

Data Sheet

TRANQUILIZER®

Surge Suppressors for Air-Driven Diaphragm Pumps

Quality System ISO9001
Certified

Environmental Management
System ISO14001 Certified

Metallic Construction



**WARREN
RUPP, INC.**

IDEX
FLUID & METERING

Models TA1, TA25, TA1½, TA40, TA2, TA50, TA3 & TA80

Warren Rupp, Inc. • A Unit of IDEX Corporation
800 N. Main St., P.O. Box 1568, Mansfield, Ohio 44902-1568 USA
Telephone (419) 524-8388 • Fax (419) 522-7867 • www.warrenrupp.com

Nearly surge-free flow.

Steadier pressures.

Less shock to pipes.

Air-operated diaphragm pumps offer a wide range of benefits not available in any other type of pump. However, in some applications, pulsations in the discharge flow may be undesirable. Pulsation can be virtually eliminated by installing a Warren Rupp Tranquillizer®.

At initial and subsequent start-ups . . . air cushion is quickly established by liquid pressure pushing diaphragm upward, permitting entrance of air into air chamber, until the balancing air cushion causes the diaphragm to center at its mid-stroke normal operating position.

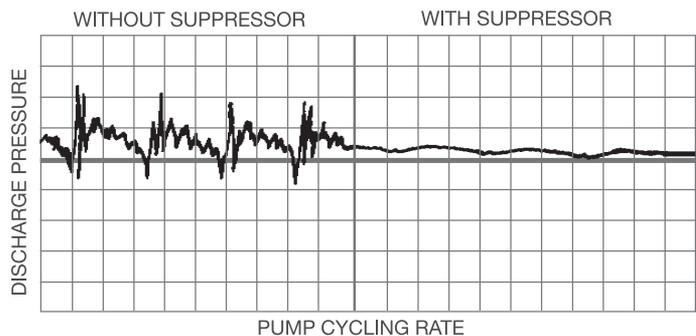
During normal continuous operation thereafter . . . the diaphragm always flexes at its mid-range position to absorb discharge pulsations against the adjoining air cushion already established.

In event of change in pumped liquid pressure . . . the air cushion pressure is automatically increased or decreased as required to compensate for the change . . . always maintaining constant volume of air cushion, and the diaphragm always operating at its mid-position.

When liquid flow stops and liquid pressure is released . . . the air in air chamber is also exhausted to atmosphere.

Tranquillizer®

- Automatically maintains a constant volume of air cushion for most effective surge suppression, regardless of pump pressure.
- Automatically self-charging and self-venting to maintain most efficient air cushion pressure . . . no more precharge pressure calculations or guesswork, no manual pressurizing, no periodic pressure checking.
- Air cushion separated from product by flexible diaphragm . . . prevents product aeration.
- External visual indication provides constant evidence of performance.
- Simple to install. Attention-free.



Models TA1 and TA25

- 1-inch Tranquillizer® for use with 1-inch pumps
- Air supply connection is 1/4" NPT external pipe thread.
- Maximum Operating Pressure – 125 psi.



Models TA1½ and TA40

- 1½-inch Tranquillizer® for use with 1½-inch pumps
- Air supply connection is 1/4" NPT external pipe thread.
- Maximum Operating Pressure – 125 psi.



Models TA2 and TA50 Design Level 2

- 2-inch Tranquillizer® for use with 1½, 2-inch pumps
- Air supply connection is 1/4" NPT external pipe thread.
- Maximum Operating Pressure – 125 psi.



Models TA3 and TA80 Design Level 2

- 3-inch Tranquillizer® for use with 3-inch pumps
- Air supply connection is 1/4" NPT external pipe thread.
- Maximum Operating Pressure – 125 psi.

