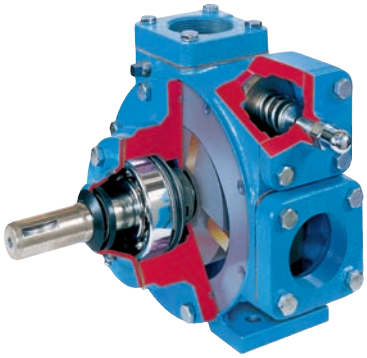
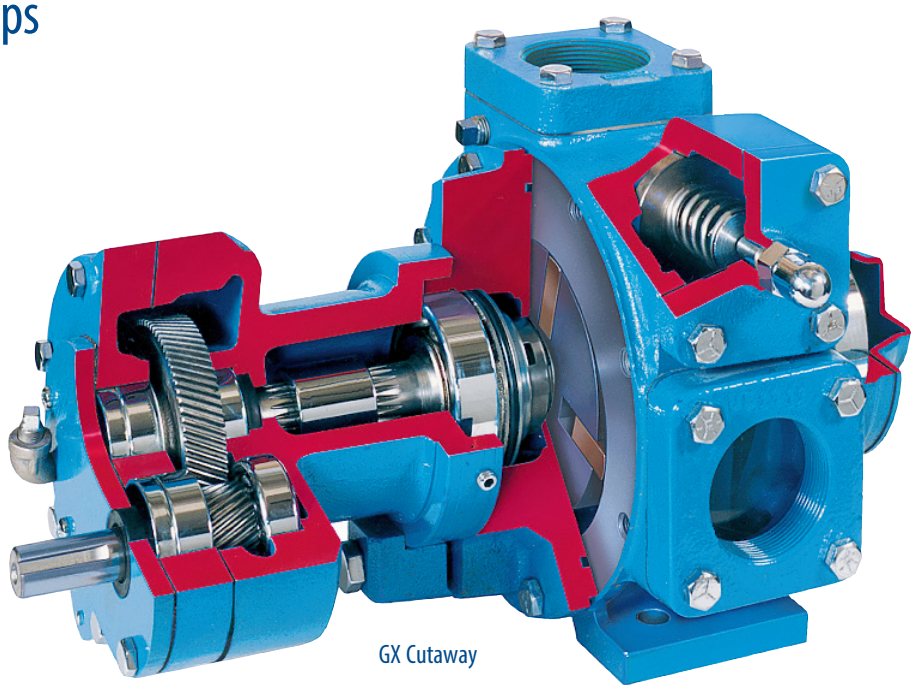
**Spec Sheet 101-003**
Section: **101**
Effective: **March 2017**
Replaces: **February 2015**

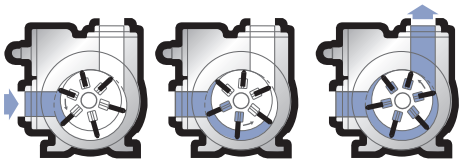
# GX & X Series
## General Duty Pumps



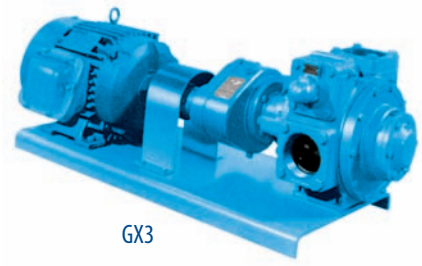
X2 cutaway



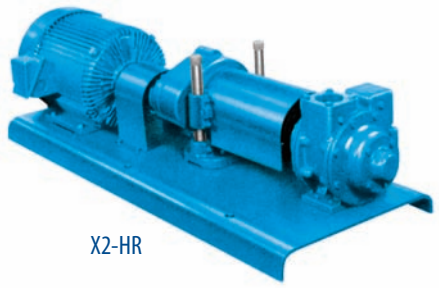
GX Cutaway



How Blackmer's sliding vane action works



GX3



X2-HR

## Design

Blackmer's GX and X series models are available in 2, 2.5, 3 and 4-inch flanged port sizes with capacities from 30 to 520 U.S. gpm (114-1,855 L/min). Cast iron construction is standard on all models except the X4 model which is ductile iron construction. All models have external ball bearings isolated from the pumpage by mechanical seals.

