

TECHNAFLO

D & T SERIES PUMPS

ENGINEERING DATA PACK



IR Ingersoll Rand®

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WARNING

The magnets in magnetically coupled pumps create very strong magnetic fields. Special care must be taken with the following:

- **Pacemakers** - Magnets can upset the timing of pacemakers. These magnets should be kept away from all pacemakers. Because of the health risks involved the importance of this cannot be overstated.
- **Credit Cards** - Magnets can scramble the information on a credit card's magnetic tape.
- **Computers, Computer Tapes, and Computer Disks** - Magnets can scramble the information on the memory device.
- **Watches** - Magnets can affect the workings of traditional mechanical spring-driven watches as well as chip and electronically controlled designs.
- **Electronic Instruments** - Sensitive electronic instruments and devices may change calibration or be damaged by a powerful magnetic field.
- **Explosive Atmosphere** - Rare earth magnets and magnetic materials may create sparks through contact in handling. Never handle rare earth magnets in explosive atmospheres because sparking may ignite the atmosphere.
- Do not place hand or fingers between the housing and adapter. The magnets are extremely strong and will attract all metallic objects and can be the source of pinch points. Do not wear watches or other metallic jewelry when working with magnets.

D SERIES MODEL NUMBER SYSTEM

POSITIONS	SERIES	MAGNET TORQUE	MATERIALS OF CONSTRUCTION	DISPLACEMENT mL/REV			GEAR & BEARING MATERIAL			O-RING	PORT SIZE	MAGNET	BYPASS	MOTOR & DRIVE	OPEN	OPERATING TEMPERATURE	OPEN	
	D	G	S	.	6	8	P	P	P	T	1	N	M	9	7	0	0	0
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

POS. 1 - PUMP SERIES

D = 1.67" Diameter Metal Pump

POS. 2 - MAGNET TORQUE

B* = 30 oz/in

G = 65 oz/in

X = 240 oz/in

*Not available for 1.2, 1.3, 1.6, 2.0, or 2.3

POS. 3 - MATERIALS OF CONSTRUCTION

S = 316 Stainless Steel

H = Hastelloy C276

T = Titanium

POS. 4, 5, & 6 - DISPLACEMENT mL/REV

.11 = Nominal 6 GPH at 3500 RPM

.19 = Nominal 10 GPH at 3500 RPM

.23 = Nominal 12 GPH at 3500 RPM

.38 = Nominal 20 GPH at 3500 RPM

.57 = Nominal 30 GPH at 3500 RPM

.68 = Nominal 36 GPH at 3500 RPM

.80 = Nominal 42 GPH at 3500 RPM

.99 = Nominal 52 GPH at 3500 RPM

1.2 = Nominal 63 GPH at 3500 RPM

1.3 = Nominal 68 GPH at 3500 RPM

1.6 = Nominal 84 GPH at 3500 RPM

2.0 = Nominal 105 GPH at 3500 RPM

2.3 = Nominal 121 GPH at 3500 RPM

POS. 7, 8, & 9 - GEAR & BEARING MATERIAL

PPP = PPS (Polyphenylene Sulfide)

EEE = PEEK (Polyetheretherketone)

TTT* = PTFE

* Available in .23, .38, .57, .68, .80, 1.2, and 1.6 only.

Requires PTFE O-rings and welded magnet.

Maximum Differential Pressure = 100 PSI

POS. 10 - O-RING

V = Viton

T = PTFE

E = EPR

POS. 11 - PORT SIZE

1* = 1/8" NPT

2 = 1/4" NPT

*Not available for .99, 1.2, 1.3, 1.6, 2.0, or 2.3 sizes. Not available in Hastelloy or Titanium

POS. 12 - MAGNET

N = PPS or PEEK Encapsulated
(Material based on Pos. 7, 8, & 9)

W = Welded
(Required for PTFE gears, Hastelloy, Titanium pumps. Welded not available in B size magnet)

POS. 13 - BYPASS

N = None

M = Medium 60 PSI (Standard)

L = Low Pressure 30 PSI (Low Pressure not available in .99 to 2.3 sizes)

H = High Pressure 130 PSI (High Pressure not available in .99 to 2.3 sizes)

Bypass is not available in Hastelloy or Titanium

POS. 14 & 15 - MOTOR & DRIVE

00 = Pump Only

POS. 16 - OPEN

0 = Open

POS. 17 - OPERATING TEMPERATURES

PTFE = 140°F (60°C)

