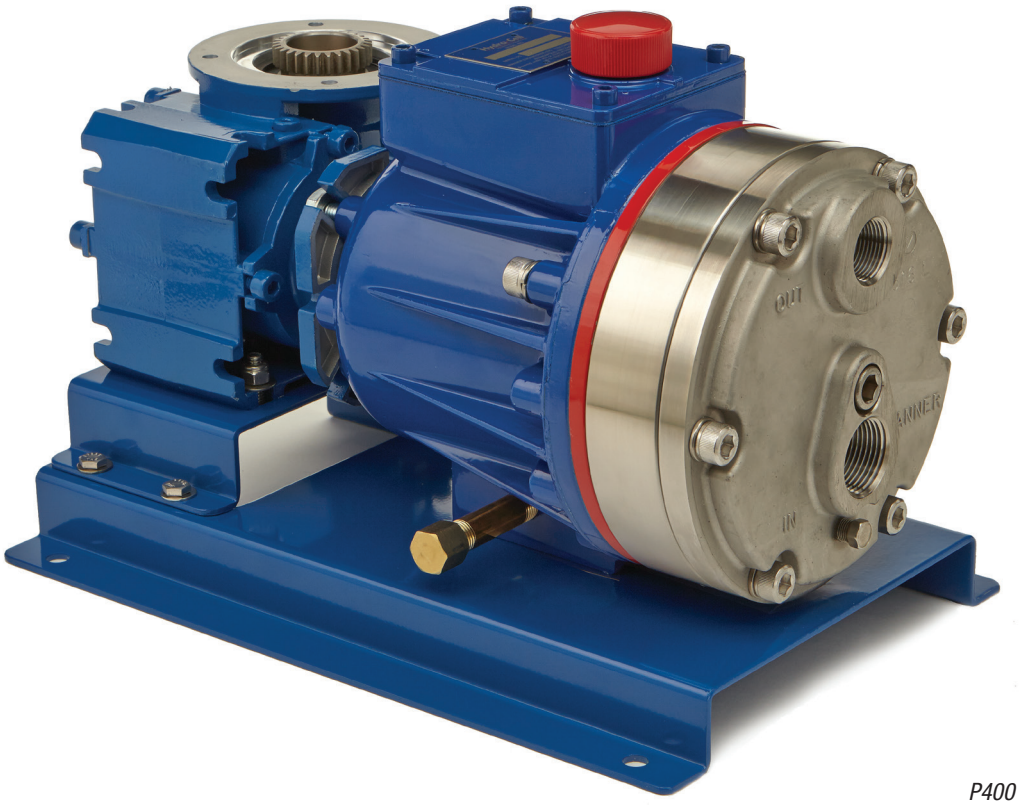
P400 PRO SERIES
METERING PUMPS

Maximum Flow Rate: 766 L/hr (242.8 US gph)
Maximum Pressure: 69 bar (1000 psi) for Metallic Pump Heads
24 bar (350 psi) for Non-Metallic Pump Heads

WANNER™ HYDRA-CELL® PRO
METERING PUMP SOLUTIONS



P400 with Stainless Steel pump head

A higher standard of metering performance and energy efficiency.

- Integrates **Wanner Hydra-Cell® Pro** seal-less pump technologies for the highest levels of volumetric and energy efficiencies across the full turndown – 0 to max flow – for accurate metering performance.
- Patented ADPC (Advanced Diaphragm Position Control) technology protects diaphragms under closed or restricted inlet conditions.
- Seal-less design with no mechanical dynamic seals, packing, or cups to leak, wear or replace.
- Compact design with multiple diaphragms in a single pump head.
- Virtually pulse-free flow – eliminates pulsation dampeners in most applications, reduces pipe strain and acceleration head losses.
- Exceeds API 675 standards for steady-state accuracy (±1%), linearity (±3%), and repeatability (±3%) over a wide adjustable range.
- Hydraulic oil management system replenishes on every back stroke, ensuring superior accuracy and reliable operation at low- and high-suction pressures.
- Unique valve design reliably handles a wide range of viscosities and shear sensitivities, plus corrosive liquids, abrasives, slurries and suspended solids.
- Pumped liquid is 100% contained, preventing degradation, contamination and emissions.
- Lower total cost of ownership in acquisition, operation, service, maintenance, and energy use.

