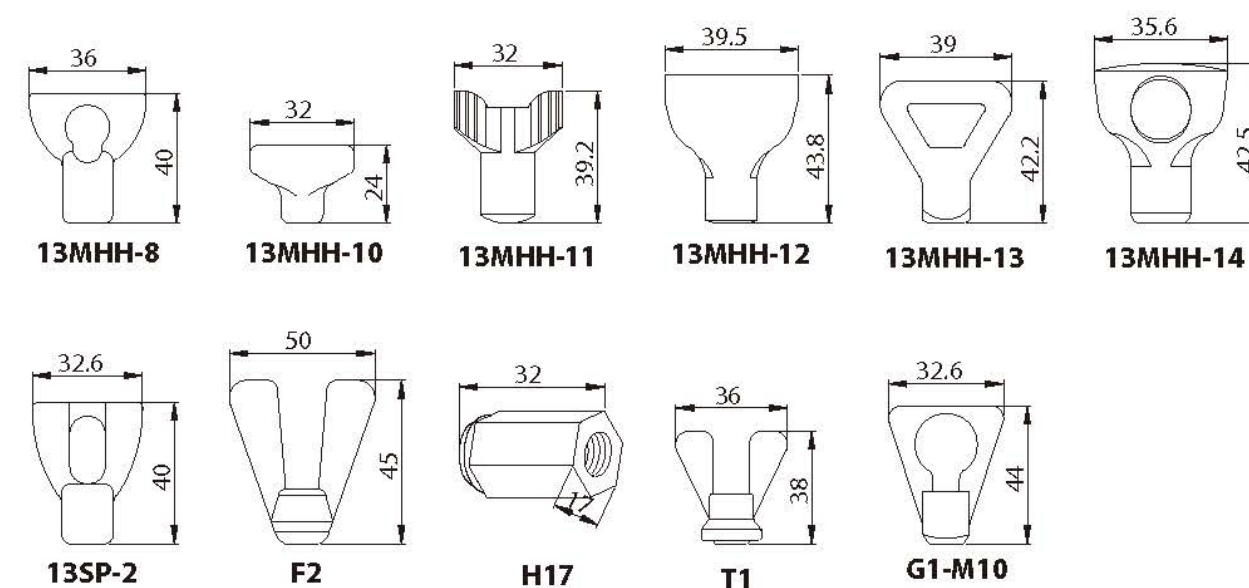


## Sanitary Components, Fitting..



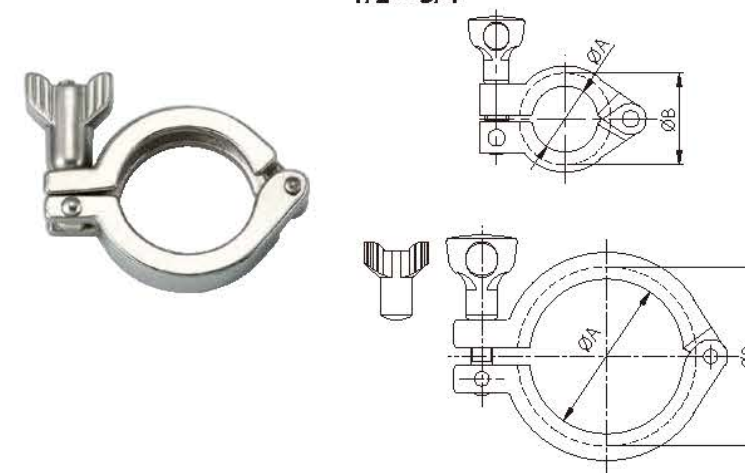
## Heavy Duty Clamp-Ring



13SC safety clamps

| Imperial  | ØA     | ØB     | DN        | ØA    | ØB    |
|-----------|--------|--------|-----------|-------|-------|
| 1/2"~3/4" | 20.58  | 28.34  | DN10~DN20 | 27.2  | 37    |
| 1.0"~1.5" | 41.02  | 53.52  | DN25~DN40 | 44.5  | 54.5  |
| 2.0"      | 54.54  | 67.04  | DN50      | 57    | 68    |
| 2.5"      | 68.02  | 80.52  | DN65      | 84    | 95    |
| 3.0"      | 81.52  | 94.02  | DN80      | 99    | 110   |
| 4.0"      | 109.54 | 122.04 | DN100     | 112   | 123   |
| 6.0"      | 157.6  | 175.1  | DN115     | 123   | 134   |
| 8.0"      | 207.4  | 225.9  | DN125     | 144   | 159   |
|           |        |        | DN150     | 172   | 187   |
|           |        |        | DN200     | 222.5 | 237.5 |
|           |        |        | DN250     | 257   | 272   |
|           |        |        | DN300     | 308   | 323   |

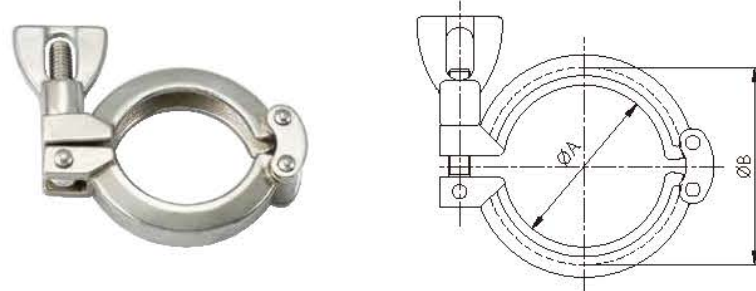
1/2"~3/4"



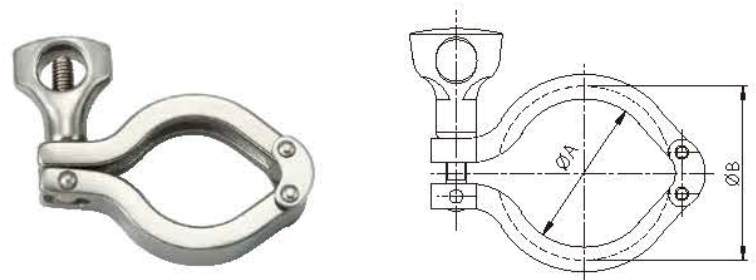
13MHH HEAVY DUTY SINGLE PIN CLAMP

| SIZE      | ØA    | ØB    |
|-----------|-------|-------|
| 1/2"~3/4" | 21.2  | 28.2  |
| A37       | 27.8  | 37    |
| 1"~1.5"   | 42    | 53.6  |
| 2"        | 55.4  | 67    |
| 2.5"      | 69    | 80.6  |
| 3"        | 82.6  | 94.2  |
| 3.5"      | 97.6  | 109.2 |
| 4"        | 110.6 | 122.2 |
| 4.5"      | 121.6 | 133.2 |
| 6"        | 156.2 | 170.4 |
| 8"        | 205.8 | 220   |

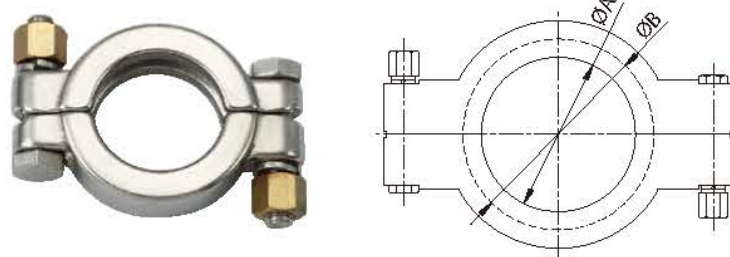
## Heavy Duty Clamp-Ring


**13SF HEAVY DUTY DOUBLE PIN CLAMP**

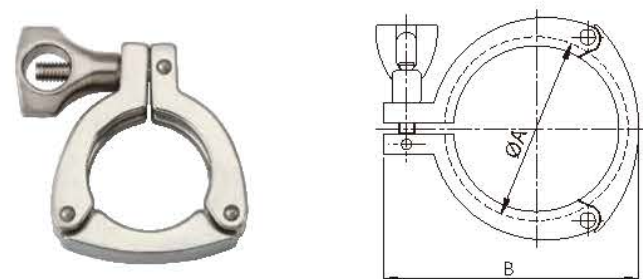
| SIZE      | ØA   | ØB   |
|-----------|------|------|
| 1/2"~3/4" | 20   | 28   |
| A37       | 27.5 | 42.9 |
| 1"~1.5"   | 45   | 53.6 |
| 2"        | 59   | 72   |
| 2.5"      | 67   | 84   |
| 3"        | 85   | 98   |
| 4"        | 114  | 127  |
| 6"        | 158  | 178  |
| 8"        | 210  | 227  |
| 10"       | 262  | 278  |


**13MHM DOUBLE PIN CLAMP**

| SIZE      | ØA   | ØB    |
|-----------|------|-------|
| 1/2"~3/4" | 20   | 28    |
| A37       | 28   | 38    |
| 1"~1.5"   | 43.6 | 53.6  |
| 2"        | 57   | 67    |
| 2.5"      | 70.6 | 80.6  |
| 3"        | 84   | 94    |
| 4"        | 112  | 122   |
| 6"        | 155  | 170   |
| 8"        | 205  | 220.8 |

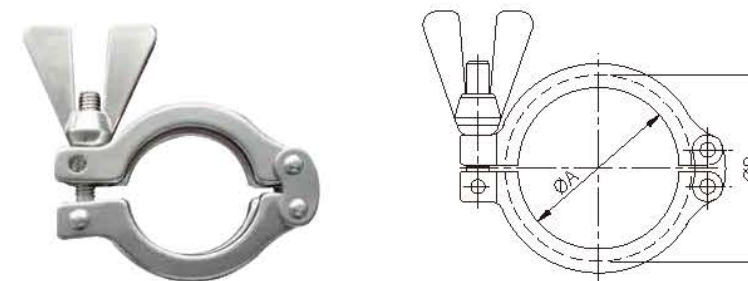

**13MHP  
HIGH PRESSURE BOLTED CLAMP**

| SIZE      | ØA     | ØB    |
|-----------|--------|-------|
| 1/2"~3/4" | 20     | 28    |
| 1"~1.5"   | 43.32  | 52    |
| 2"        | 56.44  | 65.5  |
| 2.5"      | 69.54  | 79    |
| 3"        | 77.56  | 92.5  |
| 4"        | 108.86 | 120.5 |
| 6"        | 158    | 170   |
| 6.5"      | 173    | 186.2 |
| 8"        | 224    | 249   |
| 10"       | 258.2  | 276.8 |
| 12"       | 309    | 327.6 |

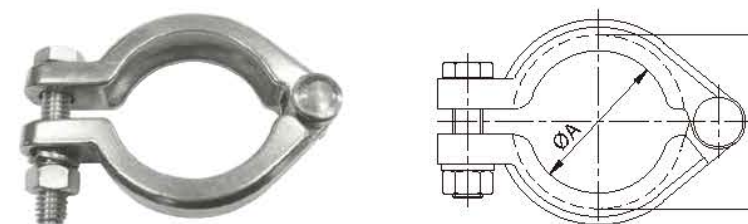

**13MHHS  
3 PIECE CLAMP**

| SIZE    | ØA    | B   |
|---------|-------|-----|
| 1"~1.5" | 54    | 80  |
| 2"      | 67.5  | 94  |
| 2.5"    | 80.9  | 109 |
| 3"      | 84.4  | 126 |
| 4"      | 122.4 | 154 |

## Heavy Duty Clamp-Ring


**13CS DOUBLE PIN CLAMP**

| SIZE      | ØA     | ØB     |
|-----------|--------|--------|
| 1/2"~3/4" | 20.58  | 28.34  |
| DN10-20   | 27.2   | 37     |
| 1.5"      | 41.02  | 53.52  |
| DN25-40   | 44.5   | 54.5   |
| 2.0"      | 54.54  | 67.04  |
| DN50      | 57     | 68     |
| 2.5"      | 68.02  | 80.52  |
| 3.0"      | 81.52  | 94.02  |
| DN65      | 84     | 95     |
| DN80      | 99     | 110    |
| 4.0"      | 109.54 | 122.04 |
| DN100     | 112    | 123    |
| DN115     | 123    | 134    |
| DN125     | 144    | 159    |
| 6.0"      | 157.6  | 175.1  |
| DN150     | 172    | 187    |
| 8.0"      | 207.4  | 225.9  |
| DN200     | 222.5  | 237.5  |
| DN250     | 257    | 272    |
| DN300     | 308    | 323    |


**13IU BOLTED CLAMP**

| SIZE    | ØA  | ØB  |
|---------|-----|-----|
| 1"~1.5" | 45  | 55  |
| 2.0"    | 63  | 73  |
| 2.5"    | 74  | 89  |
| 3.0"    | 87  | 102 |
| 4.0"    | 111 | 128 |

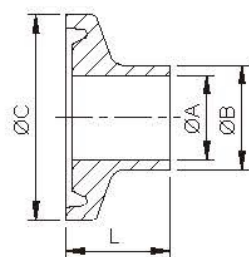

**13IS I-LINE CLAMP**

| SIZE      | ØA    | ØB    |
|-----------|-------|-------|
| 1.0"~1.5" | 44.4  | 53.4  |
| 2.0"      | 60.14 | 72.2  |
| 2.5"      | 78.62 | 88.1  |
| 3.0"      | 93.06 | 102.4 |
| 4.0"      | 118.6 | 127.8 |
| 6.0"      | 178.3 | 195.3 |

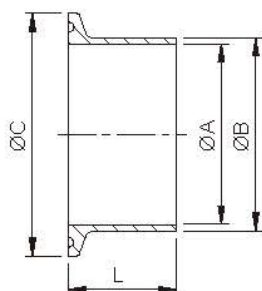


## Ferrule Adapter

3A-1/2"~3/4"  
SMS-DN15~DN20  
DIN-DN6~DN8  
DIN(ISO)-DN6~DN10



3A-1.0"~12"  
SMS-DN25~DN100  
DIN-DN10~DN100  
DIN(ISO)-DN15~DN200



DIN(ISO) Ferrule

| SIZE  | ØA    | ØB    | ØC    | L    |
|-------|-------|-------|-------|------|
| DN6   | 7     | 10.2  | 25    | 12.7 |
| DN8   | 10.3  | 13.5  | 25    | 12.7 |
| DN10  | 14    | 17.2  | 25    | 12.7 |
| DN15  | 18.1  | 21.3  | 50.5  | 21.5 |
| DN20  | 23.7  | 26.9  | 50.5  | 21.5 |
| DN25  | 29.7  | 33.7  | 50.5  | 21.5 |
| DN32  | 38.4  | 42.4  | 64    | 21.5 |
| DN40  | 44.3  | 48.3  | 64    | 21.5 |
| DN50  | 56.3  | 60.3  | 77.5  | 28   |
| DN65  | 72.1  | 76.1  | 91    | 28   |
| DN80  | 84.3  | 88.9  | 106   | 28   |
| DN100 | 109.7 | 114.3 | 130   | 28   |
| DN125 | 134.5 | 139.7 | 155   | 28   |
| DN150 | 163.1 | 168.3 | 183   | 28   |
| DN200 | 213.9 | 219.1 | 233.5 | 28   |

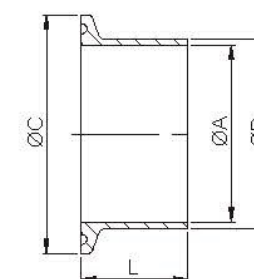
3A/SMS Welding Ferrule

| SIZE  | ØA     | ØB    | ØC     | L    | L    | L            |
|-------|--------|-------|--------|------|------|--------------|
| 1/4"  | 3.9    | 6.35  | 25     | 12.7 | 21.5 | 28.6         |
| 1/2"  | 9.4    | 12.7  | 25     | 12.7 | 21.5 | 28.6         |
| DN15  | 9.7    | 12.7  | 25.4   | 12.7 | 21.5 | 28.6         |
| 3/4"  | 15.75  | 19.05 | 25     | 12.7 | 21.5 | 28.6         |
| DN20  | 15.95  | 19.05 | 25.4   | 12.7 | 21.5 | 28.6         |
| 1"    | 22.1   | 25.4  | 50.5   | 12.7 | 21.5 | 28.6         |
| DN25  | 22.5   | 25    | 50.5   | 12.7 | 21.5 | 28.6         |
| 1.25" | 28.45  | 31.75 | 50.5   | 12.7 | 21.5 | 28.6         |
| 1.5"  | 34.8   | 38.1  | 50.5   | 12.7 | 21.5 | 28.6         |
| DN38  | 35.5   | 38    | 50.5   | 12.7 | 21.5 | 28.6         |
| 2.0"  | 47.5   | 50.8  | 64     | 12.7 | 21.5 | 28.6         |
| DN50  | 48.5   | 51    | 64     | 12.7 | 21.5 | 28.6         |
| 2.5"  | 60.2   | 63.5  | 77.5   | 12.7 | 21.5 | 28.6         |
| DN63  | 60.3   | 63.5  | 77.5   | 12.7 | 21.5 | 28.6         |
| DN76  | 72.9   | 76.1  | 91     | 12.7 | 21.5 | 28.6         |
| 3.0"  | 72.9   | 76.2  | 91     | 12.7 | 21.5 | 28.6         |
| DN104 | 100    | 104   | 119    | 15.8 | 21.5 | 28.6         |
| 4.0"  | 97.4   | 101.6 | 119    | 15.8 | 21.5 | 28.6         |
| 5.0"  | 121.46 | 127   | 144.45 | 15.8 | 21.5 | 28.6 or 38.1 |
| 6.0"  | 146.86 | 152.4 | 166.87 | —    | 21.5 | 28.6 or 38.1 |
| 8.0"  | 197.66 | 203.2 | 217.67 | —    | 21.5 | 28.6 or 38.1 |
| 10"   | 247.2  | 254   | 268.47 | —    | 21.5 | 28.6 or 38.1 |
| 12"   | 298    | 304.8 | 319.27 | —    | 21.5 | 28.6 or 38.1 |

DIN Ferrule

| SIZE    | DA<br>ØA | DB<br>ØB | DB<br>ØA | DB<br>ØB | ØC    | L    |
|---------|----------|----------|----------|----------|-------|------|
| DN6     | 6        | 8        | —        | —        | 25    | 12.7 |
| DN8     | 8        | 10       | —        | —        | 25    | 12.7 |
| DN10    | 10       | 13       | 9        | 12       | 34    | 18   |
| DN15    | 16       | 19       | 15       | 18       | 34    | 18   |
| DN20    | 20       | 23       | 19       | 22       | 34    | 18   |
| DN25    | 26       | 29       | 25       | 28       | 50.5  | 21.5 |
| DN32    | 32       | 35       | 31       | 34       | 50.5  | 21.5 |
| DN40    | 38       | 41       | 37       | 40       | 50.5  | 21.5 |
| DN50    | 50       | 53       | 49       | 52       | 64    | 21.5 |
| DN65    | 66       | 70       | 66       | 70       | 91    | 28   |
| DN80    | 81       | 85       | 81       | 85       | 106   | 28   |
| DN101.6 | —        | —        | 97.6     | 101.6    | 119   | 28   |
| DN100   | 100      | 104      | 100      | 104      | 119   | 28   |
| DN125   | 125      | 129      | 125      | 129      | 155   | 28   |
| DN150   | 150      | 154      | 150      | 154      | 183   | 28   |
| DN200   | 200      | 204      | 200      | 204      | 233.5 | 28   |

## Ferrule Adapter



ISO(REP) Ferrule

| SIZE  | ØA    | ØB    | ØC1   | L    |
|-------|-------|-------|-------|------|
| DN8   | 10.3  | 13.5  | 34    | 28.6 |
| DN10  | 14    | 17.2  | 34    | 28.6 |
| DN15  | 18.1  | 21.3  | 34    | 28.6 |
| DN20  | 23.7  | 26.9  | 50.5  | 28.6 |
| DN25  | 30.5  | 33.7  | 50.5  | 28.6 |
| DN32  | 39.2  | 42.4  | 50.5  | 28.6 |
| DN40  | 45.1  | 48.3  | 64    | 28.6 |
| DN50  | 56.3  | 60.3  | 77.5  | 28.6 |
| DN65  | 72.1  | 76.1  | 91    | 28.6 |
| DN80  | 84.3  | 88.9  | 106   | 28.6 |
| DN100 | 109.7 | 114.3 | 130   | 28.6 |
| DN125 | 133.7 | 139.7 | 155   | 28.6 |
| DN150 | 162.3 | 168.3 | 183   | 28.6 |
| DN200 | 211.1 | 219.1 | 233.5 | 28.6 |
| DN250 | 266.3 | 273.1 | 233.5 | 28.6 |

