# BRIEF INTRODUCTION

***Centrum Petroleum Machinery Limited Company*** (**CPMC**) has been proudly supplying Drilling Equipment to the oilfield since 2007.

Through our Domestic and International distribution network we have been selling our products worldwide with high customer satisfaction.

CPMC Drilling Equipment is designed to meet the requirements of a wide range of applications.

Pumps: 165HP to 1600HP
Block/Hook Combinations: 80 to 500 Tons
Swivels: 150 to 500
Tons Rotary Tables: 17-1/2” thru 37-1/2”

***Centrum Petroleum Machinery Limited Company*** owns a manufacturing plant and has joint ventures and/or partnerships with several other manufactures. All of our products are manufactured under API and/or ISO approved manufacturing facilities accepted under a 2-tier quality system.

We are in direct and constant communication with our manufacturers to maintain the high quality standards our customers have come to expect.

We maintain a large inventory of replacement parts for all our products as well as certain OEM products.

Contact CPMC (http://www.cpmc-cn.com/) for more information about your next project. Our knowledgeable sales staff can answer all your questions when planning your next program.

# TABLE OF CONTENTS

# TRAVELING BLOCK

## DESIGN FEATURES

◆Unitized traveling block and hook reduces the overall length to help satisfy the requirements of operating a top drive.

◆Hinged heavy-gauge steel plate sheave guards can be opened quickly with ease for fast line spooling.

◆Sheave bearings are individually lubricated double-tapered rollers.

◆Internal hydraulic snubber (shock absorber) to reduce impact on tool joints.

◆Includes a positioner lock that allows rotating the elevator to the correct position for the derrickman.

**Traveling Block Are Manufactured For CPMC**
**Under API License 8C-0065, Specification 8C at PSL-1**

| MODEL | YC-90 | YC-135 | YC-170 | YC-225 | YC-315 | YC-450 | YC-585 |
|---|---|---|---|---|---|---|---|
| Max hood load (ton) | 9 | 13 | 17 | 22 | 31 | 45 | 58 |
| O.D. of sheaves (in) | 30 | 36 | 36 | 44 | 50 | 60” | 60 |
| Number of Sheaves | 4 | 4 | 5 | 5 | 6 | 6 | 7 |
| Dia. of wire line (in) | 1 | 1 | 1-1/8” | 1-1/4” | 1-3/8” | 1-1/2” | 1-5/8” |
| Overall dimensions (LxWxH) (in) | 1500x806x533 | 1800x960x610 | 2100x960x630 | 2294x1190x630 | 2680x1350x974 | 3075x1600x800 | 3100x1600x965 |
| Weight (lbs) | 181 | 2200 | 3010 | 3805 | 6842 | 8135 | 9600 |

# BLOCK-HOOK

## DESIGN FEATURES

◆Unitized traveling block and hook reduces the overall length to help satisfy the requirements of operating a top drive.

◆Hinged heavy-gauge steel plate sheave guards can be opened quickly with ease for fast line spooling.

◆Sheave bearings are individually lubricated double-tapered rollers.

◆Internal hydraulic snubber (shock absorber) to reduce impact on tool joints.

◆Includes a positioner lock that allows rotating the elevator to the correct position for the derrickman.

**Block Hook Are Manufactured For CPMC**
**Under API License 8C-0065, Specification 8C at PSL-1**

| MODEL | YG-80 | YG -110 | YG -120 | YG -150 | YG -200 | YG -250 | YG -350 |
|---|---|---|---|---|---|---|---|
| Max hood load (ton) | 8 | 11 | 12 | 15 | 200 | 25 | 35 |
| O.D. of sheaves (in) | 2 | 2 | 2 | 3 | 36” | 36”.44” | 4 |
| Number of Sheaves | 3 | 4 | 4 | 4 | 5 | 5 | 5 |
| Dia. of wire line (in) | 1” | 1” | 1” | 1 „ | 1-1/8” 1-1/4” | 1-1/4” | 1-1/4” |
| Major hook opening | 6-1/2” | 6-1/2” | 7-1/2” | 6 | 7” | 7-1/2” | 7-1/2” |
| Spring travel (in) | 4-3/4” | 4-3/4” | 4-3/4” | 6-1/2” | 5-1/2” | 7 | 7 |
| Overall dimensions (LxWxH) (in) | 83”x26”x16” | 95”x28”x24” | 100”x28”x28” | 116”x33”x23” | 134”x38”x26” | 142”x38(46)x31” | 106”x53”x38” |
| Weight (lbs) | 320 | 410 | 452 | 690 | 10130 | 13500 | 14800 |

# ROTARY SWIVEL

## DESIGN FEATURES.

◆Equipped with standard bails.

◆The washpipe and packing assembly are cartridge type and can be replaced without disconnecting the rotary hose and/or gooseneck.

◆Floating washpipe design for even wear. Main bearing is an extra-heavy tapered roller design.

◆Equipped with 4” API hose connection.

◆Extended lower stem

.

