



**Capacity** to 300 GPM (70 M<sup>3</sup>/hr)

**Pressure** to 135 PSI (9.3 Bar)

**Viscosity** to 2,700 SSU (600 cPs)

**Temperature** to 380° F (195° C)



ULTRA HYGIENIC CENTRIFUGAL PUMPS  
TRA<sup>®</sup>400 Series

**wrightflow**  
TECHNOLOGIES

**IDEX**  
IDEX CORPORATION

# The TRA<sup>®</sup>400 Series



TRA<sup>®</sup>402 High Purity construction with patented true Zero Dead-Leg drain shown.



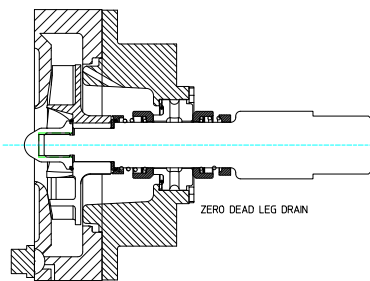
## Typical Applications

- ▶ **Pure Water Systems:** water for injection (WFI), RO, DI, USP, process water. Non-shear sensitive products requiring the highest hygienic control. Compendial water recirculation loops.
- ▶ **Ultra Hygienic:** food, beverage, dairy or other hygienic processes where the highest level of quality and supporting material documentation is required.

## Internal Flush and Drain Systems

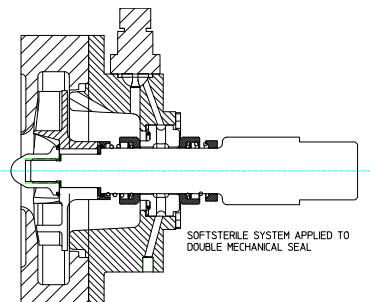
### Zero Dead-Leg Drain

The patented Zero Dead-Leg drain allows for total purging of the Wright CFP casing which eliminates product accumulation and reduces the possibility of contamination. Utilizing a diaphragm valve machined directly into the casing removes the need for auxiliary components and piping.



### Softsterile Internal Seal Flush

For high purity applications where double seals are required, the Softsterile<sup>™</sup> patented system eliminates all external flush piping loops with their multiple connections, gaskets, elbows, compression fittings and tubes – all of which can be sources of contamination, misalignment, gasket extrusion and damage.



The reliability of Wright Pump's TRA<sup>®</sup>400 series centrifugal design has been proven over many decades. Its robust design and high quality materials of construction make it the right choice for both high purity and ultra hygienic fluid transfer.

The Wright Pump TRA<sup>®</sup>400 series high purity centrifugal pump sets a new standard for ultra hygienic construction with patented innovations such as internal seal flushing and true ZERO DEAD-LEG casing drain, the TRA<sup>®</sup>400 series simplifies the qualification, operation and inspection process.

## Construction

- ▶ High purity centrifugal – wetted parts entirely machined from solid 316L forged bar and plate or other high quality alloys (includes extensive materials documentation).
- ▶ No castings – very low ferrite to reduce or eliminate rogue formation in high purity water systems.
- ▶ Stainless steel flange adapters (motor to pump connection) are standard – no painted steel or cast iron.
- ▶ Interior finishes standard at 25 RA (0.6 um) and available as low as 10 RA (0.3 um).
- ▶ Fully adjustable head orientation for installation flexibility.
- ▶ Seal options include single, double, internal or front pull-out cartridge seals in a choice of seal faces and elastomers. USP Class VI elastomers standard.
- ▶ Full material traceability and installation qualification (IQ) documentation.
- ▶ Exterior surfaces are machined or polished – no “as cast” surfaces.

# About the TRA<sup>®</sup>400 Series Ultra Hygienic Centrifugal Pump

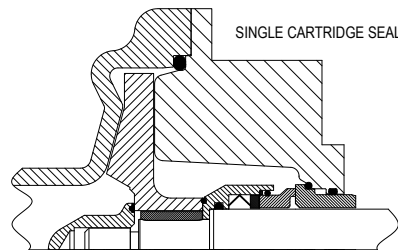
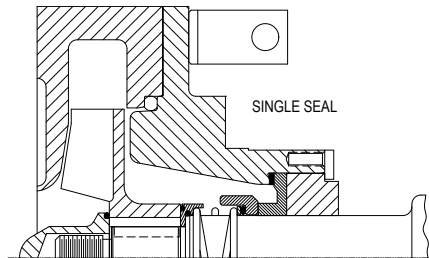
The Wright Pump TRA<sup>®</sup>400 series ultra hygienic centrifugal pump is machined from solid, forged 316L stainless steel or other high alloy bar and plate. While other centrifugal pump manufacturers "adapt" a standard cast hygienic pump normally used in dairy applications for biopharm, Wright Pump set out to produce the TRA<sup>®</sup>400 series pump that is FOCUSED on high purity applications.

Wright Pump has received patents on the innovative Softsterile TM seal flushing system as well as the only true ZERO DEAD-LEG casing drain. Each TRA<sup>®</sup>400 series pump comes with standard features such as stainless steel flange adapters, integral inlet/outlet in the housing, polished exterior surfaces, 25 RA (0.6 um) interior flush, USP Class VI elastomers, Silicon Carbide seals, and extensive installation qualification (IQ) supporting documentation, all fabricated in compliance with ASME-BPE standards.