PPS = 250°F (121°C) Polyphenylene Sulfide

PEEK = 350°F (176°C) Polyetheretherketone

Note: Temperatures greater than 140°F (60°C) may reduce flow/pressure. These are approximate gear & bearing maximum temperature limits

POS. 18 - OPEN

0 = Open

SERVICE PACK OPTION

Add "SP" in front of the model number, followed by positions 1-10, 16, 17, & 18 of pump model

Note: SPDB, SPDG, & SPDX default to SPDD (Example - SPDDS1.2PPPT000)

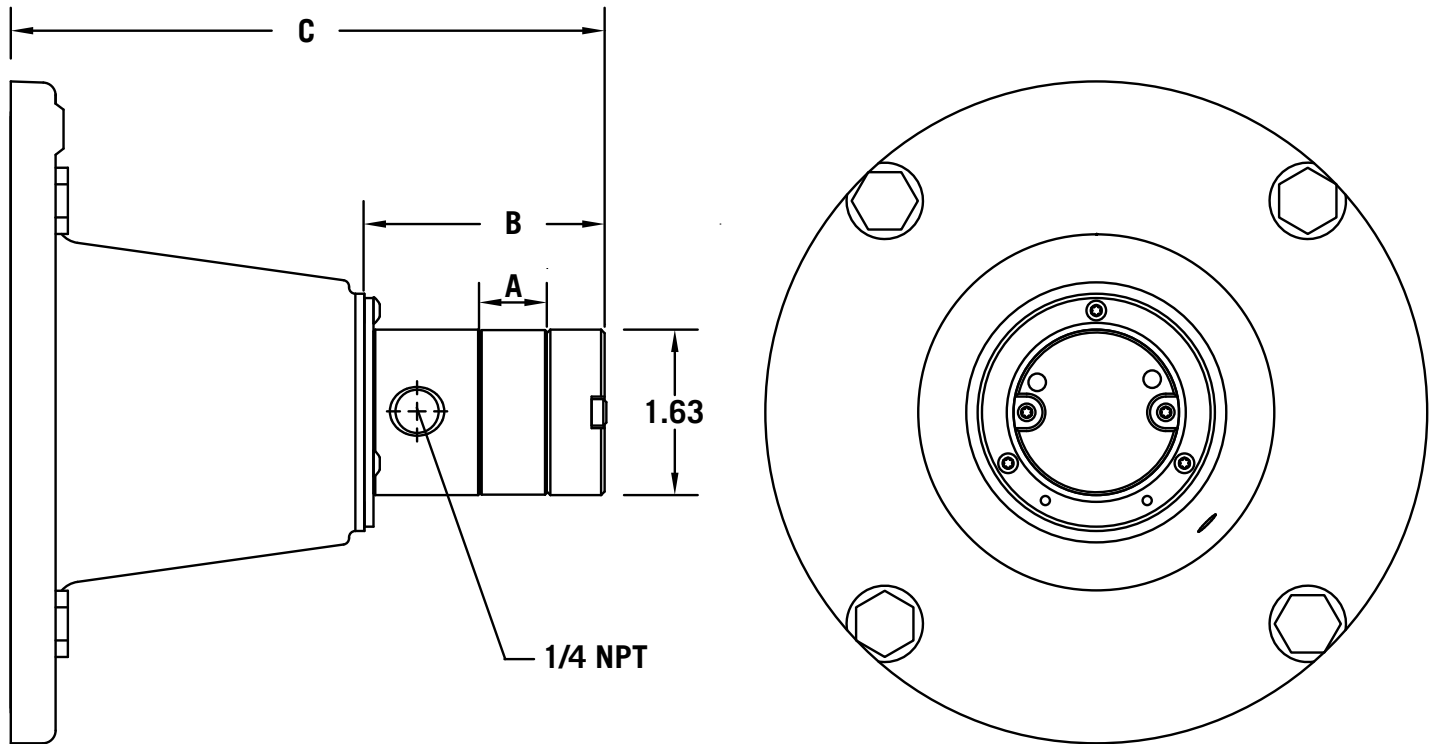
Service Pack Contains:

- Gears
- Bearings
- O-Rings
- Lubricant
- Instruction Sheet

D SERIES PUMP MOUNTING DIMENSIONS

All measurements are in inches [millimeters].