**Rotary Swivels Are Manufactured For CPMC**
**Under API License 8C-0065, Specification 8C at PSL-1**

| ***MODEL*** | | ***SW-150*** | ***SW-200*** | ***SW-250*** | ***SW-350*** | ***SW-500*** |
|---|---|---|---|---|---|---|
| Max Static Load Rating (ton) | | 150 | 200 | 250 | 350 | 5 |
| Max Speed (r/min) | | 300 | 300 | 300 | 300 | 3 |
| Max Working Pressure (PSI) | | 5000 | 5000 | 5000 | 5000 | 5 |
| Diameter of Stern (in) | | 5-1/2” | 6-1/2” | 7-3/4” | 7-3/4” | 7 |
| Washpipe Size (in) | | 2-1/2” | 2-3/4” | 3” | 3” | 3 |
| Connecti | Steam Coupling | 4-1/2” REG LH | 4-1/2” REG LH | 6-5/8” REG LH | 6-5/8” REG LH | 7-5/8” |
| | Sub, Double Pin | 4-1/2” REG, | 4-1/2” REG, | 6-5/8” REG LH | 6-5/8” REG LH | 7-5/8” |
| | Gooseneck | 4” LP | 4” LP | 4” LP | 4” LP | 4 |
| Overall Dimension (LxWxH) (in) | | 85” x 25” x 25” | 112” x 33” x 30” | 117” x 42” x 34” | 119” x 41” x 39” | 124” x |
| Weight (lbs) | | 1713 | 2425 | 5512 | 5952 | 5 |

# ROTARY TABLE

## DESIGN FEATURES

◆Rotary table shaft extension and its central hole conform to API-7K.

◆Pin transmission type suitable for API Standard Square or Hexagonal Kelly roller bushing.

◆Double lock system for forward and reverse rotation.

◆Master Bushings and insert bowls are of an OEM equivalent.

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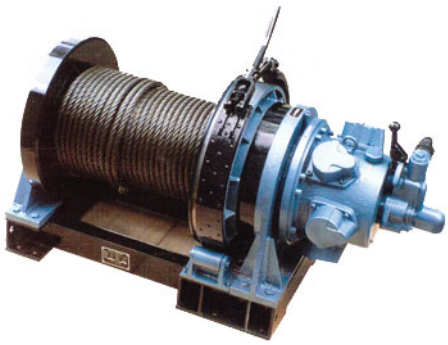
**Rotary Table Are Manufactured For CPMC**
**Under API License 7K-0079**

| MODEL | | RT175-44 | RT205-44 | RT205-53 | RT275-53 | RT375-53 |
|---|---|---|---|---|---|---|
| Dia. of Opening | in | 17-1/2” | 20-1/2” | 20-1/2” | 27-1/2” | 37-1/2” |
| Table axis center to inner row sprocket teeth | in | 44” | 44” | 53-1/4” | 53-1/4” | 53-1/4” |
| Static load rating | ton | 250 | 350 | 350 | 500 | 65 |
| Max working torque | lbf-ft | 10132 | 16646 | 16635 | 20265 | 23883 |
| Max speed | rpm | 350 | 300 | 300 | 300 | 30 |
| Gear ratio | | 3.75 | 3.79 | 3.22 | 3.67 | 3.5 |
| Dimensions L×W×H | in | 78” × 54“ × 22” | 78” × 56“ × 24” | 87” × 56“ × 24” | 94” × 66“ × 27” | 97” × 71” × 28” |
| Weight | lb | 8572 | 9920 | 11023 | 13460 | 17534 |

# AIR WINCHES

## DESIGN FEATURES



◆**JQH series** Air winches are designed under the guide of **"Ingersoll Rand"** technology and working principal with light weight, compact construction, easy operation and maintenance.

◆Stepless speed regulation.

◆Introduction of Remote control system in Air winchese designs.

◆Equivalent performance to Ingersoll Rand BU7A and K6UL series products

| .MODEL | JQH5/12-I & II | JQH5/48 I & II | JQH10/24 I & II | JQH20/24 I | JQH30/20 I | JQH50/12 I |
|---|---|---|---|---|---|---|
| Rated pull (lb) | 1100 | 1100 | 2204 | 4408 | 6612 | 11020 |
| Rope speed (meter per | 12 | 48 | 24 | 24 | 20 | 12 |
| Size of rope (mm) | 7.7 | 8 | 11 | 16 | 20 | 24 |
| Capacity of rope (meter) | 40 | 120 | 100 | 160 | 250 | 200 |
| Air inlet pipe size (mm) | 15 | 25 | 25 | 38 | 38.1 | 38.1 |
| Air consumption (CFM) | 67 | - | 67 | - | 67 | - |
| Weight (lb) | 104 | 258 | 357 | 968 | 1518 | 2530 |
| Overall Dimensions (mm) | | 668*343*420 | 740*397*536 | 1000*530*765 | 1530*690*870 | 1691*745*955 |

## PISTON & CYLINDER

# DRILLING STEEL ROPE

## DESIGN FEATURES

**◆Standard 6 x 19 and 6 x 36 classification ropes**

The 6 x 19 classification of wire ropes includes standard 6 strands, round strand ropes with 16 through 26 wires per strand. The 6 x 36 classification of wire ropes includes standard 6 strands, round strand ropes with 27 through 49 wires per strand. Although their operating characteristics vary, all have the same weight per foot and the same minimum breaking force, size for size.