## Shaft Sealing Options

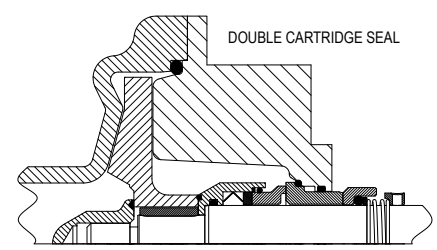
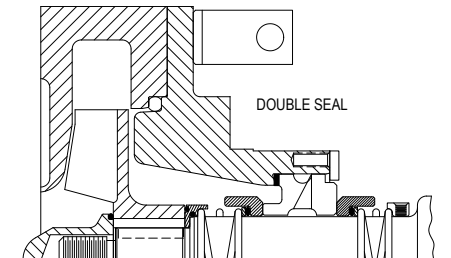
### Single Internal Mechanical Seal

- ▶ Choice of open spring or cartridge
- ▶ Standard seal faces of Silicon Carbide on both seal types
- ▶ Standard elastomers of USP Class VI
- ▶ Optional elastomers: EPDM, PTFE, FKM, Silicone, Viton<sup>®</sup>



### Double Internal Mechanical Seal

- ▶ Choice of open spring or cartridge
- ▶ Standard seal faces of Silicon Carbide on both seal types
- ▶ Standard elastomers of USP Class VI
- ▶ Optional elastomers: EPDM, PTFE, FKM, Silicone, Viton<sup>®</sup>



## Pump Flow Ratings

Model	1750 RPM Flow Range	Pressure Range	3500 RPM Flow Range	Pressure Range	1450 RPM Flow Range	Pressure Range	2900 RPM Flow Range	Pressure Range
TRA 451	2 to 50 GPM	4 to 6.5 PSI	12 to 120 GPM	19 to 29 PSI	1.7 to 41 GPM	3 to 4.5 PSI	10 to 100 GPM	13 to 20 PSI
	0.5 to 11.4 M <sup>3</sup> /Hr	0.3 to 0.5 BAR	2.7 to 27 M <sup>3</sup> /Hr	1.3 to 2 BAR	0.4 to 9.4 M <sup>3</sup> /Hr	0.2 to 0.3 BAR	2.3 to 23 M <sup>3</sup> /Hr	0.9 to 1.4 BAR
TRA 402	5 to 80 GPM	8 to 14 PSI	10 to 130 GPM	35 to 60 PSI	4 to 66 GPM	5.5 to 9.6 PSI	8.3 to 108 GPM	24 to 41 PSI
	1.1 to 18 M <sup>3</sup> /Hr	0.6 to 1 BAR	2.3 to 30 M <sup>3</sup> /Hr	2.4 to 4.1 BAR	0.9 to 15 M <sup>3</sup> /Hr	0.4 to 0.7 BAR	1.9 to 24.6 M <sup>3</sup> /Hr	1.7 to 2.8 BAR
TRA 452	13 to 160 GPM	11 to 17 PSI	30 to 300 GPM	49 to 73 PSI	11 to 133 GPM	7.6 to 12PSI	25 to 249 GPM	34 to 50 PSI
	2.9 to 36 M <sup>3</sup> /Hr	.8 to 1.2 BAR	6.8 to 68 M <sup>3</sup> /Hr	3.4 to 5 BAR	2.5 to 30.3M <sup>3</sup> /Hr	0.5 to 0.8 BAR	5.7 to 57 M <sup>3</sup> /Hr	2.3 to 3.5 BAR
TRA 405	8 to 100 GPM	22 to 28 PSI	17 to 180 GPM	85 to 113 PSI	6.6 to 83 GPM	15 to 19 PSI	14 to 149 GPM	58 to 78 PSI
	1.8 to 22.7 M <sup>3</sup> /Hr	1.5 to 1.9 BAR	3.9 to 41 M <sup>3</sup> /Hr	5.9 to 7.8 BAR	1.5 to 18.9 M <sup>3</sup> /Hr	1 to 1.3 BAR	3.2 to 34 M <sup>3</sup> /Hr	4 to 5.4 BAR
TRA 406	13 to 170 GPM	25 to 33 PSI	29 to 290 GPM	90 to 135 PSI	10.8 to 141 GPM	17.2 to 23 PSI	24 to 240 GPM	62 to 93 PSI
	2.9 to 38.6 M <sup>3</sup> /Hr	1.7 to 2.3 BAR	6.6 to 66 M <sup>3</sup> /Hr	6.2 to 9.3 BAR	2.5 to 32 M <sup>3</sup> /Hr	1.2 to 1.6 BAR	5.5 to 55 M <sup>3</sup> /Hr	4.3 to 6.4 BAR

# Wright TRA<sup>®</sup>500 Series Features & Benefits

## ◀ Standard Internal Features ▶

Integral inlet and outlet ports in the housing for back pull-out. Standard internal finish of 25 RA (0.6 um). USP CLASS VI elastomers, extensive Installation Qualification (IQ) supporting documentation.

