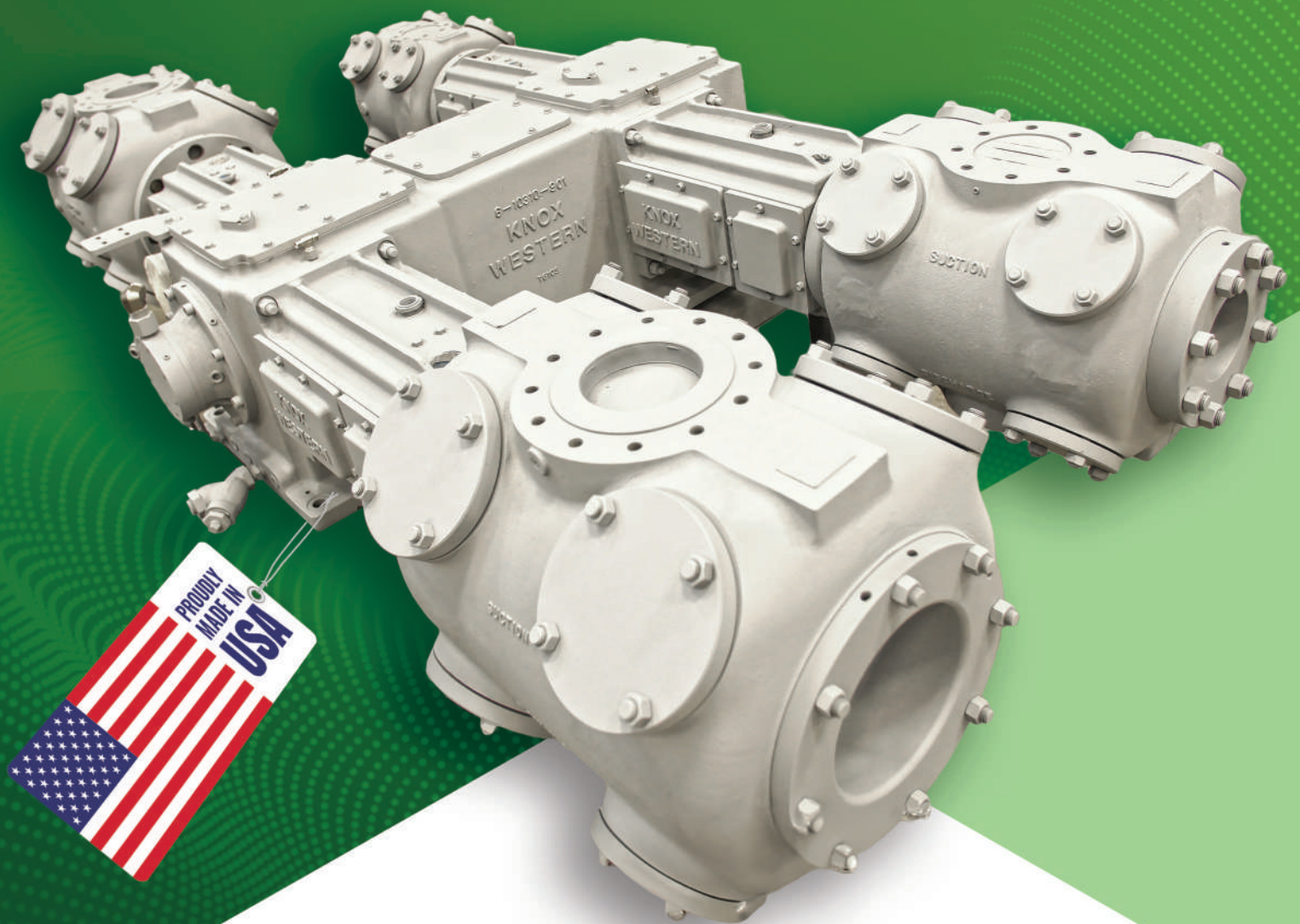


# RECIPROCATING GAS COMPRESSORS



**Knox  
Western**  
COMPRESSOR TECHNOLOGY



[knoxwestern.com](https://knoxwestern.com)

✉ [sales@knoxwestern.com](mailto:sales@knoxwestern.com)

HYDROGEN • BIOGAS • AMMONIA • SYNGAS • CNG

# DIDWANIA GROUP

## Compressors and Cryogenics

### GLOBAL MANUFACTURING LOCATIONS



- Knox Western was established over **90** years ago
- **API 618** designs Reciprocating Compressors
- Over **3500+** installations with our TP & Eagle range