Displacement .11 to 2.3



D SERIES DISPLACEMENTS .11 TO 2.3

DISPLACEMENT	DIMENSION A	DIMENSION B	DIMENSION C
.11 & .19	0.125" [3.2mm]	1.83" [46.4mm]	5.30" [134.6mm]
.23 & .38	0.250" [6.4mm]	1.95" [49.5mm]	5.42" [137.7mm]
.57	0.375" [9.5mm]	2.07" [52.7mm]	5.54" [140.7mm]
.68 & .80	0.450" [11.4mm]	2.15" [54.7mm]	5.62" [142.7mm]
.99 & 1.2	0.657" [16.7mm]	2.36" [59.9mm]	5.83" [148.1mm]
1.3	0.750" [19.0mm]	2.45" [62.3mm]	5.92" [150.4mm]
1.6 & 2.0	0.900" [22.9mm]	2.60" [66.0mm]	6.07" [154.2mm]
2.3	1.000" [25.4mm]	2.70" [68.6mm]	6.17" [156.7mm]

NOTE: In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.

T SERIES MODEL NUMBER SYSTEM

POSITIONS	SERIES	MAGNET TORQUE	MATERIALS OF CONSTRUCTION	DISPLACEMENT mL/REV			GEAR & BEARING MATERIAL			O-RING	PORT SIZE	MAGNET	BYPASS	MOTOR & DRIVE	OPEN	OPERATING TEMPERATURE	OPEN
	T	X	S	5	-	3	P	P	P	T	3	N	N	A	2	0	0
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

POS. 1 - PUMP SERIES

T = 3" Diameter Metal Pump

POS. 2 - MAGNET TORQUE

X = 240 oz/in
(Required for 2.6, 5.3, and 7.9 sizes)

W = 460 oz/in
(Required for 8.0 and 12. sizes)

POS. 3 - MATERIALS OF CONSTRUCTION (WETTED)

S = 316 Stainless Steel
H = Hastelloy C276
T = Titanium

POS. 4, 5, & 6 - DISPLACEMENT mL/REV

2.6 = Nominal 137 GPH at 3500 RPM
5.3 = Nominal 279 GPH at 3500 RPM
7.9 = Nominal 416 GPH at 3500 RPM
8.0 = Nominal 421 GPH at 3500 RPM
12. = Nominal 650 GPH at 3500 RPM

POS. 7, 8, & 9 - GEAR & BEARING MATERIAL

PPP = PPS (Polyphenylene Sulfide)
EEE = PEEK (Polyetheretherketone)

POS. 10 - O-RING

V = Viton
T = PTFE
E = EPR

POS. 11 - PORT SIZE

3 = 3/8" NPT
(Required for 2.6, 5.3, and 7.9 sizes)

7 = 3/4" NPT Suction, 1/2" NPT on Discharge
(Required for 8.0 and 12. sizes)

POS. 12 - MAGNET

N = PPS or PEEK Encapsulated
(Material based on Pos. 7, 8, & 9)

W = Welded
(Required for Hastelloy or Titanium pumps.
Not available for Stainless)

POS. 13 - BYPASS

N = Not available

POS. 14 & 15 - MOTOR & DRIVE

00 = Pump Only

POS. 16 - OPEN

0 = Open

POS. 17 - OPERATING TEMPERATURES

PPS = 250°F (121°C) Polyphenylene Sulfide
PEEK = 350°F (176°C) Polyetheretherketone

Note: Temperatures greater than 140°F (60°C) may reduce flow/pressure. These are approximate gear & bearing maximum temperature limits

POS. 18 - OPEN

0 = Open

SERVICE PACK OPTION

Add "SP" in front of the model number, followed by positions 1-10, 16, 17, & 18 of pump model

