

| HYDRAULIC STEEL |                  |     |                                     |
|-----------------|------------------|-----|-------------------------------------|
| Wall thickness  | Outside diameter | CLR | Minimum allowance between two bends |

**SAE J524**

|                   |       |       |     |
|-------------------|-------|-------|-----|
| 20 GA<br>(0.035") | 0,375 | 0,75  | 0,5 |
|                   | 0,375 | 1     | 0,5 |
| 18 GA (0.049")    | 0,375 | 0,75  | 0,5 |
|                   | 0,375 | 1     | 0,5 |
|                   | 0,5   | 1     | 1   |
|                   | 0,5   | 1,25  | 1   |
|                   | 0,75  | 1,5   | 1,5 |
|                   | 0,875 | 1,5   | 2   |
| 16 GA (0.065")    | 0,375 | 1     | 0,5 |
|                   | 0,5   | 1     | 1   |
|                   | 0,625 | 1     | 1   |
|                   | 0,625 | 1,25  | 1   |
|                   | 0,75  | 1,5   | 1,5 |
|                   | 1     | 1,5   | 1   |
|                   | 1     | 2,375 | 1   |
|                   | 1     | 3     | 1   |
|                   | 1     | 4,5   | 1   |
|                   | 1     | 6     | 1   |
|                   | 1,25  | 2     | 2   |
|                   | 1,25  | 2,5   | 2   |
|                   | 1,25  | 3     | 2   |
|                   | 1,25  | 4,25  | 2   |
|                   | 1,375 | 1,5   | 2   |
| 14 GA<br>(0.083") | 0,625 | 1,5   | 1   |
|                   | 0,875 | 2,5   | 2   |
| 13 GA<br>(0.095") | 1     | 2,375 | 1   |
|                   | 1     | 3     | 1   |
| 11 GA<br>(0.120") | 1     | 2     | 1   |
|                   | 1,05  | 2,5   | 3   |
|                   | 1,25  | 3     | 2   |

| HYDRAULIC STEEL (cond.) |                  |     |                                     |
|-------------------------|------------------|-----|-------------------------------------|
| Wall thickness          | Outside diameter | CLR | Minimum allowance between two bends |

**ASTM A106**

|                                 |       |     |   |
|---------------------------------|-------|-----|---|
| 1" PIPE<br>SCH 40<br>(0.133")   | 1,315 | 3   | 3 |
| 3/4" PIPE<br>SCH 40<br>(0.113") | 1,050 | 2,5 | 2 |

**COLD ROLL/HOT ROLL STEEL,  
ASTM A-513, TYPE 1 OR 2**

| Wall thickness    | Outside diameter | CLR  | Minimum allowance between two bends |
|-------------------|------------------|------|-------------------------------------|
| 18 GA<br>(0.049") | 1                | 2    | 1                                   |
|                   | 1                | 4,5  | 1                                   |
| 16 GA (0.065")    | 0,75             | 1,5  | 1,5                                 |
|                   | 0,75             | 2,25 | 1,5                                 |
|                   | 0,75             | 2,5  | 1,5                                 |
|                   | 0,875            | 1,5  | 2                                   |
|                   | 1,25             | 2    | 2                                   |
|                   | 1,25             | 2,5  | 2                                   |
|                   | 1,625            | 2,5  | 1,625                               |
|                   | 2                | 3    | 3                                   |

| 304 STAINLESS STEEL     |                  |      |                                     |
|-------------------------|------------------|------|-------------------------------------|
| Wall thickness          | Outside diameter | CLR  | Minimum allowance between two bends |
| 18 GA (0.049")          | 0,375            | 0,75 | 0,5                                 |
|                         | 0,375            | 1    | 0,5                                 |
|                         | 0,5              | 1    | 1                                   |
|                         | 0,5              | 2,5  | 1                                   |
|                         | 0,875            | 1,5  | 2                                   |
|                         | 0,875            | 2    | 2                                   |
| 16 GA (0.065")          | 1                | 1,5  | 1                                   |
|                         | 1,25             | 1,5  | 2                                   |
|                         | 1,25             | 2    | 2                                   |
|                         | 1,25             | 2,5  | 2                                   |
|                         | 1,25             | 3    | 2                                   |
|                         | 1,375            | 1,5  | 2                                   |
|                         | 1,75             | 2,5  | 3                                   |
|                         | 2                | 3    | 3                                   |
|                         | 2,25             | 3    | 4                                   |
|                         | 2,5              | 3    | 4                                   |
|                         | 2,5              | 5    | 5                                   |
|                         | 2,75             | 3    | 4                                   |
|                         | 3                | 3,5  | 5                                   |
|                         | 3,5              | 3,5  | 5                                   |
|                         | 4                | 4    | 7                                   |
|                         | 4                | 6    | 6                                   |
|                         | 4                | 8    | 8                                   |
| 4,5                     | 6                | 8    |                                     |
| 5                       | 5,5              | 8,75 |                                     |
| 14 GA (0.083")          | 4                | 4    | 7                                   |
|                         | 4                | 6    | 6                                   |
| 3" PIPE SCH 10 (0.120") | 3,5              | 3,5  | 6                                   |