### OUR KEY CUSTOMERS



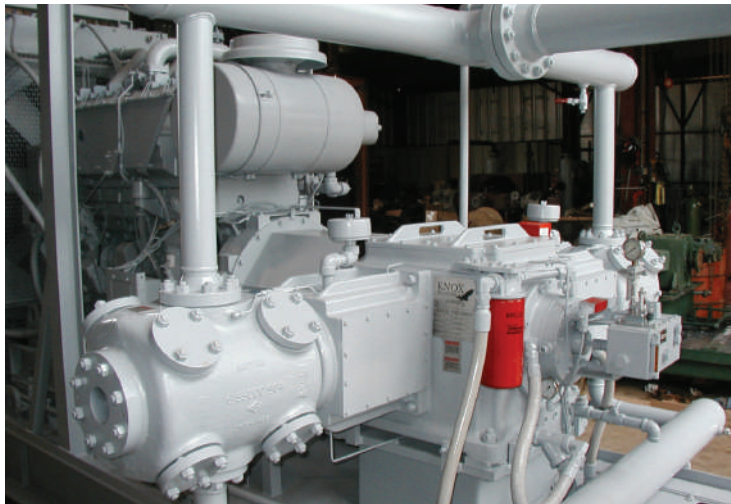
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# HYDROGEN COMPRESSORS

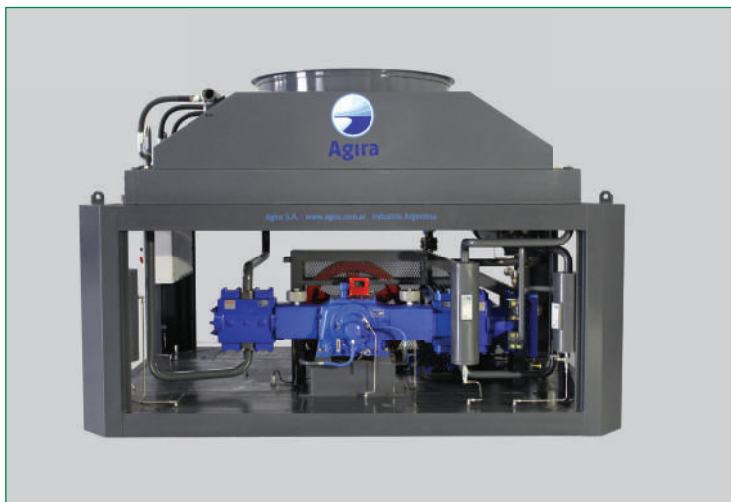


| TP & EAGLE SERIES                             |  | SPECIAL FEATURES                                     |  |
|-----------------------------------------------|--|------------------------------------------------------|--|
| Single Stage to 6 Stage Compressors           |  | Oil-Free Compressors                                 |  |
| 20 HP to 1600 HP Power                        |  | Double Distance Piece Designs                        |  |
| 5000 psi / 350 bar Oil - Free Compressors     |  | API 618 Compliance                                   |  |
| Low Inlet Pressures up to 3 psi / 0.2 bar     |  | Non-Cooled Cylinders with Low Discharge Temperatures |  |
| For Process and Cylinder Filling Applications |  |                                                      |  |

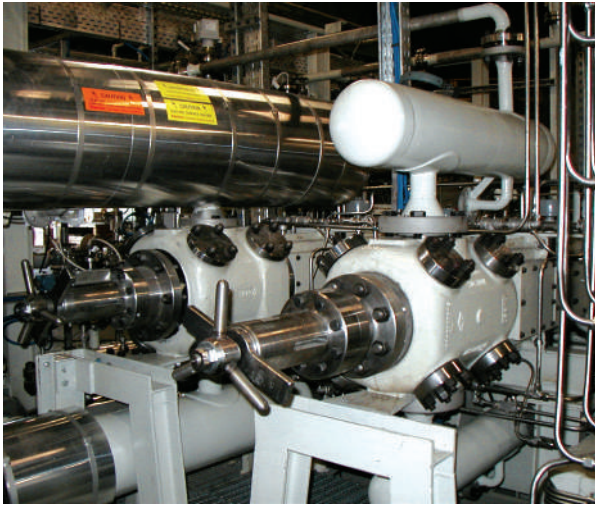
# APPLICATIONS



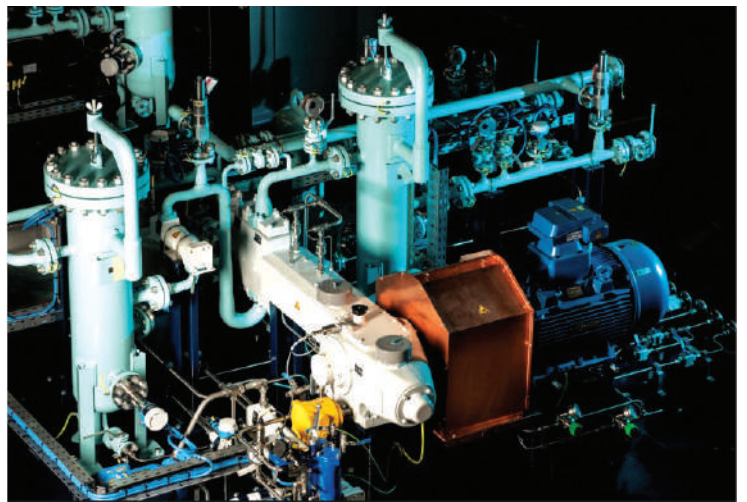
**NITROGEN • OXYGEN • HELIUM • PROCESS GASES**