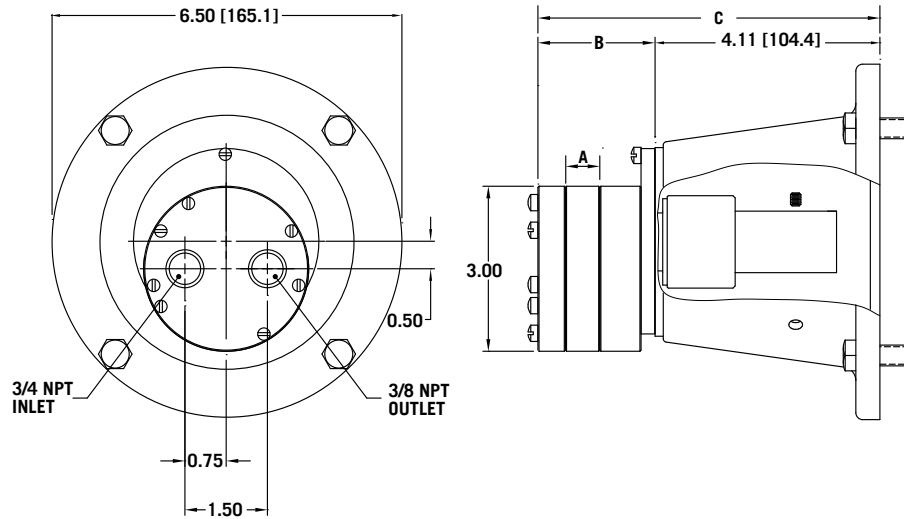
Service Pack Contains:

- Gears
- Bearings
- O-Rings
- Lubricant
- Instruction Sheet

T SERIES PUMP MOUNTING DIMENSIONS

All measurements are in inches [millimeters].

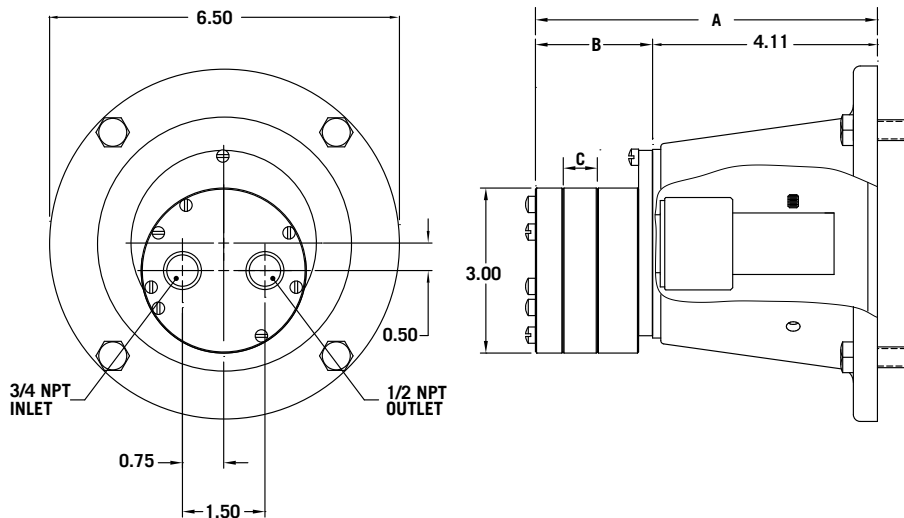
Displacement 2.6 to 7.9



T SERIES DISPLACEMENTS 2.6 TO 7.9

DISPLACEMENT	DIMENSION A	DIMENSION B	DIMENSION C
2.6	0.313" [7.95mm]	1.82" [46.2mm]	5.93" [150.6mm]
5.3	0.625" [15.8mm]	2.12" [53.8mm]	6.24" [158.5mm]
7.9	0.938" [23.8mm]	2.43" [61.8mm]	6.55" [166.4mm]

Displacement 8.0 to 12.



T SERIES DISPLACEMENTS 8.0 TO 12.

DISPLACEMENT	DIMENSION A	DIMENSION B	DIMENSION C
8.0	7.00" [177.8mm]	2.65" [59.7mm]	0.625" [15.9mm]
12.	7.32" [185.9mm]	3.21" [81.4mm]	0.938" [23.8mm]

NOTE: In conjunction with our program of continuous testing and design upgrading, all specifications are subject to change without notice. All data is approximate. Request a quotation for your specific application.

