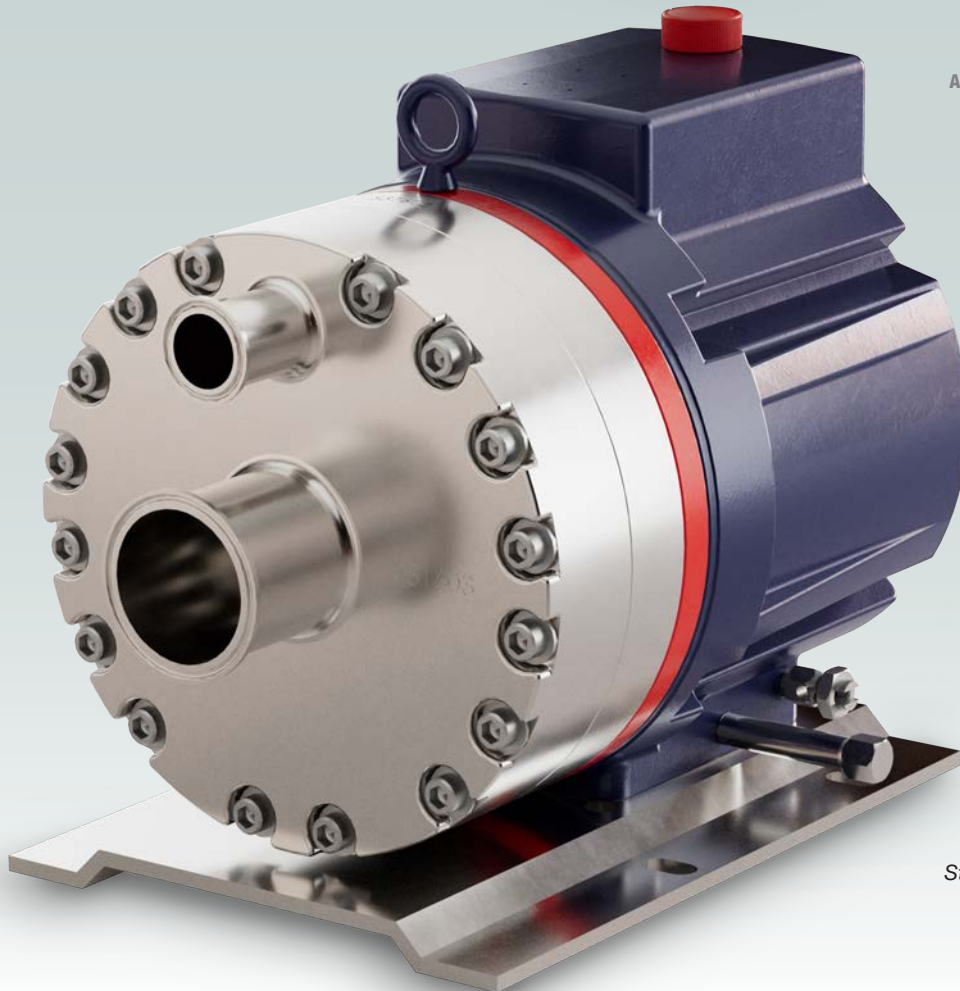


PH70 SERIES PHARMACEUTICAL

Maximum Flow rate: 138 l/min (36 US gpm)
Maximum Pressure: 40 bar (580 psi) for Metallic Pump Heads

WANNER™ PHARMA-PRO™
LEADING INNOVATION IN SEAL-LESS PUMP TECHNOLOGIES™



*PH70A Shaft-driven with
Stainless Steel pump head
with ASME BPE flanges*

Low pulse flow. Control and reliability for continuous processes.

- Low pulse flow; no pulsation dampeners needed in most applications
- Unique multiple diaphragm arrangement results in compact design, saving on installation space
- Extremely accurate wide adjustable flow range for ultimate controllability
- Low shear pumping action
- Reliably handles challenging liquids and slurries including abrasives, corrosives, non-lubricating, and liquids with micron-sized particles
- Patented ADPC (Advanced Diaphragm Position Control) technology protects diaphragms under closed or restricted inlet conditions
- ASME BPE flange connections as standard
- Wetted surfaces polished to ≤ 0.8 Ra
- Diaphragm options to FDA compliance
- ATEX certification
- TSE / BSE-free materials
- Multipurpose: CIP and main process pump
- Full material traceability