# APPLICATIONS



**BIOGAS • SYNGAS • AMMONIA • CNG**

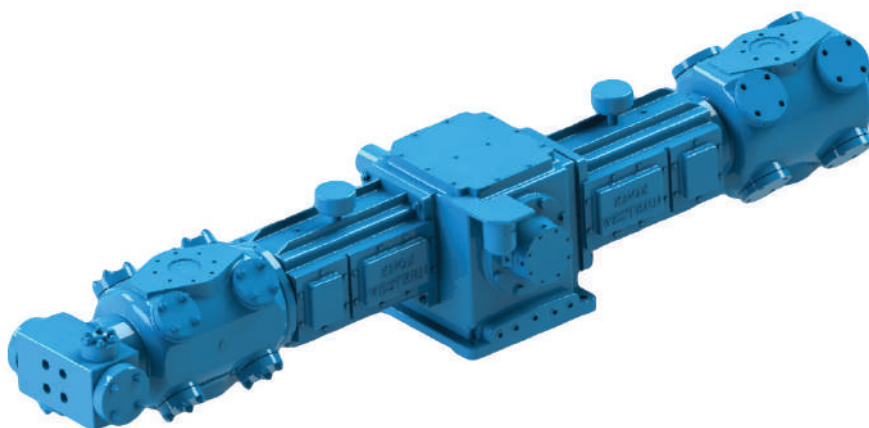


# Reciprocating Gas Compressors

## TP Series

### Pressure Lubricated. 200 Two Throw Compressors

TP200 / TP220 / TP245



Using the same field proven design of the Knox Western model TP200 compressor, Knox Western has now developed two units available with 3.0" or 4.5" stroke crankshafts, for direct couple or V-belt drive

#### SPECIFICATIONS

|                                       | TP200        | TP220        | TP 245       |
|---------------------------------------|--------------|--------------|--------------|
| Stroke                                | 3.5"         | 3.0"         | 4.5"         |
| RPM, Continuous                       | 550 to 1,500 | 550 to 1,800 | 550 to 1,200 |
| Piston Speed (fpm)                    | to 900       | to 900       | to 900       |
| Horsepower                            | 200          | 200          | 200          |
| Crankshaft Centerline                 |              |              |              |
| Overall Width, (maximum)              |              |              |              |
| Overall Length, (maximum)             |              |              |              |
| Approximate Weight (frame only) (lbs) | 500          | 500          | 500          |
| Oil Pump Capacity (gpm)               | 8            | 8            | 8            |
| Sump Capacity (gallons)               | 2.5          | 2.5          | 2.5          |
| Rod Loads, (tension)                  | 9,000        | 9,000        | 9,000        |
| Rod Loads, (compression)              | 9,000        | 9,000        | 9,000        |
| Rod Loads, (combined)                 | 18,000       | 18,000       | 18,000       |

#### COMPONENTS

|                         | All models    |
|-------------------------|---------------|
| <b>Crankshaft</b>       |               |
| Crankpin diameter       | 3.00"         |
| Journal diameter        | 2.95"         |
| Main bearing            | 5.12" x 1.22" |
| Connection Rod CL to CL | 9.00"         |
| Connection Rod bearing  | 3" x 2.4"     |
| Connection Rod bolting  | 0.625"        |
| Connection Rod bushing  | 1.75" x 1.9"  |
| <b>Piston rod</b>       | 1.125"        |

TP COMPRESSOR FRAME SPECIFICATIONS

|                               | TP60   | TP65   | TP75   | TP90   | TP100  | TP120  | TP145  | TP200  | TP220  | TP245  | TP400  | TP420  | TP445  |
|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Max Brake Horsepower          | 60     | 75     | 75     | 100    | 100    | 150    | 150    | 200    | 200    | 200    | 400    | 400    | 400    |
| Stroke                        | 4.5    | 4.5    | 3.0    | 3.0    | 3.5    | 3.0    | 4.5    | 3.5    | 3.0    | 4.5    | 3.5    | 3      | 4.5    |
| Number of Throws              | 1      | 1      | 1      | 1      | 1      | 2      | 2      | 2      | 2      | 2      | 4      | 4      | 4      |
| Maximum RPM                   | 800    | 1,200  | 1,800  | 1,800  | 1,500  | 1,800  | 1,200  | 1,500  | 1,800  | 1,200  | 1,200  | 1800   | 1,200  |
| Minimum RPM                   | 350    | 550    | 550    | 550    | 550    | 550    | 550    | 550    | 550    | 550    | 550    | 550    | 550    |
| Max. Piston Speed (fpm)       | 600    | 900    | 900    | 900    | 875    | 900    | 900    | 875    | 900    | 900    | 875    | 900    | 900    |
| Frame Lubrication             | Splash | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    | FFL    |
| Oil Pressure (min/max) (psig) | Splash | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  | 35/60  |
| Crankcase Oil Capacity (gal)  | 2.0    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    | 2.5    | 7.0    | 7.0    | 7.0    |
| Max. Rod Load (lbs)           | 6,000  | 6,000  | 6,000  | 9,000  | 9,000  | 6,000  | 6,000  | 9,000  | 9,000  | 9,000  | 9,000  | 9,000  | 9,000  |
| Max. Total Rod Loads (lbs)    | 12,000 | 12,000 | 12,000 | 18,000 | 18,000 | 12,000 | 12,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 |