| 409 STAINLESS STEEL |                  |     |                                     |
|---------------------|------------------|-----|-------------------------------------|
| Wall thickness      | Outside diameter | CLR | Minimum allowance between two bends |
| 16 GA (0.065")      | 2                | 3   | 3                                   |
|                     | 2,25             | 3   | 4                                   |
|                     | 2,5              | 3   | 4                                   |
|                     | 2,5              | 5   | 5                                   |
|                     | 2,75             | 3   | 4                                   |
|                     | 3                | 3,5 | 5                                   |
|                     | 3                | 6   | 6                                   |
|                     | 3,5              | 3,5 | 5                                   |
|                     | 4                | 4   | 8                                   |
|                     | 4                | 6   | 6                                   |
|                     | 4                | 8   | 8                                   |
|                     | 5                | 5,5 | 7,5                                 |

| ALUMINIZED STEEL T125 |                  |       |                                     |
|-----------------------|------------------|-------|-------------------------------------|
| Wall thickness        | Outside diameter | CLR   | Minimum allowance between two bends |
| 16 GA (0.065")        | 1                | 2     | 1                                   |
|                       | 1                | 2,375 | 1                                   |
|                       | 1,375            | 1,5   | 2                                   |
|                       | 1,5              | 1,5   | 1,5                                 |
|                       | 1,5              | 2     | 1,5                                 |
|                       | 1,5              | 3     | 1,5                                 |
|                       | 1,75             | 2,5   | 3                                   |
|                       | 2                | 2,5   | 3                                   |
|                       | 2                | 3     | 3                                   |
|                       | 2,25             | 2,5   | 4                                   |
|                       | 2,25             | 3     | 4                                   |
|                       | 2,5              | 3     | 4                                   |
|                       | 2,5              | 5     | 5                                   |
|                       | 2,75             | 3     | 4                                   |
|                       | 3                | 3     | 4,5                                 |
|                       | 3                | 3,5   | 5                                   |
|                       | 3                | 4,5   | 5                                   |
|                       | 3                | 6     | 6                                   |
|                       | 3,5              | 3,5   | 5                                   |
|                       | 3,5              | 5     | 7                                   |
|                       | 3,5              | 6     | 7                                   |
|                       | 3,5              | 8     | 7                                   |
|                       | 4                | 4     | 6                                   |
|                       | 4                | 5     | 4,5                                 |
|                       | 4                | 6     | 5                                   |
|                       | 4                | 8     | 8                                   |
|                       | 4,5              | 6     | 8                                   |
|                       | 4,5              | 8     | 8                                   |
|                       | 5                | 5,5   | 6                                   |
|                       | 5                | 8     | 10                                  |
|                       | 6                | 6     | 10                                  |
|                       | 6                | 10    | 10                                  |
| 14 GA (0.083")        | 0,625            | 1,5   | 1                                   |
|                       | 0,875            | 2,5   | 2                                   |
|                       | 4                | 6     | 6                                   |

| ALUMINUM       |                  |     |                                     |
|----------------|------------------|-----|-------------------------------------|
| Wall thickness | Outside diameter | CLR | Minimum allowance between two bends |

**6063-T4**

|                             |       |     |   |
|-----------------------------|-------|-----|---|
| 16 GA (0.065")              | 0,875 | 2   | 2 |
|                             | 0,875 | 2,5 | 2 |
| 1 1/4" PIPE SCH 40 (0.140") | 1,66  | 3   | 4 |

**6063-T0**

|                |      |      |      |
|----------------|------|------|------|
| 16 GA (0.065") | 1,25 | 3,75 | 2    |
| 15 GA (0.072") | 2,25 | 2,5  | 5    |
|                | 2,25 | 3    | 4    |
|                | 4    | 4    | 4,5  |
|                | 5    | 5,5  | 6    |
|                | 5,5  | 6    | 6,25 |

**COPPER**

| Wall thickness | Outside diameter | CLR | Minimum allowance between two bends |
|----------------|------------------|-----|-------------------------------------|
| (0.050")       | 0,875            | 1,5 | 2                                   |
|                | 1,125            | 2   | 2                                   |