 29354   |  | Cotterpin            | 3   |
| 143                            | 12392 * | 12392 * |  | O-Ring, Cylinder     | 6   |

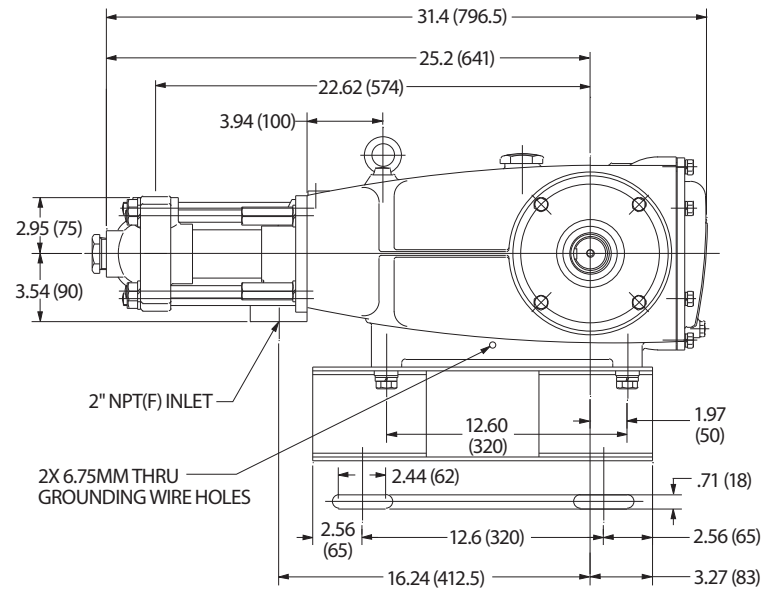
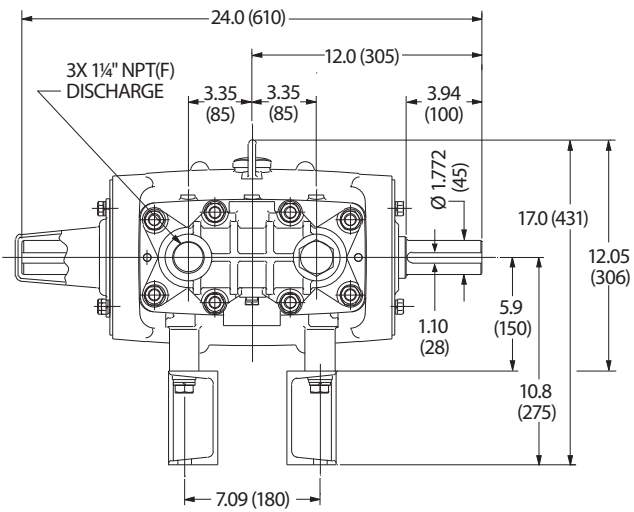
\* Use PN 13279 for FPM

No piston kits available for models 6040 and 6041

**VALVE KITS** One (1) valve kit required per pump

| Pump Models            | NBR (Flat)   | FPM (Flat)   |
|------------------------|--------------|--------------|
| 6020, 6021, 6040, 6041 | <b>30441</b> | <b>76441</b> |

| ITEM (Included in Valve Kits) |       |       |  | DESCRIPTION           | QTY |
|-------------------------------|-------|-------|--|-----------------------|-----|
| 143                           | 13292 | 13279 |  | O-Ring, Cylinder      | 6   |
| 162                           | 43206 | 43206 |  | Backup Ring, Cylinder | 3   |
| 163                           | 29471 | 29479 |  | O-Ring, Seat          | 3   |
| 164                           | 43205 | 43205 |  | Seat                  | 3   |
| 166                           | 29468 | 29468 |  | Valve                 | 3   |
| 167                           | 29469 | 29469 |  | Spring                | 3   |
| 168                           | 43143 | 43143 |  | Retainer, Spring      | 3   |



Model 6020, 6021, 6040, 6041

**⚠ CAUTIONS AND WARNINGS**

All high-pressure systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high-pressure system. Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system. The CAUTIONS and WARNINGS are included in each Service Manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at [www.catpumps.com/dynamic-literature/cautions-and-warnings](http://www.catpumps.com/dynamic-literature/cautions-and-warnings) or can be requested directly from Cat Pumps.

**WARRANTY**

View the Limited Warranty online at [www.catpumps.com/literature/cat-pumps-limited-warranty](http://www.catpumps.com/literature/cat-pumps-limited-warranty)