The GX type pumps feature an integral head-mounted gear reduction drive with oil lubricated, hardened helical gears that provide quiet trouble-free operation. Gear shafts are supported at both ends by ball bearings for smooth operation and long life. A splined shaft simplifies alignment of the pump and reducer, and the reducer can be rotated on the pump head to accommodate a variety of motor sizes without shimming.

## Application

Blackmer's GX and X type pumps are designed to handle a wide range of non-corrosive, non-abrasive industrial liquids and petroleum products. Typical applications include fuel oils, lube oils, jet fuels, gasoline, edible oils and a variety of solvents and thinners such as esters, ketones, naphthas, ethers, amines, aromatics, alcohols, terpenes, glycols and many other similar liquids.

## Benefit

Blackmer's positive displacement rotary pumps utilizing their unique sliding vane design offers the best combined characteristics of sustained high level performance, energy efficiency, trouble-free operation and low maintenance cost. Also, the high suction lift capability of these pumps makes them especially suitable for pumping from underground tanks, bulk plant service and aircraft refueling.

## Performance Data*

| Pump Model | GX2, X2 | | | | GX2.5, X2.5 | | | | GX3, X3 | | | | GX4, X4 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated Pump Speed (rpm) | 640 | 520 | 420 | 350 | 640 | 520 | 420 | 350 | 640 | 520 | 420 | 350 | 500 | 400 | 300 | 230 | 190 |
| U.S. gpm | 67 | 54 | 43 | 35 | 121 | 97 | 77 | 63 | 270 | 220 | 177 | 146 | 507 | 404 | 299 | 225 | 190 |
| L/min | 253 | 204 | 163 | 134 | 457 | 367 | 292 | 240 | 1023 | 835 | 671 | 544 | 1919 | 1532 | 1135 | 855 | 695 |
| hp | 2.7 | 2.2 | 1.8 | 1.5 | 4.7 | 3.7 | 2.9 | 2.3 | 11.2 | 8.5 | 6.5 | 5.2 | 20.8 | 15.9 | 11.5 | 8.6 | 7.0 |

* Approximate capacities and horsepower (HP) are based on a 100 ssu (22 cSt) fluid at a 50 psi (3.45 bar) differential pressure. Refer to Characteristic Curves for capacities and horsepower at other pressures and viscosities.

Centipoise (cP) = Centistokes (cSt) at fluid specific gravity of 1.0

## Maximum Operating Limits

| Pump Model | Maximum Pump Speed | | | Minimum Pump Speed | | | Maximum Differential Pressure | Maximum Working Pressure | Maximum Operating Temperature |
|---|---|---|---|---|---|---|---|---|---|
| | Speed | Flow[2] | Viscosity[3] | Speed | Flow[2] | Viscosity[3] | | | |
| | rpm | gpm (L/min) | ssu (cSt)[4] | rpm | gpm (L/min) | ssu (cSt)[4] | psi (bar) | psi (bar) | °F (°C) |
| GX2[1] | 780 | 82 (311) | 100 (22) | 190 | 20 (76) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| X2 | 780 | 82 (311) | 100 (22) | 68 | 7 (26) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| GX2.5 | 780 | 148 (562) | 100 (22) | 190 | 33 (125) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| X2.5 | 780 | 148 (562) | 100 (22) | 68 | 12 (45) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| GX3[1] | 640 | 270 (1,022) | 100 (22) | 125 | 46 (174) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| X3 | 640 | 270 (1,022) | 100 (22) | 68 | 28 (106) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| GX4[1] | 520 | 528 (1,999) | 100 (22) | 100 | 90 (341) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |
| X4 | 520 | 528 (1,999) | 100 (22) | 68 | 66 (250) | 20,000 (4,250) | 125 (8.6) | 175 (12.1) | 300 (149) |

[1] GX pump models are limited by gear reducer capability (pressure / rpm / viscosity dependent).

[2] Flow is normal at 50 psi (3.45 bar) differential pressure.

[3] Viscosity listed is maximum. Blackmer GX and X pump models are also well suited for viscosities less than 31 ssu (1 cSt).

[4] Centipoise (cP) = Centistokes (cSt) at fluid specific gravity of 1.0

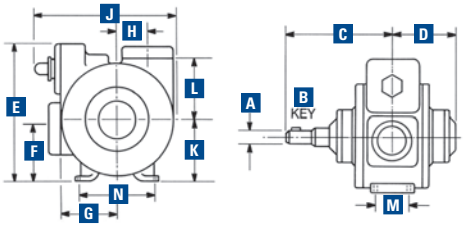
**Note:** Optional materials of construction may be required to meet specific application requirements – refer to Blackmer Material of Construction Sheet 101-095.

