ROTARY TWIN GEAR PUMPS

Series : FTRN

ROTOFLUID®

Rotary Gear Pumps
SINCE : 1993

# Perfect Solution

## for Transfer of Oils, Viscous Liquids & Petroleum Products.

*"Let Our Quality Speak For Itself"*

Fluid Tech Systems
FTS
Ahmedabad - 382 430. (Guj.) INDIA

# ADVANCED TECHNOLOGY FOR PUMPING VISCOUS LIQUIDS

ROTOFLUID®

Rotary Gear Pumps
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### PUMP CHARACTERISTIC

Gear pump is a rotary positive displacement pump with positive pressure characteristic. The capacity of the pump varies directly with speed but remain constant against pressure; however due to running clearance between the casing & impeller some liquid always by-passes to suction causing sleep, which depends upon the differential pressure, viscosity of the liquid & of course the workman-ship. The pumps are capable of handling any viscosity, the sleep reduced with viscosity but the viscosity power increases. The pump has a self - priming capability however some net positive to avoid cavitations depending upon the viscosity of the liquid to be pumped & the pump speed.

### INTERNAL POWER LOSSES

The internal power losses in rotary pumps are of two types. The mechanical losses is the power necessary to overcome frictional drag of all the moving part within the pump While viscous losses is power required to overcome fluid viscous drag & shearing action of the fluid, this can be computed from the graph on the opposite side.

### H.P. CALCULATION

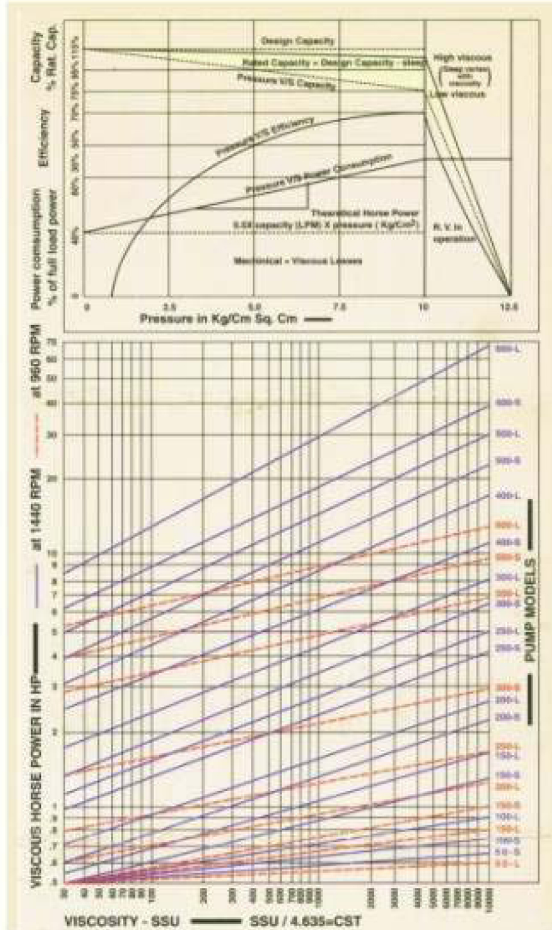
The break horse power required to drive a rotary pump is sum of the theoretical HP & internal losses. The theoretical horse power is the actual work done in moving the fluid from inlet port to out let pressure condition & is product of constant c=0.037, Capacity in cub. Mt./hr. & Pressure Kg/Sq. Cm Or Constant C=2.39, Capacity in us G.P.M. & Pressure in PSI

### PUMP SELECTION & USES

The bush bearing type of pump can be used for clean viscous liquid having sufficient lubricating value such as clean lube oil, Vegetable oil, Fish & Animal oil, Gear oil, Glycerine, Hydraulic oil for intermittent duty. However for continues duty pump with needle roller bearing in 'FTRN' series should be selected. For liquid having low viscosity, poor lubricating values or containing dirts or impurities such as Crude oil, Dirty lube oil, HSD, Kerosene, LDO, Paints, Sugar solution, Turpentine, Varnish, Wood Pulp. Pump with independently lubricated should be selected. For liquid which tends to solidify at room temperature such as Asphalt, Bitumen, Furnace oil, Tar, Cellulose, Starch, LSHS, HPS, Molasses, Naphtha, Phenol resin, RFO, Silicate, Soap solution, Viscous, Wax etc. Jacketing construction should be selected to facilitate the heating or pump by steam or thermic fluid.