ISO-2852 Ferrule

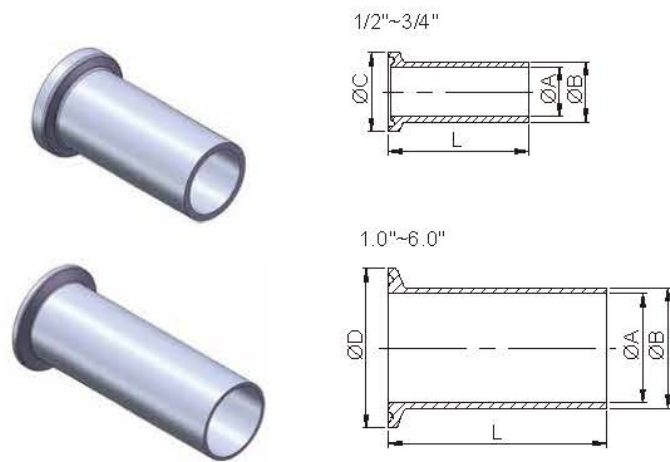
| SIZE  | ØA    | ØB    | ØC    | L    |
|-------|-------|-------|-------|------|
| 25    | 22.6  | 25.6  | 50.5  | 21.5 |
| 33.7  | 31.3  | 34.3  | 50.5  | 21.5 |
| 38    | 35.6  | 38.6  | 50.5  | 21.5 |
| 40    | 37.6  | 40.6  | 64    | 21.5 |
| 51    | 48.6  | 51.6  | 64    | 21.5 |
| 63.5  | 60.3  | 64.1  | 77.5  | 21.5 |
| 70    | 66.8  | 70.6  | 91    | 21.5 |
| 76.1  | 72.9  | 76.7  | 91    | 21.5 |
| 88.9  | 84.9  | 89.8  | 106   | 21.5 |
| 101.6 | 97.6  | 102.5 | 119   | 21.5 |
| 114.3 | 110.3 | 115.6 | 130   | 28   |
| 139.7 | 135.7 | 141.2 | 155   | 28   |
| 168.3 | 163.1 | 170   | 183   | 28   |
| 219.1 | 213.9 | 221.2 | 233.5 | 28   |

IDF/JIS Ferrule

| SIZE  | ØA    | ØB    | ØC   | L    |
|-------|-------|-------|------|------|
| 1.0S  | 23    | 25.4  | 50.5 | 21.5 |
| 1.25S | 29.4  | 31.8  | 50.5 | 17   |
| 1.5S  | 35.7  | 38.1  | 50.5 | 21.5 |
| 2.0S  | 47.8  | 50.8  | 64   | 21.5 |
| 2.5S  | 59.5  | 63.5  | 77.5 | 21.5 |
| 3.0S  | 72.3  | 76.3  | 91   | 21.5 |
| 3.5S  | 85.1  | 89.1  | 106  | 21.5 |
| 4.0S  | 97.6  | 101.6 | 119  | 28   |
| 4.5S  | 108.3 | 114.3 | 130  | 28   |
| 5.5S  | 133.8 | 139.8 | 165  | 28   |
| 6.5S  | 159.2 | 165.2 | 183  | 28   |

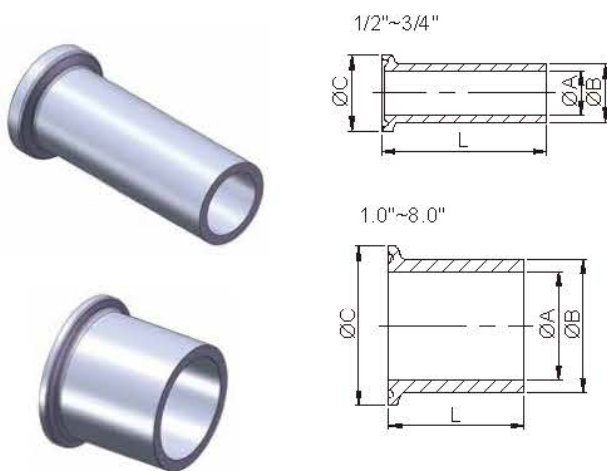


## Ferrule Adapter



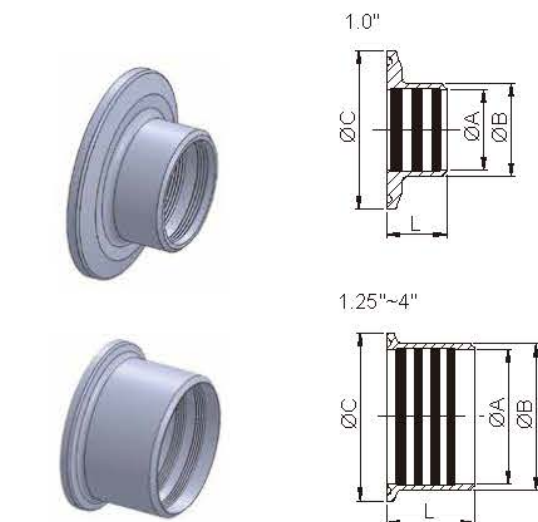
14MPHT

| SIZE | ØA     | ØB    | ØC     | L     | L     |
|------|--------|-------|--------|-------|-------|
| 1/2" | 9.4    | 12.7  | 25     | 44.45 | 101.6 |
| 3/4" | 15.75  | 19.05 | 25     | 44.45 | 101.6 |
| 1.0" | 22.1   | 25.4  | 50.5   | 114.3 | —     |
| 1.5" | 34.8   | 38.1  | 50.5   | 114.3 | —     |
| 2.0" | 47.5   | 50.8  | 64     | 114.3 | —     |
| 2.5" | 60.2   | 63.5  | 77.5   | 114.3 | —     |
| 3.0" | 72.9   | 76.2  | 91     | 114.3 | —     |
| 4.0" | 97.4   | 101.6 | 119    | 117.9 | —     |
| 6.0" | 146.86 | 152.4 | 166.87 | 152.4 | —     |



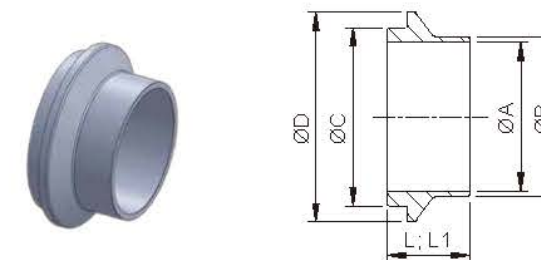
14MPW Heavy Tank Ferrule

| SIZE | ØA     | ØB    | ØC     | L    |
|------|--------|-------|--------|------|
| 1/2" | 8.15   | 12.75 | 25     | 54   |
| 3/4" | 14.6   | 19.05 | 25     | 54   |
| 1.0" | 22.1   | 29.5  | 50.5   | 41.3 |
| 1.5" | 34.8   | 42.6  | 50.5   | 41.3 |
| 2.0" | 47.5   | 55.7  | 64     | 44.5 |
| 2.5" | 60.2   | 68.8  | 77.5   | 44.5 |
| 3.0" | 72.9   | 81.9  | 91     | 46.1 |
| 4.0" | 97.4   | 108.1 | 119    | 54   |
| 6.0" | 146.25 | 157.3 | 166.87 | 63.5 |
| 8.0" | 197.05 | 208.1 | 217.67 | 63.5 |

14RMP  
3A-Roll-on ferrule

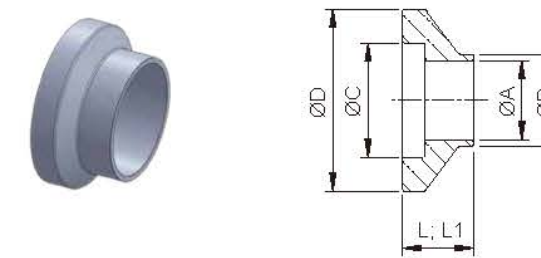
| SIZE  | ØA    | ØB    | ØC   | L    |
|-------|-------|-------|------|------|
| 1.0"  | 25.4  | 29.5  | 50.5 | 19.1 |
| 1.25" | 31.75 | 36.3  | 50.5 | 21.5 |
| 1.5"  | 38.1  | 42.6  | 50.5 | 28.6 |
| 2.0"  | 50.8  | 55.7  | 64   | 33.3 |
| 2.5"  | 63.5  | 68.8  | 77.5 | 34.9 |
| 3.0"  | 76.2  | 81.9  | 91   | 36.5 |
| 4.0"  | 101.6 | 108.1 | 119  | 38.1 |

## I-Line Ferrule Adapter



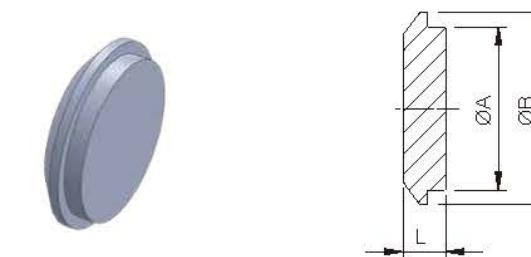
14WI I-Line Ferrule Male

| SIZE | ØA     | ØB    | ØC     | ØD    | L     | L1    |
|------|--------|-------|--------|-------|-------|-------|
| 1.0" | 22.1   | 25.4  | 31.5   | 50.67 | 19.84 | 44.65 |
| 1.5" | 34.8   | 38.1  | 44.2   | 50.67 | 23.8  | 51.75 |
| 2.0" | 47.5   | 50.8  | 56.9   | 67.05 | 26.19 | 58.88 |
| 2.5" | 60.2   | 63.5  | 69.6   | 84    | 29.36 | 63.47 |
| 3.0" | 72.9   | 76.2  | 83.82  | 98.3  | 30.94 | 68.17 |
| 4.0" | 97.4   | 101.6 | 109.14 | 123.7 | 34.11 | 76.17 |
| 6.0" | 146.86 | 152.4 | 173.5  | 190.4 | 28.58 | 73.1  |
| 8.0" | 197.66 | 203.2 | 224.3  | 241.2 | 28.58 | 73.1  |



15WI I-Line Ferrule Female

| SIZE | ØA     | ØB    | ØC    | ØD    | L     | L1   |
|------|--------|-------|-------|-------|-------|------|
| 1.0" | 22.1   | 25.4  | 31.88 | 50.67 | 19.84 | 44.5 |
| 1.5" | 34.8   | 38.1  | 44.58 | 50.67 | 23.8  | 51.6 |
| 2.0" | 47.5   | 50.8  | 57.28 | 67.05 | 26.19 | 58.7 |
| 2.5" | 60.2   | 63.5  | 69.98 | 84    | 29.36 | 63.5 |
| 3.0" | 72.9   | 76.2  | 84.2  | 98.3  | 30.94 | 68.3 |
| 4.0" | 97.4   | 101.6 | 109.6 | 123.7 | 34.11 | 76.2 |
| 6.0" | 146.86 | 152.4 | 175.7 | 190.4 | 28.58 | 76.2 |
| 8.0" | 197.66 | 203.2 | 226.5 | 241.2 | 28.58 | 76.2 |



16AI-14I Male I-Line End Cap

| SIZE | ØA     | ØB    | L     |
|------|--------|-------|-------|
| 1.0" | 31.5   | 50.67 | 12.37 |
| 1.5" | 44.2   | 50.67 | 12.37 |
| 2.0" | 56.9   | 67.05 | 14.11 |
| 2.5" | 69.6   | 84    | 18.72 |
| 3.0" | 83.82  | 98.3  | 19.32 |
| 4.0" | 109.14 | 123.7 | 19.32 |
| 6.0" | 173.5  | 190.4 | 18.88 |
| 8.0" | 224.3  | 241.2 | 18.88 |



16AI-15I Female I-Line End Cap

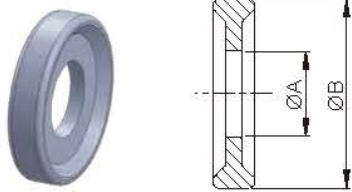
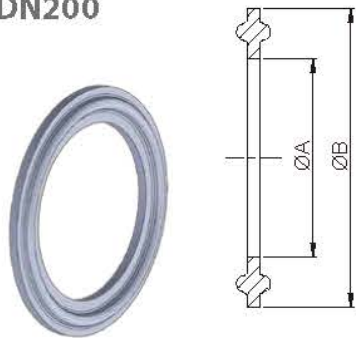
| SIZE | ØA    | ØB    | L     |
|------|-------|-------|-------|
| 1.0" | 31.88 | 50.67 | 12.75 |
| 1.5" | 44.58 | 50.67 | 12.75 |
| 2.0" | 57.28 | 67.05 | 17.66 |
| 2.5" | 69.98 | 84    | 18.77 |
| 3.0" | 84.2  | 98.3  | 19.37 |
| 4.0" | 109.6 | 123.7 | 19.37 |
| 6.0" | 175.7 | 190.4 | 22    |
| 8.0" | 226.5 | 241.2 | 22    |



## Ferrule Adapter

13PG

1/2"-3/4"

1"~8"  
DN10~DN200

13PG (EPDM、SILICONE、VITON、PTFE)

| Imperial | ØA    | ØB   |
|----------|-------|------|
| 1/2"     | 9.9   | 21.8 |
| 3/4"     | 16.3  | 21.8 |
| A37      | 19    | 33   |
| 1"       | 22.7  | 50   |
| 1.25"    | 29.5  | 50.5 |
| 1.5"     | 35.9  | 50   |
| 2"       | 48.6  | 63.5 |
| 2.5"     | 61.3  | 76.2 |
| 3"       | 74    | 88.9 |
| 3.5"     | 86    | 105  |
| 4"       | 98.6  | 118  |
| 4.5"     | 110.5 | 129  |
| 5"       | 134.7 | 153  |
| 6"       | 147.8 | 165  |
| 8"       | 198.6 | 216  |

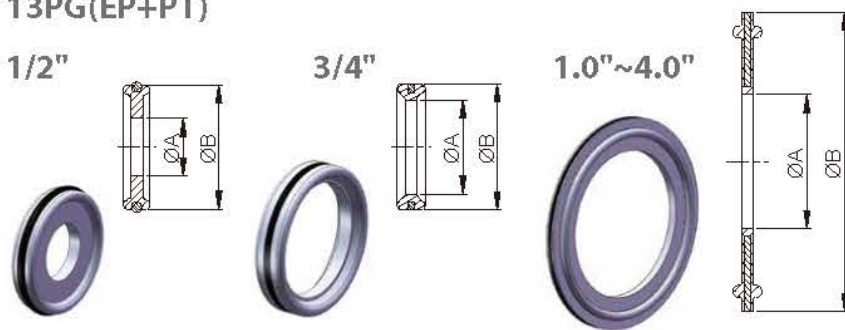
| ISO(PTFE) | ØA    | ØB    | DIN(EPDM) | ØA    | ØB    |
|-----------|-------|-------|-----------|-------|-------|
| DN8       | 11.1  | 33.2  | DN10      | 9.8   | 33.2  |
| DN12      | 14.8  | 33.2  | DN15      | 15.8  | 33.2  |
| DN15      | 18.9  | 33.2  | DN20      | 19.8  | 33.2  |
| DN20      | 24.5  | 49.7  | DN28      | 25.8  | 49.7  |
| DN25      | 31.3  | 49.7  | DN34      | 31.8  | 49.7  |
| DN32      | 40    | 49.7  | DN40      | 37.8  | 49.7  |
| DN40      | 45.9  | 63.2  | DN52      | 49.8  | 63.2  |
| DN50      | 57.1  | 76.7  | DN70      | 66.8  | 90.2  |
| DN65      | 72.9  | 90.2  | DN85      | 81.8  | 105.2 |
| DN80      | 85.7  | 105.2 | DN101.6   | 98.4  | 118.2 |
| DN100     | 109.9 | 129.2 | DN104     | 100.8 | 118.2 |
| DN125     | 134.5 | 154.2 | DN125     | 125.8 | 154.2 |
| DN150     | 163.1 | 182.2 | DN150     | 150.8 | 182.2 |
| DN200     | 211.9 | 232.7 | DN200     | 200.8 | 232.7 |

13PG(EP+PT)

1/2"

3/4"

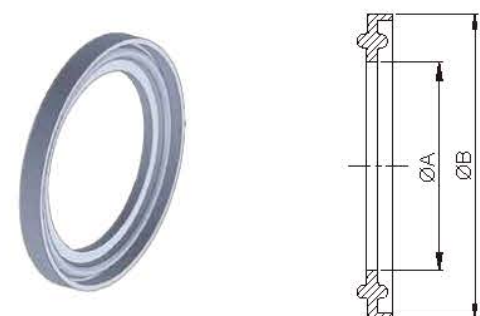
1.0"~4.0"



Imperial 13PG(EP+PT)

| SIZE | ØA   | ØB    |
|------|------|-------|
| 1/2" | 10   | 21.5  |
| 3/4" | 16.3 | 21.8  |
| 1"   | 22.5 | 50.2  |
| 1.5" | 34.9 | 50.2  |
| 2"   | 47.6 | 63.5  |
| 2.5" | 60.5 | 77.7  |
| 3"   | 73.2 | 90.5  |
| 4"   | 97.7 | 118.4 |

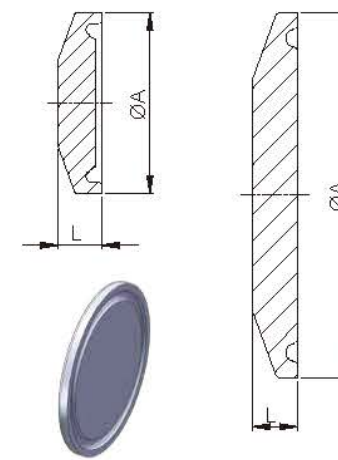
13FG



FLANGE TYPE 13FG

| SIZE | ØA   | ØB    |
|------|------|-------|
| 1"   | 22.8 | 52.7  |
| 1.5" | 35.8 | 52.7  |
| 2"   | 48.8 | 66.2  |
| 2.5" | 60.5 | 79.7  |
| 3"   | 73.1 | 93.2  |
| 4"   | 97.8 | 121.2 |
| 6"   | 148  | 169.1 |
| 10"  | 249  | 270.7 |
| 12"  | 300  | 321.5 |

## Ferrule Adapter

1/2"~3/4"  
DIN6~DIN8A37"~12"  
DIN10~DIN200  
ISO(REP)

Imperial 16AMP

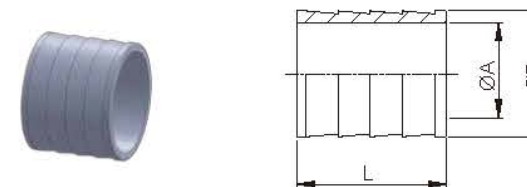
DIN 16AMP

ISO(REP) 16AMP

| SIZE | ØA     | L    | SIZE  | ØA    | L    | SIZE  | ØA    | L    |
|------|--------|------|-------|-------|------|-------|-------|------|
| 1/2" | 25     | 6    | DN6   | 25    | 4.75 | DN8   | 34    | 6.3  |
| 3/4" | 25     | 6    | DN8   | 25    | 4.75 | DN12  | 34    | 6.3  |
| A37  | 34     | 6.3  | DN10  | 34    | 6.35 | DN15  | 34    | 6.3  |
| 1.0" | 50.5   | 6.3  | DN15  | 34    | 6.35 | DN20  | 50.5  | 6.3  |
| 1.5" | 50.5   | 6.3  | DN20  | 34    | 6.35 | DN25  | 50.5  | 6.3  |
| 2.0" | 64     | 6.3  | DN25  | 50.5  | 6.35 | DN32  | 50.5  | 6.3  |
| 2.5" | 77.5   | 6.3  | DN32  | 50.5  | 6.35 | DN40  | 64    | 6.3  |
| 3.0" | 91     | 6.3  | DN40  | 50.5  | 6.35 | DN50  | 77.5  | 6.3  |
| 3.5" | 106    | 6.3  | DN50  | 64    | 6.35 | DN65  | 91    | 6.3  |
| 4.0" | 119    | 7.9  | DN65  | 91    | 6.35 | DN80  | 106   | 6.3  |
| 6.0" | 166.87 | 11.1 | DN80  | 106   | 6.35 | DN100 | 130   | 7.9  |
| 8.0" | 217.67 | 11.1 | DN100 | 119   | 8    | DN125 | 155   | 7.9  |
| 10"  | 268.47 | 11.1 | DN125 | 155   | 8    | DN150 | 183   | 11.1 |
| 12"  | 319.27 | 11.1 | DN150 | 183   | 11.1 | DN200 | 233.5 | 11.1 |
|      |        |      | DN200 | 233.5 | 11.1 |       |       |      |