D SERIES PUMP PERFORMANCE DATA

SIZE (mL/rev)	GPH @ 0 PSI and 3500 RPM	LPH @ 0 PSI and 3500 RPM	MAX DIFFERENTIAL PRESSURE PSI (BAR)
.11	6 GPH	22 LPH	150 PSI (10.3 BAR)
.19	10 GPH	38 LPH	150 PSI (10.3 BAR)
.23	12 GPH	46 LPH	250 PSI (17.2 BAR)
.38	20 GPH	76 LPH	250 PSI (17.2 BAR)
.57	30 GPH	114 LPH	250 PSI (17.2 BAR)
.68	36 GPH	136 LPH	250 PSI (17.2 BAR)
.80	42 GPH	160 LPH	250 PSI (17.2 BAR)
.99	52 GPH	198 LPH	200 PSI (13.8 BAR)
1.2	63 GPH	239 LPH	200 PSI (13.8 BAR)
1.3	69 GPH	259 LPH	175 PSI (12.1 BAR)
1.6	84 GPH	319 LPH	150 PSI (10.3 BAR)
2.0	105 GPH	399 LPH	150 PSI (10.3 BAR)
2.3	121 GPH	459 LPH	150 PSI (10.3 BAR)

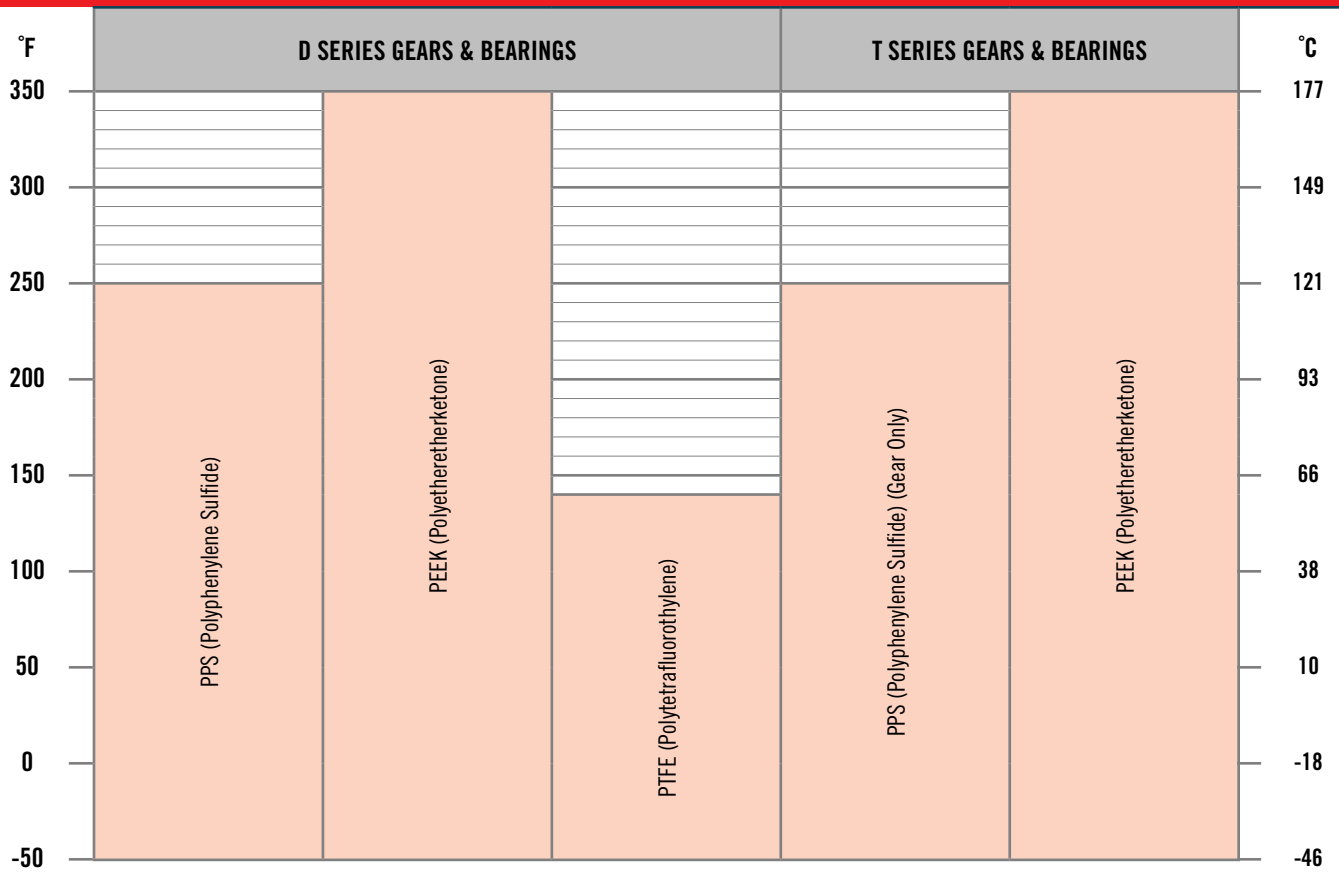
NOTE: Maximum system pressure is 500 PSI (34.5 BAR) and viscosity range is 0.3 - 2000 cPs without speed reduction.

