

★ *Snap-Tite*

Military/
Aerospace
Couplings

**28-1&29
SERIES**



Military/Aerospace Couplings for Applications Requiring Virtually No Air Inclusion or Spillage

28-1 Series

For Pressures to 1000 psi (69 bar)



- Low pressure drop
- Dry break-minimum air inclusion
- Maximum flow capacity
- Lightweight - compact design
- 1/4" - 2" size range
- Aluminum or stainless steel construction
- Smooth push-to-connect
- Color coded positive lock indicator standard on all models
- Multitude of end fittings: MS33656, MS33657, MS33649, MS33514, MS33515, NPTF, NPT, SAE and BS 2779
- Wide range of seal materials
- Performance meets or exceeds MIL-C-7413B and MIL-C-25427A

This space-age quick disconnect is machined and tested to meet or exceed critical standards. Snap-tite meets MIL-Q-9858A quality control system and exceeds MIL-I-45208 inspection system. Lightweight, maximum flow and minimal pressure drop are design parameters where the 28-1 Series is unsurpassed. The small envelope size permits less weight and Snap-tite's excellent internal design assures maximum flow with minimum pressure drop. Operating pressure rating for 1/4" through 1" sizes is 1000 psi (69 bar); 1-1/4" through 2" sizes, 600 psi (41 bar).

A smooth automatic, push-to-connect feature, ideal for one hand operation when one half is mounted, sets the 28-1 Series apart from all others. The unit can be connected against a closed system, has no seal transition and provides a green color-coded lock indicator.

TYPICAL APPLICATIONS:

Low pressure hydraulic systems, high purity systems, fuel systems, electronic coolant, high reliability systems

29 Series

For Pressures to 5500 psi (379 bar)



- Low pressure drop
- Dry break-minimum air inclusion
- Maximum flow capacity
- High pressure design
- 1/8" - 1-1/4" size range
- Aluminum or stainless steel construction
- Smooth push-to-connect
- Multitude of end fittings: MS33656, MS33657, MS33649, MS33514, MS33515, NPTF, NPT, SAE and BS 2779
- Wide range of seal materials
- Performance meets or exceeds MIL-C-7413B and MIL-C-25427A

Snap-tite's 29 Series quick disconnect offers full-flow characteristics, can handle high pressure as well as gravity flow systems, and contains minimal seals for greater reliability. Snap-tite meets MIL-Q-9858A quality control system and exceeds MIL-I-45208 inspection system. 29 Series has established an excellent performance record over the past 20 years.

In addition to hydraulic applications, the 29 Series quick disconnect is the ideal choice where minimal spillage or air inclusion, safety, cleanliness and precise function in high pressure hydraulic systems are prime requisites.

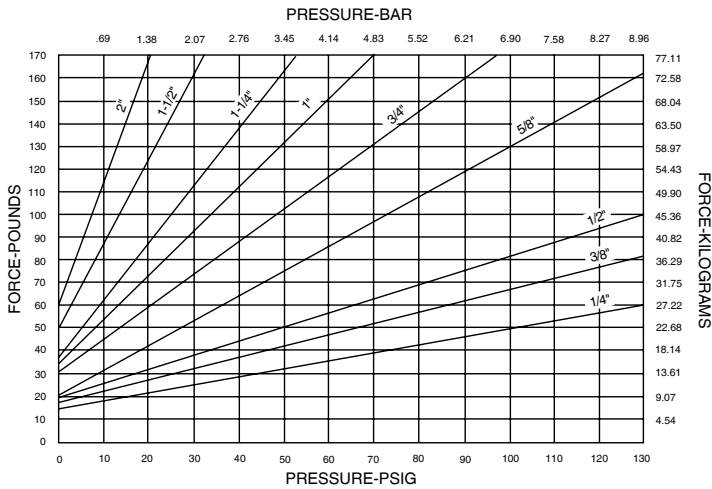
Like all Snap-tite quick disconnect couplings, the 29 Series connects and disconnects quickly and positively, providing positive shut-off automatically. A smooth automatic, push-to-connect feature, ideal for one hand operation when one half is mounted, sets the 29 Series apart from all others.

