

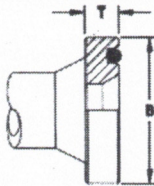
## NPT Threads Dimensions

| NPT THREAD SIZE & PITCH | DASH SIZE | MALE THREAD MINOR OD |      | FEMALE THREAD ID |      |
|-------------------------|-----------|----------------------|------|------------------|------|
| inch - TPI              |           | mm                   | inch | mm               | inch |
| 1/8 - 27                | -02       | 9,9                  | 0.39 | 8,4              | 0.33 |
| 1/4 - 18                | -04       | 13,2                 | 0.52 | 11,2             | 0.44 |
| 3/8 - 18                | -06       | 16,6                 | 0.65 | 14,7             | 0.58 |
| 1/2 - 14                | -08       | 20,6                 | 0.81 | 17,8             | 0.70 |
| 3/4 - 14                | -12       | 26,0                 | 1.02 | 23,4             | 0.92 |
| 1 - 11.1/2              | -16       | 32,5                 | 1.28 | 29,5             | 1.16 |
| 1.1/4 - 11.1/2          | -20       | 41,2                 | 1.62 | 38,1             | 1.50 |
| 1.1/2 - 11.1/2          | -24       | 47,3                 | 1.86 | 43,9             | 1.73 |
| 2 - 11.1/2              | -32       | 59,3                 | 2.33 | 56,4             | 2.22 |
| 2.1/2 - 8               | -40       | 71,5                 | 2.82 | 69,1             | 2.72 |
| 3 - 8                   | -48       | 87,3                 | 3.44 | 84,8             | 3.34 |

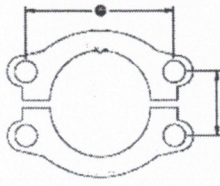
## NPSM Threads Dimensions

| NPSM THREAD SIZE | DASH SIZE | FEMALE THREAD ID |      |
|------------------|-----------|------------------|------|
| inch - TPI       |           | mm               | inch |
| 1/8 - 27         | -02       | 8,6              | 0.34 |
| 1/4 - 18         | -04       | 11,9             | 0.47 |
| 3/8 - 18         | -06       | 15,0             | 0.59 |
| 1/2 - 14         | -08       | 19,1             | 0.75 |
| 3/4 - 14         | -12       | 24,6             | 0.97 |
| 1 - 11.1/2       | -16       | 30,5             | 1.20 |
| 1.1/4 - 11.1/2   | -20       | 39,4             | 1.55 |
| 1.1/2 - 11.1/2   | -24       | 45,5             | 1.79 |
| 2 - 11.1/2       | -32       | 57,4             | 2.26 |
| 2.1/2 - 8        | -40       | 68,8             | 2.71 |
| 3 - 8            | -48       | 84,6             | 3.33 |

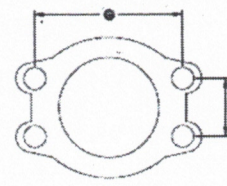
SAE O RING FLANGE



SPLIT FLANGE CLAMP



SOLID FLANGE CLAMP



The male connector has a flange head with an O Ring groove on the face. The female can be a flange block or port with smooth face to accept the O Ring, and four threaded bolt holes in a rectangular pattern. The connection is held together using either a split or solid flange clamp, fitted over the male flange head and

drawn up to the female port using the four bolts. This compresses the O Ring forming a seal between the male flange and the flat female port face. SAE J518, DIN 20066, ISO/DIS 6162 and JIS B 8363 are all interchangeable, except for bolt sizes.