While the 6 x 19 ropes give primary emphasis to abrasion resistance in varying degrees, the 6 x 36 ropes are important for their fatigue resistance. This fatigue resistance is made possible by the greater number of small wires per strand.

**◆6x19 classification ropes**

**6x19S (Seale)** in this construction, each strand has nine outer wires over nine smaller inner wires over one large center wire. A comparison of cross-sections shows that these outside wires are larger than those of the 6 x 25FW or 6 x 26WS. Therefore, its resistance to abrasion is increased, but its fatigue resistance is decreased. This is a good rope to withstand abrasion or crushing on the drum.

**6x25FW (Filler Wire)** To most wire rope users, 6 x 19 means 6 x 25 filler wire. It was the most common rope in the 6 x 19 classification. This rope has a good balance between both abrasion resistance and fatigue resistance in relation to other ropes.

**6x26WS ( Warrington Seale)** this construction has better resistance to abrasion than a 6 x 25FW. It also features a compact construction with solid support for the wires; hence, it has a high resistance to crushing. Its number and relative size of the inner wires add to the stability of the strand and gives it a fatigue resistance comparable to a 6 x 25FW.

A standard 6 x 26WS construction provides the best rope for a wide range of applications. In general, we recommend the use of a 6 x 26WS in any application where a 6 x 25FW is used.

In most rope sizes, only one 6 x 36 classification rope is made. These constructions were selected to provide fatigue resistance without having wires that are too small.

The greater number of wires in the 6 x 36 classification makes these ropes more susceptible to crushing. This can be minimized, however, by specifying an Independent Wire Rope Core (IWRC) and by using well-designed sheaves, grooved drums and proper operating techniques.

### ◆6x19S+FC

| Diam. | | Met. area | Mass | Outer Wire | Minimum Breaking Load | | |
|---|---|---|---|---|---|---|---|
| | | | | | PS | IPS | EIPS |
| in | mm | mm 2 | kg/m | mm | kN | kN | kN |
| 1/2 | 13.0 | 68.7 | 0.63 | 1.03 | 83 | 95 | 105 |
| 9/16 | 14.5 | 85.4 | 0.79 | 1.15 | 106 | 120 | 132 |
| 5/8 | 16.0 | 104.0 | 0.98 | 1.27 | 129 | 149 | 163 |
| 3/4 | 19.0 | 146.7 | 1.41 | 1.51 | 184 | 212 | 233 |
| 7/8 | 22.0 | 196.7 | 1.92 | 1.75 | 249 | 286 | 315 |
| 1 | 26.0 | 274.7 | 2.50 | 2.07 | 324 | 372 | 409 |
| 1 1/8 | 29.0 | 341.8 | 3.17 | 2.31 | 407 | 468 | 514 |
| 1 1/4 | 32.0 | 416.2 | 3.91 | 2.55 | 500 | 575 | 632 |
| 1 3/8 | 35.0 | 497.8 | 4.73 | 2.78 | | 691 | 760 |
| 1 1/2 | 38.0 | 586.8 | 5.63 | 3.02 | | 818 | 898 |
| 1 5/8 | 42.0 | 716.9 | 6.61 | 3.34 | | 952 | |

### ◆6x26SW+IWRC

| Diam. | | Met. area | Mass | Outer Wire | Minimum Breaking Load | | |
|---|---|---|---|---|---|---|---|
| | | | | | PS | IPS | EIPS |
| in | mm | mm 2 | kg/m | mm | kN | kN | kN |
| in | mm | mm 2 | kg/m | mm | kN | kN | kN |
| 5/8 | 16 | 119 | 1.07 | 1.17 | | 159 | 183 |
| 3/4 | 19 | 168 | 1.55 | 1.39 | | 228 | 262 |
| 7/8 | 22 | 225 | 2.11 | 1.61 | | 308 | 354 |
| 1 | 26 | 314 | 2.75 | 1.90 | | 399 | 460 |
| 1 1/8 | 29 | 391 | 3.48 | 2.12 | | 503 | 678 |
| 1 1/4 | 32 | 476 | 4.30 | 2.34 | | 617 | 711 |
| 1 3/8 | 35 | 570 | 5.21 | 2.56 | | 743 | 854 |
| 1 1/2 | 38 | 672 | 6.19 | 2.78 | | 880 | 1010 |
| 1 5/8 | 42 | 820 | 7.26 | 3.07 | | 1020 | 1170 |
| 1 3/4 | 45 | 942 | 8.44 | 3.29 | | 1180 | 1360 |
| 1 7/8 | 48 | 1072 | 9.67 | 3.51 | | 1350 | |

# DRILLING HOSE

## DESIGN FEATURES.

◆The hose is composed of five layers as below:

- Inner Rubber layer
- Protection Layer
- Middle rubber layer
- Steel wire layer
- External rubber cover

| ID (mm) | OD (mm) | Working Pressure ( psi) | Test Pressures (psi) | Burst Pressure (psi) | Min. bend radius (mm) | Weight Kg/m |
|---|---|---|---|---|---|---|
| 51.00 | 69.00 | 5000 | 10000 | 12500 | 900 | 5.7 |
| 64.00 | 84.00 | 5000 | 10000 | 12500 | 1100 | 6.7 |
| 76.00 | 107.00 | 5000 | 10000 | 12500 | 1200 | 16.2 |
| 89.00 | 120.00 | 5000 | 10000 | 12500 | 1300 | 18.4 |
| 102.00 | 133.00 | 5000 | 10000 | 12500 | 1400 | 20.3 |
| 51.00 | 72.00 | 10000 | 20000 | 25000 | 1000 | 6.2 |
| 64.00 | 88.00 | 10000 | 20000 | 25000 | 1200 | 7.4 |
| 76.00 | 116.00 | 10000 | 20000 | 25000 | 1300 | 23.7 |
| 89.00 | 129.00 | 10000 | 20000 | 25000 | 1400 | 26.6 |
| 102.00 | 142.00 | 10000 | 20000 | 25000 | 1600 | 29.8 |

# RIG ROLLER CHAIN

**Rig Roller Chain Are Manufactured For CPMC Under API License 7**

| size | pitch (mm) | Roller Dia. (mm) | Roller Link India Width (mm) | Pin Dia. (mm) | Pin Length (mm) | Height of inn plate (mm) | Depth of plate (mm) | Min. Breading Load (N) | Endurance Limit load (N) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 80-1 | 25.4 | 15.87 | 15.75 | 7.94 | 37.55 | 24.13 | 3.18 | 55600 | 12055 | 2.6 |
| 100-1 | 31.75 | 19.05 | 18.90 | 9.54 | 44.26 | 30.18 | 3.96 | 86840 | 18460 | 3.8 |
| 120-1 | 38.10 | 22.22 | 25.23 | 11.11 | 55.44 | 36.20 | 4.75 | 125100 | 25978 | 5.6 |
| 140-1 | 44.45 | 25.40 | 25.23 | 12.71 | 60.55 | 42.24 | 5.56 | 170270 | 34340 | 7.5 |
| 160-1 | 50.80 | 28.57 | 31.55 | 14.29 | 70.00 | 48.26 | 6.35 | 222400 | 43771 | 9.8 |
| 180-1 | 57.15 | 35.71 | 35.49 | 17.46 | 77.70 | 54.26 | 7.14 | 281570 | 53823 | 13.6 |
| 200-1 | 63.50 | 39.67 | 37.85 | 19.85 | 84.50 | 60.33 | 7.92 | 347410 | 64499 | 16.5 |
| 240-1 | 76.20 | 47.62 | 47.35 | 23.81 | 102.20 | 72.39 | 9.53 | 500400 | 86296 | 22.6 |

| Chain No | Pitch | | Roller Dia d 1 (max)mm | Width Between Inner Plates b1(min) mm | Transverse | Chain Paht Depth h 1 (min)mm | Breaking Load(min) | | | Weight Approx | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | p (in) | p (in) | | | | | Single Q,kN | Dupiex Q,kN | Triplex Q,kN | Single Q,kN | Duplex Q,kN | Triplex Q,kN |
| 20A | 1.25 | 31.75 | 19.05 | 18.9 | 35.76 | 30.48 | 86.7 | 173.5 | 260.2 | 3.6 | 7.2 | 10.8 |
| 24A | 1.5 | 38.10 | 22.23 | 25.22 | 45.44 | 36.55 | 124.6 | 249.1 | 373.7 | 6.7 | 13.4 | 20.1 |
| 28A | 1.75 | 44.45 | 25.4 | 25.22 | 48.87 | 42.67 | 169 | 338.1 | 507.1 | 8.3 | 16.6 | 24.9 |
| 32A | 2.0 | 50.8 | 28.58 | 31.55 | 58.55 | 48.74 | 222.4 | 444.9 | 667.2 | 10.5 | 21 | 31.5 |
| 40A | 2.5 | 63.5 | 39.68 | 37.85 | 71.55 | 60.93 | 347 | 693.9 | 1040.9 | 16 | 32 | 48 |
| 20B | 1.25 | 31.75 | 19.05 | 19.56 | 36.45 | 26.68 | 95 | 170 | 250 | 3.6 | 7.2 | 10.8 |
| 24B | 1.5 | 38.1 | 25.4 | 25.40 | 48.36 | 33.73 | 160 | 280 | 425 | 6.7 | 13.4 | 20.1 |
| 28B | 1.75 | 44.45 | 27.94 | 30.99 | 59.56 | 37.46 | 200 | 360 | 530 | 8.3 | 16.6 | 24.9 |
| 32B | 2 | 50.8 | 29.21 | 30.99 | 58.55 | 42.72 | 250 | 450 | 670 | 10.5 | 21 | 31.5 |
| 40B | 2.5 | 63.5 | 39.37 | 38.10 | 72.29 | 53.49 | 355 | 630 | 950 | 16 | 32 | 48 |

