

# Riveted Joint Verification

Sample document with complete example values. It shows the report the purchased export produces for YOUR input - it is not itself a report for any part.

Project: Sample project

Part/Position: no real part

Prepared by: Sample, not released

Overall assessment: OK - shear and bearing stress are within the allowable limits.

## Inputs

|                                             |                                        |
|---------------------------------------------|----------------------------------------|
| Shear force F                               | 20,000 N                               |
| Rivet diameter d                            | 10 mm                                  |
| Number of rivets z                          | 4                                      |
| Configuration                               | single shear (1 shear plane per rivet) |
| Sheet thickness (thinnest) t                | 8 mm                                   |
| Allowable shear stress $\tau_{allow}$       | 140 N/mm <sup>2</sup>                  |
| Allowable bearing stress $\sigma_{l,allow}$ | 280 N/mm <sup>2</sup>                  |

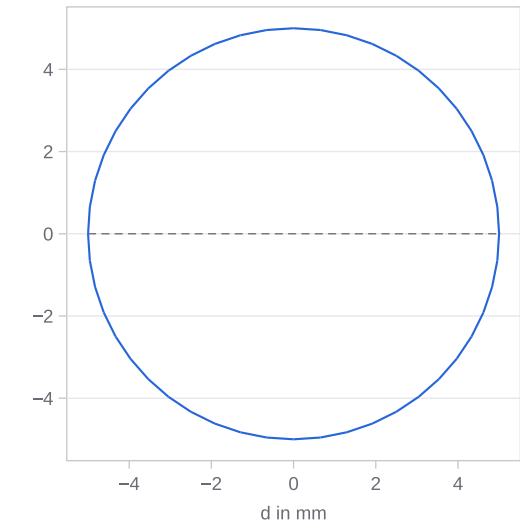
## Results

|                                                     |                         |
|-----------------------------------------------------|-------------------------|
| Rivet cross-section $A = \pi \cdot d^2 / 4$         | 78.54 mm <sup>2</sup>   |
| Shear planes per rivet n                            | 1                       |
| Shear stress $\tau = F / (z \cdot n \cdot A)$       | 63.66 N/mm <sup>2</sup> |
| Bearing stress $\sigma_l = F / (z \cdot d \cdot t)$ | 62.5 N/mm <sup>2</sup>  |
| Shear safety $S = \tau_{allow} / \tau$              | 2.2                     |
| Bearing safety $S = \sigma_{l,allow} / \sigma_l$    | 4.48                    |

## Verifications

| Criterion                                       | Value                   | Limit                 | Status |
|-------------------------------------------------|-------------------------|-----------------------|--------|
| Shear $\tau \leq \tau_{allow}$                  | 63.66 N/mm <sup>2</sup> | 140 N/mm <sup>2</sup> | ● OK   |
| Bearing stress $\sigma_l \leq \sigma_{l,allow}$ | 62.5 N/mm <sup>2</sup>  | 280 N/mm <sup>2</sup> | ● OK   |

## Rivet Cross-Section (Shear Area)



## Notes

Single-shear arrangement: the eccentric force introduction creates an additional bending moment in the rivet. Use double shear where possible.

## Calculation basis

The riveted joint transmits a shear force  $F$  through  $z$  equally loaded rivets. The shear verification compares the mean shear stress  $\tau = F/(z \cdot n \cdot A)$  with the allowable shear stress;  $A = \pi \cdot d^2/4$  is the rivet cross-section and  $n$  the number of shear planes per rivet (single shear 1, double shear 2). The bearing stress verification checks the bearing pressure  $\sigma_{\perp} = F/(z \cdot d \cdot t)$  on the projected area of the thinnest sheet against the allowable bearing stress. Verification is performed against the allowable stresses; edge distance, rivet pitch, fatigue and friction grip are not considered. For lightweight construction, self-piercing rivets or clinching (a forming-based joining method) are a modern alternative to conventional riveting.

## About this sample

All values on these pages come from a freely chosen example calculation and belong to no real part. The purchased export contains the same sections with your input, your header data (project, part, prepared by) and as searchable text. Pricing and scope: [maschinenbaurechner.de/en/pricing](https://maschinenbaurechner.de/en/pricing)

Note: The results are design and orientation aids. They do not replace independent verification, calculation and approval by a qualified person. The terms of use at [maschinenbaurechner.de](https://maschinenbaurechner.de) apply.