Performance - Flow Capacities and Pressure Ratings

For Synchronous Speed, Self-cooled Motors

L/hr Maximum Flow at Designated Pressure

All Pumps (L/hr)		Metallic Pump Heads Only (L/hr)				
7 bar	17 bar	34 bar	69 bar	Pump rpm	Gear ratio	Motor rpm
30.4	29.3	26.8	20.4	25	60:1	1500
36.8	35.6	33.0	26.1	30	50:1	
46.2	45.1	42.2	35.4	37.5	40:1	
62.2	60.9	57.7	50.3	50	30:1	
75.0	73.6	70.1	62.3	60	25:1	
94.2	92.6	88.8	80.3	75	20:1	
126.2	124.2	119.9	110.2	100	15:1	
190.2	187.5	182.0	170.1	150	10:1	
254.2	250.8	244.2	230.0	200	7.5:1	
328.1	377.4	368.5	349.7	300	5:1	
510.0	503.9	492.8	469.5	400	7.5:1	3000
765.9	757.1	741.4	709.0	600	5:1	

Required Motor kW

0.18	0.37	0.55	0.75	1.1	1.5	2.2

Notes:

1. *The motor kW are based on ambient temperature conditions up to 40˚C. For ambient temperatures above 40˚C, please contact Wanner International.*
2. *Capacity data is shown for pumps with elastomeric diaphragms. Contact factory for performance characteristics of pumps with PTFE diaphragms.*
3. *Contact factory for performance specifications.*
4. *Based on using IE2 motors.*
5. *For intermittent or reduced pressure duties, please contact Wanner International.*

For 10:1 Turndown, Self-cooled Motors

L/hr Maximum Flow at Designated Pressure

All Pumps (L/hr)		Metallic Pump Heads Only (L/hr)				
7 bar	17 bar	34 bar	69 bar	Pump rpm	Gear ratio	Motor rpm
30.4	29.3	26.8	20.4	25	60:1	1500
36.8	35.6	33.0	26.1	30	50:1	
46.2	45.1	42.2	35.4	37.5	40:1	
62.2	60.9	57.7	50.3	50	30:1	
75.0	73.6	70.1	62.3	60	25:1	
94.2	92.6	88.8	80.3	75	20:1	
126.2	124.2	119.9	110.2	100	15:1	
190.2	187.5	182.0	170.1	150	10:1	
254.2	250.8	244.2	230.0	200	7.5:1	
382.1	377.4	368.5	349.7	300	5:1	
510.0	503.9	492.8	469.5	400	7.5:1	3000
765.9	757.1	741.4	709.0	600	5:1	

Required Motor kW

0.18	0.25	0.37	0.55	0.75	1.1	1.5
2.2	3.0					

Notes:

1. *The motor kW are based on ambient temperature conditions up to 25˚C. For ambient temperatures above 25˚C, Force-cooled Motors may be required. Please contact Wanner International.*
2. *Capacity data is shown for pumps with elastomeric diaphragms. Contact factory for performance characteristics of pumps with PTFE diaphragms.*
3. *Contact factory for performance specifications.*
4. *Based on using IE2 motors.*
5. *For intermittent or reduced pressure duties, please contact Wanner International.*

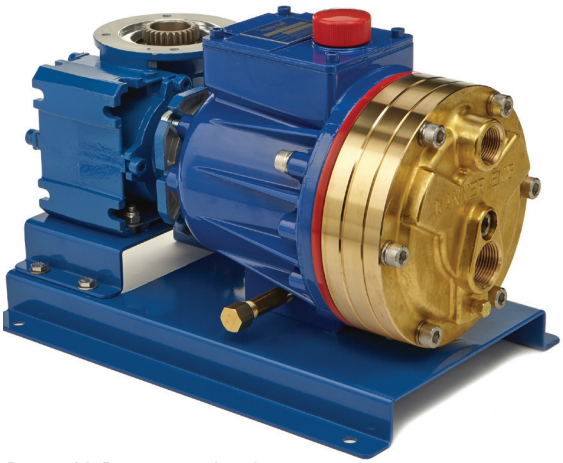
Mechanical Adjustment Controller for ATEX/Explosive Areas All Min/Max flow rates in litres/hour