Materials of Construction:

| Model Number | Diaphragm | Design Level | Wetted Parts | Porting (Internal Tapered Threads) |
|-------------------------------|-----------|--------------|--------------|------------------------------------|
| Tranquilizer Model TA1 | | | | |
| TA1-B-1-A | B | 1 | A | 1" NPT |
| TA1-H-1-A | H | 1 | A | 1" NPT |
| TA1-NG-1-A | NG | 1 | A | 1" NPT |
| TA1-N-1-A | N | 1 | A | 1" NPT |
| TA1-S-1-A | S | 1 | A | 1" NPT |
| TA1-V-1-A | V | 1 | A | 1" NPT |
| TA1-B-1-SS | B | 1 | SS | 1" NPT |
| TA1-F-1-SS | F | 1 | SS | 1" NPT |
| TA1-H-1-SS | H | 1 | SS | 1" NPT |
| TA1-NG-1-SS | NG | 1 | SS | 1" NPT |
| TA1-N-1-SS | N | 1 | SS | 1" NPT |
| TA1-S-1-SS | S | 1 | SS | 1" NPT |
| TA1-V-1-SS | V | 1 | SS | 1" NPT |

| | | | | |
|--------------------------------|----|---|----|---------|
| Tranquilizer Model TA1½ | | | | |
| TA1½-B-1-A | B | 1 | A | 1½" NPT |
| TA1½-NG-1-A | NG | 1 | A | 1½" NPT |
| TA1½-N-1-A | N | 1 | A | 1½" NPT |
| TA1½-V-1-A | V | 1 | A | 1½" NPT |
| TA1½-B-1-SS | B | 1 | A | 1½" NPT |
| TA1½-F-1-SS | F | 1 | A | 1½" NPT |
| TA1½-NG-1-SS | NG | 1 | SS | 1½" NPT |
| TA1½-N-1-SS | N | 1 | SS | 1½" NPT |
| TA1½-V-1-SS | V | 1 | SS | 1½" NPT |

| | | | | |
|--|----|---|----|--------|
| Tranquilizer Model TA2 Design level 2 | | | | |
| TA2-B-2-A | B | 2 | A | 2" NPT |
| TA2-I-2-A | I | 2 | A | 2" NPT |
| TA2-NG-2-A | NG | 2 | A | 2" NPT |
| TA2-N-2-A | N | 2 | A | 2" NPT |
| TA2-S-2-A | S | 2 | A | 2" NPT |
| TA2-V-2-A | V | 2 | A | 2" NPT |
| TA2-B-2-CI | B | 2 | CI | 2" NPT |
| TA2-I-2-CI | I | 2 | CI | 2" NPT |
| TA2-I-2-SS | I | 2 | SS | 2" NPT |
| TA2-NG-2-CI | N | 2 | CI | 2" NPT |
| TA2-N-2-CI | S | 2 | CI | 2" NPT |
| TA2-S-2-CI | V | 2 | CI | 2" NPT |
| TA2-V-2-CI | B | 2 | CI | 2" NPT |
| TA2-B-2-SS | F | 2 | SS | 2" NPT |
| TA2-F-2-SS | NG | 2 | SS | 2" NPT |
| TA2-NG-2-SS | N | 2 | SS | 2" NPT |
| TA2-N-2-SS | V | 2 | SS | 2" NPT |
| TA2-V-2-SS | I | 2 | SS | 2" NPT |
| TA2-I-2-HC | NG | 2 | HC | 2" NPT |
| TA2-NG-2-HC | N | 2 | HC | 2" NPT |
| TA2-N-2-HC | V | 2 | HC | 2" NPT |
| TA2-V-2-HC | V | 2 | HC | 2" NPT |