## ◀ Fully Adjustable Discharge Orientation ▶

Fully adjustable flange adapter/pump head orientation for best fit and fine adjustment in hard to reach piping arrangements.

## ◀ Corrosion Resistant Flange Adapter ▶

Durable, stainless steel flange adapter eliminates the painted cast iron parts that can chip and rust, which may require regular maintenance.

## ◀ Shaft Lock Collar ▶

Simple shaft lock collar permits quick, easy installation while providing self-alignment, with no special tool requirements.

## ◀ Product Integrity ▶

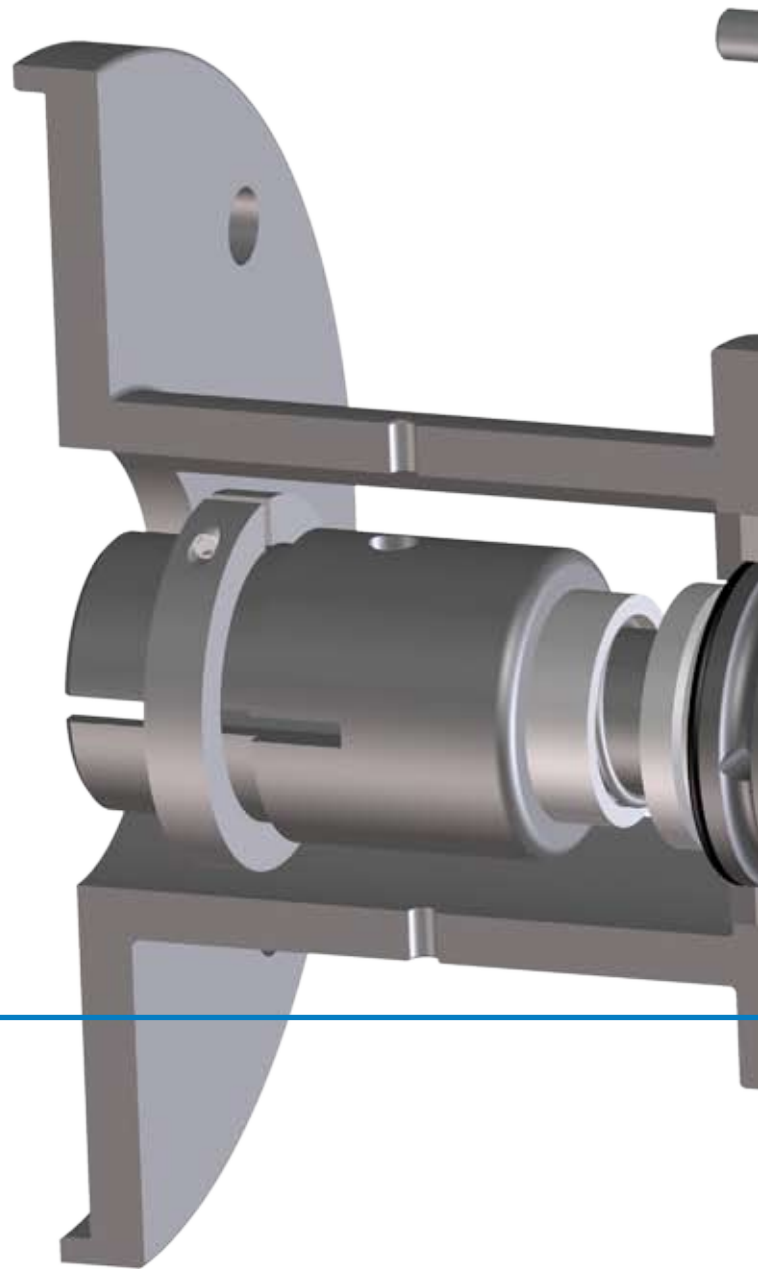
The TRA<sup>®</sup>400 Series is CIP-able and SIP-able. Its impeller is designed for gentle handling of shear sensitive products. Impellers are dynamically balanced to ISO 1940/1 standards. Machined from solid, forged bar and plate 316L stainless steel or other high quality alloys for very low ferrite content that may contribute to rouging in high purity water systems.