| NOM. FLANGE SIZE | DASH SIZE | BØ    |      | T     |       | F    |      | G     |      | PORT THREAD & BOLT LENGTH |             |            |      |
|------------------|-----------|-------|------|-------|-------|------|------|-------|------|---------------------------|-------------|------------|------|
| inch             |           | mm    | inch | mm    | inch  | mm   | inch | mm    | inch | PORT                      | BOLT LENGTH | PORT       | BOLT |
|                  |           |       |      |       |       |      |      |       |      | UNC                       | inch        | METRIC     | mm   |
| CODE 61          |           |       |      |       |       |      |      |       |      |                           |             |            |      |
| 1/2              | -08       | 30,2  | 1.19 | 6,73  | 0.265 | 17,5 | 0.69 | 38,1  | 1.50 | 5/16 - 18                 | 1.1/4       | M8 x 1,25  | 35   |
| *5/8             | -10       | 34,0  | 1.34 | 6,73  | 0.265 | 19,8 | 0.78 | 42,9  | 1.69 | 5/16 - 18                 |             | M8 x 1,25  |      |
| 3/4              | -12       | 38,1  | 1.50 | 6,73  | 0.265 | 22,2 | 0.88 | 47,6  | 1.88 | 3/8 - 16                  | 1.1/4       | M10 x 1,5  | 35   |
| 1                | -16       | 44,5  | 1.75 | 8,00  | 0.315 | 26,2 | 1.03 | 52,4  | 2.06 | 3/8 - 16                  | 1.1/4       | M10 x 1,5  | 35   |
| 1.1/4            | -20       | 50,8  | 2.00 | 8,00  | 0.315 | 30,2 | 1.19 | 58,7  | 2.31 | 7/16 - 14                 | 1.1/2       | M10 x 1,5  | 40   |
| 1.1/2            | -24       | 60,3  | 2.38 | 8,00  | 0.315 | 35,7 | 1.41 | 69,8  | 2.75 | 1/2 - 13                  | 1.1/2       | M12 x 1,75 | 45   |
| 1.1/2            | -24       | 60,3  | 2.38 | 8,00  | 0.315 | 35,7 | 1.41 | 69,8  | 2.75 | 1/2 - 13                  | 1.1/2       | M12 x 1,75 | 45   |
| 2                | -32       | 71,4  | 2.81 | 9,53  | 0.375 | 42,9 | 1.69 | 77,8  | 3.06 | 1/2 - 13                  | 1.1/2       | M12 x 1,75 | 45   |
| 2.1/2            | -40       | 84,1  | 3.31 | 9,53  | 0.375 | 50,8 | 2.00 | 88,9  | 3.50 | 1/2 - 13                  | 1.3/4       | M12 x 1,75 | 45   |
| 3                | -48       | 101,6 | 4.00 | 9,53  | 0.375 | 61,9 | 2.44 | 106,4 | 4.19 | 5/8 - 11                  | 1.3/4       | M16 x 2,0  | 45   |
| CODE 62          |           |       |      |       |       |      |      |       |      |                           |             |            |      |
| 1/2              | -08       | 31,7  | 1.25 | 7,75  | 0.305 | 18,2 | 0.72 | 40,5  | 1.59 | 5/16 - 18                 | 1.1/4       | M8 x 1,25  | 35   |
| 3/4              | -12       | 41,3  | 1.63 | 8,76  | 0.345 | 23,8 | 0.94 | 50,8  | 2.00 | 3/8 - 16                  | 1.1/2       | M10 x 1,5  | 40   |
| 1                | -16       | 47,6  | 1.88 | 9,53  | 0.375 | 27,8 | 1.09 | 57,2  | 2.25 | 7/16 - 14                 | 1.3/4       | M12 x 1,75 | 45   |
| 1.1/4            | -20       | 54,0  | 2.12 | 10,29 | 0.405 | 31,8 | 1.25 | 66,7  | 2.63 | 1/2 - 13                  | 1.3/4       | M14 x 2,0  | 45   |
| 1.1/2            | -24       | 63,5  | 2.50 | 12,57 | 0.495 | 36,5 | 1.44 | 79,4  | 3.13 | 5/8 - 11                  | 2.1/4       | M16 x 2,0  | 60   |
| 2                | -32       | 79,4  | 3.13 | 12,57 | 0.495 | 44,5 | 1.75 | 96,8  | 3.81 | 3/4 - 10                  | 2.3/4       | M20 x 2,5  | 70   |