### INSPECTION & TESTING :

All pumps are individually tested for its performance as per JIS B-8312-1976.




Mfgd. by :
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Distributors :

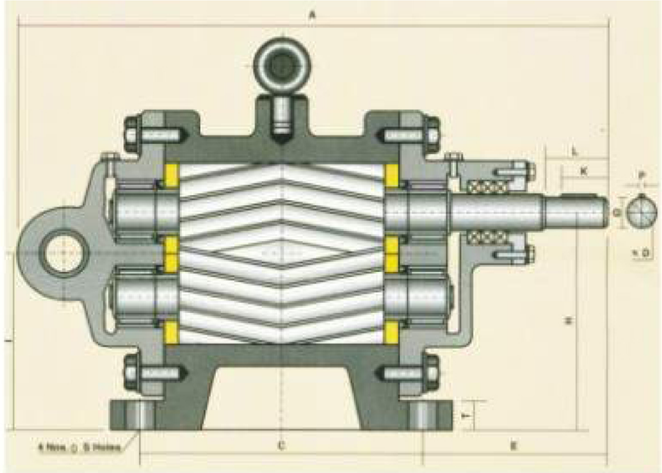
# ADVANCE TECHNOLOGY FOR PUMPING VISCOUS LIQUIDS

Proven Performance & operation economy are prime consideration while evaluating your pumping requirement. When it comes to handling viscous or semi viscous liquids, '**ROTOFLUID**' rotary gear pump is an obvious choice for the very reasons.

'**ROTOFLUID**' rotary gear, twin gear & screw -gear pumps are wellknown, widely accepted **pd** pumps in all the industries for it's efficient performance, operational reliability, compact design & noiseless operation. These pumps have outclassed conventional gear pump & has also broken myth about screw pump offering better **overall performance** at considerable reduced cost. Many imported gear & screw pumps are replaced with '**ROTOFLUID**' pumps in power station, steel plants, refineries, oil installation on navy vessels & cargo ships.

'**FTRN**' series twin gear pump now offers enlarged capacity range with option of self or independently lubricated jacketed or non - jacketed construction with all sizes designed to run at synchronous speed of 4-pole prime mover to further reduce the overall cost of the pump set..

It will be a wise decision to go for '**ROTOFLUID**' rotary twin gear pump even if it amounts to scrapping existing pump at your present installation.




## ADVANTAGES

- Herringbone rotors design eliminates side thrust.
- Modified tooth profile enhances the tooth life.
- Floating gear - design ensures uniform load distribution.
- low - leakage path by design improve volumetric efficiency.
- Extra thick shaft reduces bending effectively.
- Sleeve on shaft make maintenance economical & easy.