PH70A Pharma-Pro™ | Performance

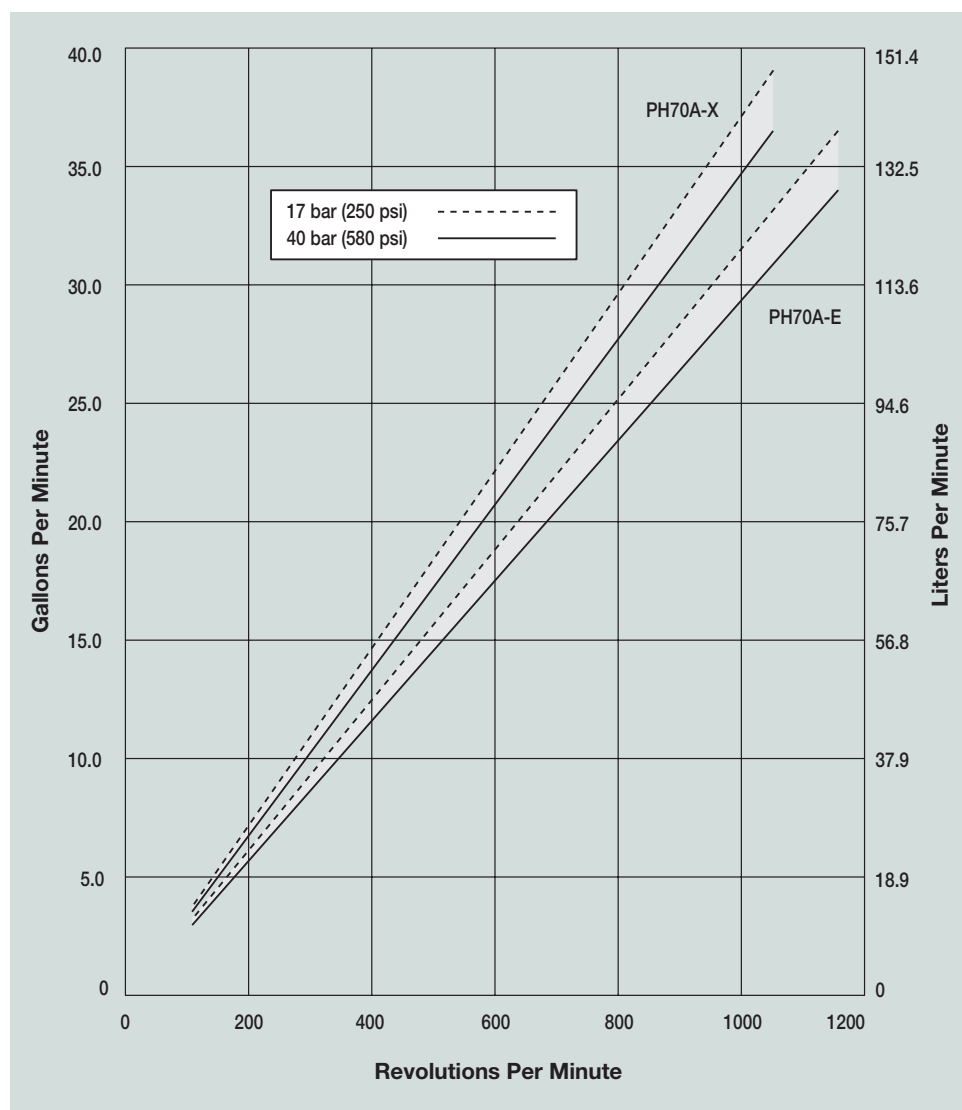
Bare Shaft Pump Options

Capacities

| Model | Max. Input rpm | Max. Flow Capacities | | Max. Inlet Pressure | | Max. Discharge Pressure | |
|--------|----------------|----------------------|--------|---------------------|-----|-------------------------|-----|
| | | @40 bar (580 psi) | US gpm | bar | psi | Metallic Heads | psi |
| PH70AX | 1050 | 138 | 36.5 | 17 | 250 | 40 | 580 |
| PH70AE | 1150 | 129 | 34.0 | 17 | 250 | 40 | 580 |

Performance and specification ratings apply to PH70A configurations unless specifically noted otherwise.

Maximum Flow at Designated Pressure



Metering & Dosing

Performance characteristics of better than:

- ± 1% steady state accuracy
- ± 3% linearity
- ± 3% repeatability

can be achieved at speeds up to 960 rpm and pressures up to 40 bar for X-cam pumps only.

PH70A Pharma-Pro™ | Specifications

Bare Shaft Pump Options

Diaphragms per Liquid End 5

Flow Capacities @ 40 bar (580 psi) 6-pole Motor @ 50 Hz

| Model | rpm | l/min | US gpm |
|--------|-----|-------|--------|
| PH70AX | 960 | 127.8 | 33.8 |
| PH70AE | 960 | 108.7 | 28.7 |

Flow Capacities @ 40 bar (580 psi) 8-pole Motor @ 50 Hz

| Model | rpm | l/min | US gpm |
|--------|-----|-------|--------|
| PH70AX | 730 | 97.2 | 25.7 |
| PH70AE | 730 | 82.6 | 21.8 |

Delivery @ 40 bar (580 psi)

| Model | litres/rev | gal/rev |
|--------|------------|---------|
| PH70AX | 0.1331 | 0.0352 |
| PH70AE | 0.1132 | 0.0299 |

Maximum Discharge Pressure

Metallic Heads: 40 bar (580 psi)

Maximum Inlet Pressure 17 bar (250 psi)

Maximum Operating Temperature

Metallic Heads: 90°C (194°F)
Consult Wanner for correct component selection for temperatures greater than 71°C (160°F).