7 bar		17 bar		34 bar		69 bar					
Min	Max	Min	Max	Min	Max	Min	Max	Pump RPM	Gearbox Ratio	Model Number	Required Motor kW & Frame Sizing
4.7	28.8	3.5	27.6	1.2	24.7	0	17.6	5 - 24	25:1	MEC3 - 71B14	0.37kW / IEC71 / 4-pole
	36.5		35.1		32.1		24.5	5 - 30	20:1		
	49.1		47.8		44.4		36.4	5 - 40	15:1	MEC5 - 71B14	0.55kW / IEC80 / 4-pole
	74.7		73.1		69.3		60.4	5 - 60	10:1		
	100.3		98.4		94.1		84.4	5 - 80	7.5:1		
	151.5		149.0		143.9		132.3	5 - 120	5:1		0.75kW / IEC80 / 4-pole
	202.6		199.7		193.6		180.2	5 - 160	7.5:1		1.1kW / IEC890 / 2-pole
	305.0		300.9		293.0		276.0	5 - 240	5:1	MEC5 - 80B14	1.5kW / IEC90 / 2-pole

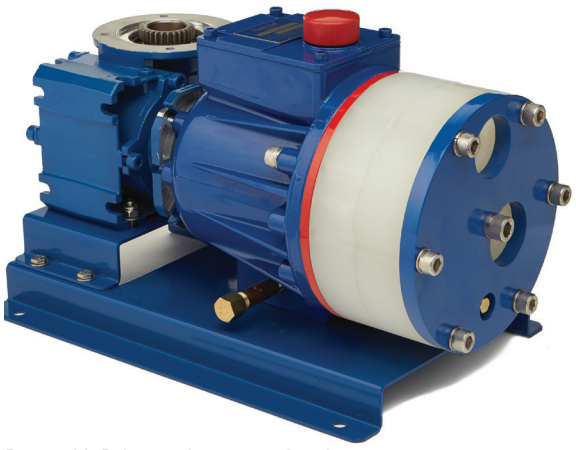
Due to the Wanner Engineering Continuous Improvement Program, specifications and other data are subject to change.

Pump Data

Diaphragms per Liquid End	3
Flow Control	Electronic variable speed drive
Maximum Discharge Pressure	
Metallic Heads:	69 bar
Non-Metallic Heads:	17 bar - Polypropylene
	24 bar - PVDF
Maximum Inlet Pressure	17 bar
Maximum Liquid Operating Temperature	
Metallic Heads:	121˚C to 71˚C
Non-Metallic Heads:	PVDF to 80˚C
Polypropylene:	to 60˚C
Consult factory for temperatures outside this range	
Maximum Solids Size	500 microns
Inlet Port	1 inch BSPT
	ANSI RF 150lb 1 inch
Discharge Port	3/4 inch BSPT
	ANSI RF 600lb 0.75 inch
Shaft Rotation	Reverse (bi-directional)
Oil Capacity	1.05 litres
Weight (less motor)	
Metallic Heads:	29.7 kg
Non-Metallic Heads:	23.8 kg
Dimensions (less motor)	
Metallic Heads:	252.4 mm W x 409.4 mm D
	x 261.3 mm H
Non-Metallic Heads:	252.4 mm W x 439.2 mm D
	x 261.3 mm H
Controllers	
Mechanical Adjustment:	245 mm D x 200 mm H
	(13.8 kg)