## AVAILABLE MODEL SIZE & CAPACITY

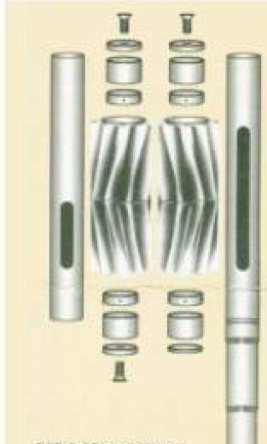
| SIZE & MODEL | 1440 RPM CAPACITY LPM | US GPM | M3/HR | PUMP GD 2 IN KGM2 | ELE MOTER H.P | FR. SIZE |
|---|---|---|---|---|---|---|
| ½" | 08.30 | 02.20 | 0.50 | 0.0008 | 0.50 | 71M |
| 50 | 16.60 | 04.40 | 1.00 | 0.0009 | 0.75 | 80M |
| S-M-L | 25.00 | 06.60 | 1.50 | 0.0010 | 1.00 | 80M |
| 1" | 33.30 | 08.80 | 2.00 | 0.0007 | 0.75 | 80M |
| 100 | 50.00 | 13.20 | 3.00 | 0.0008 | 1.00 | 80M |
| S-M-L | 60.00 | 15.84 | 3.60 | 0.0009 | 2.00 | 90L |
| 1.½" | 83.30 | 22.00 | 5.00 | 0.0008 | 2.00 | 90L |
| 150 | 100.00 | 26.40 | 6.00 | 0.0009 | 3.00 | 100L |
| S-M-L | 125.00 | 33.30 | 7.50 | 0.0032 | 5.00 | 112M |
| 2" | 150.00 | 39.00 | 9.00 | 0.0068 | 3.00 | 100L |
| 200 | 166.00 | 44.00 | 10.00 | 0.0074 | 5.00 | 112M |
| S-M-L | 200.00 | 52.80 | 12.00 | 0.008 | 7.50 | 132S |
| 2.½" | 250.00 | 66.00 | 15.00 | 0.01 | 5.00 | 112M |
| 250 | 299.88 | 79.20 | 18.00 | 0.013 | 7.50 | 132S |
| S-M-L | 333.30 | 88.00 | 20.00 | 0.015 | 10.00 | 132M |
| 3" | 415.00 | 105.00 | 25.00 | 0.02 | 10.00 | 132M |
| 300 | 449.82 | 118.00 | 27.00 | 0.024 | 12.50 | 160M |
| S-M-L | 500.00 | 132.00 | 30.00 | 0.027 | 15.00 | 160M |
| 4" | 599.76 | 158.40 | 36.00 | 0.056 | 15.00 | 160M |
| 400 | 666.66 | 176.00 | 40.00 | 0.062 | 20.00 | 160L |
| S-M-L | 833.30 | 220.00 | 50.00 | 0.072 | 25.00 | 180M |
| 5" | 1000.00 | 264.00 | 60.00 | 0.098 | 20.00 | 160L |
| 500 | 1250.00 | 330.00 | 75.00 | 0.112 | 30.00 | 180L |
| S-M-L | 1499.00 | 396.00 | 90.00 | 0.177 | 40.00 | 200L |
| 6" | 1660.00 | 440.00 | 100.00 | 0.27 | 30.00 | 180L |
| 600 | 1832.00 | 484.00 | 110.00 | 0.31 | 50.00 | 225S |
| S-M-L | 2083.00 | 550.00 | 125.00 | 0.335 | 60.00 | 225M |
| 6" | 2499.00 | 660.00 | 150.00 | 0.4561 | 50.00 | 225S |
| 600 | 2915.50 | 770.00 | 175.00 | 0.542 | 75.00 | 250M |
| S-M-L | 3332.00 | 880.00 | 200.00 | 0.601 | 100.00 | 280S |

## PARTS LIST WITH Material of Construction

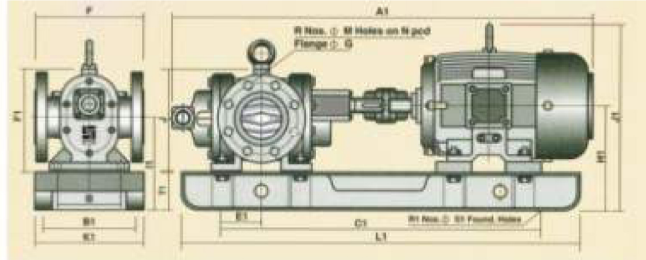
| SR. | ITEM | QT | MATERIAL | SR. | ITEM | QT | MATERIAL |
|---|---|---|---|---|---|---|---|
| 01 | PUMP CASING | 1 | CI/CS/SS | 12 | R.V PISTON | 1 | EN-8/SS |
| 02 | FRONT COVER | 1 | CI/CS/SS | 13 | R.V.SPRING | 1 | SPR.ST |
| 03 | BACK COVER | 1 | CI/CS/SS | 14 | R.V.AD. SCREW | 1 | EN-8/SS |
| 04 | GLAND COVER | 1 | CI/CS/SS | 15 | BASE PLATE | 1 | M.S |
| 05 | ROTARY SHAFT | 1 | EN9/19/SS | 16 | COUP. GUARD | 1 | ALUMN. |
| 06 | STATOR SHAFT | 1 | EN9/19/SS | 17 | COUPLING | 1 | FLEXIBLE |
| 07 | IMPELLER GEAR | 1 | EN-24-/SS | 18 | COUP. KEY | 1 | EN-8/SS |
| 08 | NEEDLE BRG. | 4 | INA/IKO | 19 | SEALING SYS. | 2 | OS/MS/GP |
| 09 | WEAR PLATE | 4 | BRONZE | 20 | DOWEL PIN | 4 | SILV.ST |
| 10 | LIFTING HOOK | 4 | STEEL | 21 | COMP. FLANGE | 2 | MS/SS |
| 11 | R.V HOUSING | 1 | MAL.IRON | 22 | H/T HEX-BOLT | 12 | EN-8/SS |