## BSPT & BSPP Threads Dimensions

| BSPT & BSPP<br>SIZE & PITCH | DASH<br>SIZE | BSPT MALE<br>THREAD OD |      | BSPP MALE<br>THREAD OD |      | BSPT FEMALE<br>THREAD ID |      | BSPP FEMALE<br>THREAD ID |      |
|-----------------------------|--------------|------------------------|------|------------------------|------|--------------------------|------|--------------------------|------|
|                             |              | mm                     | inch | mm                     | inch | mm                       | inch | mm                       | inch |
| 1/8 - 28                    | -02          | 9,5                    | 0.37 | 9,6                    | 0.38 | 8,4                      | 0.33 | 8,6                      | 0.34 |
| 1/4 - 19                    | -04          | 12,8                   | 0.50 | 13,0                   | 0.51 | 11,2                     | 0.44 | 11,9                     | 0.47 |
| 3/8 - 19                    | -06          | 16,3                   | 0.64 | 16,5                   | 0.65 | 14,7                     | 0.59 | 15,2                     | 0.60 |
| 1/2 - 14                    | -08          | 20,4                   | 0.80 | 20,8                   | 0.82 | 18,3                     | 0.72 | 19,1                     | 0.75 |
| 5/8 - 14                    | -10          | 22,5                   | 0.89 | 22,8                   | 0.90 | 20,6                     | 0.81 | 20,8                     | 0.82 |
| 3/4 - 14                    | -12          | 25,9                   | 1.02 | 26,3                   | 1.04 | 23,9                     | 0.94 | 24,6                     | 0.97 |
| 1 - 11                      | -16          | 32,6                   | 1.28 | 33,1                   | 1.30 | 29,7                     | 1.17 | 30,7                     | 1.21 |
| 1.1/4 - 11                  | -20          | 41,1                   | 1.62 | 41,8                   | 1.64 | 38,6                     | 1.52 | 39,4                     | 1.55 |
| 1.1/2 - 11                  | -24          | 47,0                   | 1.85 | 47,7                   | 1.88 | 44,5                     | 1.75 | 45,5                     | 1.79 |
| 2 - 11                      | -32          | 58,6                   | 2.31 | 59,5                   | 2.34 | 56,4                     | 2.22 | 57,4                     | 2.26 |
| 2.1/2 - 11                  | -40          | 74,1                   | 2.92 | 75,1                   | 2.95 | 71,9                     | 2.83 | 72,6                     | 2.86 |
| 3 - 11                      | -48          | 86,6                   | 3.41 | 87,9                   | 3.46 | 84,6                     | 3.33 | 85,4                     | 3.36 |