| Model Number | Diaphragm | Design Level | Wetted Parts | Porting (Internal Tapered Threads) | Shipping Weight lbs./kg |
|--------------------------------|-----------|--------------|--------------|------------------------------------|-------------------------|
| Tranquilizer Model TA25 | | | | | |
| TA25-B-1-A | B | 1 | A | 1" BSPT | 14 / 6.35 |
| TA25-H-1-A | H | 1 | A | 1" BSPT | 14 / 6.35 |
| TA25-NG-1-A | NG | 1 | A | 1" BSPT | 14 / 6.35 |
| TA25-N-1-A | N | 1 | A | 1" BSPT | 14 / 6.35 |
| TA25-S-1-A | S | 1 | A | 1" BSPT | 14 / 6.35 |
| TA25-V-1-A | V | 1 | A | 1" BSPT | 14 / 6.35 |
| TA25-B-1-SS | B | 1 | SS | 1" BSPT | 18 / 8.16 |
| TA25-F-1-SS | F | 1 | SS | 1" BSPT | 18 / 8.16 |
| TA25-H-1-SS | H | 1 | SS | 1" BSPT | 18 / 8.16 |
| TA25-NG-1-SS | NG | 1 | SS | 1" BSPT | 18 / 8.16 |
| TA25-N-1-SS | N | 1 | SS | 1" BSPT | 18 / 8.16 |
| TA25-S-1-SS | S | 1 | SS | 1" BSPT | 18 / 8.16 |
| TA25-V-1-SS | V | 1 | SS | 1" BSPT | 18 / 8.16 |

| | | | | | |
|--------------------------------|----|---|----|----------|-----------|
| Tranquilizer Model TA40 | | | | | |
| TA40-B-1-A | B | 1 | A | 1½" BSPT | 28 / 12.7 |
| TA40-NG-1-A | NG | 1 | A | 1½" BSPT | 28 / 12.7 |
| TA40-N-1-A | N | 1 | A | 1½" BSPT | 28 / 12.7 |
| TA40-V-1-A | V | 1 | A | 1½" BSPT | 28 / 12.7 |
| TA40-B-1-SS | B | 1 | SS | 1½" BSPT | 35 / 15.9 |
| TA40-F-1-SS | F | 1 | SS | 1½" BSPT | 35 / 15.9 |
| TA40-NG-1-SS | NG | 1 | SS | 1½" BSPT | 35 / 15.9 |
| TA40-N-1-SS | N | 1 | SS | 1½" BSPT | 35 / 15.9 |
| TA40-V-1-SS | V | 1 | SS | 1½" BSPT | 35 / 15.9 |

| | | | | | |
|---|----|---|----|----------|-----------|
| Tranquilizer Model TA50 Design level 2 | | | | | |
| TA50-B-2-A | B | 2 | A | 2" BSPT | 28 / 12.7 |
| TA50-I-2-A | I | 2 | A | 2" BSPT | 28 / 12.7 |
| TA50-NG-2-A | NG | 2 | A | 2" BSPT | 28 / 12.7 |
| TA50-N-2-A | N | 2 | A | 2" BSPT | 28 / 12.7 |
| TA50-S-2-A | S | 2 | A | 2" BSPT | 28 / 12.7 |
| TA50-V-2-A | V | 2 | A | 2" BSPT | 28 / 12.7 |
| TA50-B-2-CI | B | 2 | CI | 2" BSPT | 35 / 15.9 |
| TA50-I-2-CI | I | 2 | CI | 2" BSPT | 35 / 15.9 |
| TA50-NG-2-CI | NG | 2 | CI | 2" BSPT | 35 / 15.9 |
| TA50-N-2-CI | N | 2 | CI | 2" BSPT | 35 / 15.9 |
| TA50-S-2-CI | S | 2 | CI | 2" BSPT | 35 / 15.9 |
| TA50-V-2-CI | V | 2 | CI | 2" BSPT | 35 / 15.9 |
| TA50-B-2-SS | B | 2 | SS | 2" BSPT | 35 / 15.9 |
| TA50-F-2-SS | F | 2 | SS | 2" BSPT | 35 / 15.9 |
| TA50-NG-2-SS | NG | 2 | SS | 2" BSPT | 35 / 15.9 |
| TA50-N-2-SS | N | 2 | SS | 2" BSPT | 35 / 15.9 |
| TA50-V-2-SS | V | 2 | SS | 2" BSPT | 35 / 15.9 |
| TA50-I-2-HC | I | 2 | HC | 2" BSPT | 35 / 15.9 |
| TA50-NG-2-HC | NG | 2 | SS | 1½" BSPT | 35 / 15.9 |
| TA50-N-2-HC | N | 2 | HC | 1½" BSPT | 35 / 15.9 |
| TA50-V-2-HC | V | 2 | HC | 1½" BSPT | 35 / 15.9 |