Abbreviations: FFL: Force Feed Lubrications

TP COMPRESSOR SERIES MATERIALS

| COMPONENT                    | MATERIAL                           |
|------------------------------|------------------------------------|
| Crankcase                    | Grey Iron class 40                 |
| Bearing housing              | Gray cast iron / class 30          |
| Flywheel                     | Carbon steel                       |
| Crankshaft                   | Ductile iron / clas 80/55/06       |
| Main bearings                | Forged Steel                       |
| Connecting rods              | Ductile iron / class 60/40/18      |
| Connecting rod bearings      | Tri-metal                          |
| Wrist pin                    | Alloy steel / AISI 8602            |
| Wrist pin bearings           | Bronze                             |
| Crossheads                   | Ductile iron / class 60/40/18      |
| Crosshead guides             | Grey cast iron / class 30          |
| Piston rods (rolled threads) | Alloy steel / AISI 4140            |
| Cylinders, medium pressure   | Ductile iron / class 60/40/18      |
| Cylinders, high pressure     | Forged steel                       |
| Oil wiper packing            | Tinized cast iron                  |
| Pressure packing             | Non-metallic, full floating        |
| Pistons, low pressure        | Aluminum S A E 355                 |
| Pistons, medium pressure     | Grey cast iron / class 30          |
| Pistons, high pressure       | Integral with piston rod           |
| Pistons compression rings    | Reinforced TFE (see note)          |
| Pistons rider rings          | Reinforced TFE (see note)          |
| Valve seats and guards       | Carbon steel                       |
| Valve plates                 | Non-metal                          |
| Valve springs                | Stainless steel or chrome vanadium |
| Valve covers                 | Carbon Steel                       |

Note: specific TFE blend to be determined per application.API 618:

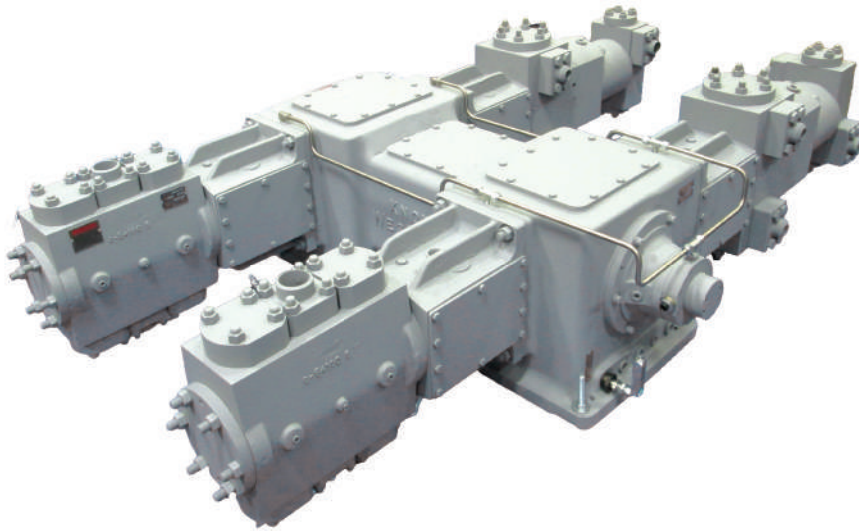
With some published exceptions, Knox Western compressors also meet the API 618 discipline.



# Reciprocating Gas Compressors

## Eagle Series

### Eagle 2000 Series



Available in both two-throw and four-throw configurations with 3", 3-1/2", and 4-1/2" stroke, rated at 10,000 pounds Tension and Compression frame load capacity. This series uses the TP style as well as Eagle compressor cylinders mounted on a larger wider base, and accommodates up to 12" diameter bore cylinders.