TYPICAL APPLICATIONS:

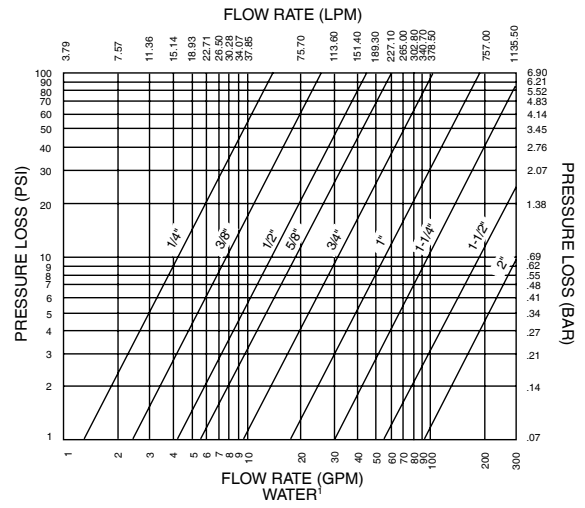
High pressure hydraulic systems, high purity systems, fuel systems, electronic coolant, high reliability systems

28-1 Series Performance Data

Force to Connect



Pressure Loss vs. Flow



¹Pressure loss vs. flow is in water with specific gravity of 1.0. For fluids with sg of .85, multiply by 1.58; for fluids with sg of .83, multiply by 1.60. Temperature 100°F (55°C). Note: Gallons shown are in U.S. gallons.

Pressure Ratings

| Coupling Size | Aluminum Working Pressure | | Stainless Steel Working Pressure | |
|---------------|---------------------------|-------|----------------------------------|-------|
| | psig | (bar) | psig | (bar) |
| 1/4 | 1000 | (69) | 1000 | (69) |
| 3/8 | 1000 | (69) | 1000 | (69) |
| 1/2 | 1000 | (69) | 1000 | (69) |
| 5/8 | 1000 | (69) | 1000 | (69) |
| 3/4 | 1000 | (69) | 1000 | (69) |
| 1 | 1000 | (69) | 1000 | (69) |
| 1-1/4 | 600 | (41) | 600 | (41) |
| 1-1/2 | 600 | (41) | 600 | (41) |
| 2 | 600 | (41) | 600 | (41) |

Pressure ratings were established under static pressure conditions. Therefore, pressure ratings for any given flow, pressure surge and/or vibration may vary these ratings. Proof pressure = 1.5 x working pressure Burst pressure = 2.5 x working pressure

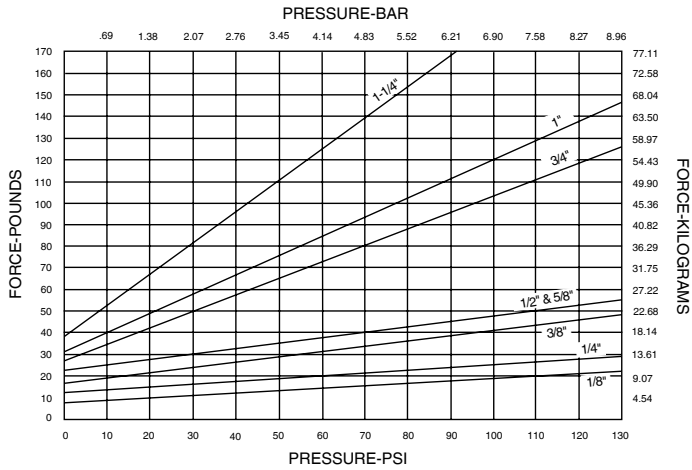
Air Inclusion on Connect, Spillage on Disconnect

| Coupling Size | Air Inclusion* | | Spillage | |
|---------------|-----------------|--------|-----------------|--------|
| | in ³ | (cc) | in ³ | (cc) |
| 1/4 | .003 | (.05) | .001 | (.01) |
| 3/8 | .011 | (.18) | .002 | (.03) |
| 1/2 | .017 | (.28) | .002 | (.04) |
| 5/8 | .019 | (.31) | .008 | (.13) |
| 3/4 | .029 | (.48) | .009 | (.15) |
| 1 | .049 | (.80) | .018 | (.30) |
| 1-1/4 | .096 | (1.57) | .024 | (.40) |
| 1-1/2 | .122 | (2.00) | .043 | (.70) |
| 2 | .183 | (3.00) | .061 | (1.00) |