Materials of Construction (continued):

| Model Number | Diaphragm | Design Level | Wetted Parts | Porting (Internal Tapered Threads) | Porting Flange Style |
|--|-----------|--------------|--------------|------------------------------------|----------------------|
| Tranquilizer Model TA3 Design level 2 | | | | | |
| TA3-B-2-A | B | 2 | A | 3" NPT | 3" ANSI Style |
| TA3-I-2-A | I | 2 | A | 3" NPT | 3" ANSI Style |
| TA3-NG-2-A | NG | 2 | A | 3" NPT | 3" ANSI Style |
| TA3-N-2-A | N | 2 | A | 3" NPT | 3" ANSI Style |
| TA3-V-2-A | V | 2 | A | 3" NPT | 3" ANSI Style |
| TA3-B-2-CI | B | 2 | CI | 3" NPT | 3" ANSI Style |
| TA3-I-2-CI | I | 2 | CI | 3" NPT | 3" ANSI Style |
| TA3-I-2-SS | I | 2 | SS | 3" NPT | 3" ANSI Style |
| TA3-NG-2-CI | NG | 2 | CI | 3" NPT | 3" ANSI Style |
| TA3-N-2-CI | N | 2 | CI | 3" NPT | 3" ANSI Style |
| TA3-V-2-CI | V | 2 | CI | 3" NPT | 3" ANSI Style |
| TA3-B-2-SS | B | 2 | SS | 3" NPT | 3" ANSI Style |
| TA3-NG-2-SS | NG | 2 | SS | 3" NPT | 3" ANSI Style |
| TA3-N-2-SS | N | 2 | SS | 3" NPT | 3" ANSI Style |
| TA3-V-2-SS | V | 2 | SS | 3" NPT | 3" ANSI Style |

Meaning of Abbreviations:

| | |
|-----------------------|-----------------------------------|
| A = Aluminum | N = Neoprene |
| B = Nitrile | NG = Neoprene Backup/PTFE Overlay |
| CI = Cast Iron | S = Santoprene® |
| F = FDA White Nitrile | SS = Stainless Steel |
| H = Hytrel® | V = FKM (Fluorocarbon) |
| HC = Alloy C | |
| I = EPDM | |

Kit available to convert to top porting

*Most other types available in dual ported design. See price book or consult factory for details.

Hytrel® are registered tradenames of E.I. du Pont. Santoprene® is a registered tradename of Exxon Mobil Corp. Tranquilizer® is a registered tradename of Warren Rupp, Inc.