## ◆Leaf Chain

| Chain No | P Pitch mm | Plate Form | bo plate THK mm | h3 plate Height mm | d2 Pin Dia mm | b Pin Height mm | Q Max.Tensile Load KN |
|---|---|---|---|---|---|---|---|
| LH2422 | 38.10 | 2*2 | 5.77 | 36.20 | 12.71 | 29.62 | 151.24 |
| LH2423 | | 2*3 | | | | 35.43 | 151.24 |
| LH2434 | | 3*4 | | | | 47.07 | 244.64 |
| LH2444 | | 4*4 | | | | 52.88 | 302.47 |
| LH2446 | | 4*6 | | | | 64.52 | 302.47 |
| LH2466 | | 6*6 | | | | 76.15 | 453.70 |
| LH2488 | | 8*8 | | | | 99.42 | 604.94 |
| LH2822 | 44.45 | 2*2 | 6.55 | 42.24 | 14.29 | 33.55 | 191.27 |
| LH2823 | | 2*3 | | | | 40.16 | 191.27 |
| LH2834 | | 3*4 | | | | 53.37 | 315.81 |
| LH2844 | | 4*4 | | | | 59.97 | 382.53 |
| LH2846 | | 4*6 | | | | 73.18 | 382.53 |
| LH2866 | | 6*6 | | | | 86.39 | 578.24 |
| LH2888 | | 8*8 | | | | 112.80 | 765.06 |
| LH3222 | 50.80 | 2*2 | 7.52 | 48.26 | 17.46 | 39.01 | 289.12 |
| LH3223 | | 2*3 | | | | 46.58 | 289.12 |
| LH3234 | | 3*4 | | | | 61.72 | 440.36 |
| LH3244 | | 4*4 | | | | 69.29 | 578.24 |
| LH3246 | | 4*6 | | | | 84.43 | 578.24 |
| LH3266 | | 6*6 | | | | 99.57 | 867.36 |
| LH3288 | | 8*8 | | | | 129.84 | 1156.48 |

## ◆Heavy Duty Transmission Cranked Link

| Chain No | Pitch mm | Width between plates at inner end b,(nom) | Roller dia d,(max) | Plate | | Pin | | Breaking load(min)Q | Weight approx q |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Height H 2(max) | Thickness c(nom) | Width L(max) | Dia d,(max) | | |
| 2512 | 77.9 | 39.6 | 41.28 | 60.5 | 9.7 | 103.4 | 19.08 | 37800 | 18 |
| 2814 | 88.9 | 38.1 | 44.45 | 60.5 | 12.7 | 117.6 | 22.25 | 51600 | 25 |
| 3315 | 103.45 | 49.3 | 45.24 | 63.5 | 14.2 | 134.9 | 23.85 | 59600 | 27 |
| 3618 | 114.3 | 52.3 | 57.15 | 79.2 | 14.2 | 141.2 | 27.97 | 81400 | 38 |
| 4020 | 127.00 | 69.9 | 63.50 | 91.9 | 15.7 | 168.1 | 31.78 | 105400 | 52 |

# SSW40 SPINNER WRENCH

## DESIGN FEATURES

◆Spinning Wrench is a pneumatically powered tool for spinning drill pipe and drill collar from 3 1/2 to 9 1/2 inch OD. Using the proven principal of frictional drive contact, the spinning wrench can spin drill pipe in or out quickly and efficiently without damage to expensive drill pipe and without the hazards of the dangerous spinning chain.

◆During the typical spin up procedures the spinning wrench is swung onto the drill pipe above the pipe upset, the clamping control is actuated, clamping and locking the pressure rollers onto the drill pipe. with the pipe tight against the two aluminum drive rollers, the operator turns the throttle control to operate the variable speed drive motor and spin the pin end into the box.

## Specification:

| | |
|---|---|
| Range | 3-1/2” to 9-1/2” O.D. |
| Air pressure | 90-125 ps |
| Air Consumption | 250CFM |
| RPM | 0-120 |
| Stall torque | 1,100 ft-lbs |
| Weight (lbs) | 780 |
| Overall Dimensions | 17” x 55” x 22” |

## DESIGN FEATURES


◆The Triplex Single Acting Mud pump is machined as per the designs provided by LTV Co on Emsco F Series pump with all fluid end parts interchangeable to that being machined by Emsco OEM plants.