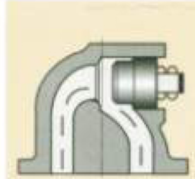
# ROTARY TWIN - GEAR PUMP TYPE 'FTRN'



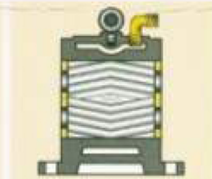


ROTAR GEAR ASSEMBLY
STATOR GEAR ASSEMBLY

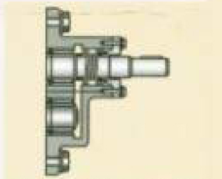


RELIEF VALVE OPERATION



JACKETTING CONSTRUCTION



MECH. SEAL IN STUFFING BOX

## DIEMENSIONS

| OVERALL A1 | J A | J1 | L1 | K1 | F1 | MOUNTING B C | S S1 | E F | H I | H1 | T1 T | E1 | C1 | B1 | I1 | SHAFT D R1 | K L | P Q | FLANGE M N | G R | WEIGHT BP-COU PUMP BP-COU IN KG. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 503 | 122 | 262 | 500 | 145 | 125 | 80 | 8 | 91 | 80 | 158 | 75 | 37 | 340 | 112 | 147 | 11.5 | 22 | 4 | 16 | 89 | 11.5 |
| 538 | - | 283 | 525 | 170 | 130 | - | - | - | - | 163 | - | 36 | 365 | 125 | 152 | - | - | - | - | - | 8.00 |
| 538 | 239 | 283 | 525 | 170 | 130 | 100 | 15 | 150 | 69 | 163 | 10 | 36 | 365 | 125 | 152 | 4 | 30 | 13 | 60 | 4 | 12.00 |
| 570 | 136 | 288 | 600 | 145 | 139 | 90 | 10 | 100 | 90 | 168 | 75 | 26 | 360 | 120 | 152 | 15 | 25 | 5 | 16 | 108 | 12.2 |
| 570 | - | 288 | 600 | 145 | 139 | - | - | - | - | 168 | - | 26 | 360 | 120 | 152 | - | - | - | - | - | 14.0 |
| 620 | 271 | 315 | 650 | 180 | 146 | 110 | 15 | 160 | 74 | 175 | 10 | 26 | 410 | 140 | 159 | 4 | 30 | 17 | 79 | 4 | 13.1 |
| 667 | 160 | 320 | 625 | 165 | 165 | 105 | 10 | 119 | 100 | 180 | 75 | 30 | 375 | 130 | 160 | 21 | 25 | 6 | 16 | 127 | 14.0 |
| 697 | - | 328 | 750 | 205 | 163 | - | - | - | - | 178 | - | 30 | 500 | 170 | 158 | - | - | - | - | - | 22.5 |
| 742 | 318 | 353 | 750 | 230 | 175 | 130 | 15 | 180 | 80 | 190 | 12 | 26 | 500 | 190 | 170 | 4 | 40 | 23.5 | 98 | 4 | 18.0 |
| 738 | 174 | 340 | 775 | 210 | 177 | 110 | 12 | 133 | 112 | 190 | 75 | 50 | 525 | 170 | 168 | 24 | 39 | 8 | 19 | 152 | 17.5 |
| 783 | - | 353 | 800 | 230 | 177 | - | - | - | - | 190 | - | 65 | 550 | 190 | 168 | - | - | - | - | - | 28.00 |
| 853 | 359 | 398 | 850 | 256 | 197 | 150 | 15 | 200 | 90 | 210 | 14 | 50 | 600 | 216 | 188 | 4 | 50 | 27 | 121 | 4 | 20.8 |
| 842 | 200 | 377 | 800 | 240 | 203 | 130 | 15 | 163 | 132 | 214 | 75 | 35 | 550 | 205 | 184 | 27 | 40 | 8 | 19 | 178 | 18.5 |
