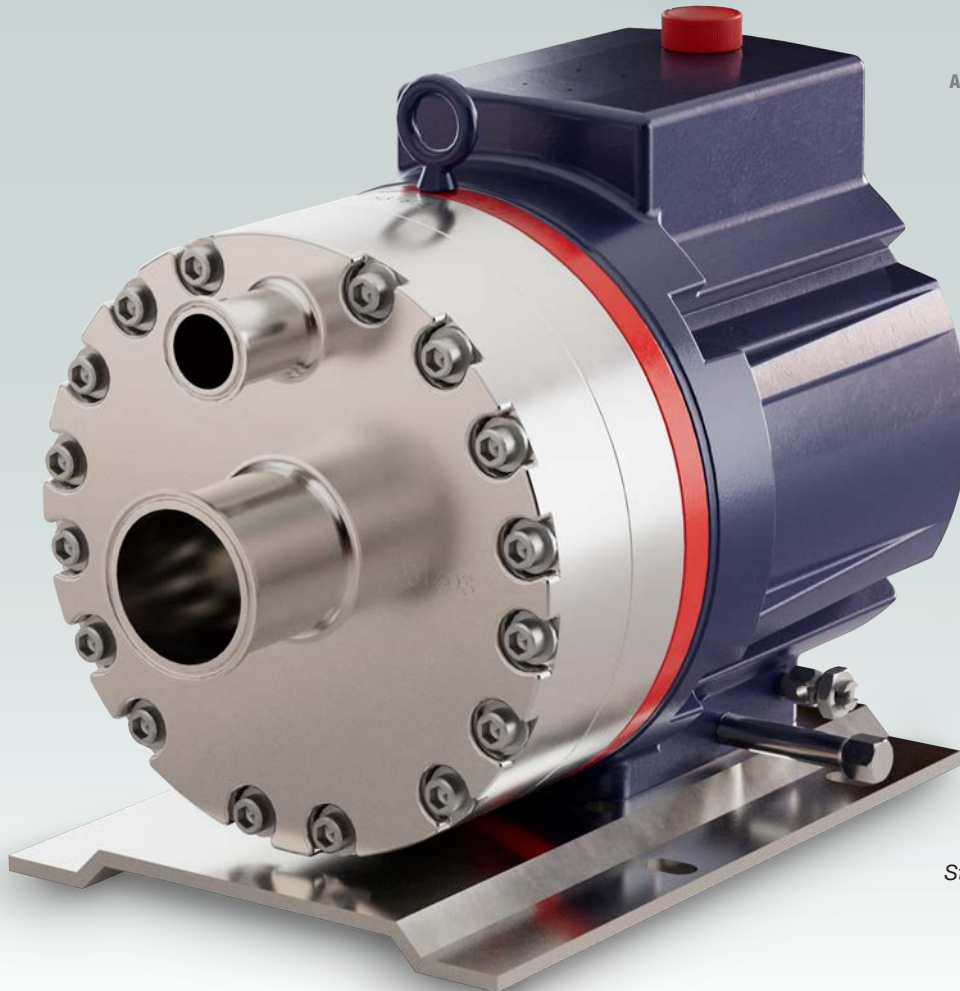


PH70 SERIES PHARMACEUTICAL

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

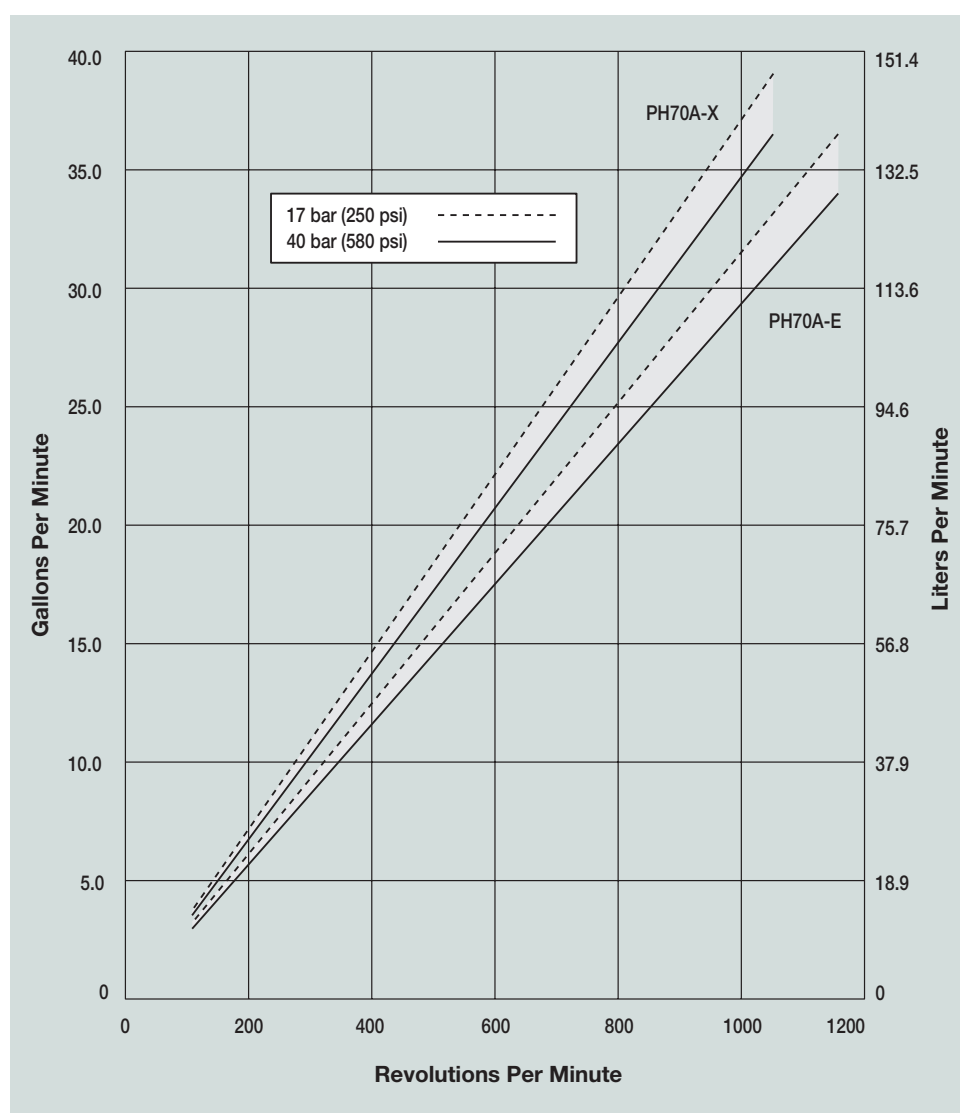
Bare Shaft Pump Options

Capacities

Model	Max. Input rpm	Max. Flow Capacities @40 bar (580 psi)		Max. Inlet Pressure		Max. Discharge Pressure Metallic Heads	
		l/min	US gpm	bar	psi	bar	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.

Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

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)