T SERIES PUMP PERFORMANCE DATA

SIZE (mL/rev)	GPH @ 0 PSI and 3500 RPM	LPH @ 0 PSI and 3500 RPM	MAX DIFFERENTIAL PRESSURE PSI (BAR)
2.6	137 GPH	518 LPH	250 PSI (17.2 BAR)
5.3	279 GPH	1056 LPH	145 PSI (10 BAR)
7.9	416 GPH	1575 LPH	95 PSI (6.6 BAR)
8.0	421 GPH	1593 LPH	150 PSI (10.3 BAR)
12.	650 GPH	2460 LPH	120 PSI (8.3 BAR)

NOTE: Maximum system pressure is 500 PSI (34.5 BAR) and viscosity range is 0.3 - 2000 cPs without speed reduction.

D & T SERIES TEMPERATURE LIMITS



TEMPERATURE EFFECT ON MAGNET TORQUE

TEMPERATURE		TORQUE		MAGNET TORQUE							
°C	°F	PERCENT		OUNCE INCH				MILLINEWTON METER			
B, G, X, & W		B & G	X & W	B	G	X	W	B	G	X	W
22	72	100%	100%	30.0	65.0	240.0	460.0	211.8	459.0	1694.8	3248.3
30	86	98%	99%	29.4	63.7	238.1	456.4	207.6	449.8	1681.4	3222.9
40	104	96%	98%	28.7	62.1	235.8	452.0	202.6	438.5	1665.1	3191.8
50	122	93%	97%	27.9	60.5	233.5	447.5	197.0	427.2	1648.9	3160.0
60	140	91%	96%	27.2	58.8	231.1	443.0	192.1	415.2	1631.9	3128.3
70	158	88%	95%	26.4	57.2	228.8	438.6	186.4	403.9	1615.7	3097.2
80	176	86%	94%	25.7	55.6	226.5	434.1	181.5	392.6	1599.4	3065.4
90	194	83%	93%	24.9	54.0	224.2	429.6	175.8	381.3	1583.2	3033.6
100	212	81%	92%	24.2	52.3	221.8	425.2	170.9	369.3	1566.3	3002.6
110	230	78%	91%	23.4	50.7	219.5	420.7	165.2	358.0	1550.0	2970.8
120	248	76%	90%	22.7	49.1	217.2	416.3	160.3	346.7	1533.8	2939.7
130	266	73%	90%	21.9	47.5	214.8	411.8	154.6	335.4	1516.8	2907.9
140	284	71%	89%	21.2	45.8	212.5	407.3	149.7	323.4	1500.6	2876.2
150	302	68%	88%	20.4	44.2	210.2	402.9	144.1	312.1	1484.3	2845.1
160	320	66%	87%	19.7	42.6	207.9	398.4	139.1	300.8	1468.1	2813.3
170	338	63%	86%	18.9	41.0	205.5	393.9	133.5	289.5	1451.2	2781.6
180	356	61%	85%	18.2	39.3	203.2	389.5	128.5	277.5	1434.9	2750.5
190	374	58%	84%	17.4	37.7	200.9	385.0	122.9	266.2	1418.7	2718.7
200	392	56%	83%	16.7	36.1	198.6	380.6	117.9	254.9	1402.4	2687.6
210	410	53%	82%	15.9	34.5	196.2	376.1	112.3	243.6	1385.5	2655.9
220	428	51%	81%	15.2	32.8	193.9	371.6	107.3	231.6	1369.2	2624.1
230	446	48%	80%	14.4	31.2	191.6	367.2	101.7	220.3	1353.0	2593.0
240	464	46%	79%	13.7	29.6	189.2	362.7	96.7	209.0	1336.1	2561.2
250	482	43%	78%	12.9	28.0	186.9	358.2	91.1	197.7	1319.8	2529.5
260	500	41%	77%	12.2	26.3	184.6	353.8	86.2	185.7	1303.6	2498.4