Maximum Solids Size 800 microns

Inlet Port 3" ASME BPE

Discharge Port 1.5" ASME BPE

Shaft Diameter 50.8 mm (2 inch)

Shaft Rotation Bi-directional

Bearings Tapered roller bearings

Oil Capacity 7.3 litres (7.75 US quarts)

Weight 117 Kg (257.9 lbs)

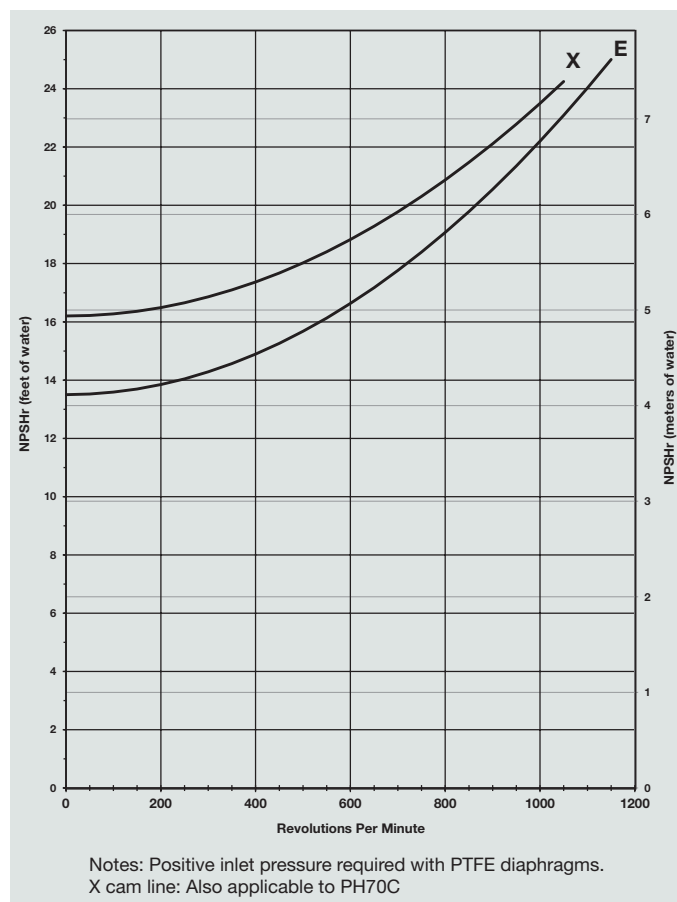
Calculating Required Power

$$\frac{100 \times \text{rpm}}{63,000} + \frac{\text{gpm} \times \text{psi}}{1,460} = \text{electric motor hp}^*$$

$$\frac{100 \times \text{rpm}}{84,428} + \frac{\text{l/min} \times \text{bar}}{511} = \text{electric motor kW}^*$$

When using a variable frequency drive (VFD) controller, calculate the hp or kW at minimum and maximum pump speed to ensure the correct hp or kW motor is selected. Note that motor manufacturers typically de-rate the service factor to 1.0 when operating with a VFD.

Net Positive Suction Head (NPSHr)



Suction Lift:

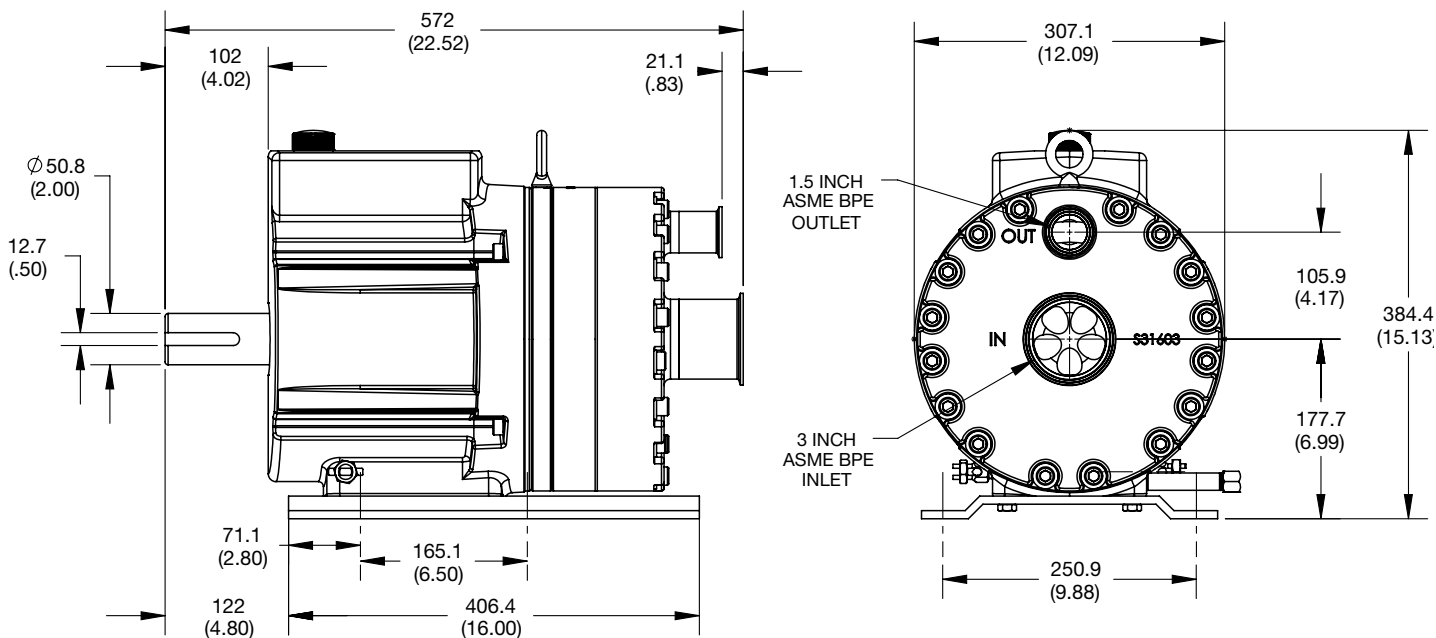
Each Pharma-Pro pump has different lift capability depending on model size, cam angle, speed, and fluid characteristics. To ensure that your specific lift characteristics are met, refer to the inlet calculations regarding friction and acceleration head losses in your Pharma-Pro Product Manual. Compare those calculations to the NPSHr curves above.

PH70A Pharma-Pro™ | Drawings / Adapters

Bare Shaft Pump Options

PH70A Models with ASME BPE Flanges mm (Inches)

Maximum Discharge Pressure: 40 bar (580 psi)



Note: Dimensions are for reference only. Contact Wanner for certified drawings.
Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