P400 with Brass pump head

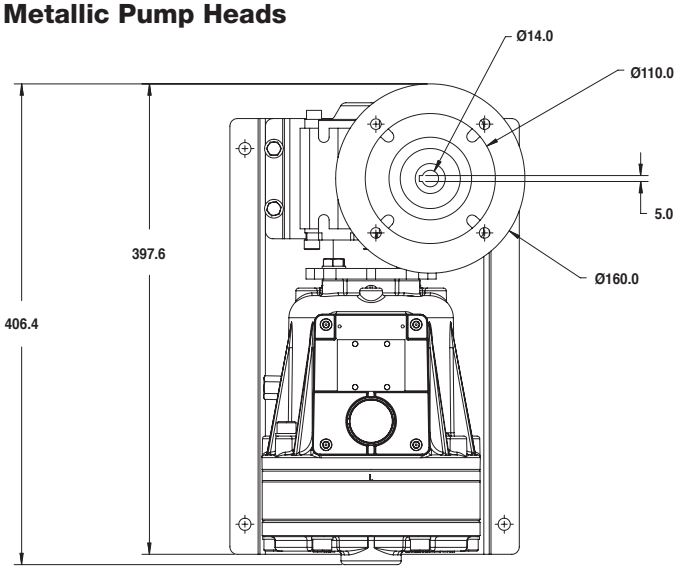


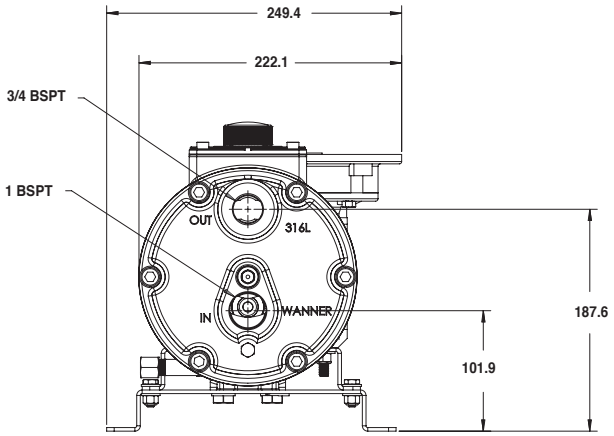
P400 with Polypropylene pump head

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

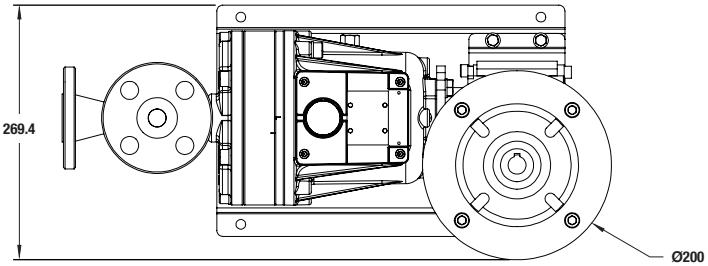
Metallic Pump Heads mm

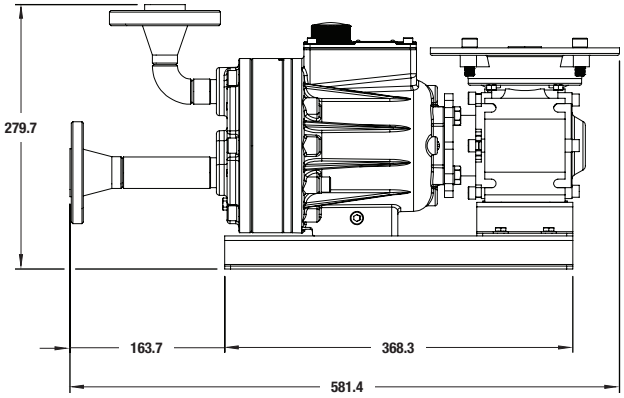
Metallic Pump Heads



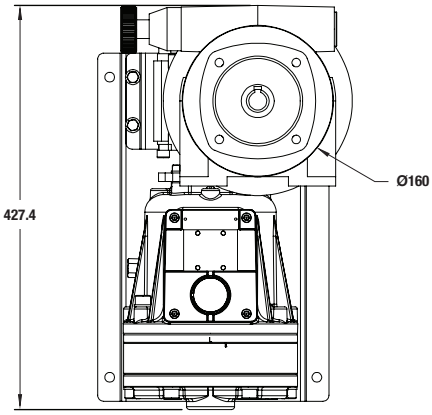


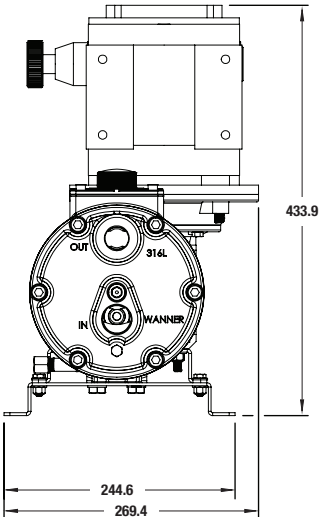
Metallic Pump Head with ANSI Flanges





Metallic Pump Head with Manual Adjustment





Note: Dimensions are for reference only. Contact factory for certified drawings.