**F-500, F-800 and F-1000 Mud Pumps**

**Power End (frame, pinion shaft, crankshaft, crosshead and extension rod )**

- Continuous tooth herringbone gear.
- one-piece alloy steel crank.
- Renewable crosshead guide.
- The frame is made of welded steel plate to provide the frame with high strength, good rigidity and light weight.
- The extension rod packing is duplex seal structure to provide the good seal result.
- The power end uses the combined lubricating system of forced lubrication and splash lubrication.
- **The frame** is made of welded steel plate and stress relief treated to obtain the good rigidity and high strength. The place where the crankshaft bearing is fitted is strengthened by using ribbed plates. The frame is furnished with the necessary oil basin and oil way system for cooling and lubricating purpose.
- **Crankshaft** is made of casted alloy steel and furnished with herringbone gear, connecting rod and bearing. The tooth form of the big geared ring is herringbone gear. The gear bore and the crankshaft surface are interference fitted and they are both fastened with bolts and lock nuts. The big end of the connecting rod is mounted on three eccentric straps of the crankshaft through single row short cylindrical roller bearings and the small end on the crosshead pin through double row long cylindrical roller bearing. Double row radial spherical roller bearings are mounted at both ends of the crankshaft.
- **Pinion shaft** is made of forged alloy steel on which a herringbone gear with the medium-hard tooth surface is machined. For easy maintenance, the single row radial long cylindrical roller bearing with inner ring (without sides) is used. The both ends of the pinion shaft extend out, so that the sheave or the sprocket can be mounted on either end.
- **Crosshead and Extension Rod** are made of ASTM A48-83 mechanize cast iron featured by good abrasion resistance and long service life. Upper and lower guides are used for F-800 and F-1000 mud pumps, so that the concentricity can be

adjusted by adding shims beneath the lower guide. F-500 mud pump is the cylindrical structure. The connection between the crosshead and the extension rod is made by using bolted flange. The rigid connection ensures the concentricity of the crosshead and the extension rod. The coupling is used for connecting the extension rod to the piston rod. The light-weight coupling enables the extension rod and the piston rod to connect to each other easily and reliably.

**Fluid End (cylinders, valve assembly, liners and pistons)**

- Cylinders are made of forged alloy steel, three cylinders of each pump are interchangeable. Valve-over-valve (through type cylinder) design reduces the cylinder volume and promote the volumetric efficiency. At customers 'request, the cylinder surface may be nickel plated to improve the abrasion resistance. Discharge pulsation dampener, shear relief valve and discharge strainer are furnished at the outlet. F-500 pump suction inlet is fitted with 8"flange, F-500 pump suction inlet with 10"flange and F-1000 pump suction inlet with 12"flange.
- The suction valve and the discharge valve for above three mud pumps are interchangeable. F-500 mud pump uses API#5 valve pot, F-800 and F-1000 mud pumps use API#6 valve pots.
- Bi-metal liners are used. The sleeve is made of wear-resistant cast iron, the surface hardness is HRC60-65. Therefore, liners feature wear resistance, corrosion resistance and high surface finish. Liners are put in from the cylinder cover bore in the front of the cylinder and fixed with liner cage, cylinder cover plug and cylinder cover when installing.
- Pistons and Piston Rods are slide fitted, sealed with rubber seal ring and finally fastened with lock nuts to prevent the piston from looseness and to play a role in sealing.

  **Notes**: Cylinders, liners, pistons, valves, valve seats, valve springs, seal rings, valve covers and cylinder covers at the fluid end of F-800 and F-1000 mud pumps are all interchangeable.

**Spraying System**

The spraying system consists mainly of spray pump, cooling water box, and spray pipe, the function is to cool and rinse liners and pistons to promote their service life.

The centrifugal spray pump can be driven by a sheave mounted on the input shaft extension end or a separate motor and cooled and lubricated by water.

The spray pipe is mounted on the coupling between the extension rod and the piston rod and can reciprocate with the piston. Nozzles is near the piston end so that the lubricating-cooling fluid can rinse the contact surface between the piston and liner all the

time. The durable fixed spray pipe may be used, too.

**Lubricating System**

The power end uses the combined lubricating system of forced lubrication ad splash lubrication. The pressure oil is conveyed through lubricating pipeline, crosshead, extension rod, crosshead guide and all bearings by a gear oil pump within the oil box to realize the forced lubrication. The working condition of the gear oil pump may be understood from the pressure gauge behind the frame.

**Charging System**

To prevent the air lock occurring for low pump inlet pressure, every mud pump is furnished with a complete charging system. It consists of charging pump, pump base, butterfly valve and corresponding manifold. Mounted on the suction manifold of the mud pump, the charging pump is driven by the special purpose motor or the input shaft of the mud pump through V-belts to reduce the power consumption.

**F-1300 and F-1600 Mud Pumps**

F-1300 and F-1600 mud pumps can meet the requirements of the same manufacturing technique and quality level as those of F series mud pumps of LTV Co. They feature advanced structural design, reliable use, easy maintenance and compact occupied area. To reduce drilling workers' labor intensity and make the operation easy on site, liners are designed to be fitted into the frame from the frame top. A mini hoist with 500Kg lifting capacity is mounted on the frame for disassembling and changing liners.

Suction inlets of F-1300 and F-1600 mud pumps are fitted with 12"flanges, F-1300 and F-1600 mud pumps are fitted with API#7 valve pots. The suction valve and the discharge valve are interchangeable. Cylinders are made of forged alloy steel and nickel plated to improve their corrosion resistance. Three cylinders of each pump are interchangeable. Valve-over-valve (through type cylinder) design reduces the cylinder volume and promote the volumetric efficiency.

**Notes:** Cylinders, liners, pistons, valve and seats, valve springs, seal rings, valve covers and cylinder covers at the fluid end of F-1300 and F-1600 mud pumps are all interchangeable.