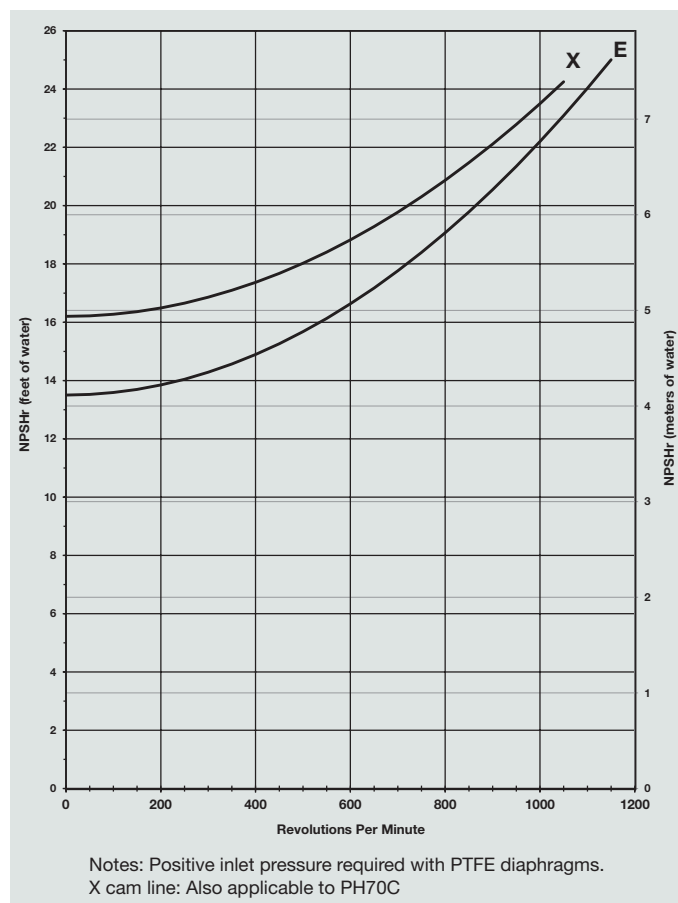
Calculating Required Power

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

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

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)



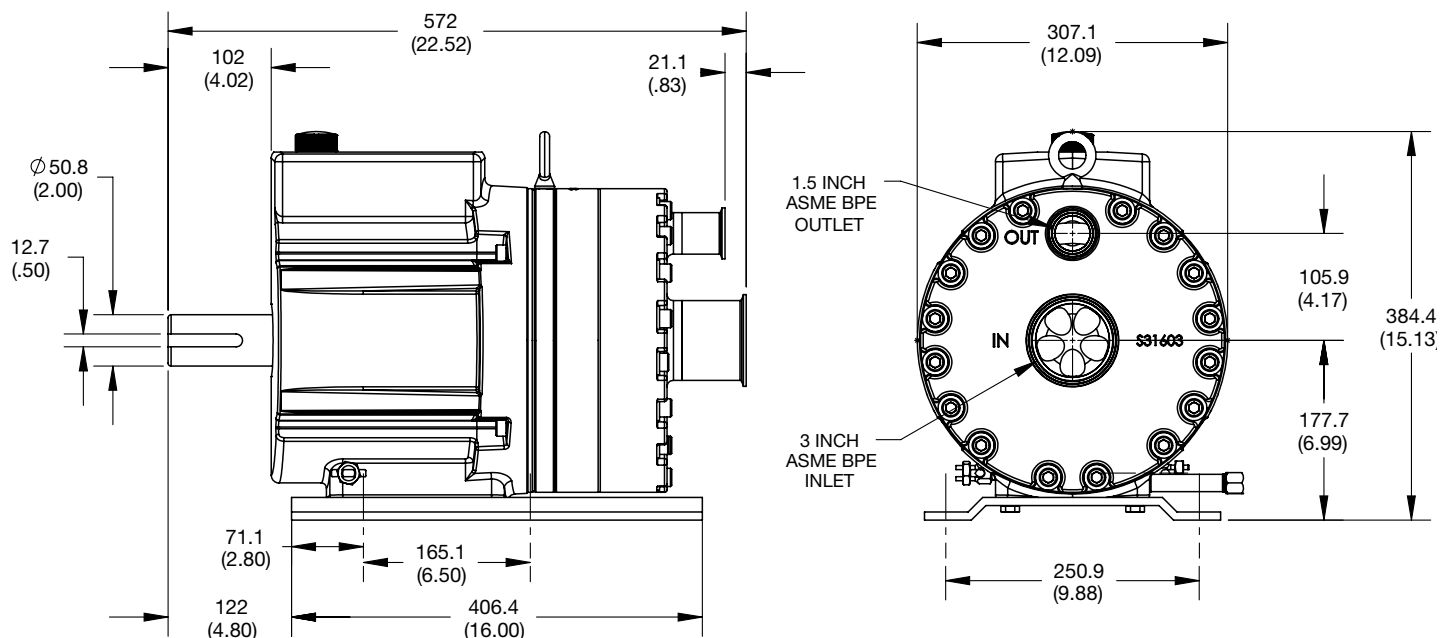
Suction Lift:

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.

Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

PH70A Models with ASME BPE Flanges mm (Inches)

Maximum Discharge Pressure: 40 bar (580 psi)

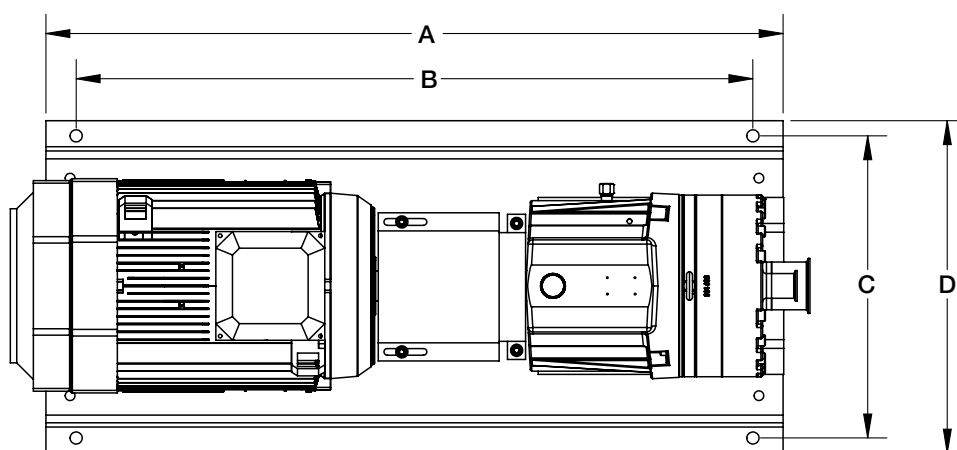


Note: Dimensions are for reference only. Contact Wanner for certified drawings.
Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

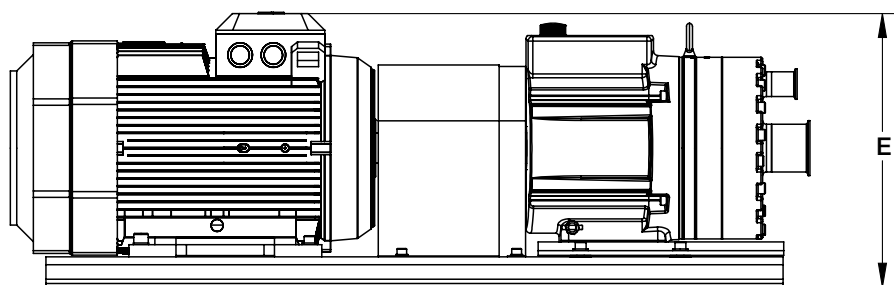
Baseplate Options for IEC Motor Frame sizes

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



- A** Baseplate overall length
- B** Mounting bolt positions – horizontal
- C** Mounting bolt positions – vertical
- D** Baseplate overall width
- E** Height to highest point on assembly



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 l/hr	Min. Flow US gph	Max. Flow l/hr	Max. Flow gph
PH70C...NA100*	800	792	209	6360	1680

Flow Capacities @ 30 bar (435 psi)

Model	Max. Pump Input rpm	Min. Flow l/hr	Min. Flow US gph	Max. Flow l/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).
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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