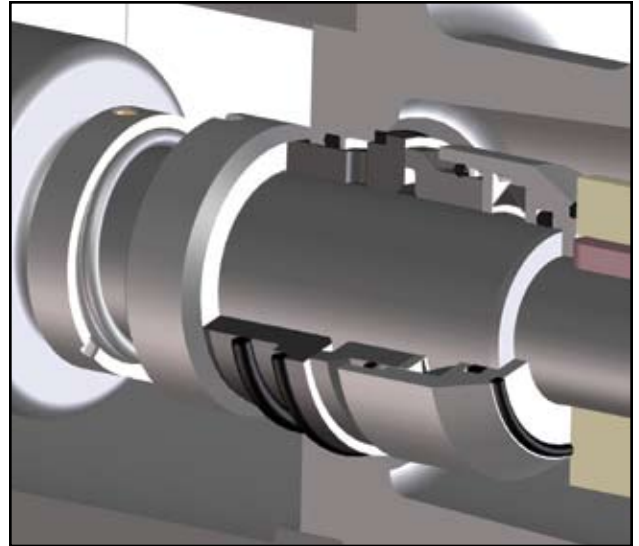
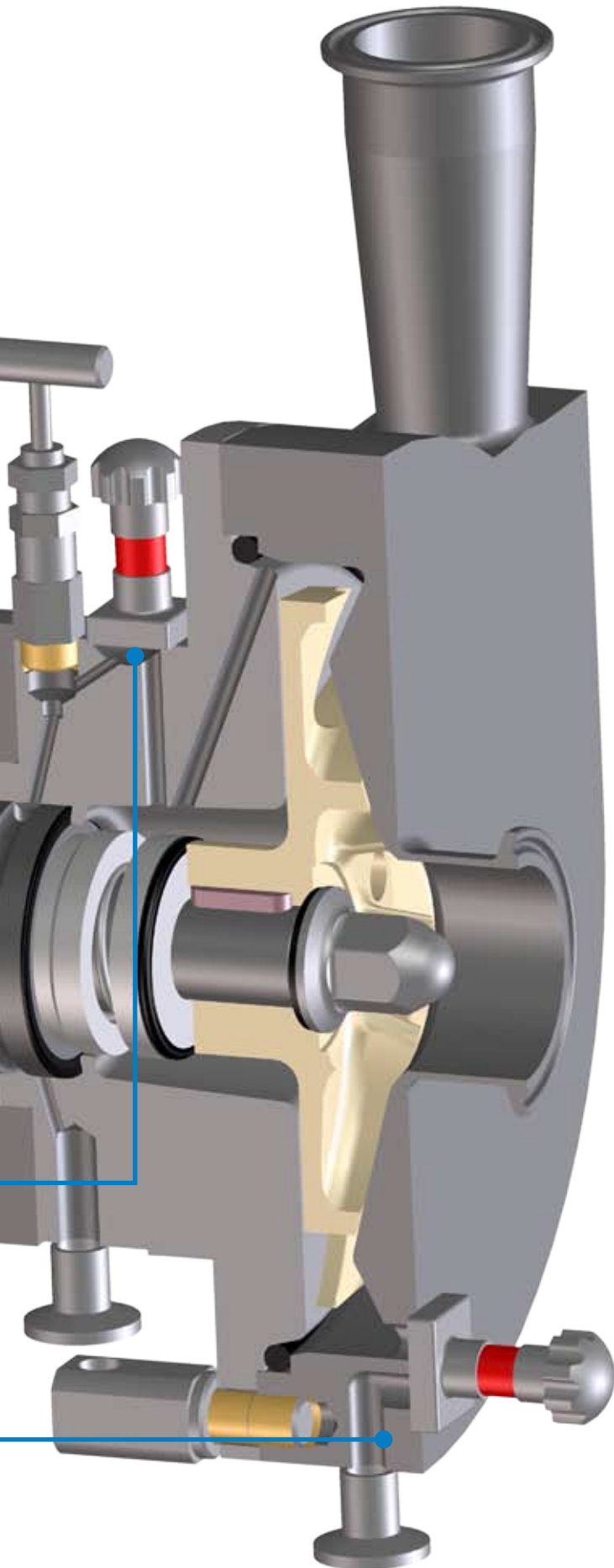
## ◀ Seal Flush Innovations ▶

Patented Softsterile internal seal flushing system eliminates all external flush piping. Allows for simple adjustment of flush water on double seals of 1-2 GPH (4-8 LPH) at a low 5 PSI (0.3 BAR). For single seal operation, a simple front flush port is provided.

## ◀ Exclusive Casing Drain ▶

Patented Zero Dead-Leg casing drain eliminates all zero static liquid to prevent contamination build-up.





For global application capabilities, the TRA<sup>®</sup>400 series' front-pull out seal design simplifies inventory needs and maintenance with its in-line serviceability, which eliminates the need for pump removal from the system, saving time and effort. Front-pull out seal meets all applicable EHEDG and 3-A requirements.

#### ◀ Polished Exterior Surfaces ▶

Exterior pump surfaces are polished, no "as cast" pump exterior surfaces provide the ultimate in easy-to-clean appearance.

#### ◀ Reduced Maintenance Inventory ▶

Two sizes of mechanical seals fit the entire line, with one size fitting the TRA<sup>®</sup>400 series models through 30 HP (22 Kw). The series also provides full wear and spare part interchangeability of seals, gaskets, impeller nuts, impellers, and much more - reducing maintenance inventory.