| SPECIFICATIONS                 | Two throw units models |        |        | Four throw units models |        |        |
|--------------------------------|------------------------|--------|--------|-------------------------|--------|--------|
|                                | 2230                   | 2235   | 2245   | 2430                    | 2235   | 2245   |
| No. of crankthrows             | 2                      | 2      | 2      | 4                       | 4      | 4      |
| Stroke (in.)                   | 3                      | 3.5    | 4.5    | 3                       | 3.5    | 4.5    |
| RPM, continuous                | 1,800                  | 1,500  | 1,200  | 1,800                   | 1,500  | 1,200  |
| Piston speed, t./ Min.         | 900                    | 875    | 900    | 900                     | 875    | 900    |
| Rated horsepower               | 250                    | 250    | 250    | 500                     | 500    | 500    |
| Crankshaft Cl. height (in.)    | 10                     | 10     | 10     | 10                      | 10     | 10     |
| Overall width, max. (in.)      | 90                     | 90     | 90     | 140                     | 140    | 140    |
| Overall length, max. (in.)     | 29                     | 29     | 29     | 55                      | 55     | 55     |
| Crankshaft dia.- Drive end     | 2.875                  | 2.875  | 2.875  | 2.875                   | 2.875  | 2.875  |
| Approx. wt. (lbs.)             | 750                    | 750    | 750    | 1500                    | 1500   | 1500   |
| Oil pump capacity (GPM)        | 8                      | 8      | 8      | 14                      | 14     | 14     |
| Sump capacity (gallons)        | 3                      | 3      | 3      | 7.0                     | 7.0    | 7.0    |
| Rod loads (tension) (lbs.)     | 12,000                 | 12,000 | 12,000 | 12,000                  | 12,000 | 12,000 |
| Rod loads (compression) (lbs.) | 12,000                 | 12,000 | 12,000 | 12,000                  | 12,000 | 12,000 |
| Rod loads (combined) (lbs.)    | 24,000                 | 24,000 | 24,000 | 24,000                  | 24,000 | 24,000 |
| Crankpin diameter (in.)        | 3.00                   | 3.00   | 3.00   | 3.00                    | 3.00   | 3.00   |
| Main bearing (dia.) (in.)      | 5.12                   | 5.12   | 5.12   | 5.12                    | 5.12   | 5.12   |
| Piston rod diameter (in.)      | 1.125                  | 1.125  | 1.125  | 1.125                   | 1.125  | 1.125  |

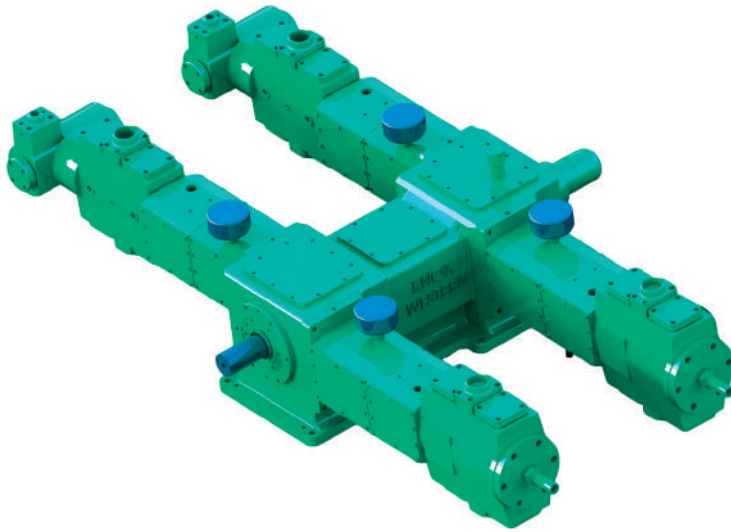
#### COMPONENTS

|                                       | 2000   |
|---------------------------------------|--------|
| <b>Crankshaft</b>                     |        |
| Crankpin diameter                     | 3.00   |
| Bearing Journal diameter              | 2.95   |
| Main Bearing diameter                 | 5.12   |
| Connecting rod CL to CL               | 9.00   |
| Connecting rod bearing width          | 1.85   |
| Connecting rod bolting size           | 1/2-13 |
| Connecting rod bushing width          | 1.91   |
| <b>Crosshead</b>                      |        |
| Crosshead Surface Area/Side (Sq. In.) | 17.5   |
| Floating Crosshead Pin Diameter       | 1.75   |
| <b>Piston Rod diameter</b>            | 1.12   |

# Reciprocating Gas Compressors

## Eagle Series

### Eagle 3000 Series



A heavy duty intermediate size compressor offered as a two-throw or four-throw unit, and with 3", 3 1/2", and 4-1/2" stroke. Frame load for this unit is 15,000 pounds Tension and Compression, making is a very economical compressor covering a wide selection of services.