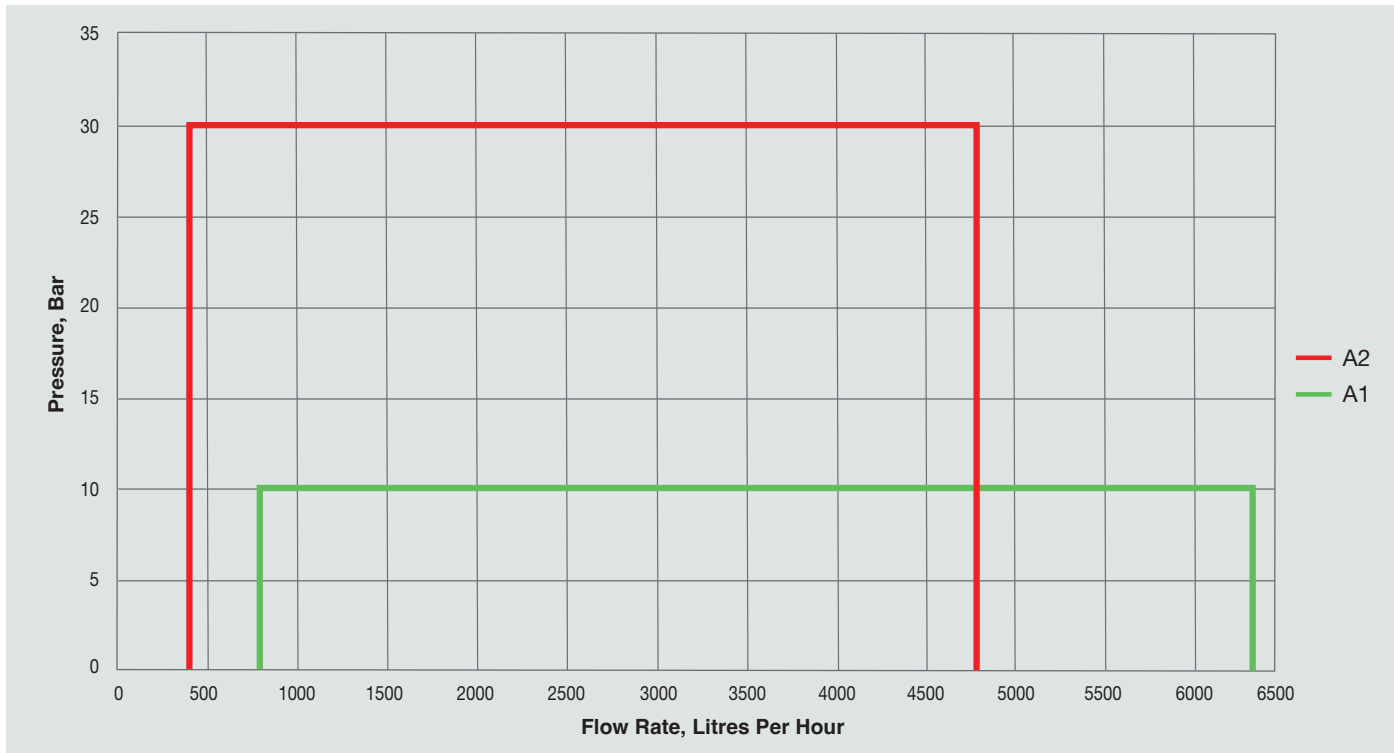
PH70C...NA100* Gearbox Only:	850 ml (0.90 US quarts)
PH70C...NA200* Gearbox Only:	3.2 litres (3.4 US quarts)