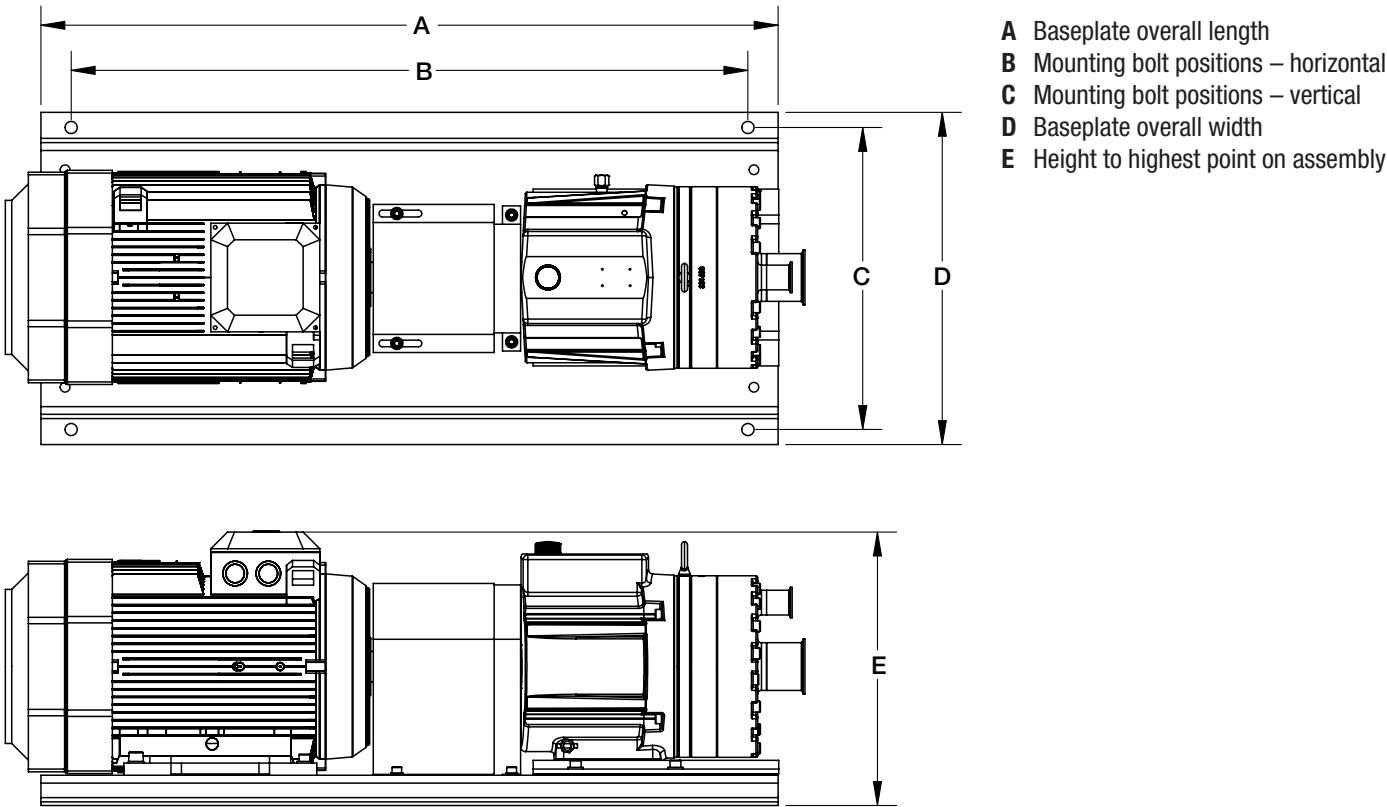
PH70A Pharma-Pro™ | General Assemblies

Bare Shaft Pump Options

Baseplate Options for IEC Motor Frame sizes

Major Baseplate Dimensions:

| Description | Dimensions (mm) | | | | | Weight Approx. (kg) |
|--|-----------------|------|-----|-----|-----|------------------------|
| | A | B | C | D | E | |
| PH70A, long-coupled with IEC 132 Motor | 1250 | 1150 | 550 | 600 | 435 | 261 |
| PH70A, long-coupled with IEC 160 Motor | 1400 | 1300 | 550 | 600 | 435 | 358 |
| PH70A, long-coupled with IEC 180 Motor | 1400 | 1300 | 550 | 600 | 435 | 393 |
| PH70A, long-coupled with IEC 200 Motor | 1600 | 1500 | 600 | 650 | 575 | 488 |
| PH70A, long-coupled with IEC 225 Motor | 1600 | 1500 | 600 | 650 | 620 | 546 |



Note: Dimensions are for reference only. Contact Wanner for certified drawings.
Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

PH70C Pharma-Pro™ | Specifications

Pump with Inline Manual Mechanical Variator Options

Diaphragms per Liquid End 5

Flow Capacities @ 10 bar (145 psi)

| Model | Max. Pump Input rpm | Min. Flow I/hr | Min. Flow US gph | Max. Flow I/hr | Max. Flow gph |
|----------------|---------------------|----------------|------------------|----------------|---------------|
| PH70C...NA100* | 800 | 792 | 209 | 6360 | 1680 |

Flow Capacities @ 30 bar (435 psi)

| Model | Max. Pump Input rpm | Min. Flow I/hr | Min. Flow US gph | Max. Flow I/hr | Max. Flow gph |
|----------------|---------------------|----------------|------------------|----------------|---------------|
| PH70C...NA200* | 600 | 396 | 104 | 4800 | 1268 |

Maximum Discharge Pressure Metallic Heads

| | |
|----------------|---------------------------------------|
| PH70C...NA100* | Up to 10 bar (145 psi) @ 800 rpm max |
| PH70C...NA200* | Up to 30 bar (435 psi) @ 1200 rpm max |

Maximum Inlet Pressure

| | |
|----------------|------------------------|
| PH70C...NA100* | Up to 17 bar (250 psi) |
| PH70C...NA200* | Up to 17 bar (250 psi) |

Maximum Operating Temperature

| | |
|----------------|---|
| Metallic Heads | 90°C (194°F) – Consult Wanner for correct component selection for temperatures from 71°C (160°F). |
|----------------|---|

Maximum Solids Size 800 microns

Inlet Port 3" ASME BPE

Discharge Port 1.5" ASME BPE

Shaft Rotation Bi-directional

Motor

| | |
|----------------|---|
| PH70C...NA100* | Requires 4kW, IEC 112, 2-pole, B5 motor |
| PH70C...NA200* | Requires 7.5kW, IEC 132, 4-pole, B5 motor |

Bearings Tapered roller bearings

Pump Oil Capacity 7.3 litres 7.7 US quarts)