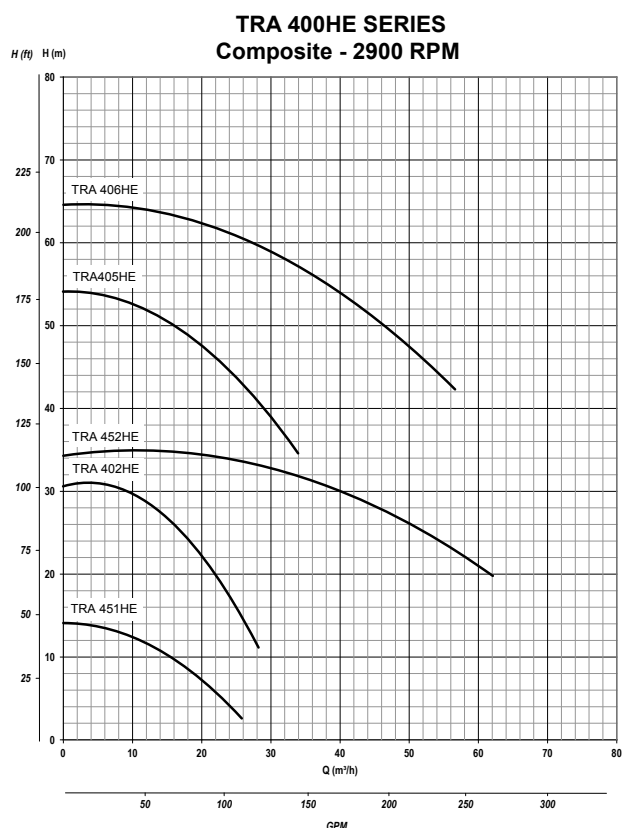
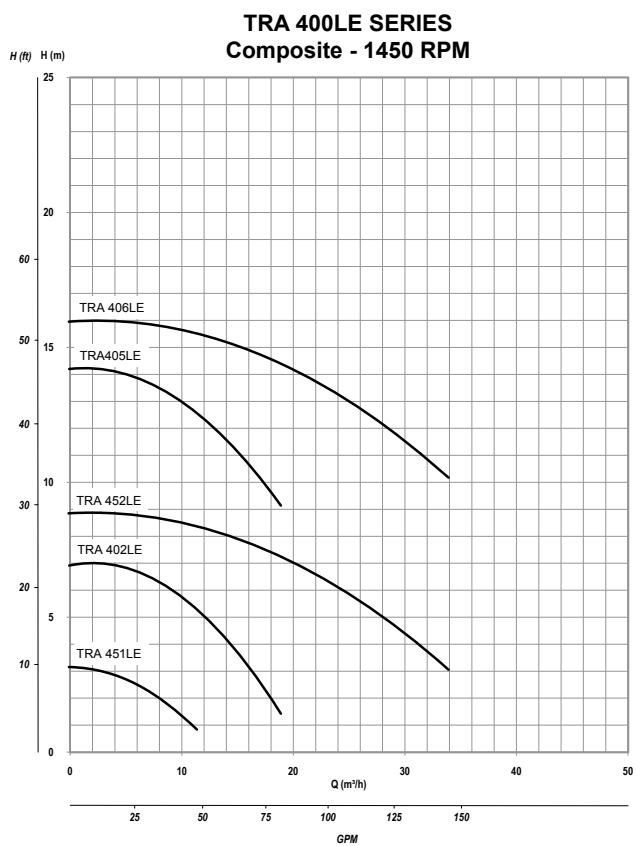
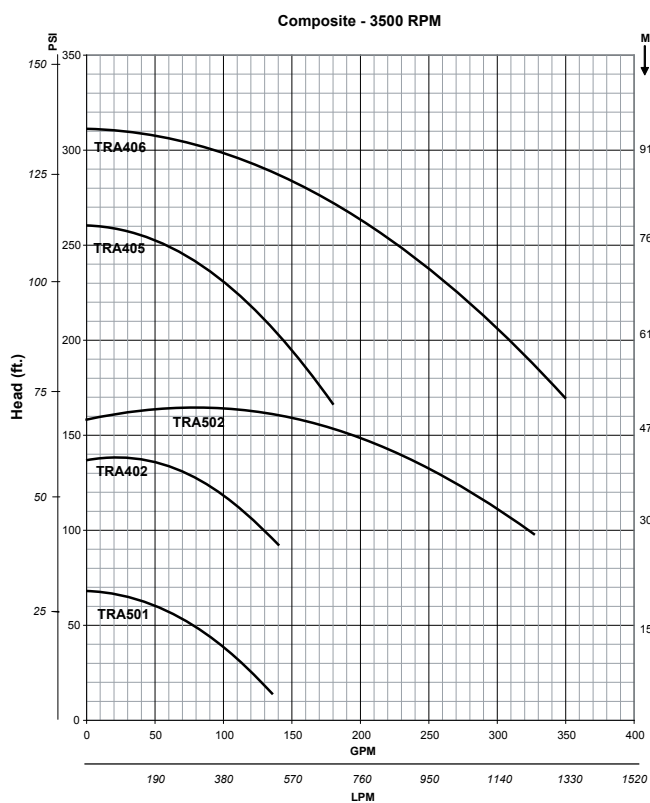
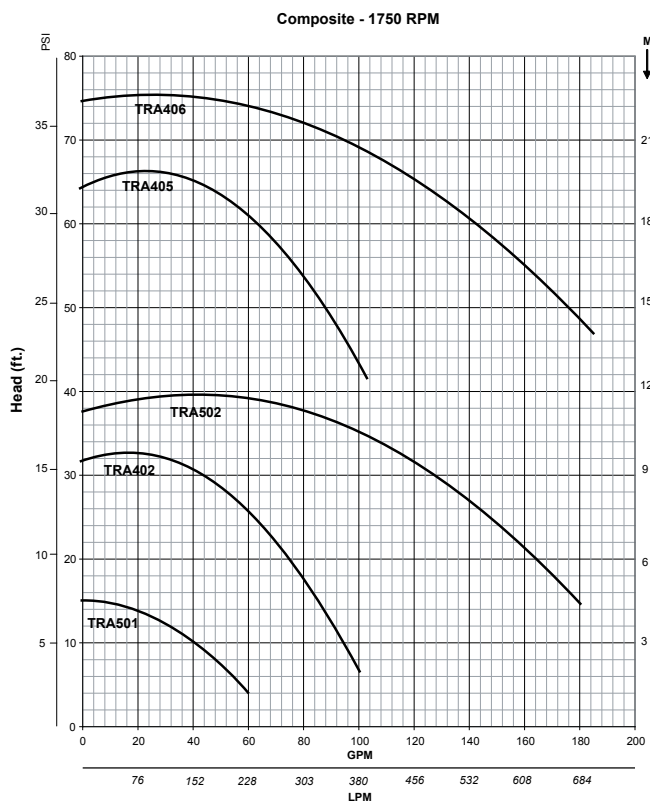
#### ◀ Exceptionally Low NPSH ▶