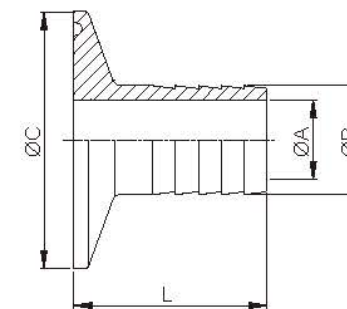
14WHR HOSE ADAPTER

| SIZE | ØA   | ØB    | ØC   | L    |
|------|------|-------|------|------|
| 1/2" | 9.5  | 13.7  | 25.2 | 25.3 |
| 3/4" | 15.8 | 21.4  | 25.2 | 25.3 |
| 1.0" | 20.6 | 25.4  | 50.5 | 30.3 |
| 1.5" | 33.2 | 38.1  | 50.5 | 30.3 |
| 2.0" | 46   | 50.8  | 64   | 46   |
| 2.5" | 58.7 | 63.5  | 77.5 | 46.8 |
| 3.0" | 72   | 76.2  | 91   | 65.9 |
| 4.0" | 97.6 | 101.6 | 119  | 72.8 |



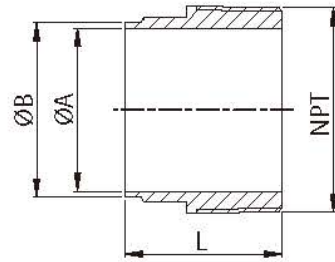
14MPHR HOSE ADAPTER

| SIZE      | ØA    | ØB   | ØC   | L  | SIZE       | ØA   | ØB    | ØC   | L    |
|-----------|-------|------|------|----|------------|------|-------|------|------|
| 1/2"~1/4" | 3.175 | 7.3  | 25.2 | 38 | 1.0"~1.0"  | 20.6 | 25.4  | 50.5 | 43   |
| 1/2"~3/8" | 6.35  | 10.4 | 25.2 | 38 | 1.5"~3/8"  | 6.35 | 10.4  | 50.5 | 38   |
| 1/2"~1/2" | 9.5   | 13.7 | 25.2 | 38 | 1.5"~1/2"  | 9.5  | 13.7  | 50.5 | 38   |
| 1/2"~5/8" | 12.7  | 16.8 | 25.2 | 38 | 1.5"~5/8"  | 12.7 | 16.8  | 50.5 | 38   |
| 3/4"~1/4" | 3.175 | 7.3  | 25.2 | 38 | 1.5"~3/4"  | 15.8 | 21.4  | 50.5 | 38   |
| 3/4"~3/8" | 6.35  | 10.4 | 25.2 | 38 | 1.5"~1.0"  | 20.6 | 25.4  | 50.5 | 43   |
| 3/4"~1/2" | 9.5   | 13.7 | 25.2 | 38 | 1.5"~1.25" | 26.8 | 31.75 | 50.5 | 43   |
| 3/4"~5/8" | 12.7  | 16.8 | 25.2 | 38 | 1.5"~1.5"  | 33.2 | 38.1  | 50.5 | 43   |
| 3/4"~3/4" | 15.8  | 21.4 | 25.2 | 38 | 2.0"~1.25" | 26.8 | 31.75 | 64   | 43   |
| 1.0"~1/4" | 3.175 | 7.3  | 50.5 | 38 | 2.0"~1.5"  | 33.2 | 38.1  | 64   | 43   |
| 1.0"~3/8" | 6.35  | 10.4 | 50.5 | 38 | 2.0"~2.0"  | 46   | 50.8  | 64   | 58.7 |
| 1.0"~1/2" | 9.5   | 13.7 | 50.5 | 38 | 2.5"~2.5"  | 58.7 | 63.5  | 77.5 | 59.5 |
| 1.0"~5/8" | 12.7  | 16.8 | 50.5 | 38 | 3.0"~3.0"  | 72   | 76.2  | 91   | 78.6 |
| 1.0"~3/4" | 15.8  | 21.4 | 50.5 | 38 | 4.0"~4.0"  | 97.6 | 101.6 | 119  | 85.5 |





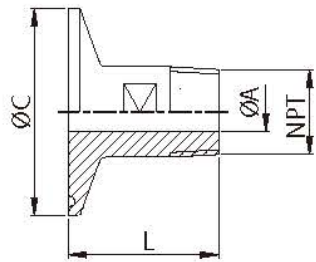
## Ferrule Adapter



19W thread male

| SIZE | ØA    | ØB    | NPT  | L    |
|------|-------|-------|------|------|
| 1/2" | 9.4   | 12.7  | 1/2" | 41.3 |
| 3/4" | 15.75 | 19.05 | 3/4" | 41.3 |
| 1.0" | 22.1  | 25.4  | 1.0" | 44.5 |
| 1.5" | 34.8  | 38.1  | 1.5" | 44.5 |
| 2.0" | 47.5  | 50.8  | 2.0" | 46   |
| 2.5" | 60.2  | 63.5  | 2.5" | 58.7 |
| 3.0" | 72.9  | 76.2  | 3.0" | 63.5 |
| 4.0" | 97.4  | 101.6 | 4.0" | 65.1 |
| 6.0" | 146.9 | 152.4 | 6.0" | 76.2 |

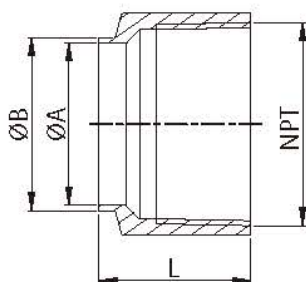
21MP



| SIZE            | ØA   | ØC   | NPT   | L  | SIZE      | ØA   | ØC   | NPT  | L  |
|-----------------|------|------|-------|----|-----------|------|------|------|----|
| 1/2"×1/2"       | 9.5  | 25   | 1/2"  | 45 | 2.0"×3.0" | 73   | 64   | 3.0" | 70 |
| 3/4"×1/4"       | 7.95 | 25   | 1/4"  | 45 | 2.0"×4.0" | 97.6 | 64   | 4.0" | 75 |
| 3/4"×1/2"       | 15.8 | 25   | 1/2"  | 45 | 2.5"×1.0" | 22.2 | 77.5 | 1.0" | 50 |
| 3/4"×3/4"       | 15.8 | 25   | 3/4"  | 45 | 2.5"×1.5" | 34.9 | 77.5 | 1.5" | 50 |
| 1.0"×1.5"×1/4"  | 3.18 | 50.5 | 1/4"  | 40 | 2.5"×2.0" | 47.6 | 77.5 | 2.0" | 55 |
| 1.0"×1.5"×3/8"  | 6.35 | 50.5 | 3/8"  | 40 | 2.5"×2.5" | 60.3 | 77.5 | 2.5" | 60 |
| 1.0"×1.5"×1/2"  | 9.5  | 50.5 | 1/2"  | 40 | 2.5"×3.0" | 73   | 77.5 | 3.0" | 70 |
| 1.0"×1.5"×3/4"  | 15.8 | 50.5 | 3/4"  | 45 | 2.5"×4.0" | 97.6 | 77.5 | 4.0" | 75 |
| 1"×1.5"×1.0"    | 22.2 | 50.5 | 1.0"  | 50 | 3.0"×1.0" | 22.2 | 91   | 1.0" | 55 |
| 1.0"×1.5"×1.25" | 28.6 | 50.5 | 1.25" | 50 | 3.0"×1.5" | 34.9 | 91   | 1.5" | 55 |
| 1.0"×1.5"×1.5"  | 34.9 | 50.5 | 1.5"  | 50 | 3.0"×2.0" | 47.6 | 91   | 2.0" | 55 |
| 1.0"×1.5"×2.0"  | 47.6 | 50.5 | 2.0"  | 55 | 3.0"×2.5" | 60.3 | 91   | 2.5" | 60 |
| 2.0"×1/4"       | 3.18 | 64   | 1/4"  | 40 | 3.0"×3.0" | 73   | 91   | 3.0" | 70 |
| 2.0"×3/8"       | 6.35 | 64   | 3/8"  | 40 | 3.0"×4.0" | 97.6 | 91   | 4.0" | 75 |
| 2.0"×1/2"       | 9.5  | 64   | 1/2"  | 40 | 4.0"×1.0" | 22.2 | 119  | 1.0" | 55 |
| 2.0"×3/4"       | 15.8 | 64   | 3/4"  | 50 | 4.0"×1.5" | 34.9 | 119  | 1.5" | 55 |
| 2.0"×1.0"       | 22.2 | 64   | 1.0"  | 50 | 4.0"×2.0" | 47.6 | 119  | 2.0" | 55 |
| 2.0"×1.5"       | 34.9 | 64   | 1.5"  | 50 | 4.0"×2.5" | 60.3 | 119  | 2.5" | 60 |
| 2.0"×2.0"       | 47.6 | 64   | 2.0"  | 55 | 4.0"×3.0" | 73   | 119  | 3.0" | 70 |
| 2.0"×2.5"       | 60.3 | 64   | 2.5"  | 60 | 4.0"×4.0" | 97.6 | 119  | 4.0" | 75 |

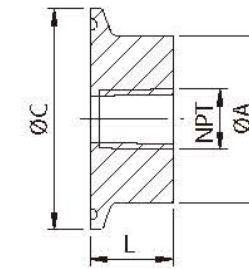
22W thread female

| SIZE | ØA   | ØB    | NPT  | L    |
|------|------|-------|------|------|
| 1.0" | 22.1 | 25.4  | 1.0" | 34.9 |
| 1.5" | 34.8 | 38.1  | 1.5" | 33.4 |
| 2.0" | 47.5 | 50.8  | 2.0" | 44.5 |
| 2.5" | 60.2 | 63.5  | 2.5" | 46.1 |
| 3.0" | 72.9 | 76.2  | 3.0" | 57.2 |
| 4.0" | 97.4 | 101.6 | 4.0" | 60.3 |



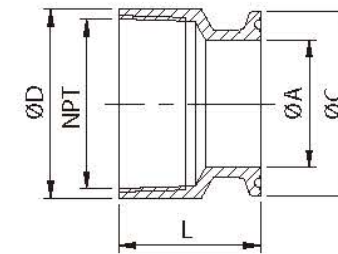
## Ferrule Adapter

22MP



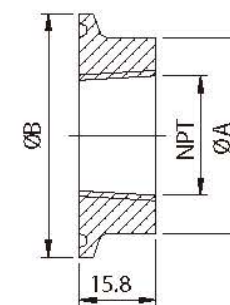
| SIZE           | ØA   | ØC   | L  | NPT  | SIZE      | ØA    | ØC   | L  | NPT  |
|----------------|------|------|----|------|-----------|-------|------|----|------|
| 1.0"×1.5"×1/4" | 38.1 | 50.5 | 19 | 1/4" | 2.5"×1.0" | 63.5  | 77.5 | 35 | 1.0" |
| 1.0"×1.5"×3/8" | 38.1 | 50.5 | 19 | 3/8" | 2.5"×1.5" | 63.5  | 77.5 | 35 | 1.5" |
| 1.0"×1.5"×1/2" | 38.1 | 50.5 | 19 | 1/2" | 2.5"×2.0" | 65    | 77.5 | 35 | 2.0" |
| 1.0"×1.5"×3/4" | 38.1 | 50.5 | 19 | 3/4" | 3.0"×1.0" | 76.2  | 91   | 35 | 1.0" |
| 1.0"×1.5"×1.0" | 40   | 50.5 | 19 | 1.0" | 3.0"×1.5" | 76.2  | 91   | 35 | 1.5" |
| 2.0"×1/4"      | 50.8 | 64   | 19 | 1/4" | 3.0"×2.0" | 76.2  | 91   | 35 | 2.0" |
| 2.0"×3/8"      | 50.8 | 64   | 19 | 3/8" | 4.0"×1.0" | 101.6 | 119  | 35 | 1.0" |
| 2.0"×1/2"      | 50.8 | 64   | 19 | 1/2" | 4.0"×1.5" | 101.6 | 119  | 35 | 1.5" |
| 2.0"×3/4"      | 50.8 | 64   | 19 | 3/4" | 4.0"×2.0" | 101.6 | 119  | 35 | 2.0" |
| 2.0"×1.0"      | 50.8 | 64   | 19 | 1.0" | 4.0"×2.5" | 101.6 | 119  | 35 | 2.5" |
| 2.0"×1.5"      | 53   | 64   | 19 | 1.5" | 4.0"×3.0" | 101.6 | 119  | 35 | 3.0" |

22MP



| SIZE            | 1.0" ØA | 1.5" ØA | ØC   | ØD  | NPT   | L    |
|-----------------|---------|---------|------|-----|-------|------|
| 1/2"×1/4"       | 9.5     |         | 25   | 30  | 1/4"  | 33   |
| 1/2"×1/2"       | 9.5     |         | 25   | 30  | 1/2"  | 33   |
| 3/4"×1/2"       | 15.75   |         | 25   | 30  | 1/2"  | 38.1 |
| 3/4"×3/4"       | 15.8    |         | 25   | 31  | 3/4"  | 33   |
| 1.0"×1.5"×1.25" | 22.2    | 34.9    | 50.5 | 52  | 1.25" | 39   |
| 1.0"×1.5"×1.5"  | 22.2    | 34.9    | 50.5 | 54  | 1.5"  | 39   |
| 1.0"×1.5"×2.0"  | 22.2    | 34.9    | 50.5 | 65  | 2.0"  | 40   |
| 2.0"×2.0"       | 47.6    |         | 64   | 65  | 2.0"  | 40   |
| 2.5"×2.5"       | 60.3    |         | 77.5 | 80  | 2.5"  | 50   |
| 3.0"×2.5"       | 73      |         | 91   | 95  | 2.5"  | 50   |
| 3.0"×3.0"       | 73      |         | 91   | 95  | 3.0"  | 52   |
| 4.0"×4.0"       | 97.6    |         | 119  | 120 | 4.0"  | 54   |

23BMP



| SIZE      | ØA   | ØB   | NPT  | SIZE      | ØA    | ØB   | NPT  |
|-----------|------|------|------|-----------|-------|------|------|
| 1.0"×1/8" | 25.4 | 50.5 | 1/8" | 2.5"×1/2" | 63.5  | 77.5 | 1/2" |
| 1.0"×1/4" | 25.4 | 50.5 | 1/4" | 2.5"×3/4" | 63.5  | 77.5 | 3/4" |
| 1.0"×3/8" | 25.4 | 50.5 | 3/8" | 2.5"×1.0" | 63.5  | 77.5 | 1.0" |
| 1.0"×1/2" | 25.4 | 50.5 | 1/2" | 2.5"×1.5" | 63.5  | 77.5 | 1.5" |
| 1.5"×1/8" | 38.1 | 50.5 | 1/8" | 2.5"×2.0" | 63.5  | 77.5 | 2.0" |
| 1.5"×1/4" | 38.1 | 50.5 | 1/4" | 3.0"×1/2" | 76.2  | 91   | 1/2" |
| 1.5"×3/8" | 38.1 | 50.5 | 3/8" | 3.0"×3/4" | 76.2  | 91   | 3/4" |
| 1.5"×1/2" | 38.1 | 50.5 | 1/2" | 3.0"×1.0" | 76.2  | 91   | 1.0" |
| 1.5"×3/4" | 38.1 | 50.5 | 3/4" | 3.0"×1.5" | 76.2  | 91   | 1.5" |
| 1.5"×1.0" | 38.1 | 50.5 | 1.0" | 3.0"×2.0" | 76.2  | 91   | 2.0" |
| 2.0"×1/2" | 50.8 | 64   | 1/2" | 4.0"×3/4" | 101.6 | 119  | 3/4" |
| 2.0"×3/4" | 50.8 | 64   | 3/4" | 4.0"×1.0" | 101.6 | 119  | 1.0" |
| 2.0"×1.0" | 50.8 | 64   | 1.0" | 4.0"×1.5" | 101.6 | 119  | 1.5" |
| 2.0"×1.5" | 50.8 | 64   | 1.5" | 4.0"×2.0" | 101.6 | 119  | 2.0" |
|           |      |      |      | 4.0"×2.5" | 101.6 | 119  | 2.5" |
|           |      |      |      | 4.0"×3.0" | 101.6 | 119  | 3.0" |

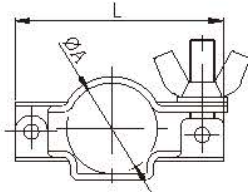


## Tubing Hanger

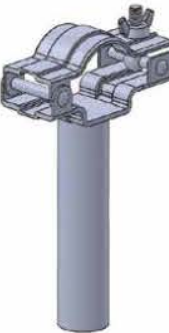
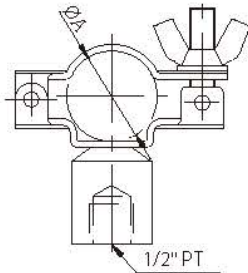
TH-1



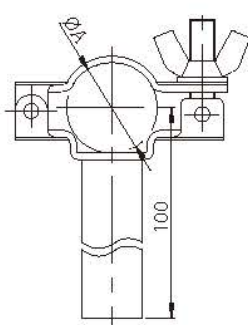
Type A



Type B



Type C



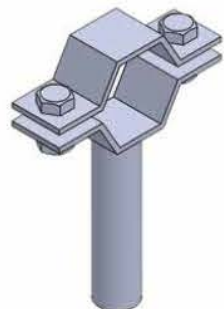
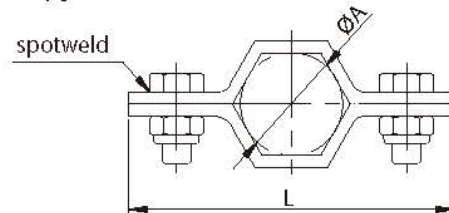
| Imperial | ØA    | L   |
|----------|-------|-----|
| 1"       | 25.4  | 66  |
| 1.5"     | 38.1  | 76  |
| 2"       | 50.8  | 90  |
| 2.5"     | 63.5  | 105 |
| 3"       | 76.2  | 120 |
| 4"       | 101.6 | 146 |

| DIN   | ØA    | L     |
|-------|-------|-------|
| DN15  | 18/19 | 69    |
| DN20  | 22/23 | 66    |
| DN25  | 28/29 | 64.5  |
| DN32  | 34/35 | 78.5  |
| DN40  | 40/41 | 80.5  |
| DN50  | 52/53 | 94    |
| DN65  | 70    | 123.5 |
| DN80  | 85    | 130.5 |
| DN100 | 104   | 150   |
| DN125 | 129   | 175.5 |
| DN150 | 154   | 206.5 |

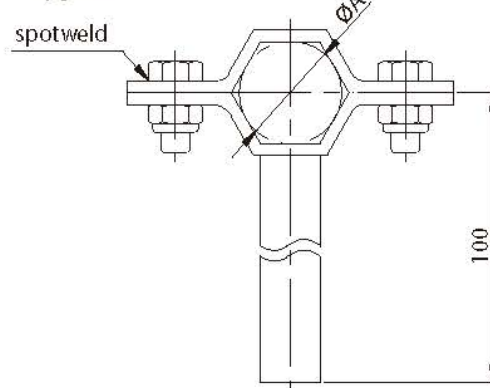
TH-2



Type A



Type C



| ISO       | ØA    | L     |
|-----------|-------|-------|
| ISO-21.3  | 21.3  | 68    |
| ISO-26.9  | 26.9  | 74    |
| ISO-33.7  | 33.7  | 82    |
| ISO-42.4  | 42.4  | 93    |
| ISO-48.3  | 48.3  | 101   |
| ISO-60.3  | 60.3  | 114   |
| ISO-88.9  | 88.9  | 149   |
| ISO-114.3 | 114.3 | 177   |
| ISO-139.7 | 139.7 | 221.7 |
| ISO-168.7 | 168.7 | 254.8 |

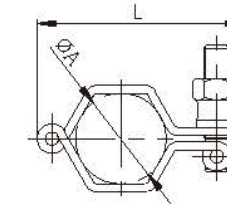
| SMS   | ØA    | L     |
|-------|-------|-------|
| DN25  | 25    | 74    |
| DN38  | 38    | 87    |
| DN50  | 51    | 105   |
| DN63  | 63.5  | 117   |
| DN76  | 76.1  | 133   |
| DN100 | 104   | 165   |
| DN125 | 139.7 | 221.7 |
| DN150 | 168.3 | 254.8 |

## Tubing Hanger

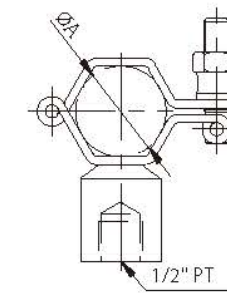
TH-3



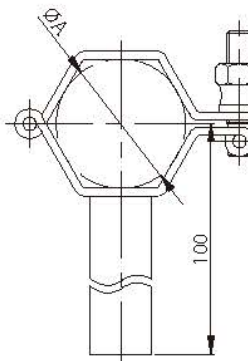
Type A



Type B



Type C



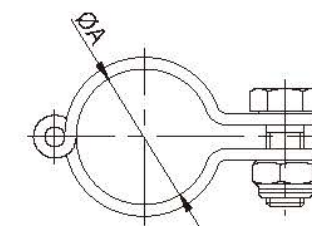
TH-3 (Hexagon)

| DIN   | ØA    | L   |
|-------|-------|-----|
| DN25  | 28    | 64  |
| DN32  | 34    | 64  |
| DN40  | 40    | 78  |
| DN50  | 52    | 90  |
| DN65  | 70    | 111 |
| DN80  | 85    | 129 |
| DN100 | 101.6 | 150 |

| SMS   | ØA   | L   |
|-------|------|-----|
| DN25  | 25   | 61  |
| DN38  | 38   | 76  |
| DN50  | 51   | 90  |
| DN63  | 63.5 | 106 |
| DN76  | 76.1 | 124 |
| DN100 | 104  | 154 |