Traction Fluid Capacity

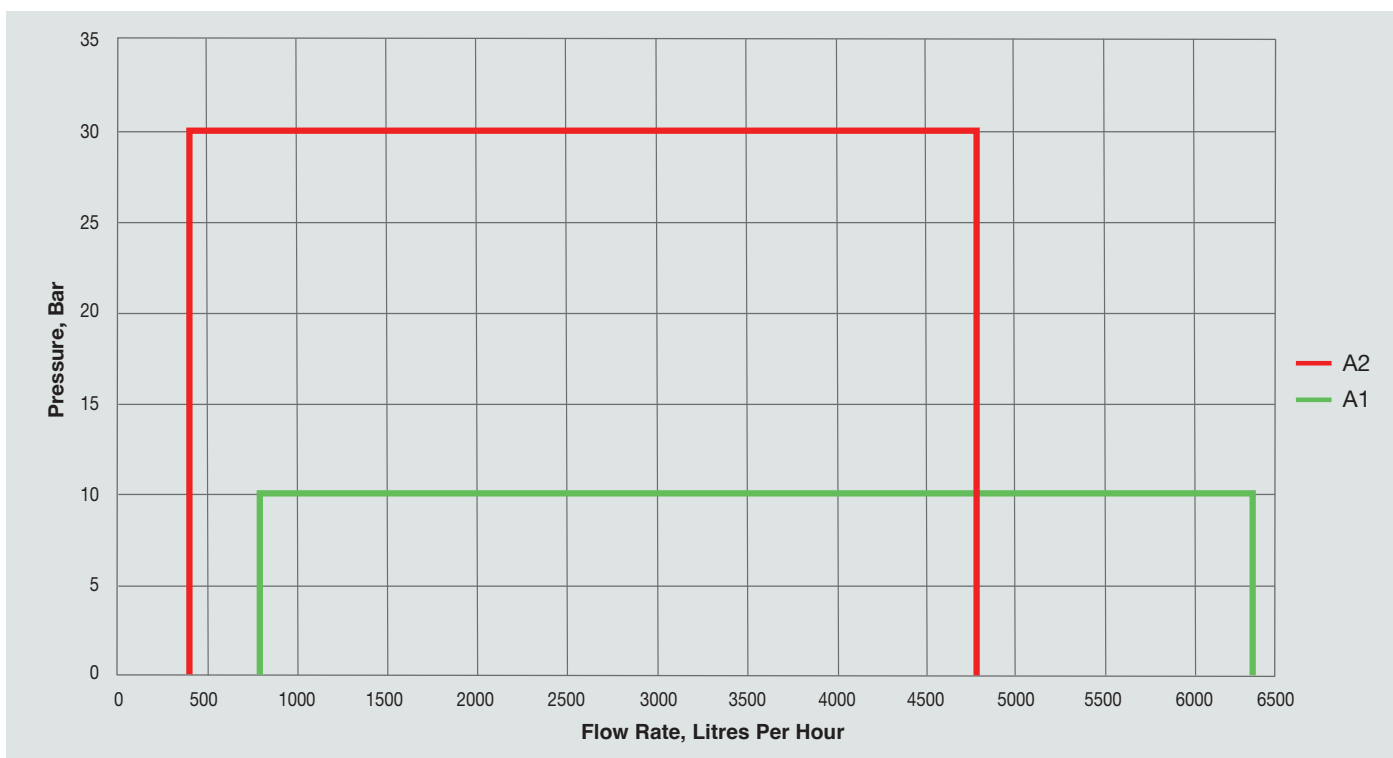
| | |
|------------------------------|----------------------------|
| PH70C...NA100* Gearbox Only: | 850 ml (0.90 US quarts) |
| PH70C...NA200* Gearbox Only: | 3.2 litres (3.4 US quarts) |

Weight

| | Metallic Heads |
|----------------|--------------------|
| PH70 Pump: | 117 kg (258 lbs.) |
| PH70C...NA100* | ~268 kg (591 lbs.) |
| PH70C...NA200* | ~358 kg (789 lbs.) |