D & T SERIES PUMPS MATERIALS OF CONSTRUCTION

PART	MATERIAL
BODY	Stainless Steel - ASTM A276 - 316 SS
	Hastelloy - C276
	Titanium - ASTM B348
CAVITY PLATE	Stainless Steel - ASTM A276 - 316 SS
	Hastelloy - C276
	Titanium - ASTM B348
CAP	Stainless Steel - ASTM A276 - 316 SS
	Hastelloy - C276
	Titanium - ASTM B348
GEARS & BEARINGS	PPS - 30% Carbon / 15% PTFE
	PEEK - 15% Carbon
	PTFE
O-RINGS	Viton
	Teflon (PTFE)
	Buna-N
	EPR
SHAFT	Stainless Steel - ASTM A276 - 316 SS
	Hastelloy - C276
	Titanium - ASTM B348
MAGNET	Ceramic Encapsulated in PPS
	Ceramic Encapsulated in PEEK
	Samarium Cobalt Encapsulated in PPS
	Samarium Cobalt Encapsulated in PEEK
	Samarium Cobalt Weld Encapsulated and Molded Over with PPS
	Samarium Cobalt Weld Encapsulated and Molded Over with PEEK
MAGNET CUP	Stainless Steel - ASTM A167
	Hastelloy - C276
	Titanium - ASTM B265
MAGNET SHROUD	Stainless Steel - AMS 5524
	Hastelloy - C276
	Titanium - ASTM B265

D SERIES PUMP NPIP_r DATA (PSI_a)

PUMP SIZE	INLET PORT SIZE	1000 RPM	2000 RPM	3000 RPM	4000 RPM	5000 RPM
.11	1/8" NPT	0.05	0.08	0.10	0.13	0.20
.19	1/8" NPT	0.10	0.13	0.26	0.32	0.53
.23	1/8" NPT	0.12	0.15	0.28	0.40	0.56
.38	1/8" NPT	0.18	0.25	0.43	0.90	1.10
.57	1/8" NPT	0.20	0.30	0.55	1.00	1.30
.68	1/8" NPT	0.25	0.35	0.60	1.10	1.54
.80	1/8" NPT	0.34	0.68	1.40	2.20	4.00
.11	1/4" NPT	0.03	0.06	0.10	0.13	0.19
.19	1/4" NPT	0.08	0.10	0.20	0.30	0.50
.23	1/4" NPT	0.09	0.11	0.24	0.33	0.55
.38	1/4" NPT	0.15	0.23	0.40	0.70	0.91
.57	1/4" NPT	0.18	0.28	0.50	0.80	1.10
.68	1/4" NPT	0.20	0.30	0.66	0.85	1.30
.80	1/4" NPT	0.25	0.35	0.70	1.00	1.80
.99	1/4" NPT	0.30	0.40	0.75	1.10	1.90
1.2	1/4" NPT	0.35	0.45	0.80	1.30	2.60
1.6	1/4" NPT	0.40	0.50	1.10	1.80	N/A
2.0	1/4" NPT	0.47	0.57	1.50	2.50	N/A
2.3	1/4" NPT	0.55	0.64	2.00	3.20	N/A

T SERIES PUMP NPIP_r DATA (PSI_a)

PUMP SIZE	INLET PORT SIZE	1000 RPM	2000 RPM	3000 RPM	4000 RPM
2.6	3/8" NPT	0.50	1.50	3.10	5.60
5.3	3/8" NPT	0.53	1.60	3.40	5.90
7.9	3/8" NPT	1.00	1.90	3.80	6.10
8.0	3/4" NPT	1.00	1.90	3.80	6.10
12.	3/4" NPT	1.50	2.40	4.20	6.30

NOTE: D & T are at 1 Cp Viscosity

REGULATORY COMPLIANCE INFORMATION



The D & T Series pumps' technical file is lodged in accordance with Article 13(1)(b)(ii) of ATEX Directive 2014/34/EU of 26 February 2014

THE FOLLOWING STANDARDS WERE USED TO VERIFY CONFORMANCE:

2006/42/EC – The Machinery Directive

EN 1127-1:2011 – Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology

EN ISO 80079-36:2016 – Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements

EN ISO 80079-37:2016 – Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Nonelectrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"



The D & T Series pumps comply with the European Directive 2006/42/EC

THE FOLLOWING STANDARDS WERE USED TO VERIFY CONFORMANCE:

EN ISO 12100:2010 – Safety of machinery - General principles for design

EN 809:1998+A1:2009 – Pumps and pump units for liquids - Common safety requirements

2011/65/EU – The Restriction of Hazardous Substances Directive

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