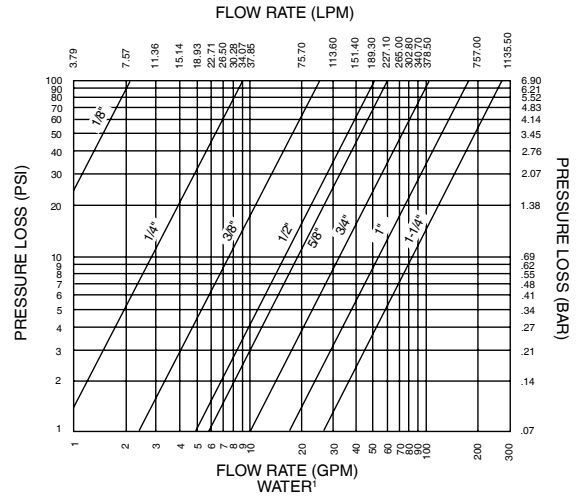
*NOTE: Air inclusion at 0 psig (0 bar) internal pressure; spillage at 15 psig (1 bar) internal pressure.

29 Series Performance Data

Force to Connect



Pressure Loss vs. Flow



¹Pressure loss vs. flow is in water with specific gravity of 1.0. For fluids with sg of .85, multiply by 1.58; for fluids with sg of .83, multiply by 1.60. Temperature 100°F (55°C). Note: Gallons shown are in U.S. gallons.

Pressure Ratings

| Coupling Size | Aluminum Working Pressure | | Stainless Steel Working Pressure | |
|---------------|---------------------------|-------|----------------------------------|-------|
| | psig | (bar) | psig | (bar) |
| 1/8 | 4800 | (331) | 5500 | (379) |
| 1/4 | 3200 | (221) | 3800 | (262) |
| 3/8 | 3000 | (207) | 3200 | (221) |
| 1/2 | 2200 | (152) | 3000 | (207) |
| 1/2 x 5/8 | 2200 | (152) | 3000 | (207) |
| 3/4 | 1200 | (83) | 2000 | (138) |
| 1 | 1000 | (69) | 1500 | (103) |
| 1-1/4 | 750 | (52) | 1000 | (69) |

Pressure ratings were established under static pressure conditions. Therefore, pressure ratings for any given flow, pressure surge and/or vibration may vary these ratings. Proof pressure = 1.5 x working pressure Burst pressure = 2.5 x working pressure

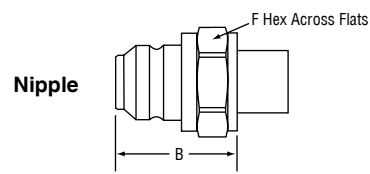
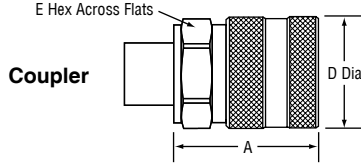
Air Inclusion on Connect, Spillage on Disconnect

| Coupling Size | Air Inclusion* | | Spillage | |
|---------------|-----------------|-------|-----------------|--------|
| | in ³ | (cc) | in ³ | (cc) |
| 1/8 | .002 | (.03) | <.001 | (<.02) |
| 1/4 | .002 | (.03) | <.001 | (<.02) |
| 3/8 | .002 | (.03) | <.001 | (<.02) |
| 1/2 | .012 | (.19) | .007 | (.12) |
| 1/2 x 5/8 | .012 | (.19) | .007 | (.12) |
| 3/4 | .008 | (.13) | .005 | (.08) |
| 1 | .008 | (.13) | .005 | (.09) |
| 1-1/4 | .012 | (.19) | .007 | (.12) |

*NOTE: Air inclusion at 0 psig (0 bar) internal pressure; spillage at 60 psig (4 bar) for 1/8" and 15 psig (1 bar) internal pressure for 1/4" through 1-1/4".

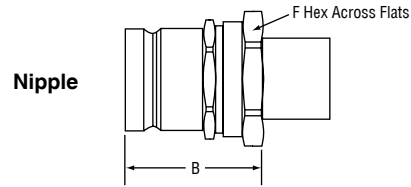
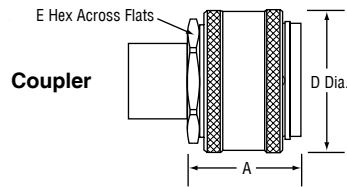
Dimensions and Weights

