

# **DEL FITTING SEALS**

(a.k.a. Flaresavers, Crush Washers, Conical Seals)

- ✓ For use with AN, MS and JIC 37° flared fittings.
- ✓ Designed to eliminate leakage due to scratches on the sealing surface, improper torquing or poor finishes on tube ends, in high or low pressure applications.
- ✓ Reduces tube flare cracking.
- ✓ Allows original equipment hardware to be reused in maintenance and overhaul. Extends fitting life by eliminating nose damage to the fitting.
- ✓ Used in testing, it eliminates nose damage to the fitting.



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***Approved and used by SAE, NASA, FAA,  
Air Force, Army, Navy and major aerospace  
contractors and subcontractors.***

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For more than 40 years, Del Aerospace has been manufacturing fitting seals for the aerospace industry.

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# SEAL CAPABILITY

Seal selection is based on:

1. The fluid to be transmitted.
2. The parent tubing and fitting material
3. The temperature spectrum.

| <u>Material</u> | <u>Temperature spectrum</u> | <u>Can be used with the following fluids and gasses:</u>                                                                                                                                          |
|-----------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aluminum        | -420° F to +275° F          | Pneumatics<br>Liquid Hydrogen<br>Liquid Nitrogen<br>Hydrogen Peroxide<br>Oxygen<br>Hydraulic Oil<br>Helium<br>UDMH<br>Hydrazine<br>Nitric Acid                                                    |
| Copper          | -420° F to +800° F          | Helium<br>Nitrogen<br>Hydraulic Oil<br>Oxygen<br>JP-4<br>JP-5<br>Pneumatics                                                                                                                       |
| Nickel          | -420° F to +1500° F         | Liquid Hydrogen<br>Liquid Nitrogen<br>Oxygen<br>Hydraulic Oil<br>JP-4<br>JP-5<br>Pneumatics<br>Nitric Acid                                                                                        |
| Stainless Steel | -420° F to +1500° F         | Hydrazine, Anhydrous<br>Undimethylhydrazine (UMDH)<br>Monomethylhydrazine (MMH)<br>40% UDMH + 60% JP-4 (JP-X)<br>50% Hydrazine + 50% UMDH<br>(Aerozine 5)<br>UMDH+ Diethylenethriamine<br>(UDETA) |



## RECOMMENDED TORQUE VALUES FOR CONICAL SEALS

(Torque values in inch-pounds)

| Tubing<br>O.D.<br>Inches | Seal<br>Dash<br>No. | All Alum.<br>System<br>except<br>6061-T6 | All Alum.<br>6061-T6<br>System | All Cres. &<br>Steel<br>System | All Cres. &<br>Steel<br>System | All Cres.<br>& Steel<br>System | Aluminum<br>"B" Nut &<br>Sleeve Cres.<br>Fitting | Cres. & Steel<br>"B" Nut &<br>Sleeve<br>Alum. Fitting | Alum. "B" Nut<br>Stainless<br>Sleeve Alum.<br>Fitting |
|--------------------------|---------------------|------------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
|                          |                     | Aluminum<br>Seal                         | Aluminum<br>Seal               | Copper<br>Seal                 | Nickel<br>Seal                 | Stainless<br>Steel Seal        | Tin Plated<br>Aluminum<br>Seal                   | Tin Plated<br>Copper Seal                             | Tin Plated<br>Copper Seal                             |
| 1/8                      | -2                  | 30-50                                    | 35-65                          | 80-90                          | 90-100                         | 90-100                         | 35-65                                            | 70-80                                                 | 70-80                                                 |
| 3/16                     | -3                  | 35-60                                    | 35-70                          | 100-110                        | 110-125                        | 110-125                        | 35-70                                            | 90-100                                                | 90-100                                                |
| 1/4                      | -4                  | 40-65                                    | 70-120                         | 150-165                        | 165-190                        | 165-190                        | 70-120                                           | 135-150                                               | 135-150                                               |
| 5/16                     | -5                  | 60-80                                    | 80-130                         | 200-220                        | 225-250                        | 225-250                        | 80-130                                           | 180-200                                               | 180-200                                               |
| 3/8                      | -6                  | 75-125                                   | 130-180                        | 300-330                        | 335-375                        | 335-375                        | 130-180                                          | 270-300                                               | 270-300                                               |
| 1/2                      | -8                  | 150-250                                  | 300-400                        | 500-550                        | 575-625                        | 575-625                        | 300-400                                          | 450-500                                               | 450-500                                               |
| 5/8                      | -10                 | 200-350                                  | 430-550                        | 710-770                        | 810-875                        | 810-875                        | 430-550                                          | 650-700                                               | 650-700                                               |
| 3/4                      | -12                 | 300-500                                  | 650-800                        | 990-1100                       | 1125-1250                      | 1125-1250                      | 650-800                                          | 900-1000                                              | 90-1000                                               |
| 1                        | -16                 | 500-700                                  | 900-1100                       | 1300-1550                      | 1500-1750                      | 1500-1750                      | 900-1100                                         | 1200-1400                                             | 1200-1400                                             |
| 1 1/4                    | -20                 | 600-900                                  | 1200-1450                      | 1650-1950                      | 1875-2250                      | 1875-2250                      | 1200-1450                                        | 1500-1800                                             | 1500-1800                                             |
| 1 1/2                    | -24                 | 600-900                                  | 1550-1850                      | 2200-2500                      | 2500-2850                      | 2500-2850                      | 1550-1850                                        | 2000-2300                                             | 2000-2300                                             |
| 1 3/4                    | -28                 | 700-100                                  | 2000-2350                      | 2800-3150                      | 3250-3600                      | 3250-3600                      | 2000-2350                                        | 2600-2900                                             | 2600-2900                                             |
| 2                        | -32                 | 800-1100                                 | 2500-2900                      | 3500-3950                      | 4000-4500                      | 4000-4500                      | 2500-2900                                        | 3200-3600                                             | 3200-3600                                             |

(Particular application requirements may vary from these values)