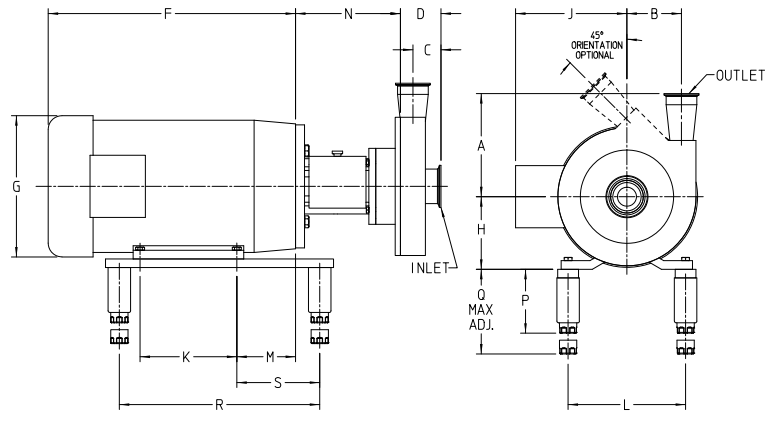
Very small clearances affords low NPSH, ideal for vacuum, liquids with slight viscosity, high temperatures or low NPSHA conditions.

#### ◀ Customized Sealing Options ▶

Standard universal open spring design or cartridge. Tailored sealing solutions available for virtually every liquid and application. Changing from single- to double-mechanical seal is simple and does not require optional shafts or flange adapters to be purchased.

# Performance Curves





PUMP DIMENSIONS ARE FOR REFERENCE ONLY

## Dimensions: Pump

Model	Dimensions	Impeller Diameter	Inlet	Outlet	A	B	C	D
TRA®451	Inches	4.10	2.00	1.50	1.94	2.87	2.63	4.25
	cm	10.40	50 mm	40 mm	4.93	7.28	6.68	10.79
TRA®402	Inches	5.70	2.00	1.50	2.06	2.63	3.13	7.25
	cm	14.50	50 mm	40 mm	5.23	6.68	7.95	18.42
TRA®452	Inches	6.20	2.50	2.00	2.20	3.00	3.50	5.06
	cm	15.70	65 mm	50 mm	5.58	7.62	8.89	12.85
TRA®405	Inches	8.00	2.50	2.00	2.45	2.94	3.75	7.63
	cm	20.30	65 mm	50 mm	6.23	7.47	9.53	19.38
TRA®406	Inches	8.00	2.50	2.00	2.45	3.50	3.75	7.63
	cm	20.30	65 mm	50 mm	6.23	8.89	9.53	19.38