Metering and Dosing Control Options

Electronic Flow Rate Adjustment for Local Control

- Force-cooled Drives supplied as standard
- IP66 Standard
- Various flow rate adjustments options including:
  1. On-board potentiometer(s).
  2. On-board key-pad controller with flow rate display.
  3. Removable, hand-held key-pad controller for authorised personnel only.
  4. Use the 10:1 Turndown table on Page 2 to select the correct motor kW for ambient temperatures up to 25˚C.

Maximum Flow at Designated Pressure

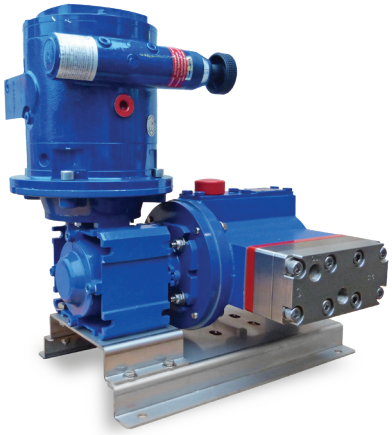
(see table on Page 2)

On-board keypad control

Hand-held keypad control

Mechanical Flow Rate Adjustment for Local Control

- ATEX Zone 1
- Linear fine adjustment scale on hand-wheel
- High reliability due to frictionless design
- Option to fit a mechanical lock to prevent unauthorised flow rate change



Accessories, Options and Services

Consult Wanner International for complete details about available accessories and options as well as special services.

- Manifolds and Flanges
- Multiplexing Capability
- Different Gearbox Ratios
- Oil Cooler Systems
- Actuating Oils
- Magnetic Drain Plug
- Motors (Standard/Hazardous-duty)
- Controllers
- SmartDrive Motor-Controller
- Calibration Cylinders
- Back Pressure Valves
- Pressure Relief Valves
- Pulsation Dampeners
- Demonstration (Cutaway) Units
- Testing Services
- System Components, Priming Kits and Plugs
- Replacement Part Kits and Tool Kits
- Customisation Services
- Process liquid end built with NACE and 3.1 traceability material certification

Calibration Cylinders

Port Size	Cylinder Size (mL)	Cylinder Capacity (L/h)	Maximum Shaft (rpm)	Part Number BSPT Ports	Dimensions - mm	
					Height	Diameter
PVC Cylinders						
1/2"	200	24	75	111-001-B	482.6	38.1
3/4"	1000	120	300	111-003-B	558.8	63.5
1"	2000	240	600	111-004-B	508.0	94.0
2"	10000	1200	--	111-006-B	635.0	176.5.0
Glass Cylinders						
1/4"	30	3.6	36	111-010-B	355.6	35.6
1/2"	200	24	75	111-011-B	533.4	63.5
3/4"	1000	120	300	111-013-B	685.8	88.9
1"	2000	240	600	111-014-B	685.8	127.0

Back Pressure & Pressure Relief Valves

Port Size	Maximum Flow (L/h) Pulsating	Wetted* Materials	Pressure Adjustment Range (bar)	Maximum Temp (°C)	Part Number Back Pressure (BSPT Ports)	Part Number Back Pressure Valves (BSPT Ports)
3/8"	757	Polypropylene	0.7 - 10.3	90	111-101-B	111-401-B
(DN 10)	757	PVDF	0.7 - 10.3	149	111-103-B	111-403-B
	757	316 SST	0.7 - 10.3	149	111-106-B	111-406-B
	757	Hastelloy C	0.7 - 10.3	149	111-110-B	111-410-B
3/8"	757	316 SST	3.5 - 24	149	111-107-B	111-407-B
(DN 10)	757	Hastelloy C	3.5 - 24	149	111-111-B	111-411-B
3/8" High Pressure	2650	316 SST	24 - 172	149		111-706-B

** Diaphragm material is PTFE on all models. Other materials available on request.*
Hastelloy® C is a registered trademark of Haynes International, Inc.