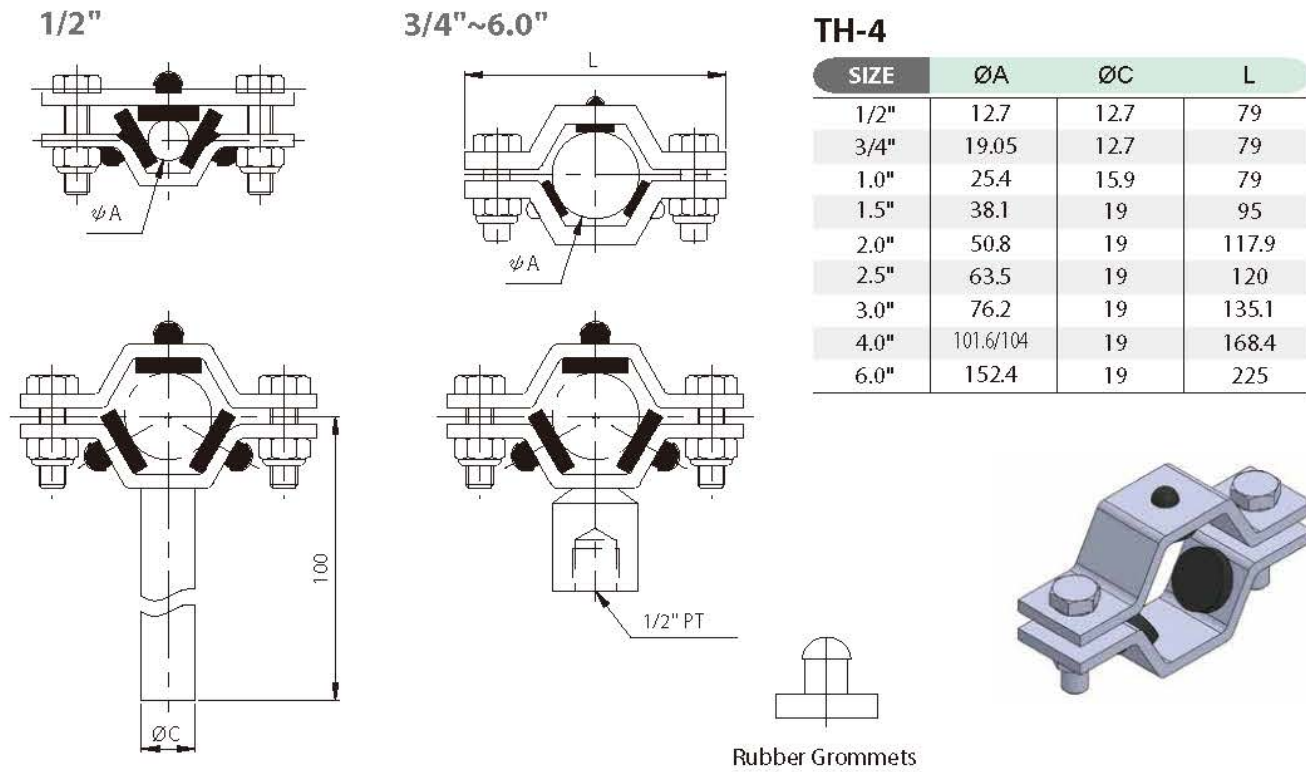
Hinged pipe clamp (Round)

| DIN   | ØA  | L   |
|-------|-----|-----|
| DN20  | 23  | 57  |
| DN25  | 29  | 63  |
| DN32  | 35  | 67  |
| DN40  | 41  | 73  |
| DN50  | 53  | 91  |
| DN65  | 70  | 108 |
| DN80  | 85  | 123 |
| DN100 | 104 | 142 |

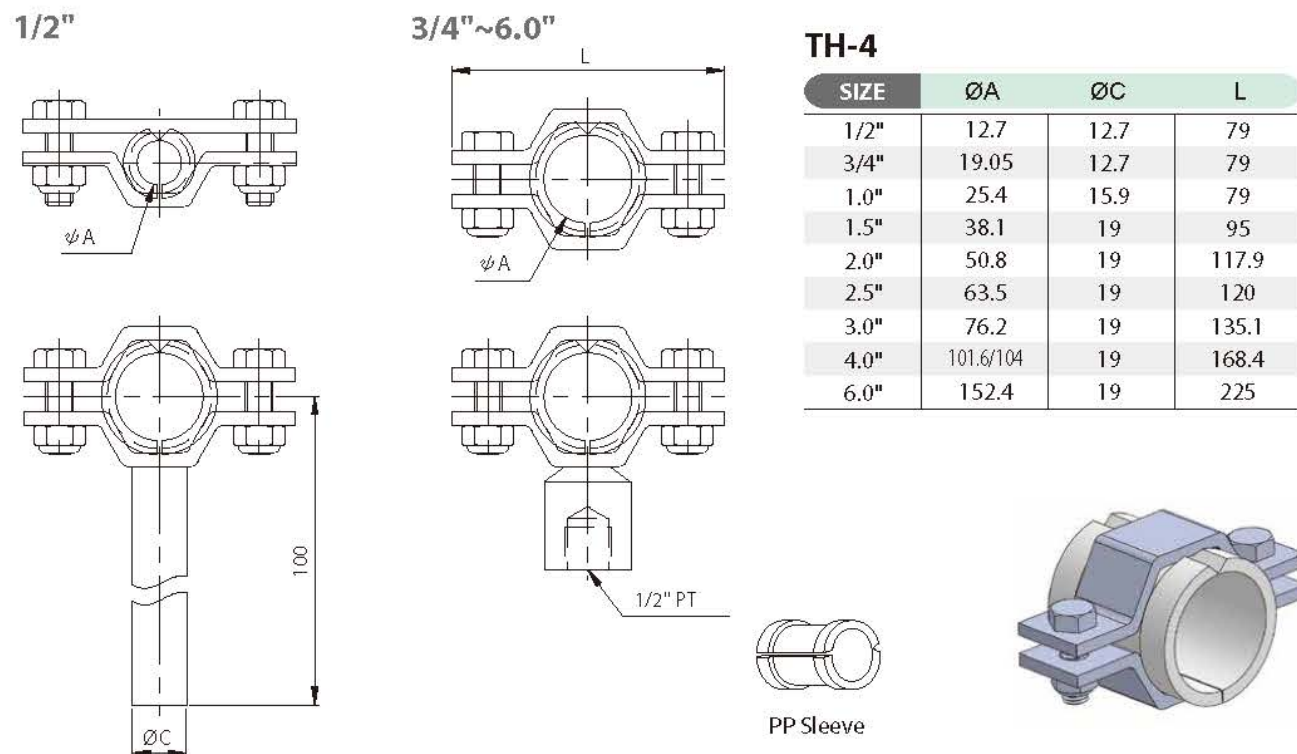


## Tubing Hanger

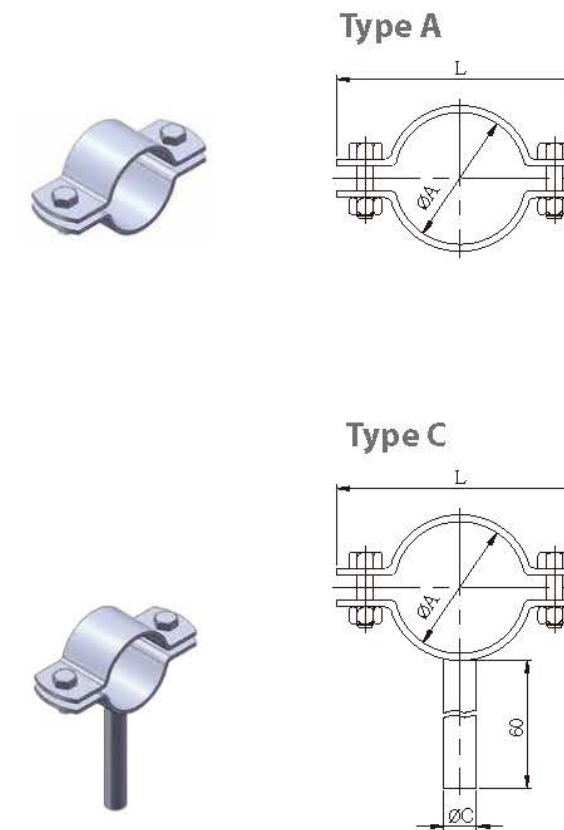
### TH-4 (RG type)



### TH-4 (PP type)



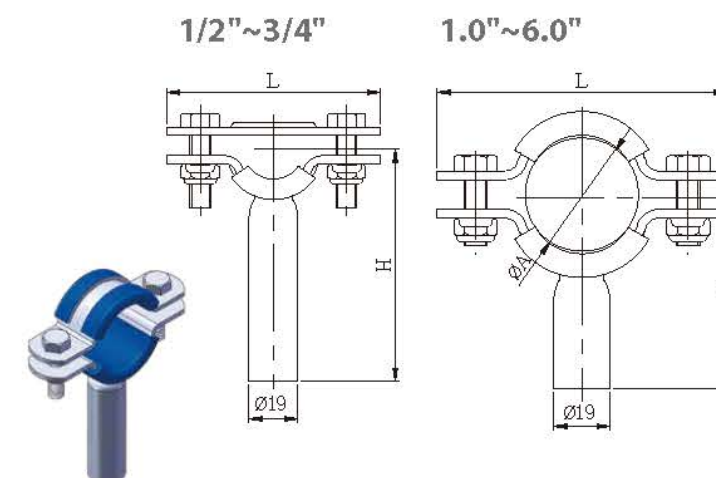
## Tubing Hanger



### TH-5

| 3A    | ØA    | ØC | L     |
|-------|-------|----|-------|
| 1/2"  | 12.7  | 6  | 46.5  |
| 3/4"  | 19.05 | 8  | 50    |
| 1.0"  | 25.4  | 8  | 62.5  |
| 1.25" | 31.75 | 10 | 70.5  |
| 1.5"  | 38.1  | 10 | 81.5  |
| 2.0"  | 50.5  | 12 | 92    |
| 2.5"  | 63.5  | 12 | 123.5 |
| 3.0"  | 76.2  | 15 | 141   |
| 4.0"  | 101.6 | 15 | 177.5 |
| 5.0"  | 127   | 18 | 201   |
| 6.0"  | 152.4 | 18 | 231.5 |
| 8.0"  | 203.2 | —  | 279.5 |

| DIN   | ØA    | L    | ØC |
|-------|-------|------|----|
| DN10  | 12/13 | 46.5 | 6  |
| DN15  | 18/19 | 50   | 8  |
| DN20  | 22/23 | 55   | 8  |
| DN25  | 28/29 | 73.5 | 8  |
| DN32  | 34/35 | 70.5 | 10 |
| DN40  | 40/41 | 80.4 | 10 |
| DN50  | 52/53 | 96.5 | 12 |
| DN65  | 70    | 120  | 12 |
| DN80  | 85    | 137  | 15 |
| DN100 | 104   | 182  | 15 |
| DN125 | 129   | 202  | 18 |
| DN150 | 154   | 231  | 18 |

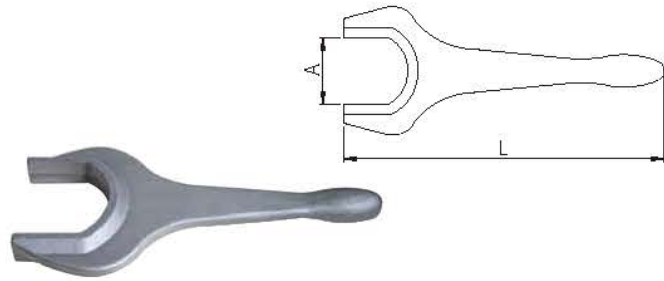


### TH-6

| SIZE | ØA    | H   | L     |
|------|-------|-----|-------|
| 1/2" | 12.7  | 90  | 83    |
| 3/4" | 19.05 | 90  | 83    |
| 1"   | 25.4  | 90  | 83    |
| 1.5" | 38.1  | 90  | 97.7  |
| 2"   | 50.8  | 90  | 111.7 |
| 2.5" | 63.5  | 90  | 124   |
| 3"   | 76.2  | 90  | 140.5 |
| 4"   | 101.6 | 90  | 162   |
| 6"   | 152.4 | 145 | 217   |

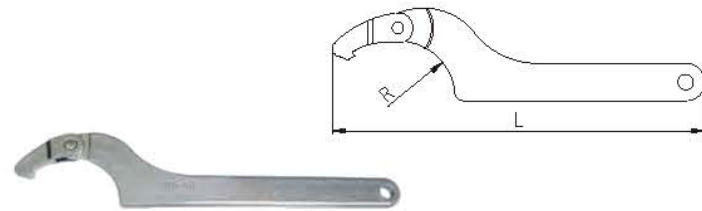


## Kinds of Parts



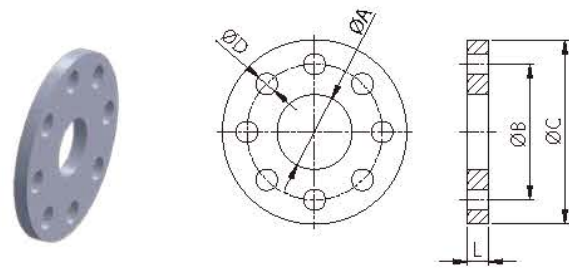
### HEXAGONAL SPANNER

| SIZE | 3A    | A | RJT   | L   |
|------|-------|---|-------|-----|
| 1.0" | 47    |   | 51.8  | 240 |
| 1.5" | 62.1  |   | 66    | 288 |
| 2.0" | 77.2  |   | 80.4  | 300 |
| 2.5" | 92.5  |   | 93.2  | 326 |
| 3.0" | 107.9 |   | 106.3 | 440 |
| 4.0" | 131.5 |   | 139.1 | 448 |



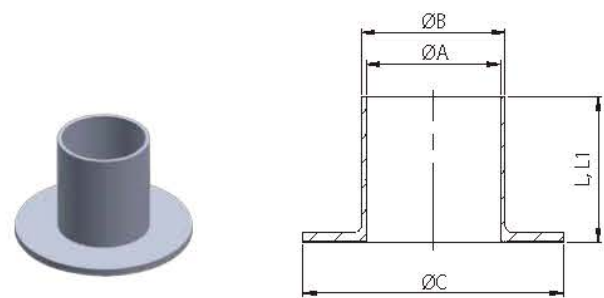
### DIN SPANNER

| SIZE        | R    | L   |
|-------------|------|-----|
| DN10~DN20   | 22   | 175 |
| DN25~DN40   | 31   | 247 |
| DN50~DN100  | 49   | 290 |
| DN125~DN150 | 82.5 | 515 |



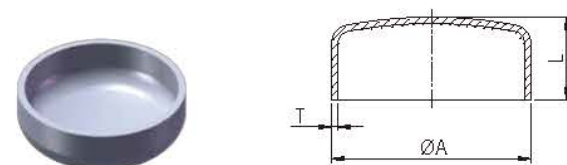
### BACK-UP FLANGE

| SIZE | ØA    | ØB    | ØC    | ØD      | L    |
|------|-------|-------|-------|---------|------|
| 1"   | 27    | 79.4  | 108   | 4-15.9  | 9.5  |
| 1.5" | 39.7  | 98.4  | 127   | 4-15.9  | 9.5  |
| 2"   | 52.4  | 120.7 | 152.4 | 4-19.05 | 11.1 |
| 2.5" | 65.1  | 139.7 | 177.8 | 4-19.05 | 11.1 |
| 3"   | 77.8  | 152.4 | 190.5 | 4-19.05 | 12.7 |
| 4"   | 103.2 | 190.5 | 228.6 | 8-19.05 | 12.7 |
| 6"   | 154   | 241.3 | 279.4 | 8-22.2  | 14.3 |



### 14VB STUB END

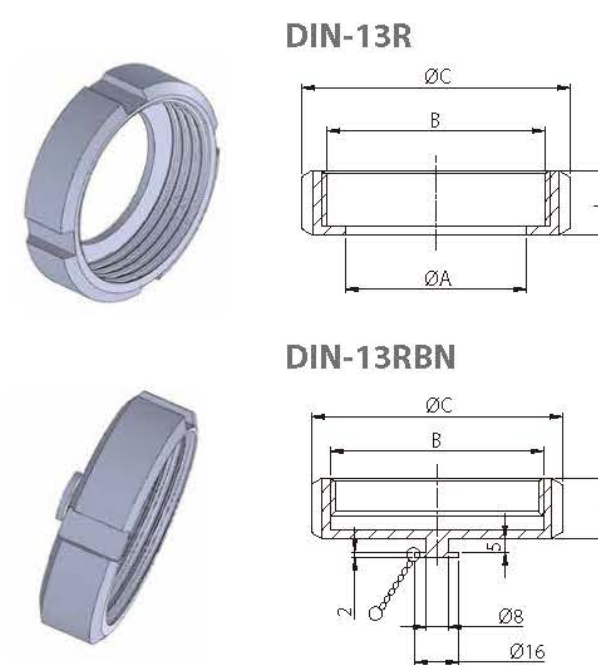
| SIZE | ØA     | ØB    | ØC     | L    | L1   |
|------|--------|-------|--------|------|------|
| 1/2" | 9.4    | 12.7  | 38.1   | 6.5  | 28.6 |
| 3/4" | 15.75  | 19.05 | 38.1   | 6.5  | 34.9 |
| 1"   | 22.1   | 25.4  | 50.8   | 6.5  | 41.3 |
| 1.5" | 34.8   | 38.1  | 73     | 6.5  | 44.5 |
| 2"   | 47.5   | 50.8  | 92.1   | 6.5  | 38.1 |
| 2.5" | 60.2   | 63.5  | 104.8  | 6.5  | 50.8 |
| 3"   | 72.9   | 76.2  | 127    | 7.4  | 57.2 |
| 4"   | 97.4   | 101.6 | 157.2  | 7.4  | 66.7 |
| 6"   | 146.86 | 152.4 | 215.9  | 8.8  | 76.2 |
| 8"   | 197.66 | 203.2 | 269.9  | 8.8  | 76.2 |
| 10"  | 247.6  | 254   | 323.85 | 25.4 | 88.9 |
| 12"  | 298    | 304   | 381    | 25.4 | 76.2 |



### 16W CAP

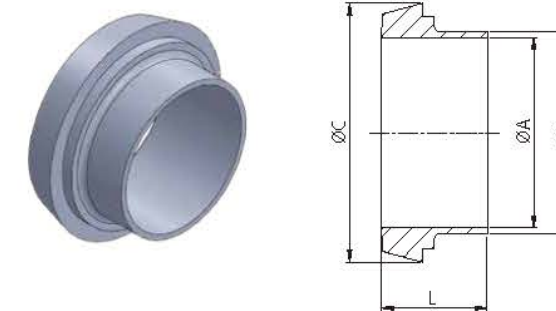
| SIZE | ØA    | T    | L    |
|------|-------|------|------|
| 1/2" | 12.7  | 1.65 | 6.4  |
| 3/4" | 19.05 | 1.65 | 7.9  |
| 1"   | 25.4  | 1.65 | 19.1 |
| 1.5" | 38.1  | 1.65 | 14.2 |
| 2"   | 50.8  | 1.65 | 19.1 |
| 2.5" | 63.5  | 1.65 | 25.4 |
| 3"   | 76.2  | 1.65 | 31.8 |
| 4"   | 101.6 | 2.1  | 38.1 |
| 6"   | 152.4 | 2.77 | 57.2 |

## DIN 11851 Unions



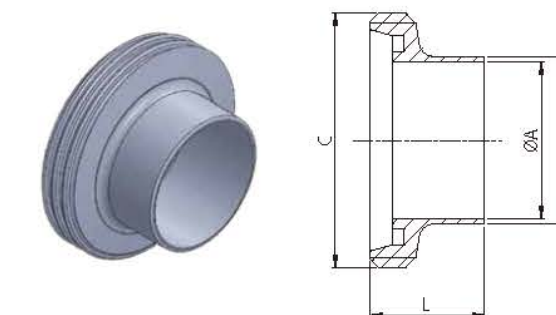
### DIN-13 ROUND NUT

| SIZE | ØA  | B         | ØC  | L  | SLOTS |
|------|-----|-----------|-----|----|-------|
| 10   | 19  | RD 28*1/8 | 38  | 18 | 4     |
| 15   | 25  | RD 34*1/8 | 44  | 18 | 4     |
| 20   | 31  | RD 44*1/6 | 54  | 20 | 4     |
| 25   | 36  | RD 52*1/6 | 63  | 21 | 4     |
| 32   | 42  | RD 58*1/6 | 70  | 21 | 4     |
| 40   | 49  | RD 65*1/6 | 78  | 21 | 4     |
| 50   | 62  | RD 78*1/6 | 92  | 22 | 4     |
| 60   | 70  | RD 85*1/6 | 99  | 22 | 4     |
| 65   | 80  | RD 95*1/6 | 112 | 25 | 6     |
| 80   | 94  | RD110*1/4 | 127 | 29 | 6     |
| 90   | 104 | RD120*1/4 | 138 | 30 | 6     |
| 100  | 115 | RD130*1/4 | 148 | 31 | 6     |
| 125  | 138 | RD160*1/4 | 178 | 35 | 6     |
| 150  | 164 | RD190*1/4 | 210 | 40 | 6     |