## Dimensions: Motor

MOTOR HP												
1750 RPM	3500 RPM	MOTOR FRAME	F in (mm)	G in (mm)	H in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)	N in (mm)	P (MIN) in (mm)	Q (ADJ.) in (mm)
0.5	0.5	56C	9.31 (237)	6.88 (175)	3.50 (89)	5.00 (127)	3.00 (76)	4.88 (124)	2.75 (70)	6.38 (162)	4.63 (118)	to 6.13 (156)
0.75	0.75	56C	9.31 (237)	6.88 (175)	3.50 (89)	5.00 (127)	3.00 (76)	4.88 (124)	2.75 (70)	6.38 (162)	4.63 (118)	to 6.13 (156)
1.0	1.0	56C	9.31 (237)	6.88 (175)	3.50 (89)	5.00 (127)	3.00 (76)	4.88 (124)	2.75 (70)	6.38 (162)	4.63 (118)	to 6.13 (156)
N/A	1.5	56C	9.31 (237)	6.88 (175)	3.50 (89)	5.00 (127)	3.00 (76)	4.88 (124)	2.75 (70)	6.38 (162)	4.63 (118)	to 6.13 (156)
1.5	N/A	145TC	11.25 (286)	7.19 (183)	3.50 (89)	5.25 (133)	5.00 (127)	5.50 (140)	2.25 (57)	6.38 (162)	4.63 (118)	to 6.13 (156)
2.0	2.0	145TC	11.25 (286)	7.19 (183)	3.50 (89)	5.25 (133)	5.00 (127)	5.50 (140)	2.25 (57)	6.38 (162)	4.63 (118)	to 6.13 (156)
N/A	3.0	145TC	11.25 (286)	7.19 (183)	3.50 (89)	5.25 (133)	5.00 (127)	5.50 (140)	2.25 (57)	6.38 (162)	4.63 (118)	to 6.13 (156)
3.0	N/A	182TC	12.31 (313)	8.50 (216)	4.50 (114)	5.88 (149)	4.50 (114)	7.50 (191)	2.75 (70)	7.69 (195)	4.63 (118)	to 6.13 (156)
5.0	5.0	184TC	12.31 (313)	8.50 (216)	4.50 (114)	5.88 (149)	5.50 (140)	7.50 (191)	2.75 (70)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	7.5	184TC	15.19 (386)	8.50 (216)	4.50 (114)	5.88 (149)	5.50 (140)	7.50 (191)	2.75 (70)	7.69 (195)	4.63 (118)	to 6.13 (156)
7.5	7.5	213TC	12.31 (313)	10.19 (259)	5.25 (133)	7.38 (187)	5.50 (140)	8.50 (216)	3.50 (89)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	10.0	215TC	12.31 (313)	10.19 (259)	5.25 (133)	7.38 (187)	7.00 (178)	8.50 (216)	3.50 (89)	7.69 (195)	4.63 (118)	to 6.13 (156)
10.0	15.0	215TC	16.06 (408)	10.19 (259)	5.25 (133)	7.38 (187)	7.00 (178)	8.50 (216)	3.50 (89)	7.69 (195)	4.63 (118)	to 6.13 (156)
15.0	N/A	254TC	19.75 (502)	13.25 (337)	6.25 (159)	9.63 (245)	8.30 (210)	10.00 (254)	4.25 (108)	7.69 (195)	4.63 (118)	to 6.13 (156)
20.0	20.0	256TC	19.75 (502)	13.25 (337)	6.25 (159)	9.63 (245)	10.00 (254)	10.00 (254)	4.25 (108)	7.69 (195)	4.63 (118)	to 6.13 (156)
25.0	N/A	284TC	23.00 (584)	14.19 (360)	7.00 (178)	13.13 (333)	9.50 (241)	11.00 (279)	4.75 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	25.0	284TSC	23.00 (584)	14.19 (360)	7.00 (178)	13.13 (333)	9.50 (241)	11.00 (279)	4.75 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
30.0	N/A	286TC	23.00 (584)	14.19 (360)	7.00 (178)	13.13 (333)	11.00 (279)	11.00 (279)	4.75 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	30.0	286TSC	23.00 (584)	14.19 (360)	7.00 (178)	13.13 (333)	11.00 (279)	11.00 (279)	4.75 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
40.0	N/A	324TC	25.00 (635)	16.13 (410)	8.00 (203)	17.13 (359)	10.50 (267)	12.50 (318)	5.25 (133)	8.50 (216)	4.63 (118)	to 6.13 (156)
N/A	40.0	324TSC	25.00 (635)	16.13 (410)	8.00 (203)	17.13 (359)	10.50 (267)	12.50 (318)	5.25 (133)	8.50 (216)	4.63 (118)	to 6.13 (156)
50.0	N/A	326TC	25.00 (635)	16.13 (410)	8.00 (203)	17.13 (359)	12.00 (305)	12.50 (318)	5.25 (133)	8.50 (216)	4.63 (118)	to 6.13 (156)
N/A	50	326TSC	25.00 (635)	16.13 (410)	8.00 (203)	17.13 (359)	12.00 (305)	12.50 (318)	5.25 (133)	8.50 (216)	4.63 (118)	to 6.13 (156)

### NOTE:

Motor dimensions may vary by manufacturer.

Pump dimensions are based on clamp fittings. Consult factory for other fitting options.

Dimensions are based on comparisons between IEC and NEMA standards.