28 Series



| Size | Coupler | | | | | | | | Connected Length | | Nipple | | | | | |
|-----------|---------|-------|-------|-------|-------|--------|--------|--------|------------------|--------|--------|-------|-------|--------|--------|--------|
| | A | | D | | E | | Weight | | | | B | | F | | Weight | |
| | in | mm | in | mm | in | mm | lb | g | in | mm | in | mm | in | mm | lb | g |
| 1/4" | 1.25 | 31.75 | .88 | 22.35 | .75 | 19.05 | .05 | 22.68 | 1.80 | 45.72 | 1.10 | 27.94 | .75 | 19.05 | .02 | 4.54 |
| 3/8" 1.44 | 36.58 | 1.12 | 28.45 | 1.00 | 25.40 | .11 | 49.90 | 2.02 | 51.31 | 1.20 | 30.48 | 1.00 | 25.40 | .05 | 9.07 | |
| 1/2" | 1.61 | 40.89 | 1.34 | 34.04 | 1.13 | 28.70 | .17 | 77.11 | 2.15 | 54.61 | 1.25 | 31.75 | 1.13 | 28.70 | .06 | 27.22 |
| 5/8" | 1.70 | 43.18 | 1.58 | 40.13 | 1.38 | 35.05 | .23 | 104.33 | 2.45 | 62.23 | 1.50 | 38.10 | 1.38 | 35.05 | .14 | 63.50 |
| 3/4" | 2.05 | 52.07 | 1.80 | 45.72 | 1.50 | 38.10 | .36 | 163.29 | 2.89 | 73.41 | 1.71 | 43.43 | 1.50 | 38.10 | .15 | 68.04 |
| 1" | 2.70 | 68.58 | 2.32 | 58.93 | 2.00 | 50.80 | .74 | 335.66 | 3.72 | 94.49 | 2.19 | 55.63 | 2.00 | 50.80 | .29 | 131.54 |
| 1-1/4" | 2.56 | 65.02 | 2.63 | 66.80 | 2.25 | 57.15 | .76 | 344.73 | 3.51 | 89.15 | 2.16 | 54.86 | 2.25 | 57.15 | .30 | 136.08 |
| 1-1/2" | 3.03 | 76.96 | 2.96 | 75.18 | 2.63† | 66.80† | 1.33 | 603.28 | 3.75 | 95.25 | 2.16 | 54.86 | 2.63† | 66.80† | .33 | 149.69 |
| 2" | 3.55 | 90.17 | 3.92 | 99.57 | 3.25† | 82.55† | 1.97 | 893.58 | 4.73 | 120.14 | 2.84 | 72.14 | 3.25† | 82.55† | .36 | 163.29 |

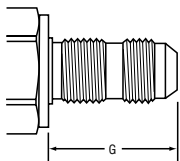
29 Series



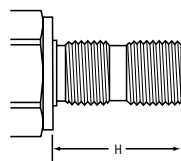
| Size | Coupler | | | | | | | | Connected Length | | Nipple | | | | | |
|-------------|---------|-------|------|-------|-------|--------|--------|--------|------------------|-------|--------|-------|-------|--------|--------|--------|
| | A | | D | | E | | Weight | | | | B | | F | | Weight | |
| | in | mm | in | mm | in | mm | lb | g | in | mm | in | mm | in | mm | lb | g |
| 1/8" | 1.20 | 30.48 | .88 | 22.35 | .75 | 19.05 | .05 | 22.68 | 1.71 | 43.43 | 1.07 | 27.18 | .69 | 17.53 | .03 | 13.61 |
| 1/4" | 1.31 | 33.27 | 1.38 | 35.05 | 1.13 | 28.70 | .13 | 58.97 | 2.01 | 51.05 | 1.30 | 33.02 | 1.13 | 28.70 | .07 | 31.75 |
| 3/8" | 1.57 | 39.88 | 1.63 | 41.40 | 1.25 | 31.75 | .20 | 90.72 | 2.36 | 59.94 | 1.48 | 37.59 | 1.38 | 35.05 | .10 | 45.36 |
| 1/2" | 1.53 | 38.86 | 1.94 | 49.28 | 1.50 | 38.10 | .42 | 190.51 | 2.64 | 67.06 | 1.76 | 44.70 | 1.63 | 41.40 | .23 | 104.33 |
| 1/2" x 5/8" | 1.53 | 38.86 | 1.94 | 49.28 | 1.50 | 38.10 | .42 | 190.51 | 2.64 | 67.06 | 1.76 | 44.70 | 1.63 | 41.40 | .23 | 104.33 |
| 3/4" | 1.89 | 48.01 | 2.35 | 59.69 | 1.88 | 47.75 | .49 | 222.26 | 2.81 | 71.37 | 2.09 | 53.09 | 1.88 | 47.75 | .31 | 140.61 |
| 1" | 2.45 | 62.23 | 2.44 | 61.98 | 2.13 | 54.10 | .70 | 317.51 | 3.60 | 91.44 | 2.50 | 63.50 | 2.13 | 54.10 | .36 | 163.29 |
| 1-1/4" | 2.52 | 64.01 | 2.88 | 73.15 | 2.69† | 68.33† | .86 | 390.09 | 3.64 | 92.46 | 2.90 | 73.66 | 2.75† | 69.85† | .71 | 322.05 |