### DIN-14DA/DB WELDING LINER

| SIZE | ØA  | ØB  | ØA  | ØB  | ØC   | L  |
|------|-----|-----|-----|-----|------|----|
| 10   | 10  | 13  | 9   | 12  | 22.5 | 17 |
| 15   | 16  | 19  | 15  | 18  | 28.5 | 17 |
| 20   | 20  | 23  | 19  | 22  | 36.5 | 18 |
| 25   | 26  | 29  | 25  | 28  | 44   | 22 |
| 32   | 32  | 35  | 31  | 34  | 50   | 25 |
| 40   | 38  | 41  | 37  | 40  | 56   | 26 |
| 50   | 50  | 53  | 49  | 52  | 68.5 | 28 |
| 60   | 57  | 61  | 57  | 61  | 76   | 30 |
| 65   | 66  | 70  | 66  | 70  | 86   | 32 |
| 80   | 81  | 85  | 81  | 85  | 100  | 37 |
| 100  | 100 | 104 | 100 | 104 | 121  | 44 |
| 125  | 125 | 129 | 125 | 129 | 150  | 34 |
| 150  | 150 | 154 | 150 | 154 | 176  | 37 |

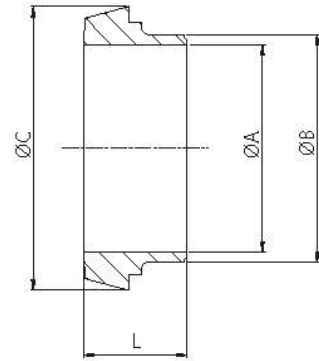


### DIN-15DA/DB WELDING MALE

| SIZE | ØA  | ØB  | ØA  | ØB  | C          | L  |
|------|-----|-----|-----|-----|------------|----|
| 10   | 10  | 13  | 9   | 12  | RD 28*1/8  | 21 |
| 15   | 16  | 19  | 15  | 18  | RD 34*1/8  | 21 |
| 20   | 20  | 23  | 19  | 22  | RD 44*1/6  | 24 |
| 25   | 26  | 29  | 25  | 28  | RD 52*1/6  | 29 |
| 32   | 32  | 35  | 31  | 34  | RD 58*1/6  | 32 |
| 40   | 38  | 41  | 37  | 40  | RD 65*1/6  | 33 |
| 50   | 50  | 53  | 49  | 52  | RD 78*1/6  | 35 |
| 60   | 57  | 61  | 57  | 61  | RD 85*1/6  | 36 |
| 65   | 66  | 70  | 66  | 70  | RD 95*1/6  | 40 |
| 80   | 81  | 85  | 81  | 85  | RD 110*1/4 | 45 |
| 90   | 89  | 93  | 89  | 93  | RD 120*1/4 | 54 |
| 100  | 100 | 104 | 100 | 104 | RD 130*1/4 | 54 |
| 125  | 125 | 129 | 125 | 129 | RD 160*1/4 | 46 |
| 150  | 150 | 154 | 150 | 154 | RD 190*1/4 | 50 |



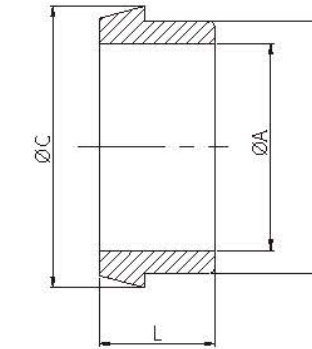
## DIN 11851 Unions



**DIN-14 WELDING LINER**

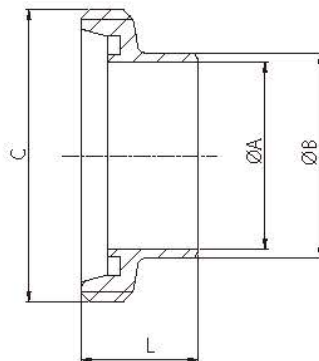
| SIZE | ØA  | ØB  | ØC   | L  |
|------|-----|-----|------|----|
| 10   | 10  | 15  | 22.5 | 17 |
| 15   | 16  | 21  | 28.5 | 17 |
| 20   | 20  | 25  | 36.5 | 18 |
| 25   | 26  | 31  | 44   | 22 |
| 32   | 32  | 37  | 50   | 25 |
| 40   | 38  | 43  | 56   | 26 |
| 50   | 50  | 55  | 68.5 | 28 |
| 60   | 57  | 63  | 76   | 30 |
| 65   | 66  | 72  | 86   | 32 |
| 80   | 81  | 87  | 100  | 37 |
| 100  | 99  | 104 | 121  | 44 |
| 125  | 125 | 132 | 150  | 34 |
| 150  | 150 | 157 | 176  | 37 |

## DIN 11851 Unions



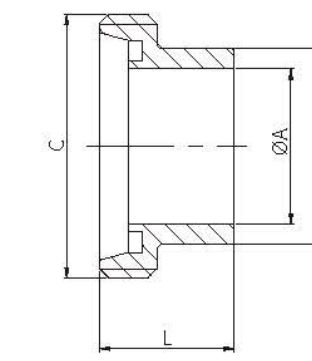
**DIN-14T WELDING LINER**

| SIZE | ØA  | ØB  | ØC   | L  |
|------|-----|-----|------|----|
| 10   | 10  | 18  | 22.5 | 17 |
| 15   | 16  | 24  | 28.5 | 17 |
| 20   | 20  | 30  | 36.5 | 18 |
| 25   | 26  | 35  | 44   | 22 |
| 32   | 32  | 41  | 50   | 25 |
| 40   | 38  | 48  | 56   | 26 |
| 50   | 50  | 61  | 68.5 | 28 |
| 65   | 66  | 79  | 86   | 32 |
| 80   | 81  | 93  | 100  | 37 |
| 100  | 99  | 112 | 121  | 44 |
| 125  | 125 | 137 | 150  | 34 |
| 150  | 150 | 163 | 176  | 37 |



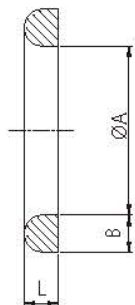
**DIN-15 WELDING MALE**

| SIZE | ØA  | ØB  | C          | L  |
|------|-----|-----|------------|----|
| 10   | 10  | 15  | RD 28*1/8  | 21 |
| 15   | 16  | 21  | RD 34*1/8  | 21 |
| 20   | 20  | 25  | RD 44*1/6  | 24 |
| 25   | 26  | 31  | RD 52*1/6  | 29 |
| 32   | 32  | 37  | RD 58*1/6  | 32 |
| 40   | 38  | 43  | RD 65*1/6  | 33 |
| 50   | 50  | 55  | RD 78*1/6  | 35 |
| 60   | 57  | 63  | RD 85*1/6  | 36 |
| 65   | 66  | 72  | RD 95*1/6  | 40 |
| 80   | 81  | 87  | RD 110*1/4 | 45 |
| 100  | 99  | 104 | RD 130*1/4 | 54 |
| 125  | 125 | 132 | RD 160*1/4 | 46 |
| 150  | 150 | 157 | RD 190*1/4 | 50 |



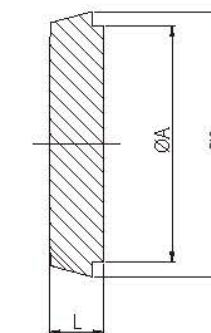
**DIN-15T WELDING MALE**

| SIZE | ØA  | ØB  | C          | L  |
|------|-----|-----|------------|----|
| 10   | 10  | 18  | RD 28*1/8  | 21 |
| 15   | 16  | 24  | RD 34*1/8  | 21 |
| 20   | 20  | 30  | RD 44*1/6  | 24 |
| 25   | 26  | 35  | RD 52*1/6  | 29 |
| 32   | 32  | 41  | RD 58*1/6  | 32 |
| 40   | 38  | 48  | RD 65*1/6  | 33 |
| 50   | 50  | 61  | RD 78*1/6  | 35 |
| 65   | 66  | 79  | RD 95*1/6  | 40 |
| 80   | 81  | 93  | RD 110*1/4 | 45 |
| 100  | 99  | 112 | RD 130*1/4 | 54 |
| 125  | 125 | 137 | RD 160*1/4 | 46 |
| 150  | 150 | 163 | RD 190*1/4 | 50 |



**DIN SEAL RING  
(EPDM \ SILICONE \ Viton (FKM))**

| SIZE | ØA  | B | L   |
|------|-----|---|-----|
| 10   | 12  | 4 | 4.5 |
| 15   | 18  | 4 | 4.5 |
| 20   | 23  | 5 | 4.5 |
| 25   | 30  | 5 | 5   |
| 32   | 36  | 5 | 5   |
| 40   | 42  | 5 | 5   |
| 50   | 54  | 5 | 5   |
| 65   | 71  | 5 | 5   |
| 80   | 85  | 5 | 5   |
| 100  | 104 | 5 | 5   |
| 125  | 130 | 6 | 7   |
| 150  | 155 | 6 | 7   |

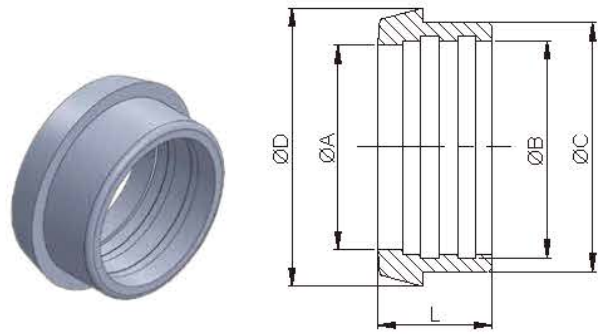


**DIN-14B END CAP**

| SIZE | ØA  | ØB   | L  |
|------|-----|------|----|
| 10   | 18  | 22.5 | 9  |
| 15   | 24  | 28.5 | 9  |
| 20   | 30  | 36.5 | 11 |
| 25   | 35  | 44   | 13 |
| 32   | 41  | 50   | 13 |
| 40   | 48  | 56   | 13 |
| 50   | 61  | 68.5 | 14 |
| 65   | 79  | 86   | 16 |
| 80   | 93  | 100  | 16 |
| 90   | 103 | 111  | 19 |
| 100  | 114 | 121  | 20 |
| 125  | 137 | 150  | 22 |
| 150  | 163 | 176  | 24 |

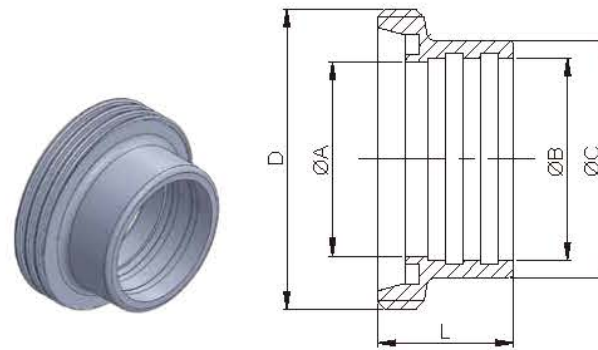


## DIN 11851 Expanding/Imperial Unions



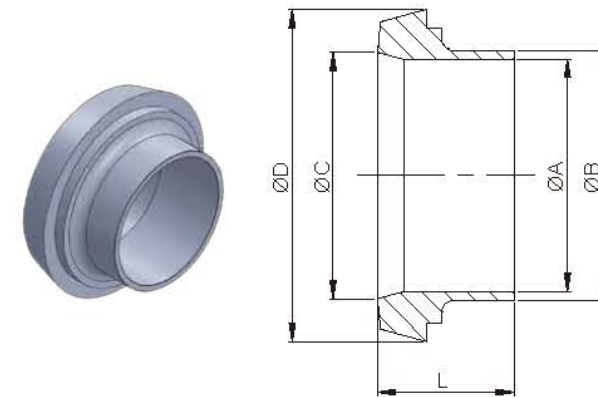
**DIN-14R expanding liner**

| SIZE | ØA  | ØB   | ØC  | ØD   | L  |
|------|-----|------|-----|------|----|
| 10   | 10  | 12.2 | 18  | 22.5 | 17 |
| 15   | 16  | 18.2 | 24  | 28.5 | 17 |
| 20   | 20  | 22.2 | 30  | 36.5 | 18 |
| 25   | 26  | 28.2 | 35  | 44   | 22 |
| 32   | 32  | 34.2 | 41  | 50   | 25 |
| 40   | 38  | 40.3 | 48  | 56   | 26 |
| 50   | 50  | 52.3 | 61  | 68.5 | 28 |
| 65   | 66  | 70.4 | 79  | 86   | 32 |
| 80   | 81  | 85.4 | 93  | 100  | 37 |
| 100  | 100 | 105  | 114 | 121  | 44 |
| 125  | 125 | 129  | 137 | 150  | 34 |
| 150  | 150 | 154  | 163 | 176  | 37 |



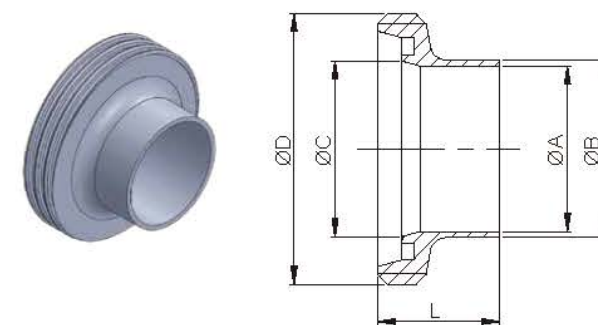
**DIN-15R expanding male**

| SIZE | ØA  | ØB   | ØC  | D          | L  |
|------|-----|------|-----|------------|----|
| 10   | 10  | 12.2 | 18  | RD 28*1/8  | 21 |
| 15   | 16  | 18.2 | 24  | RD 34*1/8  | 21 |
| 20   | 20  | 22.2 | 30  | RD 44*1/6  | 24 |
| 25   | 26  | 28.2 | 35  | RD 52*1/6  | 29 |
| 32   | 32  | 34.2 | 41  | RD 58*1/6  | 32 |
| 40   | 38  | 40.3 | 48  | RD 65*1/6  | 33 |
| 50   | 50  | 52.3 | 61  | RD 78*1/6  | 35 |
| 65   | 66  | 70.4 | 79  | RD 95*1/6  | 40 |
| 80   | 81  | 85.4 | 93  | RD 110*1/4 | 45 |
| 100  | 100 | 105  | 114 | RD 130*1/4 | 54 |
| 125  | 125 | 129  | 137 | RD 160*1/4 | 46 |
| 150  | 150 | 154  | 163 | RD 190*1/4 | 50 |



**DIN-14I imperial welding liner**

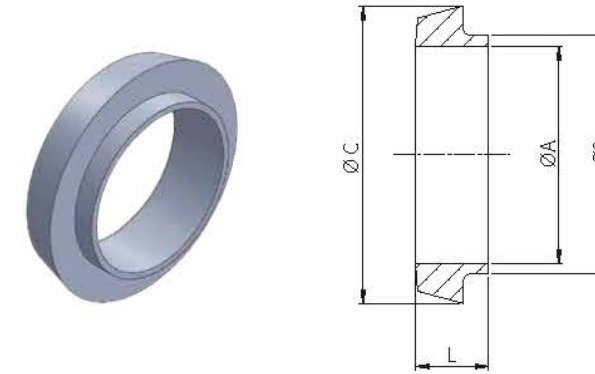
| SIZE  | ØA    | ØB    | ØC  | ØD   | L  |
|-------|-------|-------|-----|------|----|
| 1/2"  | 9.4   | 12.7  | 10  | 22.5 | 17 |
| 3/4"  | 15.75 | 19.05 | 20  | 36.5 | 18 |
| 1"    | 22.1  | 25.4  | 26  | 44   | 22 |
| 1.25" | 28.45 | 31.75 | 32  | 50   | 25 |
| 1.5"  | 34.8  | 38.1  | 38  | 56   | 26 |
| 2"    | 47.5  | 50.8  | 50  | 68.5 | 28 |
| 2.5"  | 60.2  | 63.5  | 66  | 86   | 32 |
| 3"    | 72.9  | 76.2  | 81  | 100  | 37 |
| 4"    | 97.6  | 101.6 | 100 | 121  | 44 |



**DIN-15I imperial welding male**

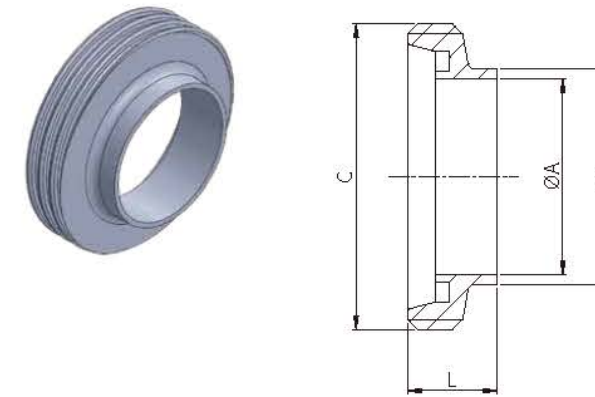
| SIZE  | ØA    | ØB    | ØC  | D          | L  |
|-------|-------|-------|-----|------------|----|
| 1/2"  | 9.4   | 12.7  | 10  | RD 28*1/8  | 21 |
| 3/4"  | 15.75 | 19.05 | 20  | RD 44*1/6  | 24 |
| 1"    | 22.1  | 25.4  | 26  | RD 52*1/6  | 29 |
| 1.25" | 28.45 | 31.75 | 32  | RD 58*1/6  | 32 |
| 1.5"  | 34.8  | 38.1  | 38  | RD 65*1/6  | 33 |
| 2"    | 47.5  | 50.8  | 50  | RD 78*1/6  | 35 |
| 2.5"  | 60.2  | 63.5  | 66  | RD 95*1/6  | 40 |
| 3"    | 72.9  | 76.2  | 81  | RD 110*1/4 | 45 |
| 4"    | 97.6  | 101.6 | 100 | RD 130*1/4 | 54 |

## DIN 11851 Expanding/Imperial Unions



**DIN-14E SHORT WELDING LINER**

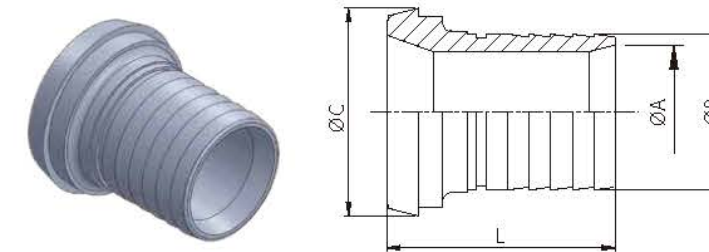
| SIZE | DA  |     | DB  |     | ØC   | L    |
|------|-----|-----|-----|-----|------|------|
|      | ØA  | ØB  | ØA  | ØB  |      |      |
| 10   | 10  | 13  | 9   | 12  | 22.5 | 13   |
| 15   | 16  | 19  | 15  | 18  | 28.5 | 13   |
| 20   | 20  | 23  | 19  | 22  | 36.5 | 13   |
| 25   | 26  | 29  | 25  | 28  | 44   | 15   |
| 32   | 32  | 35  | 31  | 34  | 50   | 15   |
| 40   | 38  | 41  | 37  | 40  | 56   | 15   |
| 50   | 50  | 53  | 49  | 52  | 68.5 | 16   |
| 60   | 57  | 61  | 57  | 61  | 76   | 16   |
| 65   | 66  | 70  | 66  | 70  | 86   | 17   |
| 80   | 80  | 85  | 81  | 85  | 100  | 17   |
| 100  | 100 | 104 | 100 | 104 | 121  | 20   |
| 125  | 125 | 129 | 125 | 129 | 150  | 23.5 |
| 150  | 150 | 154 | 150 | 154 | 176  | 27   |