* First 5 and last 5 digits – refer to How To Order page 9

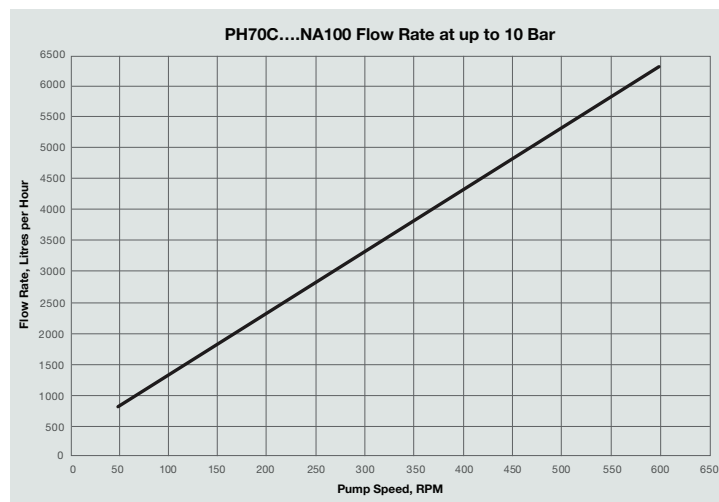
Flow Ranges PH70C



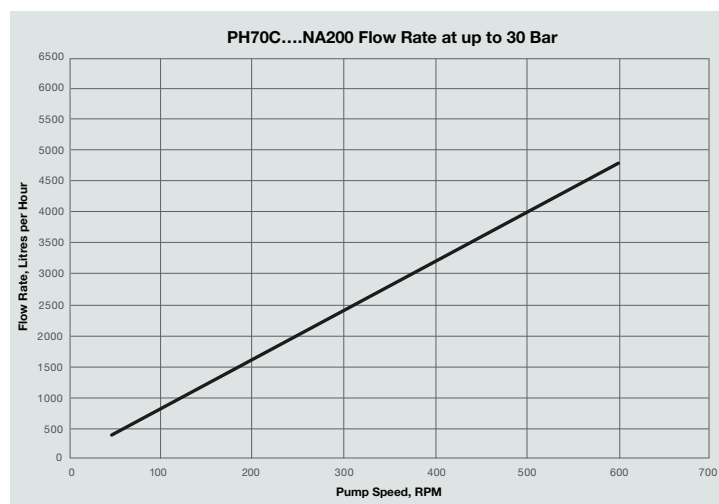
PH70C Pharma-Pro™ | Specifications

Pump with Inline Manual Mechanical Variator Options

Flow Range PH70C



A1 PH70C – 792-6360 l/hr (209-1680 US gph) @ 800 rpm max. at up to 10 bar. Requires a 4kW, IEC 112, 2-Pole B5 Motor (Motor not included but available on request).



A2 PH70C – 396-4800 l/hr (105-1268 US gph) @ 600 rpm max. at up to 30 bar. Requires a 7.5kW, IEC 132, 4-Pole B5 Motor (Motor not included but available on request).