## Pipe Companion Flanges

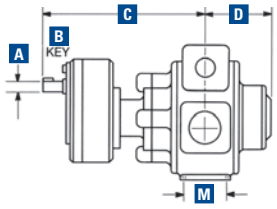
| Pump Model | Standard | Optional |
|---|---|---|
| GX2, X2 | 2" NPT | 2" Blackmer Weld |
| | | 2" ANSI** |
| GX2.5, X2.5 | 2.5" NPT | 2.5" Blackmer Weld |
| | | 3" ANSI** |
| GX3, X3 | 3" NPT | 3" Blackmer Weld |
| | | 3" ANSI** |
| GX4, X4 | 4" NPT | 4" Blackmer Weld |
| | | 4" ANSI** |

** ANSI Compatible flanges are Raised Faced.

## Dimensions




GX and X Pump Models




GX Pump Models

| Pump Model | | A | B | C | D | E | F | G | H | J | K | L | M | N | Approx. Wt. with Std. Flanges |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X2 | in. | 1⅛ | ¼ | 8 | 5⅜ | 8 11/16 | 3½ | 4 | 1½ | 9¾ | 4 | 4⅛ | 1⅝ | 5 | 70 lbs. |
| | mm | – | – | 203 | 137 | 221 | 89 | 102 | 38 | 248 | 102 | 105 | 41 | 127 | 32 kg |
| X2.5 | in. | 1⅛ | ¼ | 8¾ | 6 | 9⅜ | 3¾ | 4 15/16 | 1¾ | 10 11/16 | 4 | 5 1/16 | 3 | 5½ | 93 lbs. |
| | mm | – | – | 222 | 152 | 244 | 95 | 110 | 44 | 271 | 102 | 129 | 76 | 140 | 42 kg |
| X3 | in. | 1⅛ | ¼ | 9⅝ | 6½ | 12 3/16 | 4⅝ | 5 | 2½ | 13⅜ | 5⅜ | 5¼ | 2½ | 6 | 152 lbs. |
| | mm | – | – | 244 | 165 | 310 | 117 | 127 | 64 | 340 | 137 | 133 | 64 | 152 | 69 kg |
| X4 | in. | 1½ | ⅜ | 11 | 8⅛ | 15½ | 5 | 7⅜ | 2½ | 16⅞ | 6⅜ | 8 | 4½ | 8 | 295 lbs. |
| | mm | – | – | 280 | 206 | 394 | 127 | 187 | 64 | 429 | 162 | 203 | 114 | 203 | 134 kg |

| Pump Model | | A | B | C | D | E | F | G | H | J | K | L | M | N | Approx. Wt. with Std. Flanges |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GX2 | in. | 3/4 | 3/16 | 11 9/16 | 5 3/8 | 8 11/16 | 3 1/2 | 4 | 1 1/2 | 9 3/4 | 4 | 4 1/8 | 1 5/8 | 5 | 110 lbs. |
| | mm | – | – | 294 | 137 | 221 | 89 | 102 | 38 | 248 | 102 | 105 | 41 | 127 | 50 kg |
| GX2.5 | in. | 3/4 | 3/16 | 12 5/16 | 6 | 9 5/8 | 3 3/4 | 4 5/16 | 1 3/4 | 10 11/16 | 4 | 5 1/16 | 3 | 5 1/2 | 130 lbs. |
| | mm | – | – | 313 | 152 | 244 | 95 | 110 | 44 | 271 | 102 | 129 | 76 | 140 | 59 kg |
| GX3 | in. | 1 | 1/4 | 14 1/2 | 6 1/2 | 12 3/16 | 4 5/8 | 5 | 2 1/2 | 13 3/8 | 5 3/8 | 5 1/4 | 2 1/2 | 6 | 230 lbs. |
| | mm | – | – | 368 | 165 | 310 | 117 | 127 | 64 | 340 | 137 | 133 | 64 | 152 | 104 kg |
| GX4 | in. | 1 1/8 | 1/4 | 18 5/8 | 8 1/8 | 15 1/2 | 5 | 7 3/8 | 2 1/2 | 16 7/8 | 6 3/8 | 8 | 4 1/2 | 8 | 430 lbs. |
| | mm | – | – | 473 | 206 | 394 | 127 | 187 | 64 | 429 | 162 | 203 | 114 | 203 | 195 kg |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