# Dimensions: Motor (Cont'd)

MOTOR KW		MOTOR FRAME	F in (mm)	G in (mm)	H in (mm)	J in (mm)	K in (mm)	L in (mm)	M in (mm)	N in (mm)	P (MIN) in (mm)	Q (ADJ.) in (mm)
1450 RPM	2900 RPM											
0.37	0.37	80	8.46 (215)	6.69 (170)	3.15 (80)	4.510 (116)	3.937 (100)	4.921 (125)	1.969 (50)	6.38 (162)	4.63 (118)	to 6.13 (156)
0.55	0.55	80	8.46 (215)	6.69 (170)	3.15 (80)	4.510 (116)	3.937 (100)	4.921 (125)	2.969 (50)	6.38 (162)	4.63 (118)	to 6.13 (156)
0.75	0.75	80	8.46 (215)	6.69 (170)	3.15 (80)	4.510 (116)	3.937 (100)	4.921 (125)	2.969 (50)	6.38 (162)	4.63 (118)	to 6.13 (156)
N/A	1.1	80	8.46 (215)	6.69 (170)	3.15 (80)	4.510 (116)	3.937 (100)	4.921 (125)	2.969 (50)	6.38 (162)	4.63 (118)	to 6.13 (156)
1.1	N/A	90L	9.65 (245)	7.48 (190)	3.543 (90)	5.120 (130)	9.37 (100) / 4.92 (125)	5.511 (140)	2.205 (56)	6.38 (162)	4.63 (118)	to 6.13 (156)
1.5	1.5	90L	9.65 (245)	7.48 (190)	3.543 (90)	5.120 (130)	9.37 (100) / 4.92 (125)	5.511 (140)	2.205 (56)	6.38 (162)	4.63 (118)	to 6.13 (156)
N/A	2.2	90L	9.65 (245)	7.48 (190)	3.543 (90)	5.120 (130)	9.37 (100) / 4.92 (125)	5.511 (140)	2.205 (56)	6.38 (162)	4.63 (118)	to 6.13 (156)
2.2	N/A	112S	12.4 (315)	9.25 (235)	4.409 (112)	5.875 (149)	4.49 (114) / 5.51 (140)	7.48 (190)	2.760 (70)	7.69 (195)	4.63 (118)	to 6.13 (156)
3.7	3.7	112M	13.15 (334)	9.25 (235)	4.409 (112)	5.875 (149)	4.49 (114) / 5.51 (140)	7.48 (190)	2.760 (70)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	5.5	112M	13.15 (334)	9.25 (235)	4.409 (112)	5.875 (149)	4.49 (114) / 5.51 (140)	7.48 (190)	2.760 (70)	7.69 (195)	4.63 (118)	to 6.13 (156)
5.5	5.5	132S	13.78 (350)	9.25 (235)	5.197 (132)	7.375 (187)	5.51 (140) / 7.01 (178)	8.504 (216)	3.504 (89)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	7.5	132M	15.24 (387)	11.02 (280)	5.197 (132)	7.375 (187)	5.51 (140) / 7.01 (178)	8.504 (216)	3.504 (89)	7.69 (195)	4.63 (118)	to 6.13 (156)
7.5	11	132M	15.24 (387)	11.02 (280)	5.197 (132)	7.375 (187)	5.51 (140) / 7.01 (178)	8.504 (216)	3.504 (89)	7.69 (195)	4.63 (118)	to 6.13 (156)
11	N/A	160M	19.49 (495)	12.44 (316)	6.299 (160)	9.510 (242)	8.27 (210) / 10 (254)	10 (254)	4.252 (108)	7.69 (195)	4.63 (118)	to 6.13 (156)
15	15	160L	19.49 (495)	12.44 (316)	6.299 (160)	9.510 (242)	8.27 (210) / 10 (254)	10 (254)	4.252 (108)	7.69 (195)	4.63 (118)	to 6.13 (156)
18.5	N/A	180M	19.49 (495)	12.44 (316)	7.087 (180)	13.120 (333)	9.49 (241) / 10.98 (279)	10.984 (279)	4.764 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	18.5	180M	19.49 (495)	12.44 (316)	7.087 (180)	13.120 (333)	9.49 (241) / 10.98 (279)	10.984 (279)	4.764 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
22	N/A	180L	23.34 (593)	13.78 (350)	7.087 (180)	13.120 (333)	9.49 (241) / 10.98 (279)	10.984 (279)	4.764 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
N/A	22	180L	23.34 (593)	13.78 (350)	7.087 (180)	13.120 (333)	9.49 (241) / 10.98 (279)	10.984 (279)	4.764 (121)	7.69 (195)	4.63 (118)	to 6.13 (156)
30	N/A	200M	23.58 (599)	15.35 (390)	7.874 (200)	14.125 (359)	10.51 (267) / 12 (305)	12.520 (318)	5.236 (133)	**	4.63 (118)	to 6.13 (156)
N/A	30	200M	23.58 (599)	15.35 (390)	7.874 (200)	14.125 (359)	10.51 (267) / 12 (305)	12.520 (318)	5.236 (133)	**	4.63 (118)	to 6.13 (156)
37	N/A	200L	24.45 (621)	15.35 (390)	7.874 (200)	14.125 (359)	10.51 (267) / 12 (305)	12.520 (318)	5.236 (133)	**	4.63 (118)	to 6.13 (156)
N/A	37	200L	24.45 (621)	15.35 (390)	7.874 (200)	14.125 (359)	10.51 (267) / 12 (305)	12.520 (318)	5.236 (133)	**	4.63 (118)	to 6.13 (156)

**NOTE:**

\*\* Contact factory.

Motor dimensions may vary by manufacturer.

Pump dimensions are based on clamp fittings. Consult factory for other fitting options.

Dimensions are based on comparisons between IEC and NEMA standards.

## Sanitary Pumps, Parts, Remanufacturing & Accessories

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