| 913 | - | 398 | 900 | 255 | 203 | - | - | - | - | 210 | - | 50 | 650 | 216 | 184 | - | - | - | - | - | 43.00 |
| 953 | 419 | 398 | 950 | 255 | 203 | 160 | 15 | 220 | 106 | 210 | 15 | 50 | 700 | 216 | 184 | 4 | 55 | 30 | 140 | 4 | 22.5 |
| 1015 | 240 | 451 | 1050 | 287 | 243 | 160 | 18 | 168 | 160 | 263 | 100 | 84 | 750 | 240 | 234 | 32 | 49 | 10 | 19 | 190 | 22.0 |
| 1113 | - | 528 | 1100 | 304 | 243 | - | - | - | - | 263 | - | 75 | 800 | 254 | 234 | - | - | - | - | - | 59.00 |
| 1113 | 481 | 528 | 1100 | 304 | 243 | 220 | 19 | 240 | 131 | 263 | 22 | 75 | 800 | 254 | 234 | 4 | 60 | 35 | 152 | 4 | 33.0 |
| 1186 | 274 | 548 | 1200 | 315 | 277 | 180 | 18 | 189 | 180 | 283 | 100 | 58 | 800 | 265 | 248 | 37 | 54 | 10 | 19 | 229 | 40.0 |
| 1231 | - | 548 | 1250 | 310 | 277 | - | - | - | - | 283 | - | 58 | 900 | 254 | 248 | - | - | - | - | - | 82.0 |
| 1296 | 554 | 568 | 1300 | 330 | 277 | 270 | 19 | 280 | 145 | 283 | 25 | 90 | 900 | 279 | 248 | 4 | 65 | 40 | 190 | 8 | 47.2 |
| 1292 | 293 | 603 | 1350 | 300 | 306 | 200 | 19 | 215 | 200 | 338 | 125 | 55 | 950 | 254 | 298 | 47 | 60 | 14 | 22 | 254 | 58.0 |
| 1357 | - | 313 | 1400 | 365 | 296 | - | - | - | - | 328 | - | 125 | 1000 | 300 | 288 | - | - | - | - | - | 150.0 |
| 1447 | 615 | 673 | 1400 | 380 | 296 | 280 | 22 | 300 | 160 | 328 | 25 | 116 | 1000 | 318 | 288 | 4 | 85 | 50.5 | 216 | 8 | 50.5 |
| 1432 | 343 | 643 | 1500 | 305 | 351 | 220 | 20 | 215 | 225 | 358 | 150 | 183 | 1100 | 245 | 311 | 52 | 80 | 16 | 22 | 279 | 50.5 |
| 1608 | - | 728 | 1650 | 420 | 346 | - | - | - | - | 353 | - | 137 | 1150 | 356 | 306 | - | - | - | - | - | 175.0 |
| 1608 | 690 | 728 | 1650 | 420 | 346 | 350 | 22 | 340 | 178 | 353 | 25 | 137 | 1150 | 356 | 306 | 4 | 95 | 56 | 241 | 8 | 76.0 |
| 1667 | 357 | 778 | 1650 | 430 | 360 | 380 | 22 | 230 | 250 | 403 | 150 | 136 | 1150 | 356 | 353 | 57 | 81 | 16 | 22 | 279 | 77.7 |
| 1882 | - | 853 | 1800 | 480 | 406 | - | - | - | - | 433 | - | 126 | 1350 | 457 | 383 | - | - | - | - | - | 190.0 |
| 1882 | 749 | 853 | 1850 | 530 | 390 | 240 | 22 | 360 | 200 | 433 | 28 | 126 | 1350 | 457 | 383 | 4 | 100 | 59 | 241 | 8 | 87.00 |