**DIN-15E SHORT WELDING MALE**

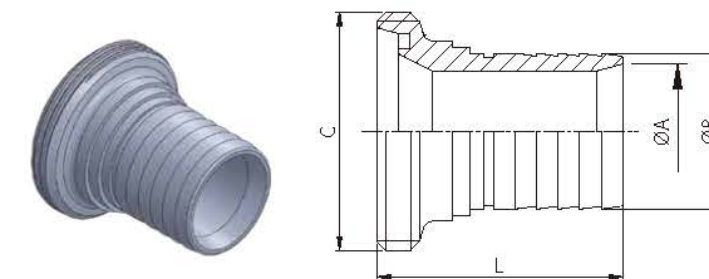
| SIZE | DA  |     | DB  |     | C          | L    |
|------|-----|-----|-----|-----|------------|------|
|      | ØA  | ØB  | ØA  | ØB  |            |      |
| 10   | 10  | 13  | 9   | 12  | RD 28*1/8  | 17   |
| 15   | 16  | 19  | 15  | 18  | RD 34*1/8  | 17   |
| 20   | 20  | 23  | 19  | 22  | RD 44*1/6  | 19   |
| 25   | 26  | 29  | 25  | 28  | RD 52*1/6  | 22   |
| 32   | 32  | 35  | 31  | 34  | RD 58*1/6  | 22   |
| 40   | 38  | 41  | 37  | 40  | RD 65*1/6  | 22   |
| 50   | 50  | 53  | 49  | 52  | RD 78*1/6  | 23   |
| 60   | 57  | 61  | 57  | 61  | RD 85*1/6  | 23   |
| 65   | 66  | 70  | 66  | 70  | RD 95*1/6  | 25   |
| 80   | 81  | 85  | 81  | 85  | RD 110*1/4 | 25   |
| 90   | 89  | 93  | 89  | 93  | RD 120*1/4 | 30   |
| 100  | 100 | 104 | 100 | 104 | RD 130*1/4 | 30   |
| 125  | 125 | 129 | 125 | 129 | RD 160*1/4 | 35.5 |
| 150  | 150 | 154 | 150 | 154 | RD 190*1/4 | 40   |

**DIN 11851 HOSE ADAPTER**



**DIN-14AHR HOSE ADAPTER**

| SIZE | ØA   | ØB    | ØC  | L   |
|------|------|-------|-----|-----|
| 25   | 22.2 | 25    | 44  | 67  |
| 32   | 28.7 | 32.2  | 50  | 71  |
| 40   | 34   | 38    | 56  | 78  |
| 50   | 47   | 50.5  | 68  | 89  |
| 65   | 59   | 63.2  | 86  | 100 |
| 80   | 71.5 | 75.5  | 100 | 108 |
| 100  | 95   | 100.8 | 121 | 120 |

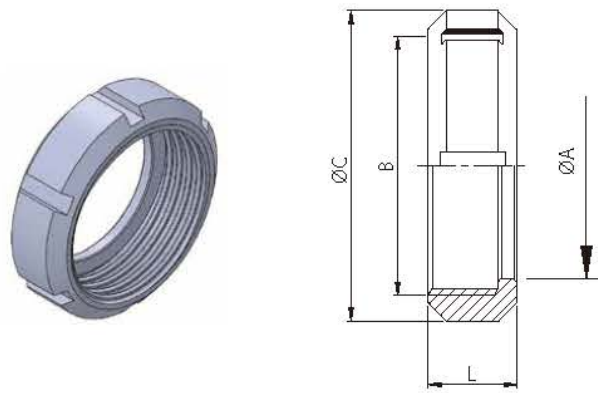


**DIN-15AHR HOSE ADAPTER**

| SIZE | ØA   | ØB    | C          | L   |
|------|------|-------|------------|-----|
| 25   | 22.2 | 25    | RD 52*1/6  | 69  |
| 32   | 28.7 | 32.2  | RD 58*1/6  | 73  |
| 40   | 34   | 38    | RD 65*1/6  | 80  |
| 50   | 47   | 50.5  | RD 78*1/6  | 90  |
| 65   | 59   | 63.2  | RD 95*1/6  | 108 |
| 80   | 71.5 | 75.5  | RD 110*1/4 | 116 |
| 100  | 95   | 100.8 | RD 130*1/4 | 128 |



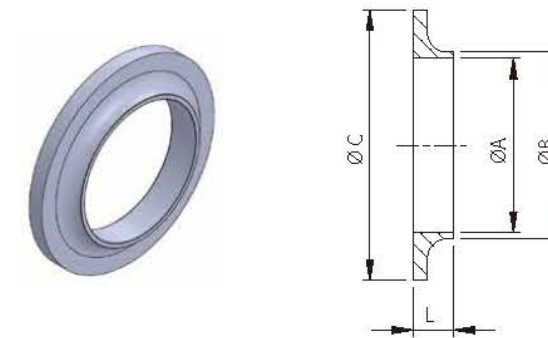
## SMS Unions



**SMS-13R NUT 6 SLOTS**

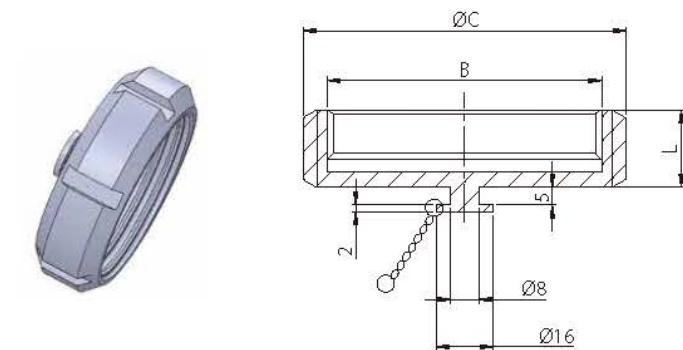
| SIZE  | ØA   | B         | ØC  | L  |
|-------|------|-----------|-----|----|
| 25    | 32.3 | RD 40*1/6 | 51  | 19 |
| 32    | 40.3 | RD 48*1/6 | 60  | 22 |
| 38    | 48.5 | RD 60*1/6 | 74  | 23 |
| 50    | 61   | RD 70*1/6 | 84  | 24 |
| 63    | 74   | RD 85*1/6 | 100 | 28 |
| 76    | 87   | RD 98*1/6 | 114 | 30 |
| 101.6 | 113  | RD125*1/4 | 138 | 31 |
| 104   | 113  | RD125*1/4 | 138 | 31 |
| 102.5 | 117  | RD132*1/6 | 150 | 31 |

## SMS Unions



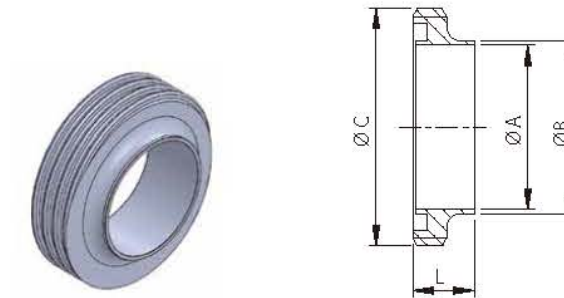
**SMS-14S SHORT WELDING LINER**

| SIZE  | ØA   | ØB    | ØC   | L   |
|-------|------|-------|------|-----|
| 25    | 22.5 | 25    | 35.5 | 7.5 |
| 38    | 35.5 | 38    | 55   | 8   |
| 50    | 48.5 | 51    | 65   | 9   |
| 63    | 60.5 | 63.5  | 80   | 9   |
| 76    | 72.9 | 76.1  | 93   | 9   |
| 101.6 | 97.6 | 101.6 | 118  | 10  |
| 104   | 100  | 104   | 118  | 12  |
| 102.5 | 98.5 | 102.5 | 127  | 12  |



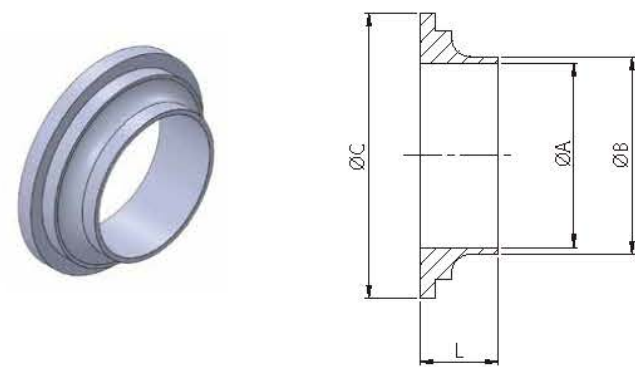
**SMS-13RBN ROUND BLANK NUT**

| SIZE  | B         | ØC  | L  |
|-------|-----------|-----|----|
| 25    | RD 40*1/6 | 51  | 19 |
| 32    | RD 48*1/6 | 60  | 22 |
| 38    | RD 60*1/6 | 74  | 23 |
| 50    | RD 70*1/6 | 84  | 24 |
| 63    | RD 85*1/6 | 100 | 28 |
| 76    | RD 98*1/6 | 114 | 30 |
| 104   | RD125*1/4 | 138 | 31 |
| 102.5 | RD132*1/6 | 150 | 31 |



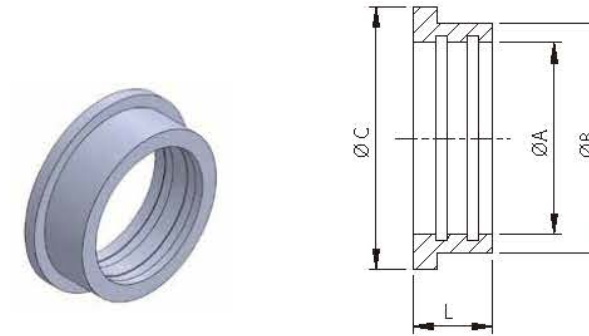
**SMS-15S SHORT WELDING MALE**

| SIZE  | ØA   | ØB    | C         | L  |
|-------|------|-------|-----------|----|
| 25    | 22.5 | 25    | RD 40*1/6 | 15 |
| 38    | 35.5 | 38    | RD 60*1/6 | 20 |
| 50    | 48.5 | 51    | RD 70*1/6 | 20 |
| 63    | 60.5 | 63.5  | RD 85*1/6 | 24 |
| 76    | 72.9 | 76.1  | RD 98*1/6 | 24 |
| 101.6 | 97.6 | 101.6 | RD125*1/4 | 30 |
| 104   | 100  | 104   | RD125*1/4 | 30 |
| 102.5 | 98.5 | 102.5 | RD132*1/6 | 35 |



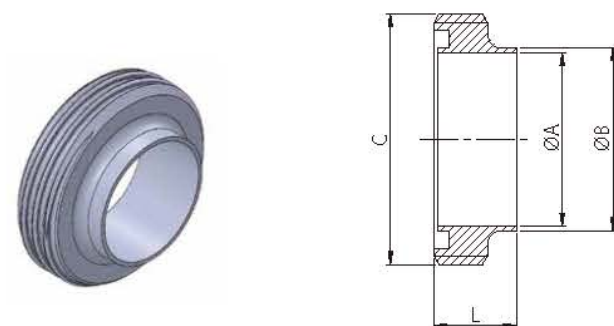
**SMS-14 LONG WELDING LINER**

| SIZE  | ØA   | ØB    | ØC   | L    |
|-------|------|-------|------|------|
| 25    | 22.5 | 25    | 35.5 | 15.5 |
| 38    | 35.5 | 38    | 55   | 16   |
| 50    | 48.5 | 51    | 65   | 17   |
| 63    | 60.5 | 63.5  | 80   | 17   |
| 76    | 72.9 | 76.1  | 93   | 19   |
| 101.6 | 97.6 | 101.6 | 118  | 19   |
| 104   | 100  | 104   | 118  | 19   |
| 102.5 | 98.5 | 102.5 | 127  | 19   |



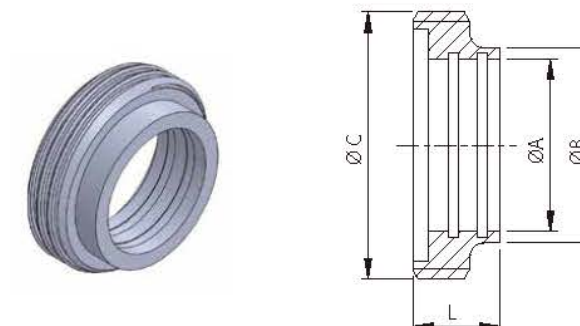
**SMS-14R EXPANDING LINER**

| SIZE  | ØA    | ØB    | ØC   | L  |
|-------|-------|-------|------|----|
| 25    | 25    | 32    | 35.5 | 17 |
| 32    | 32    | 40    | 43.5 | 17 |
| 38    | 38    | 47.9  | 55   | 20 |
| 40    | 40    | 48    | 55   | 20 |
| 50    | 51    | 60.4  | 65   | 20 |
| 63    | 63.5  | 73.5  | 80   | 25 |
| 76    | 76.1  | 86.5  | 93   | 30 |
| 101.6 | 101.6 | 112.5 | 118  | 27 |
| 104   | 105   | 112.5 | 118  | 27 |



**SMS-15 LONG WELDING MALE**

| SIZE  | ØA   | ØB    | ØC        | L  |
|-------|------|-------|-----------|----|
| 25    | 22.5 | 25    | RD 40*1/6 | 19 |
| 38    | 35.5 | 38    | RD 60*1/6 | 23 |
| 50    | 48.5 | 51    | RD 70*1/6 | 23 |
| 63    | 60.5 | 63.5  | RD 85*1/6 | 27 |
| 76    | 72.9 | 76.1  | RD 98*1/6 | 27 |
| 101.6 | 97.6 | 101.6 | RD125*1/4 | 30 |
| 104   | 100  | 104   | RD125*1/4 | 30 |
| 102.5 | 98.5 | 102.5 | RD132*1/6 | 35 |

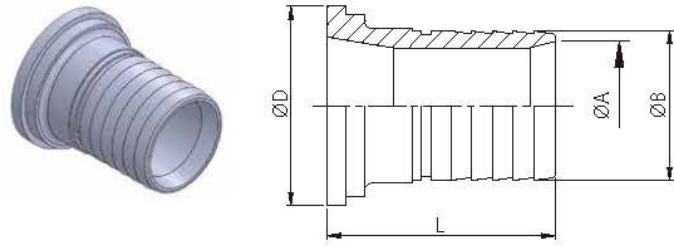


**SMS-15R EXPANDING MALE**

| SIZE  | ØA    | ØB    | C         | L  |
|-------|-------|-------|-----------|----|
| 25    | 25    | 32    | RD 40*1/6 | 20 |
| 32    | 32    | 40    | RD 48*1/6 | 20 |
| 38    | 38    | 47.9  | RD 60*1/6 | 23 |
| 40    | 40    | 48    | RD 60*1/6 | 23 |
| 50    | 51    | 60.4  | RD 70*1/6 | 25 |
| 63    | 63.5  | 73.5  | RD 85*1/6 | 30 |
| 76    | 76.1  | 86.5  | RD 98*1/6 | 35 |
| 101.6 | 101.6 | 112.5 | RD125*1/4 | 30 |
| 104   | 105   | 112.5 | RD125*1/4 | 30 |

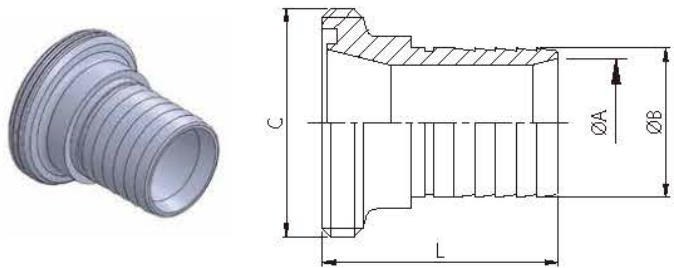


## SMS Unions Range



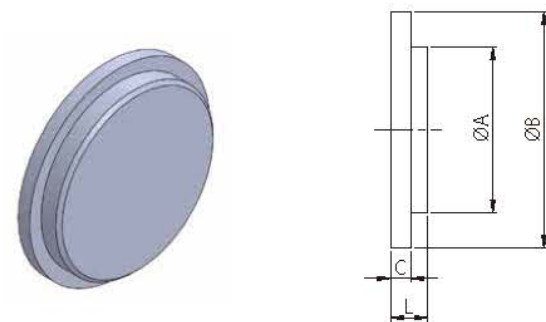
**SMS-14AHR HOSE ADAPTER**

| SIZE | ØA   | ØB    | ØD   | L    |
|------|------|-------|------|------|
| 25   | 22.2 | 25    | 35.5 | 60.5 |
| 38   | 34   | 38    | 55   | 72   |
| 50   | 47   | 50.5  | 65   | 82   |
| 63   | 59   | 63.2  | 80   | 95   |
| 76   | 71.5 | 75.5  | 93   | 97   |
| 104  | 95   | 100.8 | 118  | 109  |



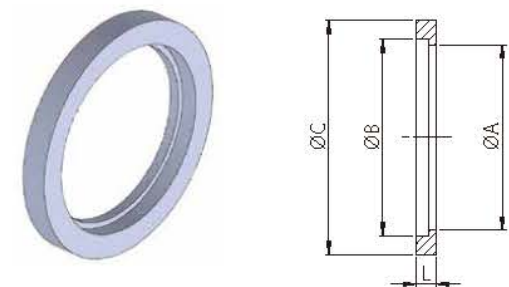
**SMS-15AHR HOSE ADAPTER**

| SIZE | ØA   | ØB    | C          | L   |
|------|------|-------|------------|-----|
| 25   | 22.2 | 25    | RD 40*1/6  | 64  |
| 38   | 34   | 38    | RD 60*1/6  | 79  |
| 50   | 47   | 50.5  | RD 70*1/6  | 89  |
| 63   | 59   | 63.2  | RD 85*1/6  | 102 |
| 76   | 71.5 | 75.5  | RD 98*1/6  | 105 |
| 104  | 95   | 100.8 | RD 125*1/4 | 120 |



**SMS-14B BLANK END CAP**

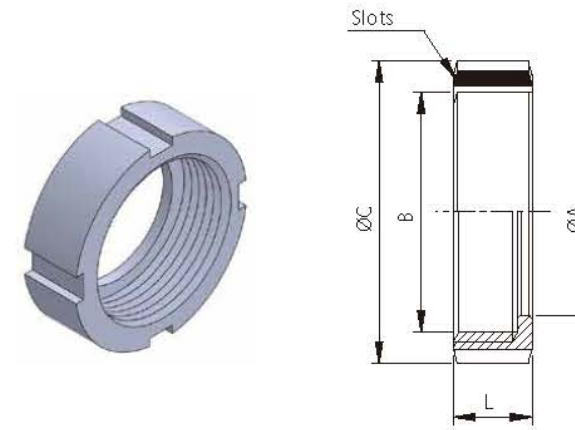
| SIZE      | ØA   | ØB   | C   | L   |
|-----------|------|------|-----|-----|
| 25        | 32   | 35.5 | 3.5 | 7.5 |
| 38        | 48   | 55   | 5   | 9   |
| 50        | 60   | 65   | 5   | 10  |
| 63        | 73.5 | 80   | 5   | 10  |
| 76        | 86   | 93   | 5   | 11  |
| 101.6/104 | 116  | 118  | 6   | 11  |
| 102.5     | 112  | 128  | 6   | 11  |



**SEAL RING L TYPE (EPDM · SILICONE · VITON(FKM))**

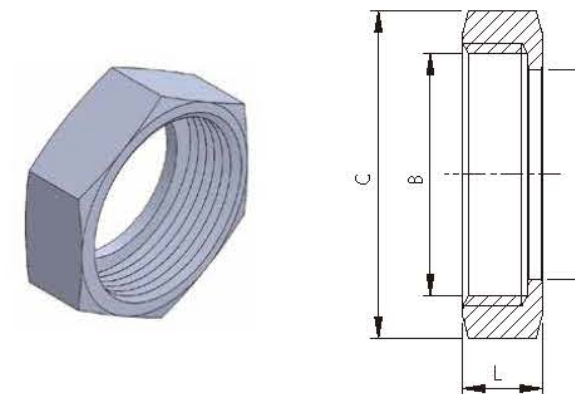
| SIZE      | ØA    | ØB   | C     | L   |
|-----------|-------|------|-------|-----|
| 25        | 22.8  | 25.1 | 31.8  | 5.3 |
| 38        | 35.8  | 38.1 | 47.8  | 5.3 |
| 50        | 48.8  | 51.1 | 60.8  | 5.3 |
| 63        | 61    | 63.6 | 73.3  | 5.3 |
| 76        | 73.4  | 76.1 | 85.8  | 5.3 |
| 104/102.5 | 100.5 | 104  | 115.7 | 5.3 |