| SPECIFICATIONS                 | Two throw units models |       | Four throw units models |       |       |       |
|--------------------------------|------------------------|-------|-------------------------|-------|-------|-------|
|                                | 3230                   | 3235  | 3245                    | 3430  | 3435  | 3445  |
| No. of crankthrows             | 2                      | 2     | 2                       | 4     | 4     | 4     |
| Stroke (in.)                   | 3                      | 3.5   | 4.5                     | 3     | 3.5   | 4.5   |
| RPM, continuous                | 1800                   | 1500  | 1200                    | 1800  | 1500  | 1200  |
| Piston speed, Ft./Min.         | 900                    | 875   | 900                     | 900   | 875   | 900   |
| Rated horsepower               | 300                    | 300   | 300                     | 600   | 600   | 600   |
| Crankshaft Cl. height (in.)    | 12                     | 12    | 12                      | 12    | 12    | 12    |
| Overall width, max. (in.)      | 132                    | 132   | 132                     | 132   | 132   | 132   |
| Overall length, max. (in.)     | 40                     | 40    | 40                      | 79    | 79    | 79    |
| Crankshaft dia.- Drive end     | 3.875                  | 3.875 | 3.875                   | 3.875 | 3.875 | 3.875 |
| Approx. wt. (lbs.)             | 2500                   | 2500  | 2500                    | 5200  | 5200  | 5200  |
| Oil pump capacity (GPM)        | 17                     | 17    | 17                      | 29    | 29    | 29    |
| Sump capacity (gallons)        | 8                      | 8     | 8                       | 15    | 15    | 15    |
| Rod loads (tension) (lbs.)     | 15000                  | 15000 | 15000                   | 15000 | 15000 | 15000 |
| Rod loads (compression) (lbs.) | 15000                  | 15000 | 15000                   | 15000 | 15000 | 15000 |
| Rod loads (combined) (lbs.)    | 30000                  | 30000 | 30000                   | 30000 | 30000 | 30000 |
| Crankpin diameter (in.)        | 4.125                  | 4.125 | 4.125                   | 4.125 | 4.125 | 4.125 |
| Main bearing (dia.) (in.)      | 7.00                   | 7.00  | 7.00                    | 7.00  | 7.00  | 7.00  |
| Piston rod diameter (in.)      | 1.500                  | 1.500 | 1.500                   | 1.500 | 1.500 | 1.500 |

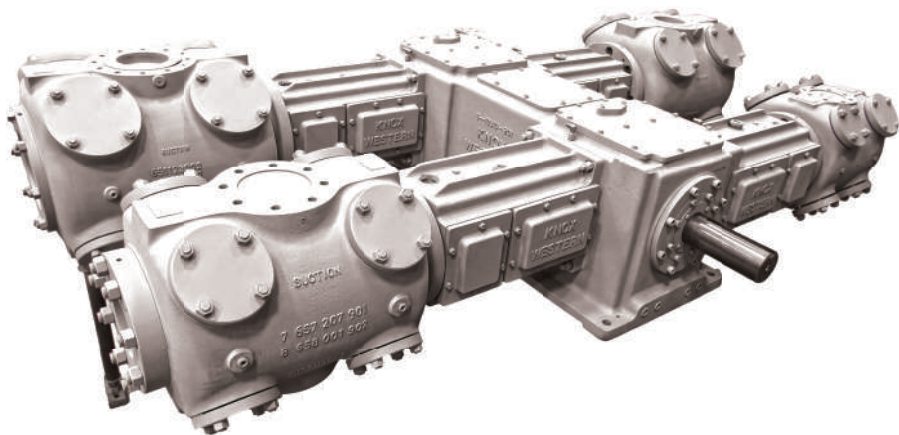
#### COMPONENTS

|                                        | 3000   |
|----------------------------------------|--------|
| <b>"Crankshaft"</b>                    |        |
| Crankpin Diameter"                     | 4.25   |
| Bearing Journal Diameter               | 3.93   |
| Main Bearing Diameter                  | 7.00   |
| Connecting Rod CL to CL                | 10.25  |
| Connecting Rod Bearing Width           | 2.40   |
| Connecting Rod Bolting Size            | 5/8-11 |
| Connecting Rod Bushing Width           | 2.45   |
| <b>"Crosshead"</b>                     |        |
| Crosshead Surface Area/Side (Sq. In.)" | 38.0   |
| Floating Crosshead Pin Diameter        | 3.0    |
| <b>Piston rod diameter</b>             | 1.50   |

# Reciprocating Gas Compressors

## Eagle Series

### Eagle 4000 Series



The mainstay of Knox Western large compressors for many years. Built in two-throw and four-throw models in both 3" and 4-1/2" strokes. Frame load for this compressor is 20,000 pounds Tension and Compression.