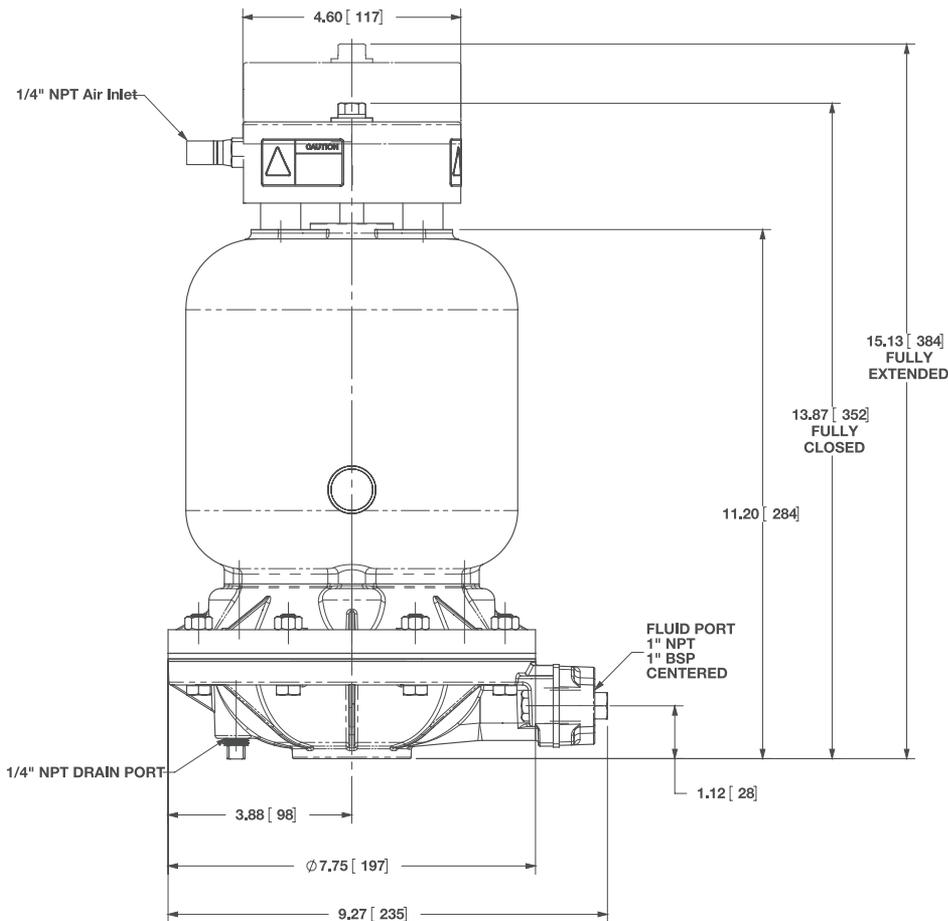
| Model Number | Diaphragm | Design Level | Wetted Parts | Porting (Internal Tapered Threads) | Porting Flange Style | Shipping Weight lbs./kg |
|---|-----------|--------------|--------------|------------------------------------|----------------------|-------------------------|
| Tranquilizer Model TA80 Design level 2 | | | | | | |
| TA80-B-2-A | B | 2 | A | 3" BSPT | PN10 80mm DIN | 89 / 40.4 |
| TA80-I-2-A | I | 2 | A | 3" BSPT | PN10 80mm DIN | 89 / 40.4 |
| TA80-NG-2-A | NG | 2 | A | 3" BSPT | PN10 80mm DIN | 89 / 40.4 |
| TA80-N-2-A | N | 2 | A | 3" BSPT | PN10 80mm DIN | 89 / 40.4 |
| TA80-V-2-A | V | 2 | A | 3" BSPT | PN10 80mm DIN | 89 / 40.4 |
| TA80-B-2-CI | B | 2 | CI | 3" BSPT | PN10 80mm DIN | 109 / 49.4 |
| TA80-I-2-CI | I | 2 | CI | 3" BSPT | PN10 80mm DIN | 109 / 49.4 |
| TA80-NG-2-CI | NG | 2 | CI | 3" BSPT | PN10 80mm DIN | 109 / 49.4 |
| TA80-N-2-CI | N | 2 | CI | 3" BSPT | PN10 80mm DIN | 109 / 49.4 |
| TA80-V-2-CI | V | 2 | CI | 3" BSPT | PN10 80mm DIN | 109 / 49.4 |
| TA80-B-2-SS | B | 2 | SS | 3" BSPT | PN10 80mm DIN | 105 / 47.6 |
| TA80-NG-2-SS | NG | 2 | SS | 3" BSPT | PN10 80mm DIN | 105 / 47.6 |
| TA80-N-2-SS | N | 2 | SS | 3" BSPT | PN10 80mm DIN | 105 / 47.6 |
| TA80-V-2-SS | V | 2 | SS | 3" BSPT | PN10 80mm DIN | 105 / 47.6 |