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

Ordering Information

A complete pump order number contains 13 digits based on the specified pump materials listed below:

1	2	3	4	5	6	7	8	9	10	11	12	13
P	4	0	0									

Digit	Order Code	Description
1-4	**P400**	**For all P400 Pumps ADPC (Advanced Diaphragm Position Control System)**

5 — Pump Version

N	NPT Ports (NEMA motors only)
M	BSPT Ports (IEC motors only)
A	ATEX BSPT Ports (IEC motors only)

ATEX Certification Kit Option

As a separate line on your order, please add the required ATEX Certification Kit Option.

Category 2, Zone 1

Part Number	Description
ATEX-Z1-G10/P400	Kit-ATEX Category 2, Zone 1 IIB T4 G10/P400

Category 3, Zone 2

Part Number	Description
ATEX-Z2-G10/P400	Kit-ATEX Category 3, Zone 2 IIC T4 G10/P400

Notes:

1. *All options include Certificate, Oil Level Monitor, Earth Stud & Secondary ATEX Label.*
2. *Extra oil is required to fill the oil bowl during installation of ATEX pump. This oil is not included and must be ordered separately.*
3. *ATEX is not available with non-metallic pump heads.*

6 — Pump Head / Retainer Material

B	Brass / Hastelloy C
C	Cast Iron / Hastelloy C
M	PVDF / PVDF
P	Polypropylene / Polypropylene (Hastelloy C followers & screws)
R	316L Stainless Steel with ANSI RF Flanges, Class 150lb x 600lb
S	316L Stainless Steel (NPT or BSPT) / Hastelloy C
-	316L Stainless Steel with Tri-clamp (1-1/2" Inlet & 1" Discharge) Flanges polished to 0.8 Ra*
-	316L Stainless Steel with Tri-clamp (1-1/2" Inlet & 1" Discharge) Flanges polished to 0.4 Ra*
	Tri-clamp options include polishing of Pump Head, Valve Plate, Valves, Valve Seats, Springs & Retainers to 0.8 Ra or 0.4 Ra per above, Sanitary Drain along with TSE, Passivation, Surface Finish & Weld Procedure Certificates
-	High-viscosity Manifold, 316L Stainless Steel*
T	Hastelloy CW12MW / Hastelloy C
	**Selecting this option will result in a Wanner International generated Pump Code, stamped onto the pump.*

7 — Diaphragm & O-ring Material / Oil

A	Aflas / PTFE o-ring (Synthetic oil)
E	EPDM (EPDM-compatible oil)
G	FKM (Standard oil)
S	FKM (Food-contact oil)
X	FKM (Synthetic oil)
J	PTFE (Food-contact oil)
W	PTFE (Synthetic oil)
	Note: PTFE diaphragms require a minimum suction pressure of 1 bar.
P	Neoprene (Standard oil)
R	Neoprene (Food-contact oil)
Z	Neoprene (Synthetic oil)
T	Buna-N (Standard oil)
F	Buna-N (Food-contact oil)
Y	Buna-N (Synthetic oil)

8-9 — Check Valve Material (Valve Spring / Valve Seat / Valve)

SS	Elgiloy / 316L SST / Nitronic 50
TT	Hastelloy C / Hastelloy C / Hastelloy C
SC	Elgiloy / Ceramic / Ceramic
TC	Hastelloy C / Ceramic / Ceramic
SD	Elgiloy / Tungsten Carbide / Tungsten Carbide
TD	Hastelloy C / Tungsten Carbide / Tungsten Carbide

10-12 — Gearbox Ratio / IEC Motors

060	60:1	(63 B5 Motor Frame)
050	50:1	(63 B5 Motor Frame)
040	40:1	(63 B5 Motor Frame)
A30	30:1	(71 B5 Motor Frame)
A25	25:1	(71 B5 Motor Frame)
A20	20:1	(71 B5 Motor Frame)
A15	15:1	(71 B5 Motor Frame)
A10	10:1	(71 B5 Motor Frame)
B10	10:1	(80 B5 Motor Frame)
C10	10:1	(90 B5 Motor Frame)
A07	7.5:1	(71 B5 Motor Frame)
B07	7.5:1	(80 B5 Motor Frame)
C07	7.5:1	(90 B5 Motor Frame)
B05	5:1	(80 B5 Motor Frame)
C05	5:1	(90 B5 Motor Frame)

Note: Largest motor rating: 2kW 4-pole motor. These are Wanner standard options. Other flange sizes are available upon request.