| SPECIFICATIONS                 | Two throw units models |       | Four throw units models |       |
|--------------------------------|------------------------|-------|-------------------------|-------|
|                                | 4230                   | 4245  | 4430                    | 4445  |
| No. of crankthrows             | 2                      | 2     | 4                       | 4     |
| Stroke (in.)                   | 3                      | 4.5   | 3                       | 4.5   |
| RPM, continuous                | 1800                   | 1200  | 1800                    | 1200  |
| Piston speed, t./ Min.         | 900                    | 900   | 900                     | 900   |
| Rated horsepower               | 500                    | 500   | 1000                    | 1000  |
| Crankshaft Cl. height (in.)    | 13                     | 13    | 13                      | 13    |
| Overall width, max. (in.)      | 140                    | 140   | 140                     | 140   |
| Overall length, max. (in.)     | 45                     | 45    | 84                      | 84    |
| Crankshaft dia.- Drive end     | 5.000                  | 5.000 | 5.000                   | 5.000 |
| Approx. wt. (lbs.)             | 3000                   | 3000  | 6500                    | 6500  |
| Oil pump capacity (GPM)        | 20                     | 20    | 37                      | 37    |
| Sump capacity (gallons)        | 12                     | 12    | 23                      | 23    |
| Rod loads (tension) (lbs.)     | 20000                  | 20000 | 20000                   | 20000 |
| Rod loads (compression) (lbs.) | 20000                  | 20000 | 20000                   | 20000 |
| Rod loads (combined) (lbs.)    | 40000                  | 40000 | 40000                   | 40000 |
| Crankpin diameter (in.)        | 5.250                  | 5.250 | 5.250                   | 5.250 |
| Journal diameter (in.)         | 5.11                   | 5.11  | 5.11                    | 5.11  |
| Main bearing (dia.) (in.)      | 9.05                   | 9.05  | 9.05                    | 9.05  |
| Piston rod diameter (in.)      | 1.875                  | 1.875 | 1.875                   | 1.875 |

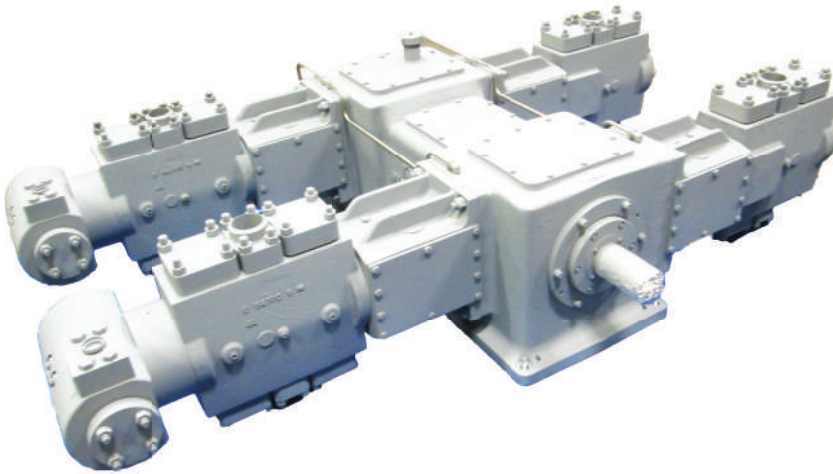
#### COMPONENTS

|                                       | 4000   |
|---------------------------------------|--------|
| <b>Crankshaft</b>                     |        |
| Crankpin diameter                     | 5.25   |
| Bearing Journal diameter              | 5.12   |
| Main Bearing diameter                 | 9.05   |
| Connecting rod CL to CL               | 13.75  |
| Connecting rod bearing width          | 3.00   |
| Connecting rod bolting size           | 5/8-11 |
| Connecting rod bushing width          | 3.25   |
| <b>Crosshead</b>                      |        |
| Crosshead Surface Area/Side (Sq. In.) | 50.0   |
| Floating Crosshead Pin Diameter       | 3.25   |
| <b>Piston rod diameter</b>            | 1.88   |

# Reciprocating Gas Compressors

## Eagle Series

### Eagle 6000 Series



This series is currently the largest of the Knox Western compressors built in both two-throw and four-throw models in 3" and 4-1/2" strokes with a frame load rating of 30,000 pounds Tension and Compression.

| SPECIFICATIONS                 | Two throw units models | Four throw units models |
|--------------------------------|------------------------|-------------------------|
|                                | 6245                   | 6445                    |
| No. of crankthrows             | 2                      | 4                       |
| Stroke (in.)                   | 4.5                    | 4.5                     |
| RPM, continuous                | 1200                   | 1200                    |
| Piston speed, t./ M in.        | 900                    | 900                     |
| Rated horsepower               | 700                    | 1400                    |
| Crankshaft Cl. height (in.)    | 13                     | 13                      |
| Overall width, max. (in.)      | 140                    | 140                     |
| Overall length, max. (in.)     | 45                     | 84                      |
| Crankshaft dia.- Drive end     | 5.250                  | 5.250                   |
| Approx. wt. (lbs.)             | 3000                   | 6500                    |
| Oil pump capacity (GPM)        | 35                     | 55                      |
| Sump capacity (gallons)        | 12                     | 30                      |
| Rod loads (tension) (lbs.)     | 30000                  | 30000                   |
| Rod loads (compression) (lbs.) | 30000                  | 30000                   |
| Rod loads (combined) (lbs.)    | 60000                  | 60000                   |
| Crankpin diameter (in.)        | 5.250                  | 5.250                   |
| Journal diameter (in.)         | 5.50                   | 5.50                    |
| Main bearing (dia.) (in.)      | 9.84                   | 9.84                    |
| Piston rod diameter (in.)      | 2.500                  | 2.500                   |