| Materials | Operating Temperatures | |
|--|------------------------|----------------|
| | Maximum | Minimum |
| NITRILE: General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons. | 190°F 88°C | -10°F -23°C |
| NEOPRENE: All purpose. Resistant to vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters, nitro hydrocarbons and chlorinated aromatic hydrocarbons. | 200°F 93°C | -10°F -23°C |
| HYTREL®: Good on acids, bases, amines, and glycols at room temperature. | 220°F 104°C | -20°F -29°C |
| VIRGIN PTFE: Chemically inert, virtually impervious. Very few chemicals are known to chemically react with Teflon®, molten alkali metals, turbulent liquid or gases, fluorine and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures. | 220°F 104°C | -35°F -37°C |
| FKM: Shows good resistance to a wide range of oils and solvents; especially all aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils. Hot water or hot aqueous solutions (over 70° F) will attack FKM. | 350°F 177°C | -40°F -40°C |
| EPDM: Shows very good water and chemical resistance. Has poor resistance to oil and solvents, but is fair in ketones and alcohols. | 280°F 138°C | -40°F -40°C |
| SANTOPRENE®: Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance. | 275°F 135°C | -40°F -40°C |
| STAINLESS STEEL: CF-8M equal to or exceeding ASTM specification A743 for corrosion resistant iron chromium, iron chromium nickel, and nickel based alloy castings for general applications. Commonly referred to as 316 Stainless Steel in the pump industry. | | |
| ALLOY C: CW-12MW equal to or exceeding ASTM A494 specification for nickel and nickel alloy castings. | | |



II 2 G c T5
II 3/2 G c T5
II 2 D c T100oC See page 11 for ATEX Explanation of Type Examination Certificate.

For specific applications, always consult the Warren Rupp "Chemical Resistance Chart".