## SPECIFICATIONS: F Series Triplex Mud Pumps

| MODEL | F-500 | F-800 | F-1000 | F-1300 | F-1600 |
|---|---|---|---|---|---|
| Max. Liner Size x Stroke | 6-3/4" x 7-1/2" | 6-3/4" x 9" | 6-3/4" x 10" | 7-1/2" x 12" | 7-1/2" x 12" |
| Power Rating | 500 HP @ 165 SPM | 800 HP @ 150 SPM | 1000 HP @ 140 SPM | 1300 HP @ 120 SPM | 1600 HP @ 120 SPM |
| Gear, Herringbone, | 4.286:1 | 4.185:1 | 4.207:1 | 4.206 : 1 | 4.206 : 1 |
| Lubrication | Pressure And Splash To All Moving Parts | | | | |
| Suction Inlet | 8" | 10" | 12" | 1 | 12" |
| Discharge Outlet | 4" – 5,000 PSI | 5" – 5,000 PSI | 5" – 5,000 PSI | 5" – 5000 PSI | 5" – 5000 PSI |
| Pinion Shaft Diameter | 5-1/2" | 7" | 7-3/4" | 8- | 8-1/2" |
| Keyway | 1-1/4" x 5/8" | 1-3/4" x 7/8" | 2" x 1" | 2" | 2" x 2" |
| Valve Pot | API #5 | API #6 | API #6 | API #7 | API #7 |
| Weight | 21,540 LB | 31,970 LB | 41,420 LB | 54,170 LB | 54,660 LB |

## PERFORMANCE: F-500 Triplex Mud Pump (6-3/4" x 7-1/2")

| *Strokes Per Minute* | *Power Rating (HP)* | *Liner Size (in) & Pressure Rating (psi)* | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 6-3/4" | 6-1/2" | 6-1/4" | 6" | 5-1/2" | 5" | 4-1/2" | 4" |
| | | 1341 | 1447 | 1565 | 1699 | 2024 | 2440 | 3025 | 3818 |
| | | Displacement (gallons per minute) | | | | | | | |
| 175 | 530 | 610 | 565 | 523 | 481 | 404 | 335 | 271 | 214 |
| 170 | 515 | 592 | 594 | 508 | 468 | 393 | 325 | 263 | 208 |
| 165 | 500 | 575 | 533 | 493 | 454 | 381 | 316 | 255 | 202 |
| 150 | 454 | 522 | 485 | 448 | 413 | 347 | 287 | 232 | 184 |
| 140 | 424 | 488 | 452 | 419 | 385 | 323 | 268 | 216 | 171 |
| 130 | 393 | 452 | 420 | 389 | 358 | 301 | 249 | 201 | 159 |
| 120 | 363 | 418 | 388 | 359 | 330 | 277 | 230 | 186 | 147 |
| 110 | 333 | 383 | 355 | 329 | 303 | 254 | 210 | 170 | 135 |
| **Displacement (GPR)** | | 3.48 | 3.23 | 2.99 | 2.75 | 2.31 | 1.91 | 1.55 | 1.22 |

## PERFORMANCE: F-800 Triplex Mud Pump (6-3/4" x 9")

| *Strokes Per Minute* | *Power Rating (HP)* | *Liner Size (in) & Pressure Rating (psi)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 6-3/4" | 6-1/2" | 6-1/4" | 6" | 5-3/4" | 5-1/2" | 5-1/4" | 5" | 4" |
| | | 1968 | 2120 | 2295 | 2490 | 2715 | 2965 | 3260 | 3590 | 5000 |
| | | Displacement (gallons per minute) | | | | | | | | |
| 160 | 853 | 669 | 620 | 574 | 529 | 486 | 444 | 404 | 367 | 235 |
| 150 | 800 | 627 | 582 | 538 | 496 | 455 | 416 | 379 | 344 | 221 |
| 140 | 747 | 585 | 543 | 502 | 463 | 425 | 389 | 354 | 321 | 206 |
| 130 | 693 | 543 | 504 | 466 | 429 | 395 | 361 | 328 | 298 | 191 |
| 120 | 640 | 502 | 466 | 431 | 397 | 364 | 333 | 303 | 275 | 176 |
| 110 | 587 | 459 | 427 | 394 | 363 | 334 | 305 | 278 | 252 | 162 |
| 80 | 427 | 335 | 310 | 287 | 264 | 243 | 222 | 202 | 183 | 118 |
| **Displacement (GPR)** | | 4.18 | 3.88 | 3.59 | 3.30 | 3.04 | 2.78 | 2.53 | 2.29 | 1.47 |