#### COMPONENTS

|                                       | 6000   |
|---------------------------------------|--------|
| <b>Crankshaft</b>                     |        |
| Crankpin diameter                     | 5.25   |
| Bearing Journal diameter              | 5.51   |
| Main Bearing diameter                 | 9.84   |
| Connecting rod CL to CL               | 13.75  |
| Connecting rod bearing width          | 3.00   |
| Connecting rod bolting size           | 3/4-10 |
| Connecting rod bushing width          | 3.25   |
| <b>Crosshead</b>                      |        |
| Crosshead Surface Area/Side (Sq. In.) | 50.0   |
| Floating Crosshead Pin Diameter       | 3.75   |
| <b>Piston rod diameter</b>            | 2.50   |

# Reciprocating Gas Compressors

## Eagle Series

### Eagle 2000, 3000, 4000, 6000 Series

COMPRESSOR MATERIAL EAGLE SERIES

| COMPONENTS              | MATERIAL                            |
|-------------------------|-------------------------------------|
| Crankcase               | Grey iron                           |
| Crosshead guides        | Grey Iron                           |
| Crankshaft              | Forged Steel                        |
| Connecting rods         | Ductile iron 60-40-18               |
| Connecting rod bearings | Steel backed babbit                 |
| Main bearings           | Double row spherical roller         |
| Connecting rod bushings | Phosphor bronze                     |
| Crossheads              | Ductile iron 60-40-18 babbitt faced |
| Crosshead pin           | Alloy steel 8620                    |
| Crosshead pin bushings  | 660 bronze                          |
| Piston rod              | Alloy steel 4140                    |
| Rod packing rings       | Non metallic full floating          |
| All stress bolts        | High tensile alloy                  |
| Pistons                 | Steel grey iron, or alum            |
| Standard piston rings   | Non metallic                        |
| Standard rider rings    | Non metallic                        |
| Valve cover O rings     | Viton                               |
| Valve seats             | Carbon steel                        |
| Valve guards            | Carbon steel                        |

\* API 618: Packages can be designed to API 618 third edition requirements including all piping, instrumentation and electrical systems. With some published exceptions, Knox Western compressors also meet the API 618 discipline.

EAGLE CLASS DOUBLE ACTING CYLINDER SPECIFICATIONS \*\*

|                     |     |     |     |     |    |      |    |    |    |    |    |    |    |      |    |    |    |    |      |
|---------------------|-----|-----|-----|-----|----|------|----|----|----|----|----|----|----|------|----|----|----|----|------|
| Bore Diameter (in.) | 2   | 3   | 4   | 4.5 | 5  | 5.75 | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 12.5 | 13 | 15 | 16 | 17 | 18.5 |
| Cylinder Material   | STL | STL | STL | DI  | DI | DI   | DI | DI | DI | DI | DI | DI | DI | DI   | DI | DI | DI | DI | DI   |

\*Abbreviations: DI: Ductile Iron / STL: Steel

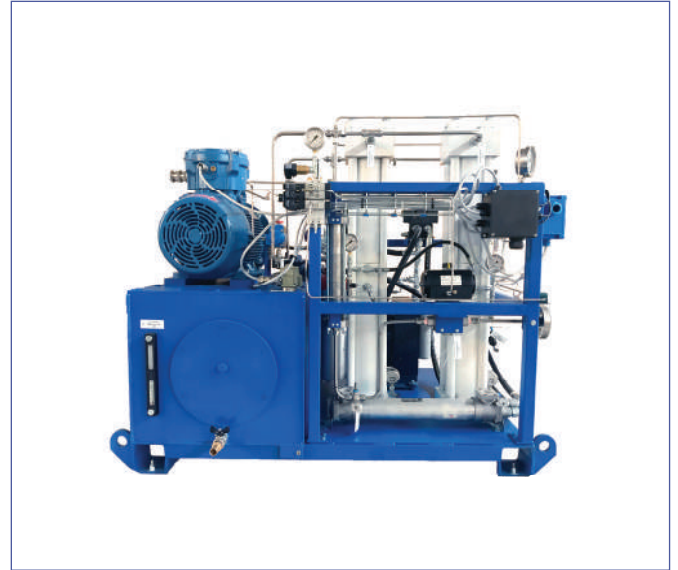
\*\* For Special Cylinder Applications, contact your Knox Western Representative.



📍 Perugia, Italy  
 🌐 [Ventos-Compressors.com](http://Ventos-Compressors.com)



**DIAPHRAGM COMPRESSORS**



**OIL- FREE BOOSTERS**



📍 Milano, Italy  
 🌐 [Italia.it](http://Italia.it)



**CRYOGENIC PUMPS**



**OXYGEN FILLING STATIONS**

✉ [Sales@knoxwestern.com](mailto:Sales@knoxwestern.com)

 [knoxwestern.com](http://knoxwestern.com)



📍 Erie, Pennsylvania-USA ☎ +1 814-459-275