† Two wrench flats

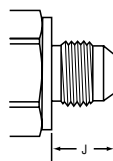
Common End Fitting Configurations, Dimensions and Weights



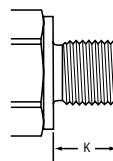
57 MS33657 Bulkhead Flared
EB SAE Bulkhead



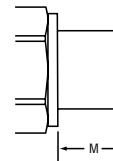
15 MS33515 Bulkhead
Flareless



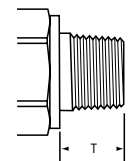
56 MS33656 Male Flared
EM Male SAE



14 MS33514 Male
Flareless



F Female NPTF
RP Female British Parallel BS 2779
49 Female O-ring Boss MS33649



M Male NPT

| Size | G | | Wt. ¹ | | H | | Wt. ¹ | | J | | Wt. ¹ | | K | | Wt. ¹ | | M | | (Max) Wt. ¹ | | T | | Wt. ¹ | |
|--------|------|-------|------------------|-------|------|-------|------------------|-------|------|-------|------------------|-------|-----|-------|------------------|-------|------|-------|------------------------|--------|------|-------|------------------|-------|
| | in | mm | lb | g | in | mm | lb | g | in | mm | lb | g | in | mm | lb | g | in | mm | lb | g | in | mm | lb | g |
| 1/8" | .95 | 24.13 | .01 | 4.53 | .86 | 21.84 | .01 | 4.53 | .45 | 11.43 | .01 | 4.53 | .38 | 9.65 | .01 | 4.53 | .56 | 14.22 | .01 | 4.53 | .38 | 9.65 | .01 | 4.53 |
| 1/4" | 1.05 | 26.67 | .01 | 4.53 | .97 | 24.64 | .01 | 4.53 | .55 | 13.97 | .01 | 4.53 | .45 | 11.43 | .01 | 4.53 | .78 | 19.81 | .02 | 9.07 | .56 | 14.22 | .01 | 4.53 |
| 3/8" | 1.13 | 28.70 | .01 | 4.53 | 1.02 | 25.91 | .01 | 4.53 | .56 | 14.22 | .01 | 4.53 | .47 | 11.94 | .01 | 4.53 | .88 | 22.35 | .04 | 18.14 | .56 | 14.22 | .01 | 4.53 |
| 1/2" | 1.28 | 32.51 | .03 | 13.61 | 1.16 | 29.46 | .02 | 9.07 | .66 | 16.76 | .01 | 4.53 | .56 | 14.22 | .01 | 4.53 | 1.05 | 26.67 | .08 | 36.29 | .75 | 19.05 | .03 | 13.61 |
| 5/8" | 1.42 | 36.07 | .04 | 18.14 | 1.30 | 33.02 | .03 | 13.61 | .76 | 19.30 | .02 | 9.07 | .63 | 16.00 | .02 | 9.07 | 1.05 | 26.67 | .11 | 49.90 | — | — | .03 | 13.61 |
| 3/4" | 1.59 | 40.39 | .06 | 27.22 | 1.41 | 35.81 | .05 | 22.68 | .86 | 21.84 | .03 | 13.61 | .69 | 17.53 | .03 | 13.61 | 1.40 | 35.56 | .13 | 58.97 | .75 | 19.05 | .03 | 13.61 |
| 1" | 1.59 | 40.39 | .09 | 40.82 | 1.41 | 35.81 | .07 | 31.75 | .91 | 23.11 | .05 | 22.68 | .69 | 17.53 | .03 | 13.61 | 1.22 | 30.99 | .19 | 86.18 | .94 | 23.88 | .06 | 27.22 |
| 1-1/4" | 1.64 | 41.66 | .14 | 63.50 | 1.41 | 35.81 | .12 | 54.43 | .96 | 24.38 | .08 | 36.29 | .69 | 17.53 | .06 | 27.22 | 1.63 | 41.40 | .29 | 131.54 | .97 | 24.64 | .09 | 40.82 |
| 1-1/2" | 1.66 | 42.16 | .17 | 77.11 | 1.11 | 28.19 | .13 | 58.97 | 1.08 | 27.43 | .11 | 49.90 | .69 | 17.53 | .07 | 31.75 | 1.65 | 41.91 | .40 | 181.44 | 1.00 | 25.40 | .11 | 49.90 |
| 2" | 1.94 | 49.28 | .21 | 95.25 | 1.61 | 40.89 | .19 | 86.18 | 1.33 | 33.78 | .15 | 68.04 | .69 | 17.53 | .10 | 45.36 | 1.90 | 48.26 | .56 | 254.01 | 1.03 | 26.16 | .16 | 72.57 |