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

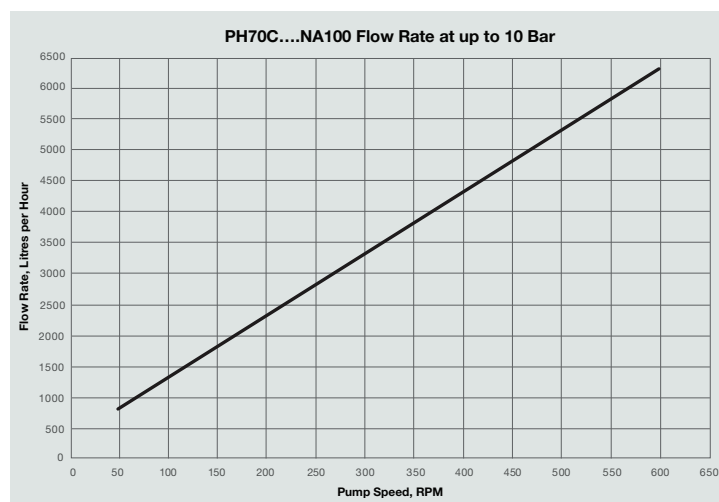


Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

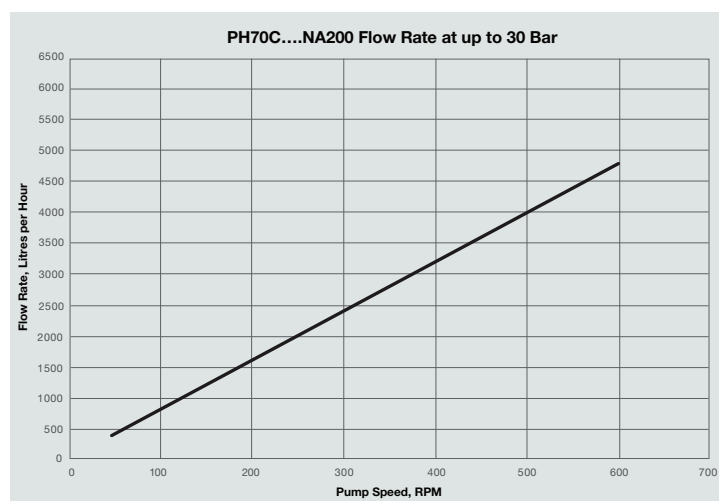
PH70C Pharma-Pro™ | Specifications

Pump with Inline Manual Mechanical Variator Options

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).



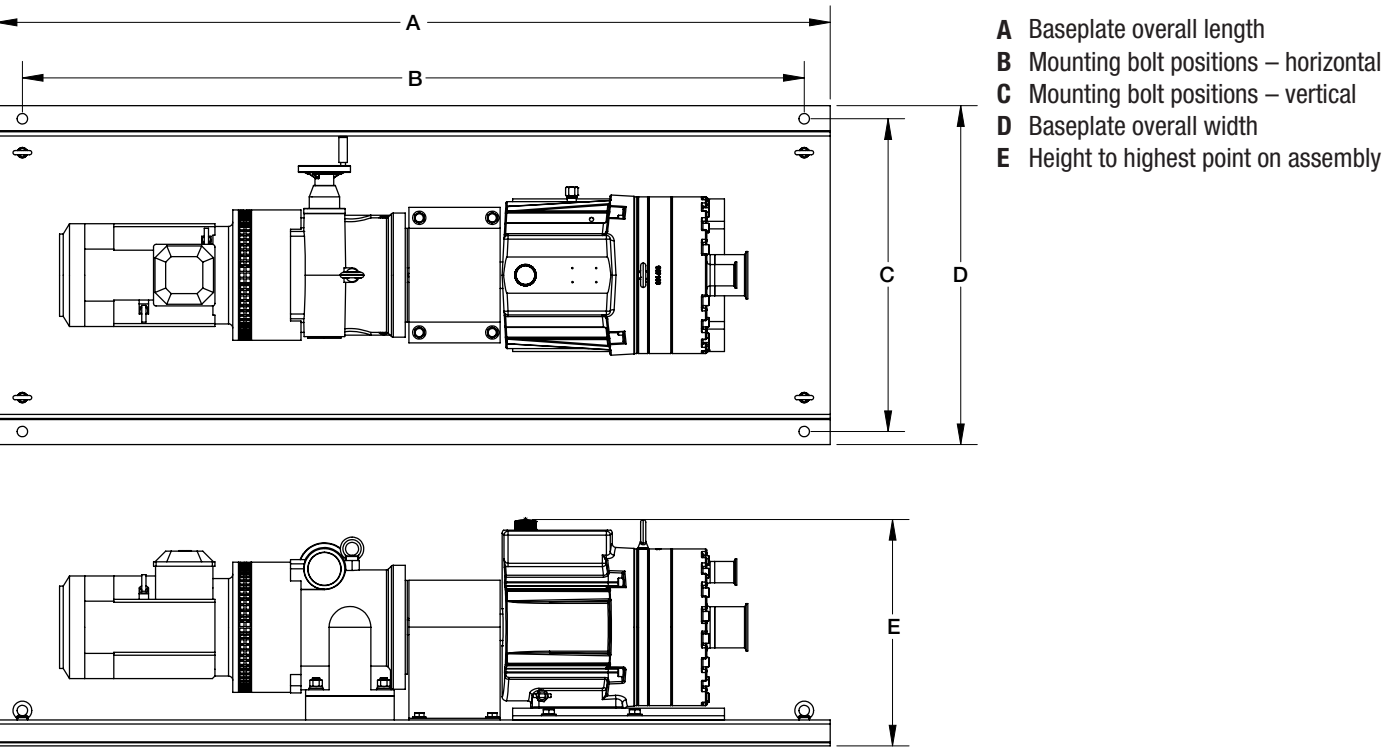
A2 PH70C – 396-4800 l/hr (105-1268 US gph) @ 600 rpm max. at up to 30 bar. Requires a 7.5kW, IEC 132, 4-Pole B5 Motor (Motor not included but available on request).

Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

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.

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

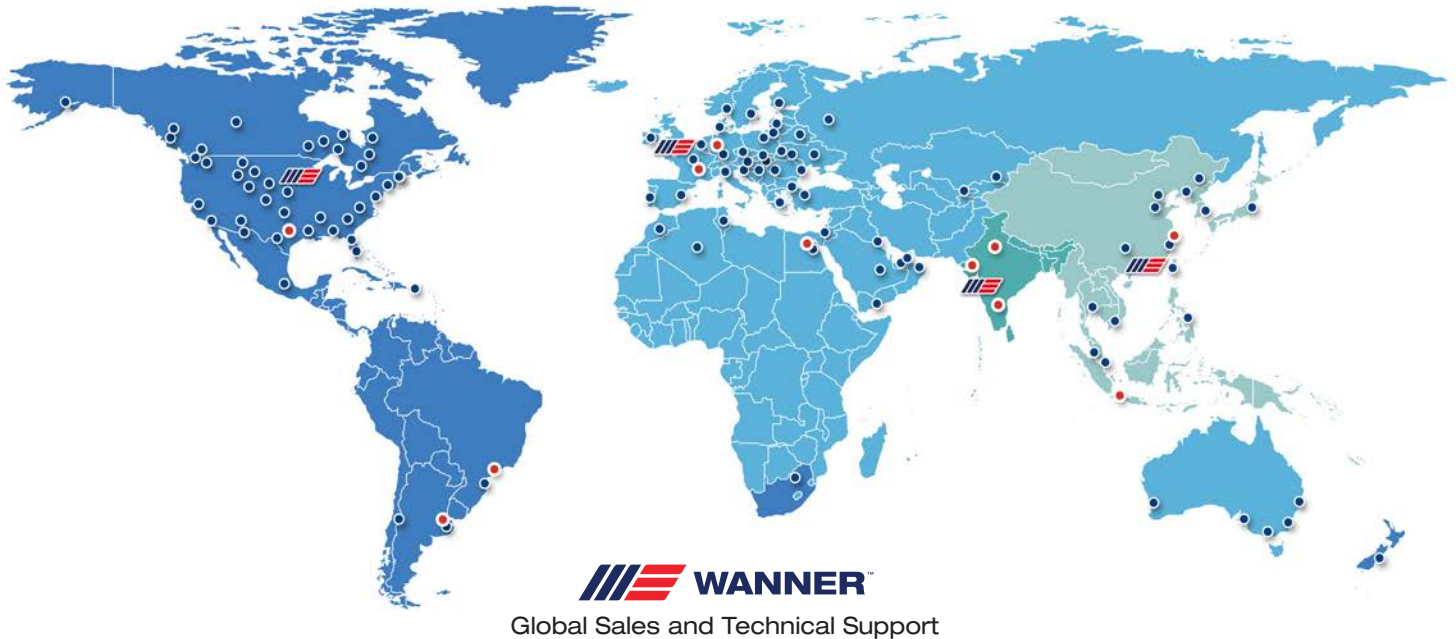
Digit	Order Code	Description
14		Hydra-Oil
	C	EPDM-compatible oil, NSF H1 – Must be used with Digit 12 option "E"
	E	Food-contact oil, NSF H1
15		Reduction Gearing Options
	X	PH70A – Bare shaft pump; no reduction gearbox required
	N	PH70C – Inline Manual Mechanical Variator options
16-17		Vertical Reduction 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

Due to the Wanner Continuous Improvement Program, specifications and other data are subject to change.

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