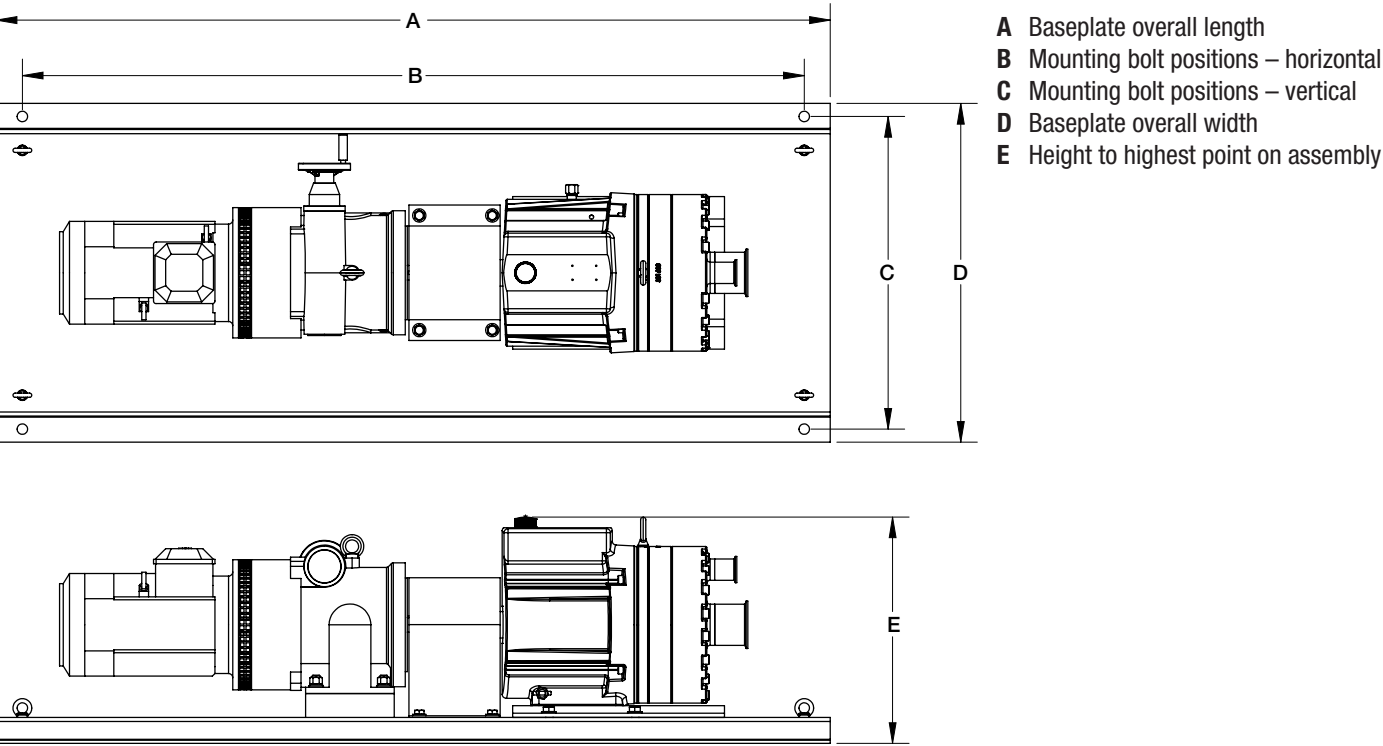
PH70C Pharma-Pro™ | General Assemblies

Pump with Inline Manual Mechanical Variator Options

Baseplate Options

Major Baseplate Dimensions:

| Description | Dimensions (mm) | | | | | Weight Approx. (Kg) |
|---------------|-----------------|------|-----|-----|-----|------------------------|
| | A | B | C | D | E | |
| PH70C...NA100 | 1600 | 1500 | 600 | 650 | 435 | 268 |
| PH70C...NA200 | 1600 | 1500 | 600 | 650 | 476 | 358 |



Note: Dimensions are for reference only. Contact Wanner for certified drawings.
Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

PH70 Pharma-Pro™ Series | How to Order

Ordering Information

A complete PH70 Series Model Number contains 19 digits including 9 customer-specified design and materials options; example: PH70AXAS200JTCX0000

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| P | H | 7 | 0 | | | | S | 2 | 0 | | | T | | | | | 0 | 0 |

| Digit | Order Code | Description |
|-------|------------|--|
| 1-5 | | Pump Configuration |
| | PH70A | Shaft-driven (up to 138 l/min) |
| | PH70C | Inline Manual Mechanical Variator Reducer Unit Select an option from Digit 15 and 16-17 |
| 6 | | Hydraulic End Cam |
| | X | Max 138 l/min (36.5 US gpm) @ 1050 rpm |
| | E | Max 129 l/min (34 US gpm) @ 1150 rpm |
| 7 | | Pump Head Version – ¹ ADPC (Advanced Diaphragm Position Control System) |
| | A | ADPC ¹ Non-Hazardous – Safe Area |
| | B | ADPC ¹ Hazardous Area: ATEX CAT 2, Zone 1, IIC, T4 |
| | C | ADPC ¹ Hazardous Area: ATEX CAT 3, Zone 2, IIC, T4 |
| 8-9 | | Pump Head Material & Connection Type* (Machined, 3.1 material certs, ASME BPE Flange, Maximum Operating Pressure 40 Bar) |
| | S2 | 316L stainless steel |
| 10 | | Manifold Drain Options |
| | 0 | No drain |
| 11 | | Diaphragm Rupture Detection |
| | 0 | No detection |
| | A | High / Low oil level bowl – not required with Digit 7 – B and C |
| 12 | | Diaphragm / O-rings / Follower (All process wetted materials FDA compliant and TSE/BSE free) |
| | J | PTFE / PTFE / Hastelloy C276 – Digit 6 E-cam pumps only |
| | K | FFKM / PTFE / Hastelloy C276 |
| | E | EPDM / PTFE / Hastelloy C276 – Must be used with option "C" Digit 14 |
| 13 | | Valve / Valve Seat / Valve Spring / Spring Retainer* |
| | T | Hastelloy C / Hastelloy C / Hastelloy C / Hastelloy C |

| Digit | Order Code | Description |
|-------|------------|--|
| 14 | | Hydra-Oil |
| | C | EPDM-compatible oil, NSF H1 – Must be used with Digit 12 option "E" |
| | E | Food-contact oil, NSF H1 |
| 15 | | Reduction Gearing Options |
| | X | PH70A – Bare shaft pump; no reduction gearbox required |
| | N | PH70C – Inline Manual Mechanical Variator options |
| 16-17 | | Vertical Reduction Gearbox Ratio Options |
| | 00 | PH70A – No reduction gearbox |
| | | Inline Manual Mechanical Variator Options DIGIT 15 "N" ONLY |
| | A1 | PH70C – 792-6360 l/hr (209-1680 US gph) @ 800 rpm max. at up to 10 bar. Requires a 4kW, IEC 112, 2-Pole B5 motor** |
| | A2 | 396-4800 l/hr (105-1268 US gph) @ 600 rpm max. at up to 30 bar. Requires a 7.5kW, IEC 132, 4-Pole B5 motor** |
| 18-19 | | Vertical Reduction Gearbox with Vertical Mechanical Variator Options |
| | 00 | No mechanical variator |

** Motor not included but available on request

* Polished to 0.8 Ra

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