¹Weights are for aluminum. For Stainless Steel multiply aluminum weight by 2.7. All dimensions and weights are for reference only and are subject to change without notice. Dimension tolerances: A, B, D, E & F ± .03 in. (.76 mm); Connected length ± .06 in. (± 1.52 mm)

How to Order

| Part No. A 28-1 C 8 — 8 F | | | | | | |
|---|--------------------------|---|---|---|--|---|
| Material | Series | Body | Coupler or Nipple Size | End Fitting Size | End Fitting Type | **Seals |
| A Aluminum S Stainless Steel | 28-1 29 | C Coupler N Nipple | 2 = 1/8"* 4 = 1/4" 6 = 3/8" 8 = 1/2" 10 = 5/8"† 12 = 3/4" 16 = 1" = 1-1/4" 20 = 2"† | 2 = 1/8" 4 = 1/4" 6 = 3/8" 8 = 1/2" 10 = 5/8" 12 = 3/4" 16 = 1" 20 = 1-1/4" 32 = 2" | 57 MS33657 Bulkhead 15 MS33515 Bulkhead 56 MS33656 37° Male Flare 14 MS33514 Male 49 MS33649 Female F Female NPTF RP Female British Parallel BS 2779 M Male NPT EM SAE Male 37° Flare EB SAE Bulkhead | A Nitrile (AMS 3215) V Viton JF Nitrile (MIL-P-5315) M Nitrile (MIL-P-25732) E Ethylene Propylene Rubber For other seal com- pounds consult factory. |

**Standard seal in 28-1 Series is Nitrile (AMS 3215) – no letter designation required
 Standard seal in 29 Series is Nitrile (MIL-P-25732) – no letter designation required

28-1 Series Dust Caps

| Size | Coupler | Nipple |
|--------|-------------|-------------|
| 1/4" | A28-1DCC-4 | A28-1DCN-4 |
| 3/8" | A28-1DCC-6 | A28-1DCN-6 |
| 1/2" | A28-1DCC-8 | A28-1DCN-8 |
| 5/8" | A28-1DCC-10 | A28-1DCN-10 |
| 3/4" | A28-1DCC-12 | A28-1DCN-12 |
| 1" | A28-1DCC-16 | A28-1DCN-16 |
| 1-1/4" | A28-1DCC-20 | A28-1DCN-20 |
| 2" | A28-1DCC-32 | A28-1DCN-32 |

Material designation: A-Aluminum S-Stainless Steel

29 Series Dust Caps

| Size | Coupler | Nipple | Pressure Cap for Nipple |
|--------|----------|----------|-------------------------|
| 1/8" | ADP29-2 | ADC29-2 | APC29-2 |
| 1/4" | ADP29-4 | ADC29-4 | APC29-4 |
| 3/8" | ADP29-6 | ADC29-6 | APC29-6 |
| 1/2" | ADP29-8 | ADC29-8 | APC29-8 |
| 3/4" | ADP29-12 | ADC29-12 | APC29-12 |
| 1" | ADP29-16 | ADC29-16 | APC29-16 |
| 1-1/4" | ADP29-20 | ADC29-20 | APC29-20 |

! WARNING !

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Snap-tite, Inc., its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operation conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Snap-tite, Inc. and its subsidiaries at any time without notice.



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