13 — Baseplate

C	Carbon Steel (Epoxy painted)
S	304 Stainless Steel (This Base Plate must be selected for ATEX pumps)

Notes:

1. *Please consult factory for rpm below 6.*
2. *Constant torque drives are required to meet API 675 performance standards.*
3. *Ensure that the motor chosen is capable of delivering the torque and power required over the full range of adjustment. (Contact Wanner International for values.)*
4. *IEC motor size has been calculated assuming IE3 performance as defined by IEC 60034-30.*

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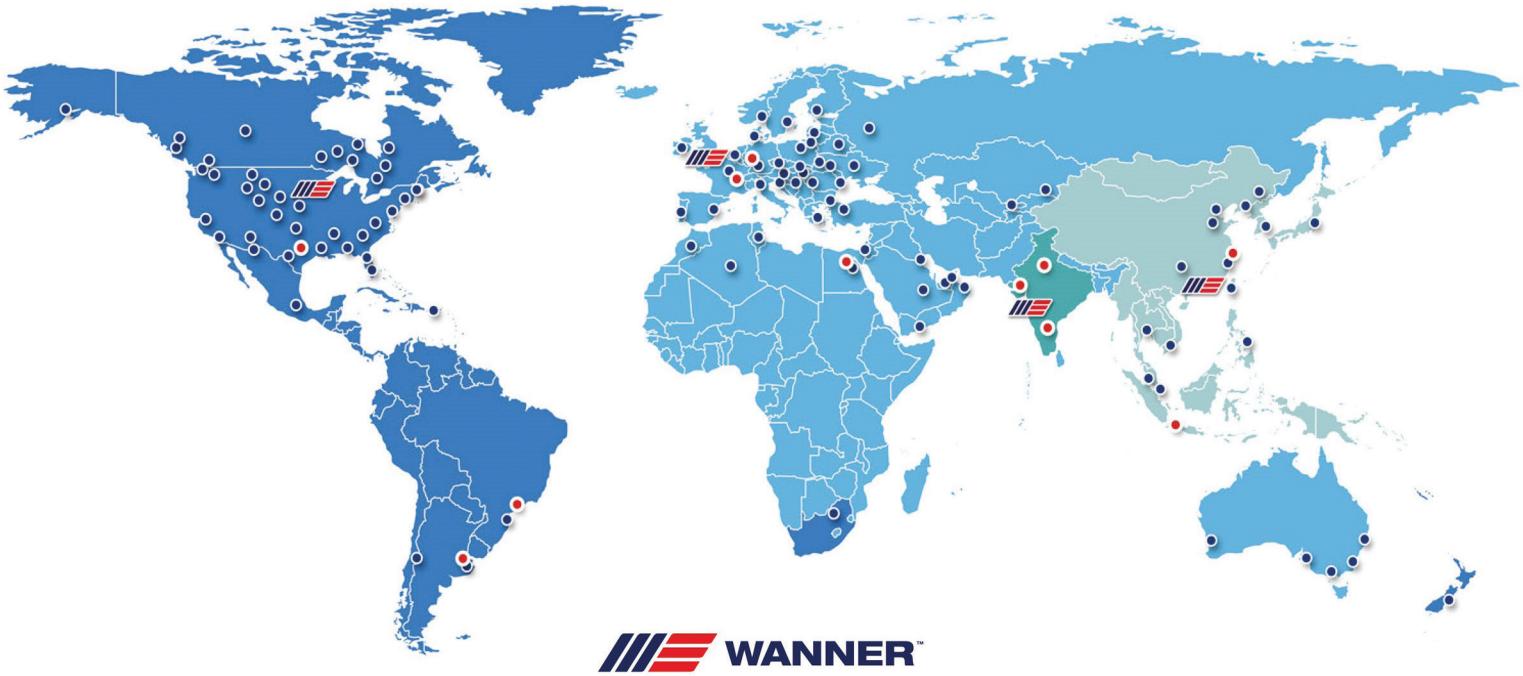

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