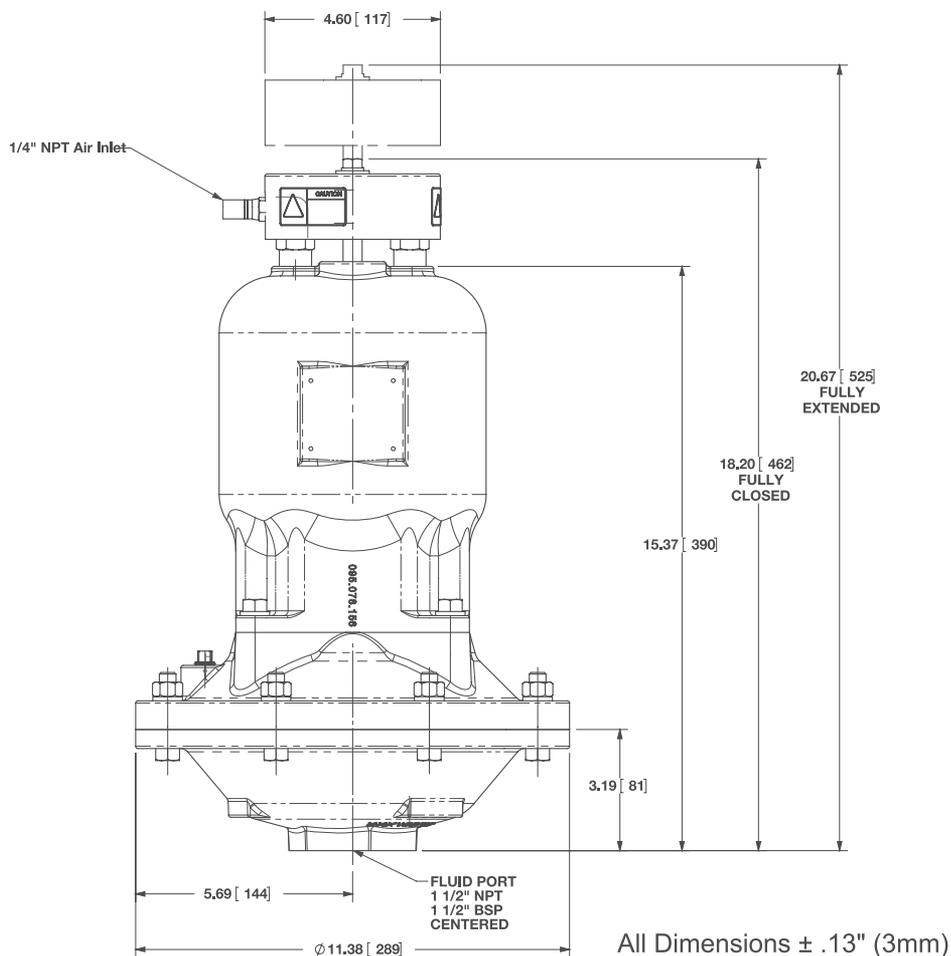


Model TA1

- Air Inlet
- 1/4" NPT (external) fitting
- FLUID Port - 1" NPT

Model TA25

- Air Inlet
- 1/4" NPT (external) fitting
- FLUID Port - 1" BSP
- tapered thread



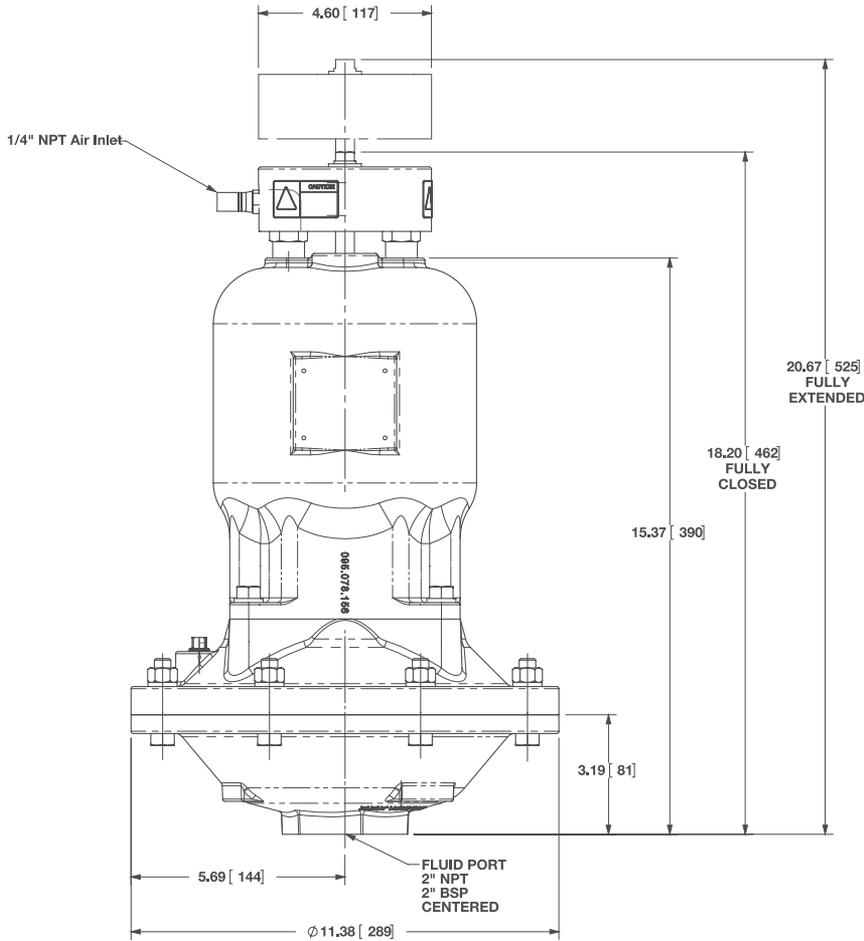
Model TA1 1/2

- Air Inlet
- 1/4" NPT (external) fitting
- FLUID Port - 1 1/2" NPT

Model TA40

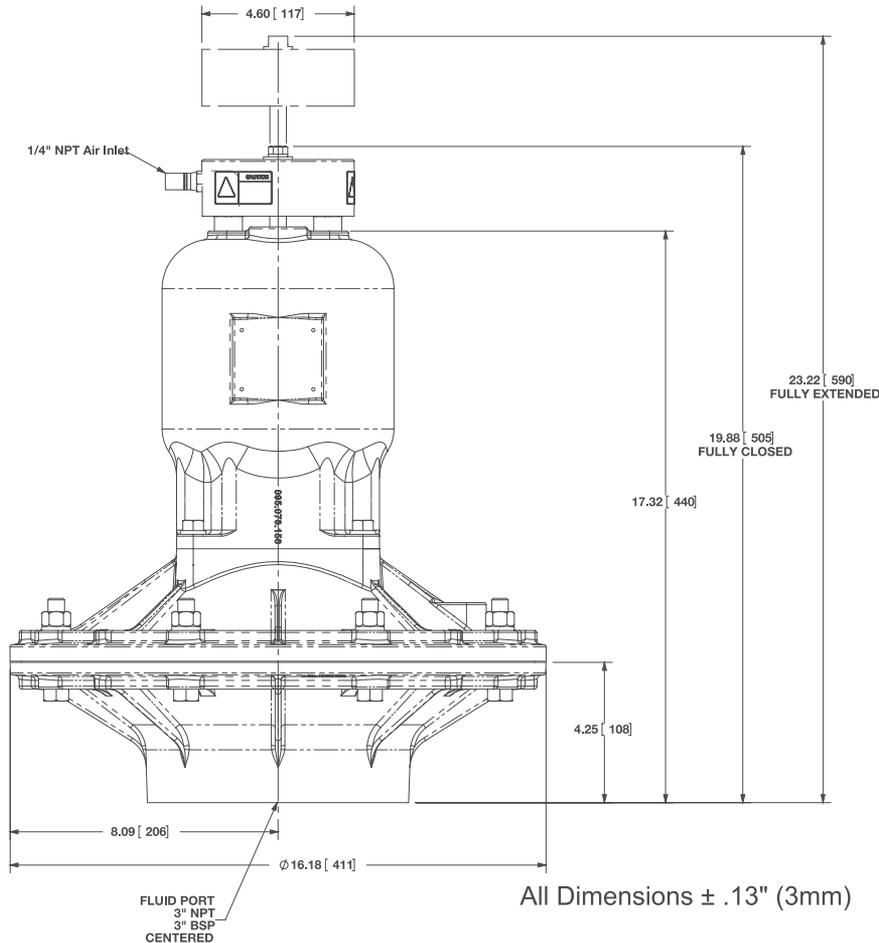
- Air Inlet
- 1/4" NPT (external) fitting
- FLUID Port - 1 1/2" BSP
- tapered thread

All Dimensions ± .13" (3mm)



Model TA2 Design Level 2

- Air Inlet
- 1/4" NPT (external) fitting
- 2" NPT Fluid Port

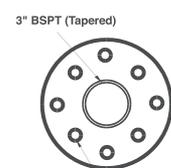


Model TA3 Design Level 2

- Air Inlet
- 1/4" NPT (external) fitting
- Fluid Port (see drawing below)

Model TA80 Design Level 2

- Air Inlet
- 1/4" NPT (external) fitting
- Fluid Port (see drawing below)



All Dimensions $\pm .13"$ (3mm)