## RJT (BS) Unions



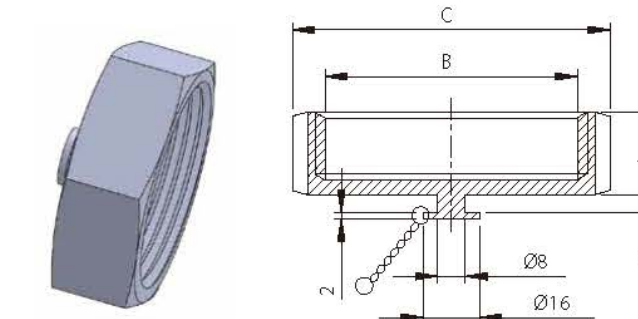
**RJT-13R Round nut**

| SIZE | ØA    | B                | ØC    | L    | Slots |
|------|-------|------------------|-------|------|-------|
| 1.0" | 33.45 | 42.266x8TPI WHIT | 58.5  | 22.2 | 4     |
| 1.5" | 46    | 54.966x8TPI WHIT | 74    | 22.2 | 4     |
| 2.0" | 58.67 | 67.92x6TPI WHIT  | 85.5  | 22.2 | 4     |
| 2.5" | 71.4  | 80.62x6TPI WHIT  | 98.5  | 22.2 | 4     |
| 3.0" | 84.1  | 93.32x6TPI WHIT  | 111.6 | 22.2 | 4     |
| 4.0" | 109.7 | 118.72x6TPI WHIT | 138   | 22.2 | 4     |
| 6.0" | 163   | 169.52x6TPI WHIT | 197   | 23.5 | 4     |



**RJT-13H Hex.nut**

| SIZE | ØA    | B                | C     | L    |
|------|-------|------------------|-------|------|
| 1/2" | 14.5  | 19.6x10TPI WHIT  | 28.5  | 16   |
| 3/4" | 21    | 26.2x10TPI WHIT  | 33    | 16   |
| 1.0" | 33.45 | 42.266x8TPI WHIT | 50.8  | 22.2 |
| 1.5" | 46    | 54.966x8TPI WHIT | 65    | 22.2 |
| 2.0" | 58.67 | 67.92x6TPI WHIT  | 79.4  | 22.2 |
| 2.5" | 71.4  | 80.62x6TPI WHIT  | 92    | 22.2 |
| 3.0" | 84.1  | 93.32x6TPI WHIT  | 104.8 | 22.2 |
| 4.0" | 109.7 | 118.72x6TPI WHIT | 130   | 22.2 |
| 6.0" | 163   | 169.52x6TPI WHIT | 184   | 24   |

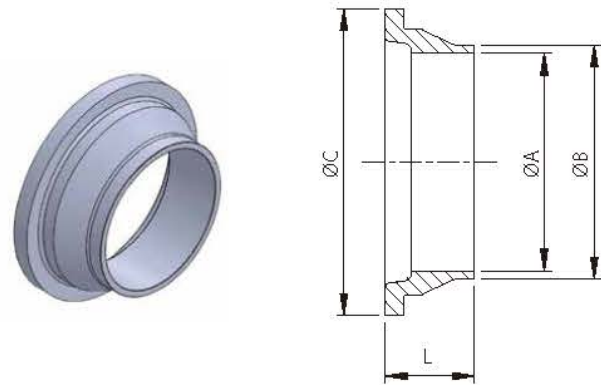


**RJT-13HBN Hex.blank nut**

| SIZE | B                | C     | L    |
|------|------------------|-------|------|
| 1.0" | 42.266x8TPI WHIT | 50.8  | 23.5 |
| 1.5" | 54.966x8TPI WHIT | 65    | 23.5 |
| 2.0" | 67.92x6TPI WHIT  | 79.4  | 23.5 |
| 2.5" | 80.62x6TPI WHIT  | 92    | 23.5 |
| 3.0" | 93.32x6TPI WHIT  | 104.8 | 23.5 |
| 4.0" | 118.72x6TPI WHIT | 130   | 23.5 |
| 6.0" | 169.52x6TPI WHIT | 184   | 23.5 |



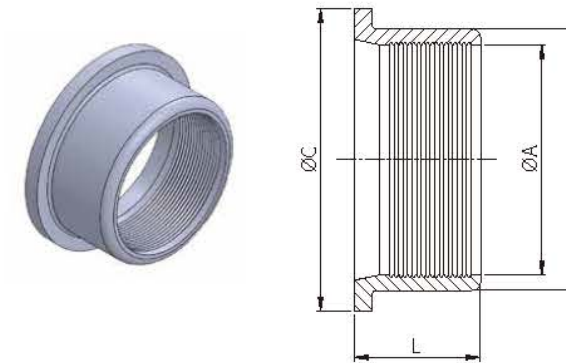
## RJT (BS) Unions



**RJT-14 WELDING LINER**

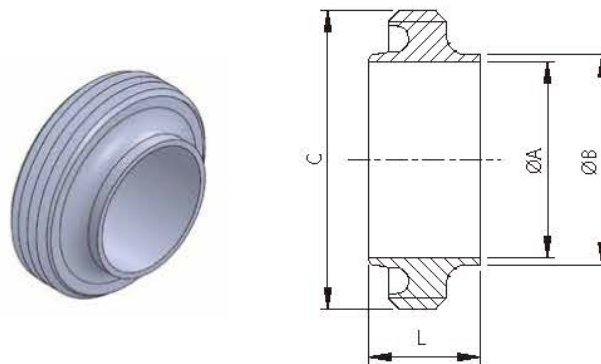
| SIZE | ØA     | ØB    | ØC    | L    |
|------|--------|-------|-------|------|
| 1/2" | 9.6    | 14    | 18    | 11.4 |
| 3/4" | 16     | 20    | 23.1  | 11.4 |
| 1.0" | 22.1   | 25.4  | 41.3  | 19.5 |
| 1.5" | 34.8   | 38.1  | 54    | 19.5 |
| 2.0" | 47.5   | 50.8  | 66.7  | 19.5 |
| 2.5" | 60.2   | 63.5  | 79.4  | 19.5 |
| 3.0" | 72.9   | 76.2  | 92.1  | 19.5 |
| 4.0" | 97.6   | 101.6 | 117.5 | 19.5 |
| 6.0" | 146.86 | 152.4 | 169.1 | 23.5 |

## RJT (BS) Unions



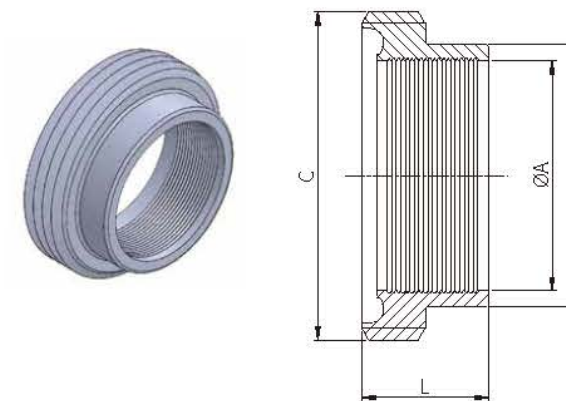
**RJT-14R EXPANDING LINER**

| SIZE | ØA    | ØB    | ØC    | L  |
|------|-------|-------|-------|----|
| 1"   | 25.4  | 32.5  | 41.3  | 20 |
| 1.5" | 38.1  | 45.2  | 54    | 24 |
| 2"   | 50.8  | 57.9  | 66.7  | 28 |
| 2.5" | 63.5  | 70.6  | 79.4  | 32 |
| 3"   | 76.2  | 83.3  | 92.1  | 32 |
| 4"   | 101.6 | 108.7 | 117.5 | 32 |



**RJT-15 WELDING MALE**

| SIZE | ØA     | ØB    | C                | L    |
|------|--------|-------|------------------|------|
| 1/2" | 9.6    | 13.7  | 21.2 *10TP WHIT  | 16.5 |
| 3/4" | 16     | 20    | 27.6 *10TP WHIT  | 16.5 |
| 1.0" | 22.1   | 25.4  | 45.72 *8TP WHIT  | 27   |
| 1.5" | 34.8   | 38.1  | 58.42 *8TP WHIT  | 27   |
| 2.0" | 47.5   | 50.8  | 72.72 *6TP WHIT  | 27   |
| 2.5" | 60.2   | 63.5  | 85.42 *6TP WHIT  | 27   |
| 3.0" | 72.9   | 76.2  | 98.12 *6TP WHIT  | 27   |
| 4.0" | 97.6   | 101.6 | 123.52 *6TP WHIT | 27   |
| 104  | 100    | 104   | 123.52 *6TP WHIT | 27   |
| 6.0" | 146.86 | 152.4 | 174.32 *6TP WHIT | 24   |

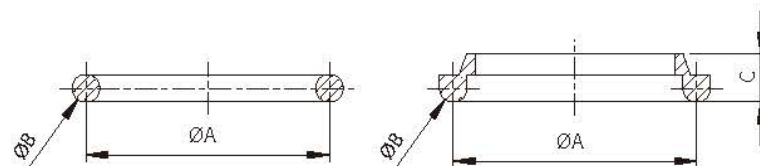


**RJT-15R EXPANDING MALE**

| SIZE | ØA    | ØB    | C                | L  |
|------|-------|-------|------------------|----|
| 1"   | 25.4  | 32.5  | 45.72 *8TP WHIT  | 20 |
| 1.5" | 38.1  | 45.2  | 58.42 *8TP WHIT  | 24 |
| 2"   | 50.8  | 57.9  | 72.72 *6TP WHIT  | 28 |
| 2.5" | 63.5  | 70.6  | 85.42 *6TP WHIT  | 32 |
| 3"   | 76.2  | 83.3  | 98.12 *6TP WHIT  | 32 |
| 4"   | 101.6 | 108.7 | 123.52 *6TP WHIT | 32 |

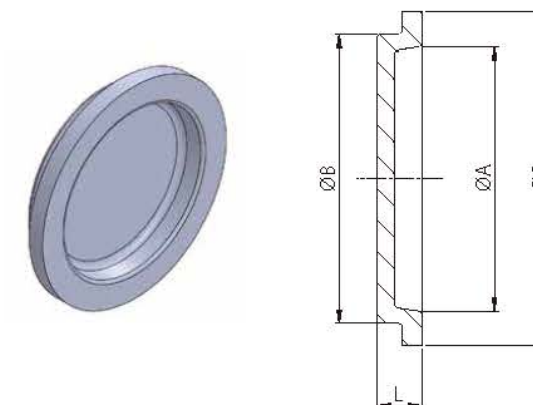
**O-Ring**

**U Type**



**RJT-15 EXPANDING MALE**

| SIZE | ØA    | ØB  | C |
|------|-------|-----|---|
| 1"   | 33.3  | 6.5 | 7 |
| 1.5" | 46    | 6.5 | 7 |
| 2"   | 58.7  | 6.5 | 7 |
| 2.5" | 71.4  | 6.5 | 7 |
| 3"   | 84.1  | 6.5 | 7 |
| 4"   | 109.5 | 6.5 | 7 |
| 6"   | 160.3 | 6.5 | 7 |

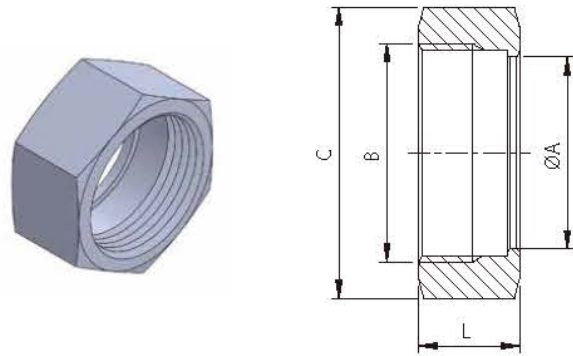


**RJT-14B BLANK END CAP**

| SIZE   | ØA   | ØB    | ØC    | L |
|--------|------|-------|-------|---|
| 1"     | 27.8 | 32.5  | 41.3  | 9 |
| 1.5"   | 40.5 | 45.2  | 54    | 9 |
| 2"     | 53.2 | 57.9  | 66.7  | 9 |
| 2.5"   | 65.9 | 70.6  | 79.4  | 9 |
| 3"     | 78.6 | 83.3  | 92.1  | 9 |
| 4"/104 | 104  | 108.7 | 117.5 | 9 |

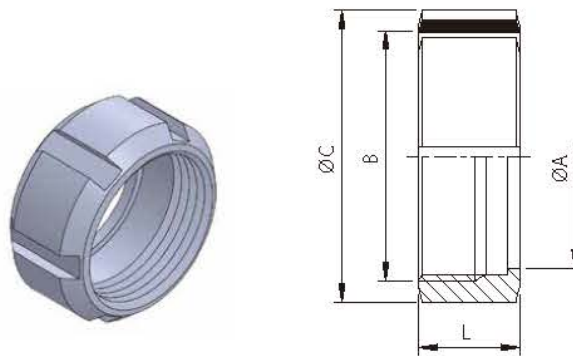


## IDF/JIS Unions



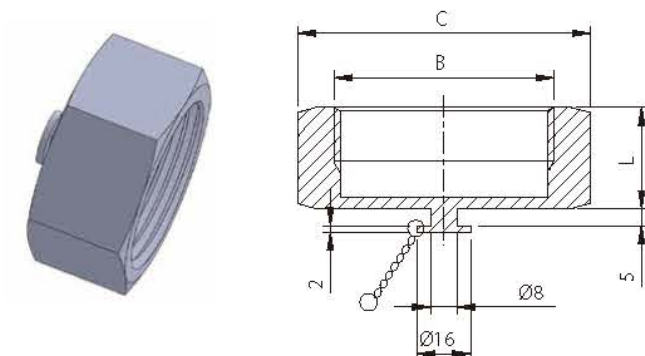
**IDF-13H Hex.nut**

| SIZE | ØA   | B             | C   | L    |
|------|------|---------------|-----|------|
| 1.0" | 30.5 | 34.49x8T ACME | 46  | 30   |
| 1.5" | 43.5 | 48.01x8T ACME | 60  | 30   |
| 2.0" | 57   | 61.52x8T ACME | 75  | 30   |
| 2.5" | 70.7 | 75.03x8T ACME | 90  | 30   |
| 3.0" | 83.3 | 88.55x8T ACME | 105 | 30   |
| 4.0" | 112  | 122.2x6T ACME | 133 | 34.9 |



**IDF-13R Round nut**

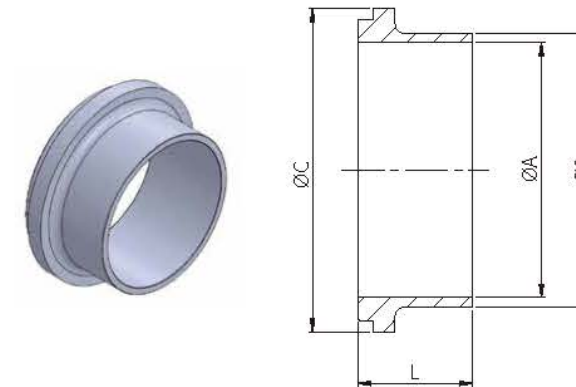
| SIZE | ØA   | B              | ØC  | L    | Slots |
|------|------|----------------|-----|------|-------|
| 1.0" | 30.5 | 34.49x8T ACME  | 48  | 30   | 6     |
| 1.5" | 43.5 | 48.01x8T ACME  | 64  | 30   | 6     |
| 2.0" | 57   | 61.52x8T ACME  | 77  | 30   | 6     |
| 2.5" | 70.7 | 75.03x8T ACME  | 91  | 30   | 6     |
| 3.0" | 83.3 | 88.55x8T ACME  | 106 | 30   | 6     |
| 4.0" | 110  | 115.56x8T ACME | 135 | 34.9 | 6     |



**IDF-13HBN Hex.blank nut**

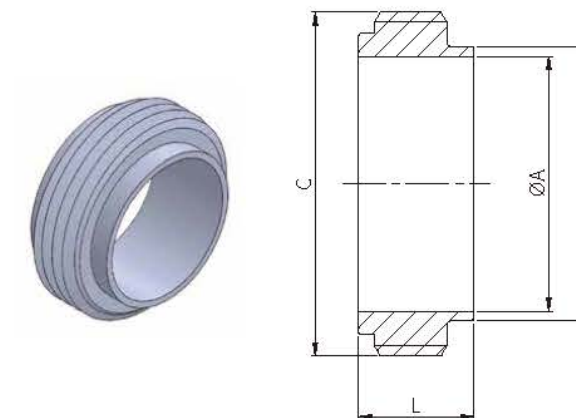
| SIZE | B             | C   | L    |
|------|---------------|-----|------|
| 1.0" | 34.49x8T ACME | 46  | 30   |
| 1.5" | 48.01x8T ACME | 60  | 30   |
| 2.0" | 61.52x8T ACME | 75  | 30   |
| 2.5" | 75.03x8T ACME | 90  | 30   |
| 3.0" | 88.55x8T ACME | 105 | 30   |
| 4.0" | 122.2x6T ACME | 133 | 34.9 |

## IDF/JIS G3447 Unions



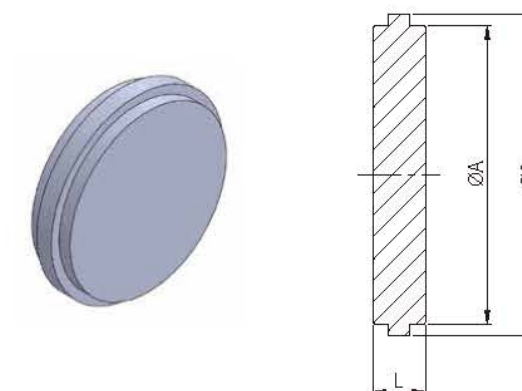
**IDF-14 WELDING LINER**

| SIZE | ØA   | ØB    | ØA   | ØB    | ØC    | L    |
|------|------|-------|------|-------|-------|------|
| 1"   | 22.1 | 25.4  | 23   | 25.4  | 33.8  | 21.5 |
| 1.5" | 34.8 | 38.1  | 35.7 | 38.1  | 47    | 21.5 |
| 2"   | 47.5 | 50.8  | 47.8 | 50.8  | 60.5  | 21.5 |
| 2.5" | 60.2 | 63.5  | 59.5 | 63.5  | 74    | 21.5 |
| 3"   | 72.9 | 76.2  | 72.3 | 76.3  | 87.5  | 21.5 |
| R 4" | 97.6 | 101.6 | —    | —     | 114   | 30   |
| H 4" | 97.6 | 101.6 | 97.6 | 101.6 | 120.6 | 30   |



**IDF-15 WELDING MALE**

| SIZE | ØA   | ØB    | ØA   | ØB    | C              | L    |
|------|------|-------|------|-------|----------------|------|
| 1"   | 22.1 | 25.4  | 23   | 25.4  | 36.97*8T ACME  | 21.5 |
| 1.5" | 34.8 | 38.1  | 35.7 | 38.1  | 50.49*8T ACME  | 21.5 |
| 2"   | 47.5 | 50.8  | 47.8 | 50.8  | 64*8T ACME     | 21.5 |
| 2.5" | 60.2 | 63.5  | 59.5 | 63.5  | 77.51*8T ACME  | 21.5 |
| 3"   | 72.9 | 76.2  | 72.3 | 76.3  | 91.03*8T ACME  | 21.5 |
| R 4" | 97.6 | 101.6 | —    | —     | 118.04*8T ACME | 30   |
| H 4" | 97.6 | 101.6 | 97.6 | 101.6 | 125.69*6T ACME | 30   |

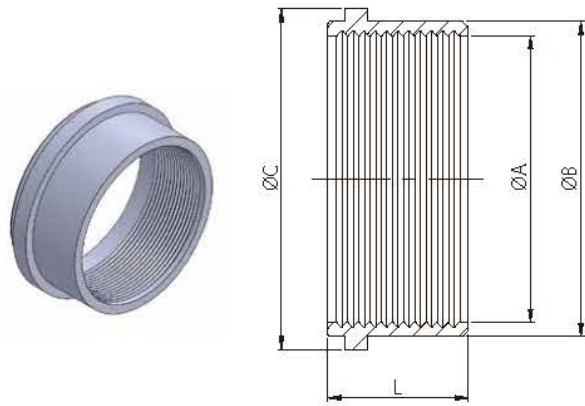


**IDF-14B BLANK END CAP**

| SIZE | ØA    | ØB    | L    |
|------|-------|-------|------|
| 1"   | 29.2  | 33.8  | 10.5 |
| 1.5" | 42.7  | 47    | 10.5 |
| 2"   | 56.2  | 60.5  | 10.5 |
| 2.5" | 69.9  | 74    | 10.5 |
| 3"   | 82.6  | 87.5  | 10.5 |
| R 4" | 108.8 | 114.1 | 12.6 |
| H 4" | 111.1 | 120.6 | 12.6 |

