

## Pressure formula and conversion factors pressure table for stainless steel pipes and tubes

Pressure formula for grade 1.4301

- P** = maximum pressure in bar
- OD** = outside pipe diameter in mm
- Di** = inside pipe diameter in mm
- Sv** = minimum wall thickness  
(including a minus tolerance of 12.5% (S))
- Vn** = weld factor =1.0
- σZUL** = minimum allowed proof strength in Mpa  
based on the 1% proof strength according to  
EN10217-2 with a safety factor of 1.5

temperature < 120°C

$$P = \frac{20\sigma_{ZUL} \cdot Vn \cdot Sv}{Da}$$

temperature > 120°C

$$P = \frac{20\sigma_{ZUL} \cdot Vn \cdot Sv}{Di + (Vn \cdot Sv)}$$

You can apply this formula in case of constant temperatures

### Conversion factors pressure borders to grades

Wr.	ANSI	20°C	100°C	150°C	200°C	250°C	300°C	350°C	400°C
1.4301	304	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.4306	304L	0.93	0.95	0.94	0.94	0.94	0.94	0.94	0.93
1.4401	316	1.04	1.10	1.11	1.13	1.15	1.16	1.16	1.15
1.4436	316	1.04	1.10	1.11	1.13	1.15	1.16	1.16	1.15
1.4404	316L	0.98	1.04	1.05	1.06	1.08	1.07	1.08	1.08
1.4435	316L	0.98	1.04	1.05	1.06	1.08	1.07	1.08	1.08
1.4541	321	1.02	1.09	1.13	1.18	1.21	1.24	1.25	1.25
1.4571	316Ti	1.07	1.14	1.20	1.25	1.28	1.30	1.31	1.31