



Power Industry

Technical bulletin

Dovetail interlock design

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Dovetail interlock design

Large sealing areas used in transmission and distribution equipment implement dovetail designs on flat gaskets, to increase material yields and significantly reduce scrap rates, which has a direct impact on cost savings in terms of materials and products.

By definition, a dovetail is a tongue and groove that fit tightly together, thus creating an interlocking joint between two pieces which resist being pulled apart in all directions, except one.

Dovetails can be shaped like a bird's tail spread, or not, depending on the punch or tooling manufacturer. Their dimensions vary (depending on tooling design). As a rule of thumb the dovetail's maximum width should occupy approximately 1/2 to 3/4 of the gasket's width (leaving a 1/4 - 1/8 of gasket width on each side). For larger gasket widths, multiple dovetails can be made side-by-side, facing the same direction or inverted.

The dovetail interlock should guarantee a comfortable fit before compression. The interlock will seize once the gasket is under compression, eliminating any possible leak paths.



Example of dovetail punches and sizes

Dovetail design and selection guidelines

- We strongly recommend that the dovetail joint be positioned between bolt holes away from the flange corners, use corner parts to distance dovetails from the flange edges.
- Various dovetail geometries and designs are available, and should contemplate large perimeter contact areas and radii to eliminate high point stress conditions (when under compression).
- Dovetail base geometry should be sufficiently wide to eliminate any possible rotation (also ensuring there is no tearing or deformation) and at the same time guarantee the interlocking function.
- When using glue or RTV on the dovetail joints, to aid in assembly or positioning, use as little as possible. An excessive amount will serve as a lubricant between the contacting surfaces, leading to possible extrusion of the dovetail joint and eventual sealing failure.

Possible dovetail designs



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