

## N04400 • 2.4360 • TPS-Techalloy 400

ALLOY 400 combines high strength, ductility and excellent resistance to corrosion, is a general purpose. Retains essential characteristics through manufacturing, fabrication and service life. Strength equal to structural steel, strength can be increased by mechanical working, but not by heat treating. This tubing is used in chemical and processing equipment, pulp and paper machinery, food processing and packing machinery, petroleum, petrochemical and power-generating apparatus. Also in heating elements, solenoid valves, antennas, lube oil coolers, electron tubes, electrical connectors, atomizer assemblies, marine windshield wipers, spray systems and lines for handling hydraulic fluids and acids.

| Material grade | Norm                     | Chemical composition • mass in % |      |      |      |       |             |             |             |      |                                  |
|----------------|--------------------------|----------------------------------|------|------|------|-------|-------------|-------------|-------------|------|----------------------------------|
|                |                          | C                                | Si   | Mn   | P    | S     | Cr          | Ni          | Mo          | Ti   | Sonst.                           |
|                |                          | max.                             | max. | max. | max. | max.  | min. – max. | min. – max. | min. – max. |      |                                  |
| 2.4360         | DIN 17743                | 0,150                            | 0,50 | 0,20 | -    | 0,020 | -           | 63,00       | -           | 0,30 | Cu 28,0-34,0; Fe 1,0-2,5; Al 0,5 |
| 2.4360         | VD-TÜV WB 2 63           | 0,160                            | 0,50 | 2,00 | -    | 0,020 | -           | 63,00       | -           | -    | Cu 28,0-34,0; Fe 1,0-2,5; Al 0,5 |
| N04400         | ASME SB / ASTM B 163/165 | 0,300                            | 0,50 | 2,00 | -    | 0,024 | -           | 63,00       | -           | -    | Cu 28,0-34,0; Fe 2,5 max.        |

| Material grade | Norm                     | Mechanical properties and heat treatment |              |             |       |          |                 |
|----------------|--------------------------|--|--------------|-------------|-------|----------|-----------------|
|                |                          | Rp 0,2 [MPa]                             | Rp 1,0 [MPa] | Rm [MPa]    | A [%] | Härte    | Wärmebehandlung |
|                |                          | min.                                     | min.         | min. – max. | min   | HRB max. |                 |
| 2.4360         | DIN 17743                | 180                                      | 210          | 450         | 35    | 80       | weichgeglüht    |
| 2.4360         | VD-TÜV WB 2 63           | 175                                      | -            | 450 - 600   | 30    | -        | geglüht         |
| N04400         | ASME SB / ASTM B 163/165 | 193                                      | -            | 483         | 35    | 80       | geglüht         |

| Tolerances       |           |           |            |           |
|------------------|-----------|-----------|------------|-----------|
| AD - Rohr        | AD        | WD        | special WT | ID        |
| ab Ø4,550 mm     | ±0,050 mm | ±0,150 mm | ±0,100 mm  | X         |
| ab Ø9,530 mm     | ±0,050 mm | ±0,100 mm | ±0,080 mm  | ±0,050 mm |
| ab Ø30,001 mm*** | ±0,100 mm | ±0,150 mm |            | ±0,050 mm |

\*\*\* to max. ø44,500 mm

- Tolerances acc. to DIN EN 10305-1 can be confirmed to OD 30mm
- Tolerances acc. to DIN EN ISO 1127 / DIN EN 10216-5 can be confirmed
- Tolerances acc. to ASTM can be confirmed generally

Abmessungsbereich\*

| Abmessungsspektrum |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
|--------------------|--------|-------|------|------|-------|-------|-------|------|------|-------|------|-------|------|------|-------|-------|-------|------|-------|-------|------|------|-------|------|------|------|------|-------|
|                    | WD     | [mm]  | 0,89 | 1,00 | 1,20  | 1,24  | 1,65  | 1,82 | 2,00 | 2,11  | 2,30 | 2,35  | 2,50 | 2,60 | 2,64  | 2,77  | 2,87  | 3,00 | 3,20  | 3,25  | 3,60 | 3,85 | 3,91  | 4,00 | 4,40 | 5,50 | 6,35 | 7,00  |
| AD                 | [inch] | 0,035 |      |      | 0,048 | 0,065 | 0,072 |      |      | 0,083 |      | 0,093 |      |      | 0,104 | 0,109 | 0,113 |      | 0,126 | 0,128 |      |      | 0,154 |      |      |      |      | 0,250 |
| [mm]               | [inch] |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 6,00               |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 6,35               | 0,250  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 7,00               |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 7,50               |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 8,00               |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 9,00               |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 9,53               | 0,375  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 10,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 11,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 12,70              | 0,500  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 13,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 15,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 15,88              | 0,625  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 16,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 16,80              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 17,15              | 0,675  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 18,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 19,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 19,05              | 0,750  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 20,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 21,34              | 0,840  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 22,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 22,23              | 0,875  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 23,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 25,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 25,40              | 1,000  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 26,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 26,67              | 1,050  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 28,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 30,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 31,75              | 1,250  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 32,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 33,40              | 1,315  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 36,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 38,10              | 1,500  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 42,00              |        |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |
| 44,50              | 1,750  |       |      |      |       |       |       |      |      |       |      |       |      |      |       |       |       |      |       |       |      |      |       |      |      |      |      |       |