## PERFORMANCE: F-1000 Triplex Mud Pump (6-3/4" x 10")

| *Strokes Per Minute* | *Power Rating (HP)* | *Liner Size (in) & Pressure Rating (psi)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 6-3/4" | 6-1/2" | 6-1/4" | 6" | 5-3/4" | 5-1/2" | 5-1/4" | 5" | 4-1/2" |
| | | 2370 | 2558 | 2770 | 3010 | 3270 | 3575 | 3920 | 4330 | 5340 |
| | | Displacement (gallons per minute) | | | | | | | | |
| 150 | 1071 | 697 | 647 | 598 | 550 | 506 | 463 | 422 | 382 | 310 |
| 140 | 1000 | 651 | 603 | 558 | 514 | 472 | 432 | 394 | 357 | 289 |
| 130 | 929 | 604 | 560 | 518 | 477 | 438 | 402 | 365 | 331 | 268 |
| 120 | 857 | 558 | 517 | 478 | 440 | 404 | 371 | 337 | 306 | 248 |
| 110 | 786 | 511 | 474 | 438 | 404 | 371 | 339 | 309 | 280 | 227 |
| 80 | 571 | 372 | 345 | 318 | 293 | 269 | 247 | 224 | 204 | 165 |
| 60 | 429 | 279 | 258 | 238 | 220 | 202 | 185 | 168 | 153 | 124 |
| **Displacement (GPR)** | | 4.65 | 4.31 | 3.98 | 3.67 | 3.37 | 3.09 | 2.81 | 2.55 | 2.07 |

## PERFORMANCE: F-1300 & F-1600 Triplex Mud Pump (7" x 12")

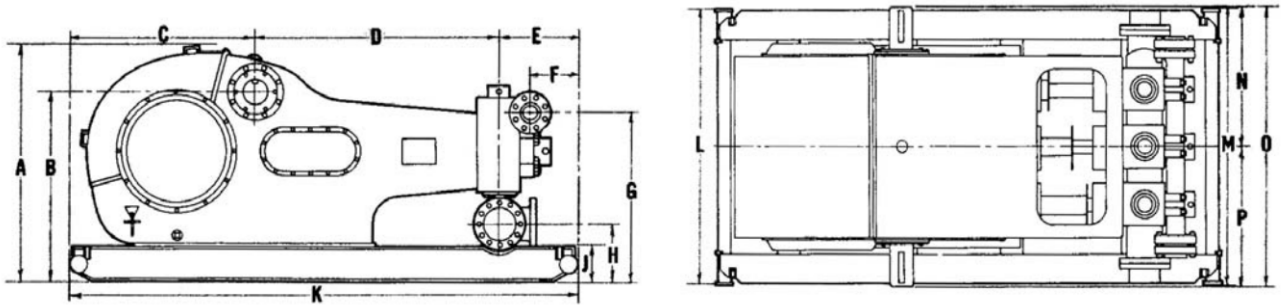
| *Strokes Per Minute* | Liner Size (in) | | 7" | 6-3/4" | 6-1/2" | 6" | 5-1/2" | 5" |
|---|---|---|---|---|---|---|---|---|
| | Pressure Rating (psi) | MKFB-1300 | 2789 | 2997 | 3234 | 3892 | 4516 | 5000 |
| | | MKFB-1600 | 3423 | 3688 | 3981 | 4665 | 5000 | 5000 |
| | **Power Rating (HP)** | | Displacement (gallons per minute) | | | | | |
| | F-1300 | F-1600 | | | | | | |
| 130 | 1408 | 1733 | 778 | 724 | 671 | 573 | 481 | 398 |
| 120 | 1300 | 1600 | 719 | 669 | 620 | 529 | 444 | 367 |
| 110 | 1192 | 1467 | 659 | 613 | 568 | 485 | 407 | 337 |
| 100 | 1083 | 1333 | 599 | 557 | 517 | 441 | 370 | 306 |
| 90 | 975 | 1200 | 539 | 501 | 465 | 397 | 333 | 275 |
| 80 | 866 | 1067 | 479 | 445 | 413 | 353 | 296 | 244 |
| 70 | 758 | 933 | 419 | 389 | 362 | 309 | 258 | 214 |
| 60 | 650 | 800 | 359 | 334 | 310 | 264 | 222 | 183 |
| Displacement (GPR) | | | 5.99 | 5.57 | 5.16 | 4.41 | 3.70 | 3.06 |

## DIMENSIONS: F SERIES

| (inches) | F-500 | F-800 | F-1000 |
|---|---|---|---|
| A | 60.75 | 65.25 | 71.00 |
| B | 47.00 | - | 57.25 |
| C | 51.37 | 54.00 | 61.25 |
| D | 65.75 | 64.50 | 73.50 |
| E | 36.75 | 37.50 | 25.25 |
| F | 26.87 | 26.75 | 14.50 |
| G | 44.50 | 47.12 | 240.5 |
| H | 15.31 | 15.62 | 18.75 |
| J | 240.0 | - | 12.00 |
| K | 144.0 | 156.0 | 168.0 |
| L | 57.00 | 61.75 | 94.00 |
| M | 55.25 | - | 108.0 |
| N | - | 34.18 | 46.00 |
| O | 75.06 | 84.25 | 90.50 |
| P | - | 34.81 | 44.50 |

| (inches) | F-1300<br>F-1600 |
|---|---|
| A | 82.00 |
| B | 65.75 |
| C | 73.37 |
| D | 88.37 |
| E | 30.25 |
| F | 17.68 |
| G | 59.75 |
| H | 21.75 |
| I | 13.75 |
| J | 12.00 |
| K | 192.0 |
| L | 96.00 |
| M | 38.56 |
| N | 42.37 |
| P | 47.50 |
| R | 36.25 |

## F-500, F-800, F-1000




## F-1300, F-1600