## JIC & UNO Thread Dimensions

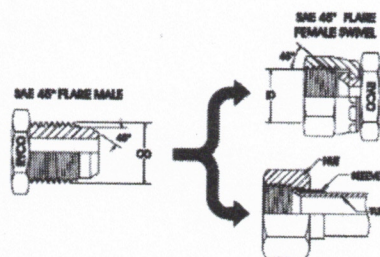
| MALE THREAD<br>OD & PITCH | DASH<br>SIZE | MALE<br>THREAD OD |      | FEMALE<br>THREAD ID |      | TUBESIZE |
|---------------------------|--------------|-------------------|------|---------------------|------|----------|
|                           |              | mm                | inch | mm                  | inch |          |
| inch - TPI                |              |                   |      |                     |      | inch     |
| 5/16 - 24 UNF             | -05          | 7,9               | 0.31 | 6,9                 | 0.27 | 1/8      |
| 3/8 - 24 UNF              | -06          | 9,5               | 0.38 | 8,5                 | 0.33 | 3/16     |
| 7/16 - 20 UNF             | -07          | 11,1              | 0.44 | 9,9                 | 0.39 | 1/4      |
| 1/2 - 20 UNF              | -08          | 12,7              | 0.50 | 11,4                | 0.45 | 5/16     |
| 9/16 - 18 UNF             | -09          | 14,3              | 0.56 | 13,0                | 0.51 | 3/8      |
| 3/4 - 16 UNF              | -12          | 19,1              | 0.75 | 17,5                | 0.69 | 1/2      |
| 7/8 - 14 UNF              | -14          | 22,2              | 0.88 | 20,3                | 0.80 | 5/8      |
| 1.1/16 - 12 UN            | -17          | 27,0              | 1.06 | 24,9                | 0.98 | 3/4      |
| 1.3/16 - 12 UN            | -19          | 30,2              | 1.19 | 28,2                | 1.11 | 7/8      |
| 1.5/16 - 12 UN            | -21          | 33,3              | 1.31 | 31,2                | 1.23 | 1        |
| 1.5/8 - 12 UN             | -26          | 41,3              | 1.63 | 39,1                | 1.54 | 1.1/4    |
| 1.7/8 - 12 UN             | -30          | 47,6              | 1.88 | 45,5                | 1.79 | 1.1/2    |
| 2.1/2 - 12 UN             | -40          | 63,5              | 2.50 | 61,5                | 2.42 | 2        |

## SAE 45° Flare - SAE J512

SAE male has 45° flare which seals against 45° seat in female. Male can also seal against 45° flared tubing with nut and sleeve.

7/16 - 20, 1/2 - 20, 3/4 - 16 & 7/8 - 14 are the same thread form as JIC 37° flare. Some fittings in these sizes have both JIC 37° & SAE 45° seats.

| MALE THREAD<br>OD & PITCH | DASH<br>SIZE | MALE<br>THREAD OD |      | FEMALE<br>THREAD ID |      | TUBE<br>SIZE |
|---------------------------|--------------|-------------------|------|---------------------|------|--------------|
|                           |              |                   |      | mm                  | inch |              |
| inch - TPI                |              | mm                | inch | mm                  | inch | inch         |
| 5/16 - 24                 | -05          | 7,9               | 0.31 | 6,8                 | 0.27 | 1/8          |
| 3/8 - 24                  | -06          | 9,5               | 0.38 | 8,4                 | 0.33 | 3/16         |
| 7/16 - 20                 | -07          | 11,1              | 0.44 | 9,9                 | 0.39 | 1/4          |
| 1/2 - 20                  | -08          | 12,7              | 0.50 | 11,4                | 0.44 | 5/16         |
| 5/8 - 18                  | -10          | 15,9              | 0.63 | 14,2                | 0.56 | 3/8          |
| 3/4 - 16                  | -12          | 19,1              | 0.75 | 17,5                | 0.69 | 1/2          |
| 7/8 - 14                  | -14          | 22,2              | 0.88 | 20,6                | 0.81 | 5/8          |
| 1.1/16 - 14               | -17          | 27,0              | 1.06 | 24,9                | 0.98 | 3/4          |



## SAE 45° Inverted Flare - SAE J512

| MALE THREAD<br>OD & PITCH | DASH<br>SIZE | MALE<br>THREAD OD |      | FEMALE<br>THREAD ID |      | TUBE<br>SIZE |
|---------------------------|--------------|-------------------|------|---------------------|------|--------------|
|                           |              |                   |      | mm                  | inch |              |
| inch - TPI                |              | mm                | inch | mm                  | inch | inch         |
| 7/16 - 24                 | -07          | 11,1              | 0.44 | 9,9                 | 0.39 | 1/4          |
| 1/2 - 20                  | -08          | 12,7              | 0.50 | 11,4                | 0.45 | 5/16         |
| 5/8 - 18                  | -10          | 15,9              | 0.63 | 14,2                | 0.56 | 3/8          |
| 11/16 - 18                | -11          | 17,5              | 0.69 | 16,0                | 0.63 | 7/16         |