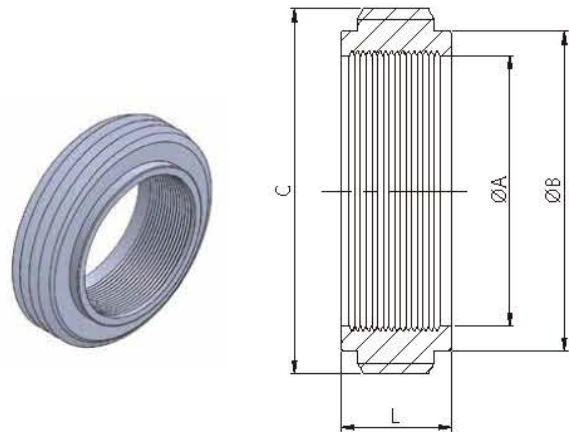


## IDF/JIS G3447 Unions



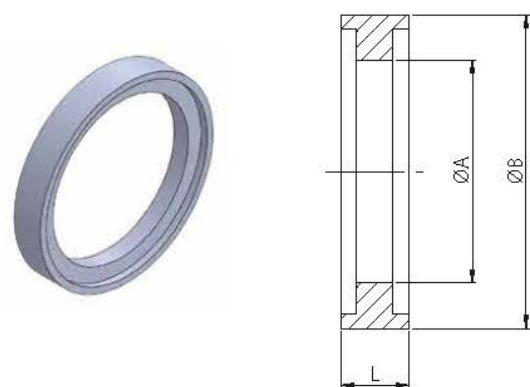
**IDF-14R RECESSLESS LINER**

| SIZE | ØA    | ØB    | ØC    | L  |
|------|-------|-------|-------|----|
| 1"   | 25.4  | 29.2  | 33.8  | 20 |
| 1.5" | 38.1  | 42.7  | 47    | 20 |
| 2"   | 50.8  | 56.2  | 60.5  | 25 |
| 2.5" | 63.5  | 69.9  | 74    | 30 |
| 3"   | 76.2  | 82.6  | 87.5  | 30 |
| R 4" | 101.6 | 108.8 | 114   | 30 |
| H 4" | 101.6 | 111.1 | 120.6 | 30 |



**IDF-15R RECESSLESS MALE**

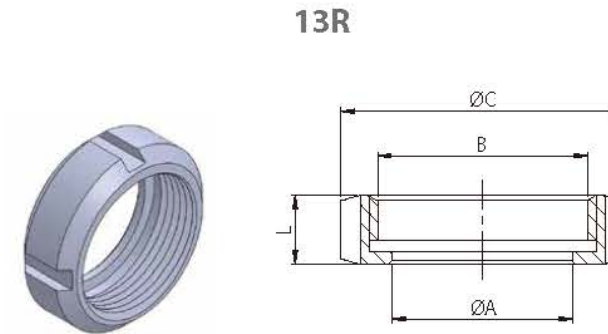
| SIZE | ØA    | ØB    | C              | L    |
|------|-------|-------|----------------|------|
| 1"   | 25.4  | 29.2  | 36.97*8T ACME  | 19.5 |
| 1.5" | 38.1  | 42.7  | 50.49*8T ACME  | 19.5 |
| 2"   | 50.8  | 56.2  | 64*8T ACME     | 19.5 |
| 2.5" | 63.5  | 69.9  | 77.51*8T ACME  | 25   |
| 3"   | 76.2  | 82.6  | 91.03*8T ACME  | 30   |
| R 4" | 101.6 | 108.8 | 118.04*8T ACME | 35   |
| H 4" | 101.6 | 111.1 | 125.69*6T ACME | 35   |



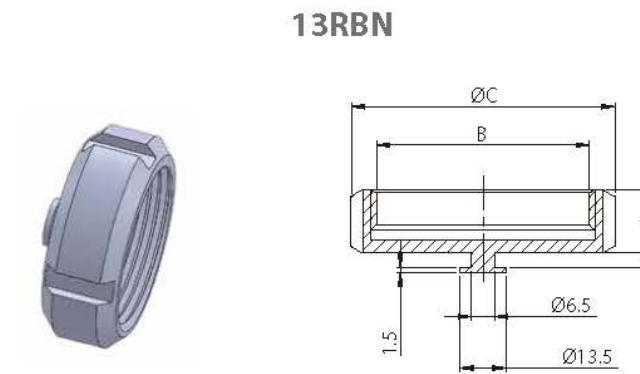
**IDF SEAL RING**

| SIZE | ØA   | ØB    | L |
|------|------|-------|---|
| 1"   | 23   | 32.5  | 7 |
| 1.5" | 36   | 46    | 7 |
| 2"   | 49   | 59.5  | 7 |
| 2.5" | 60.7 | 73.2  | 7 |
| 3"   | 73.2 | 86.5  | 7 |
| R 4" | 98   | 113   | 7 |
| H 4" | 98   | 119.6 | 7 |

## Wine Unions



**13R**



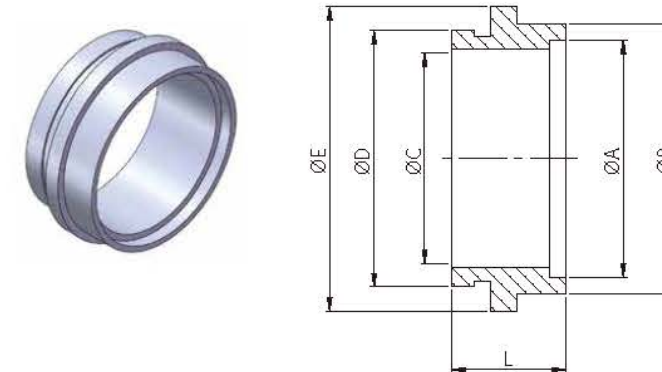
**13RBN**

**MACON NUT 4 SLOTS M-13R**

| SIZE  | ØA  | B             | ØC  | L  |
|-------|-----|---------------|-----|----|
| DN33  | 37  | 39*11TPI WHIT | 50  | 25 |
| DN43  | 47  | M55*P3.0      | 70  | 25 |
| DN53  | 57  | M67*P3.0      | 80  | 25 |
| DN63  | 67  | M79*P3.5      | 95  | 25 |
| DN73  | 77  | M90*P3.5      | 106 | 25 |
| DN83  | 90  | M102*P4.0     | 118 | 25 |
| DN103 | 112 | M125*P4.0     | 139 | 26 |

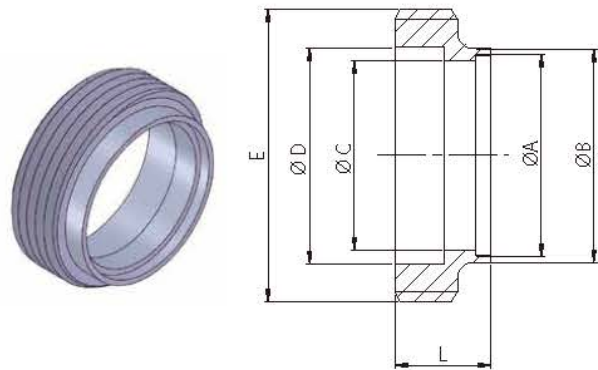
**MACON LINER M-14**

| SIZE    | ØA    | ØB   | ØC   | ØD    | ØE   | L  |
|---------|-------|------|------|-------|------|----|
| DN33    | 33.3  | 36   | 28   | 31.5  | 38   | 22 |
| DN38    | 38.2  | 46   | 35.9 | 44.5  | 50   | 29 |
| DN40/43 | 43.3  | 46.3 | 40   | 44.5  | 50   | 22 |
| DN51    | 51.2  | 56   | 48.5 | 54.5  | 62.5 | 29 |
| DN50/53 | 53.3  | 56.3 | 50   | 54.5  | 62.5 | 22 |
| DN60/63 | 63.3  | 66.3 | 60   | 64.5  | 73.5 | 22 |
| DN70/73 | 73.3  | 76.3 | 70   | 74.5  | 85   | 22 |
| DN76    | 72    | 76   | 70   | 74.5  | 85   | 22 |
| DN80/83 | 83.3  | 86.3 | 80   | 84.5  | 96   | 22 |
| DN103   | 104.2 | 108  | 100  | 104.5 | 119  | 22 |



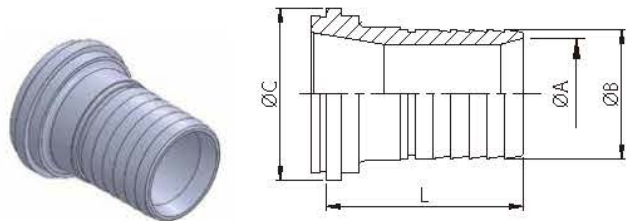


## Wine Unions



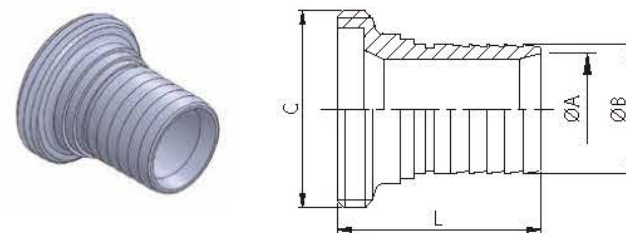
**MACON MALE M-15**

| SIZE    | ØA    | ØB   | ØC   | ØD  | E               | L  |
|---------|-------|------|------|-----|-----------------|----|
| DN33    | 33.3  | 36.3 | 30   | 32  | 40.5*11TPI WHIT | 22 |
| DN38    | 38.2  | 46   | 35.9 | 45  | M55*P3.0        | 30 |
| DN43    | 43.3  | 46.3 | 40   | 45  | M55*P3.0        | 22 |
| DN51    | 51.2  | 56   | 48.5 | 55  | M67*P3.0        | 30 |
| DN53    | 53.3  | 56.3 | 50   | 55  | M67*P3.0        | 22 |
| DN60/63 | 63.3  | 66.3 | 60   | 66  | M79*P3.5        | 22 |
| DN70/73 | 73.3  | 76.3 | 70   | 76  | M90*P3.5        | 22 |
| DN76    | 72    | 76   | 70   | 76  | M90*P3.5        | 22 |
| DN80/83 | 83.3  | 86.3 | 80   | 86  | M102*P4.0       | 22 |
| DN103   | 104.2 | 108  | 100  | 106 | M125*P4.0       | 22 |



**M-14AHR MACON LINER HOSE ADAPTER**

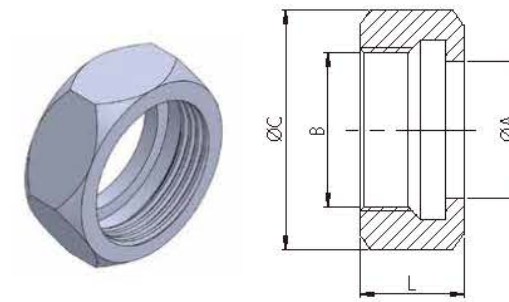
| SIZE    | ØA   | ØB   | ØC   | L   |
|---------|------|------|------|-----|
| DN40/43 | 40   | 43   | 50.8 | 79  |
| DN50/53 | 50   | 53   | 63   | 79  |
| DN60/63 | 59   | 53.2 | 75   | 102 |
| DN70/73 | 70   | 73   | 85   | 79  |
| DN80/83 | 71.5 | 75.5 | 97   | 110 |



**M-15AHR MACON MALE HOSE ADAPTER**

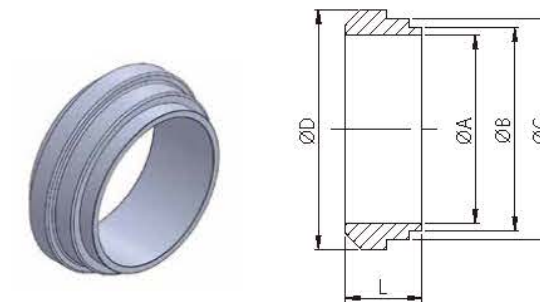
| SIZE    | ØA   | ØB   | C         | L   |
|---------|------|------|-----------|-----|
| DN40/43 | 40   | 43   | M55*P3.0  | 79  |
| DN50/53 | 50   | 53   | M67*P3.0  | 79  |
| DN60/63 | 59   | 53.2 | M79*P3.5  | 104 |
| DN70/73 | 70   | 73   | M90*P3.5  | 79  |
| DN80/83 | 71.5 | 75.5 | M102*P4.0 | 112 |

## 3A Unions



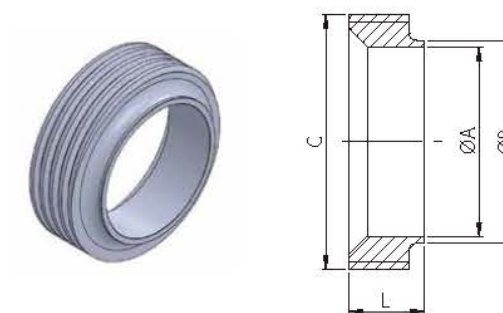
**3A-13H HEXAGONAL NUT**

| SIZE | ØA    | B                | ØC    | L    |
|------|-------|------------------|-------|------|
| 1"   | 30.3  | 38.02 ACME 8TPI  | 46    | 23   |
| 1.5" | 43.4  | 51.54 ACME 8TPI  | 61.1  | 24.6 |
| 2"   | 56.5  | 65.05 ACME 8TPI  | 76.2  | 27   |
| 2.5" | 69.6  | 78.56 ACME 8TPI  | 91.3  | 29.6 |
| 3"   | 82.7  | 92.08 ACME 8TPI  | 106.4 | 32.5 |
| 4"   | 108.9 | 120.14 ACME 6TPI | 137.6 | 38.1 |



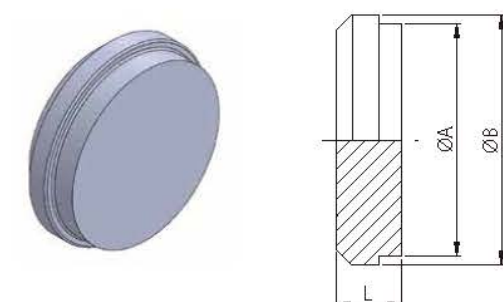
**3A-14PRF SHORT BEVEL SEAT WELD LINER**

| SIZE | ØA   | ØB    | ØC    | ØD    | L    |
|------|------|-------|-------|-------|------|
| 1"   | 22.1 | 25.4  | 29.5  | 33.3  | 18.3 |
| 1.5" | 34.8 | 38.1  | 42.6  | 46.8  | 18.3 |
| 2"   | 47.5 | 50.8  | 55.7  | 60.3  | 19.1 |
| 2.5" | 60.2 | 63.5  | 68.8  | 73.8  | 22.3 |
| 3"   | 72.9 | 76.2  | 81.9  | 87.3  | 23.1 |
| 4"   | 97.6 | 101.6 | 108.1 | 114.3 | 26.2 |



**3A-15TRF SHORT BEVEL SEAT WELD MALE**

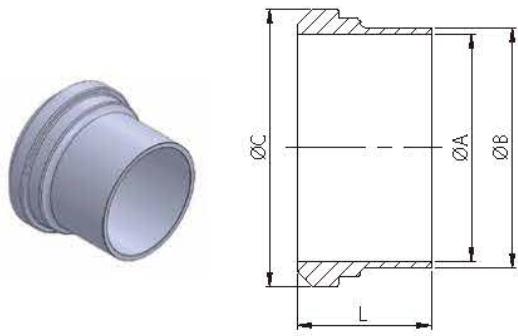
| SIZE | ØA   | ØB    | C                | L    |
|------|------|-------|------------------|------|
| 1"   | 22.1 | 25.4  | 36.97 ACME 8TPI  | 18.3 |
| 1.5" | 34.8 | 38.1  | 50.49 ACME 8TPI  | 18.3 |
| 2"   | 47.5 | 50.8  | 64 ACME 8TPI     | 19.1 |
| 2.5" | 60.2 | 63.5  | 77.51 ACME 8TPI  | 22.2 |
| 3"   | 72.9 | 76.2  | 91.03 ACME 8TPI  | 23.1 |
| 4"   | 97.6 | 101.6 | 119.04 ACME 6TPI | 26.2 |



**3A-16A BLANK END CAP**

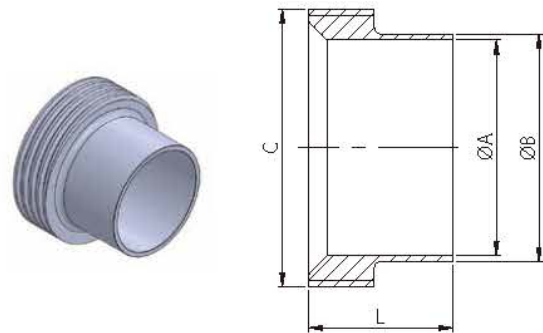
| SIZE | ØA    | ØB    | L    |
|------|-------|-------|------|
| 1"   | 29.5  | 33.3  | 11.9 |
| 1.5" | 42.6  | 46.8  | 14.3 |
| 2"   | 55.7  | 60.3  | 15.9 |
| 2.5" | 68.8  | 73.8  | 16.7 |
| 3"   | 81.9  | 87.3  | 18.3 |
| 4"   | 108.1 | 114.3 | 20.6 |





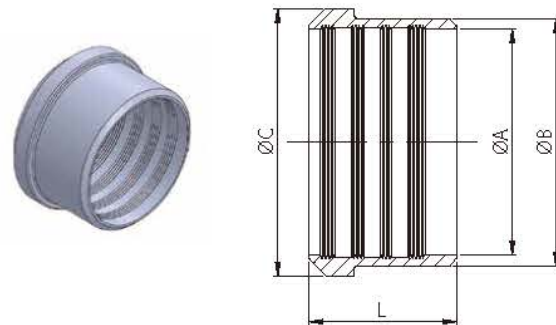
3A-14A LONG WELD LINER

| SIZE | ØA   | ØB    | ØC    | L    |
|------|------|-------|-------|------|
| 1"   | 22.1 | 25.4  | 33.3  | 34.9 |
| 1.5" | 34.8 | 38.1  | 46.8  | 38.1 |
| 2"   | 47.5 | 50.8  | 60.3  | 38.1 |
| 2.5" | 60.2 | 63.5  | 73.8  | 44.5 |
| 3"   | 72.9 | 76.2  | 87.3  | 44.5 |
| 4"   | 97.6 | 101.6 | 114.3 | 44.5 |



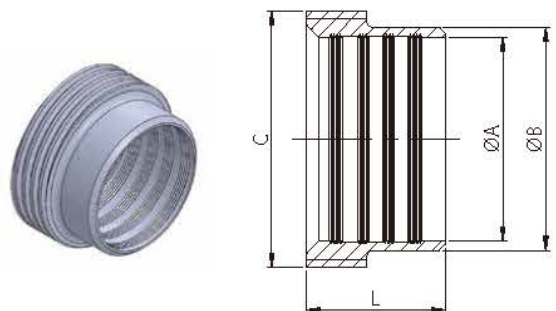
3A-15A LONG WELD MALE

| SIZE | ØA   | ØB    | C                | L    |
|------|------|-------|------------------|------|
| 1"   | 22.1 | 25.4  | 36.97 ACME 8TPI  | 34.9 |
| 1.5" | 34.8 | 38.1  | 50.49 ACME 8TPI  | 38.1 |
| 2"   | 47.5 | 50.8  | 64 ACME 8TPI     | 38.1 |
| 2.5" | 60.2 | 63.5  | 77.51 ACME 8TPI  | 44.5 |
| 3"   | 72.9 | 76.2  | 91.03 ACME 8TPI  | 44.5 |
| 4"   | 97.6 | 101.6 | 119.04 ACME 6TPI | 44.5 |



3A-14R RECESSLESS LINER

| SIZE | ØA    | ØB    | ØC    | L    |
|------|-------|-------|-------|------|
| 1"   | 25.4  | 29.5  | 33.3  | 19.1 |
| 1.5" | 38.1  | 42.6  | 46.8  | 28.6 |
| 2"   | 50.8  | 55.7  | 60.3  | 33.3 |
| 2.5" | 63.5  | 68.8  | 73.8  | 34.9 |
| 3"   | 76.2  | 81.9  | 87.3  | 36.5 |
| 4"   | 101.6 | 108.1 | 114.3 | 38.1 |



3A-15R RECESSLESS MALE

| SIZE | ØA    | ØB    | C                | L    |
|------|-------|-------|------------------|------|
| 1"   | 25.4  | 29.5  | 36.97 ACME 8TPI  | 20.6 |
| 1.5" | 38.1  | 42.6  | 50.49 ACME 8TPI  | 28.6 |
| 2"   | 50.8  | 55.7  | 64 ACME 8TPI     | 34.9 |
| 2.5" | 63.5  | 68.8  | 77.51 ACME 8TPI  | 38.1 |
| 3"   | 76.2  | 81.9  | 91.03 ACME 8TPI  | 41.3 |
| 4"   | 101.6 | 108.1 | 119.04 ACME 6TPI | 41.3 |

3A. SMS. DIN. BS. AS

Tube Line / Elbow / Tee / Reducer

