Technical product data sheet

RIBE® HIGHFORM – DYNAMICALLY HIGHLY STRESSED STEEL BOLTS12.9S - 15.9S

The proven and robust steel bolt series for the highest dynamic loads.

THE RIBE® HIGHFORM BOLT

Decades of expertise from design to series assembly

As the popularity of the automobile increased in the 1930s, demand grew for high-strength steel bolts that could transfer higher operating forces. Since the company's founding, RIBE has responded to the trend towards higher strengths by working closely with its customers to develop bolts for demanding dynamic requirements. Thanks to the continuous increase in performance, RIBE Highform bolts feature strengths of up to 1.600 MPa. RIBE relies on a holistic approach, from basic bolt analyses, to experience and innovation in bolt manufacturing to evaluation of the correct assembly parameters by the experts at RIBE Application Engineering.

RIBE® HIGHFORM – MAXIMUM DYNAMIC LOAD CAPACITY AND ENERGY EFFICIENCY THROUGH DOWNSIZING

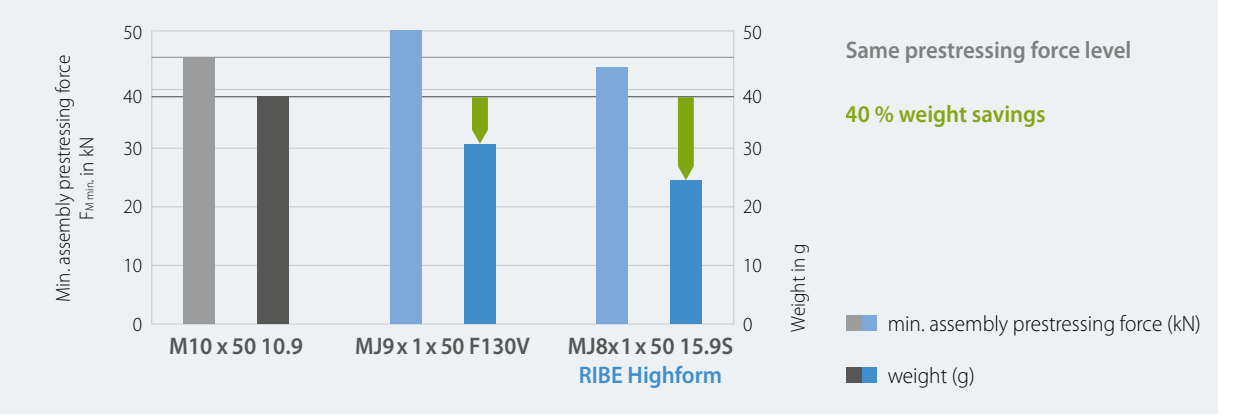
The RIBE Highform bolt is ideally suited for dynamic loads. Using specialized materials and martensitic heat treatment makes it possible to achieve the highest strengths with a 90% yield ratio while maintaining a safe elongation at break. Special process control and the use of special tooling technologies enable thread rolling of ultra-high-strength bolts. Due to the compressive residual stresses introduced in the process, it can compensate for operating forces and safely withstand high stress amplitudes. Additionally, the attainable prestressing forces ensure that the high strength of the

RIBE Highform application examples

bolts not only facilitates the transmission of operating forces but also safeguards against self-loosening. Beyond its technical benefits, the RIBE Highform bolt also promotes sustainability. Downsizing not only reduces material usage for the bolt itself but also makes it possible to design more compact, streamlined, energy-efficient and cost-effective fitted components.

DOWNSIZING POTENTIAL

The increase in strength up to 15.9S allows the minimum assembly prestressing force to be maintained while reducing the thread size. Reducing the bolt size also results in material savings, which in turn translates into weight savings on stressed components.



TECHNICAL DATA

Dimensions	MJ6 - MJ12	**Yield strength ratio**	90 %
Design	Fully threaded / expansion shaft (rolled thread)	**Surface coating**	Zn-phosphated + lubricated (DIN EN ISO 9717)
Strength class	12.9S - 15.9S (VDA 235 - 206)	**Friction coefficients**	μ_{ges} = 0.09 - 0.15 / $\mu_{K/G}$ = 0.08 - 0.16 (in line with DIN EN 16047)
Tensile strength	1.220 - 1.590 MPa		

Dimensions	**MJ6**	**MJ8**	**MJ9**	**MJ10**	**MJ12**
Thread Pitch	0.75 / 1	1 / 1.25	1 / 1.25	1 / 1.25	1.25 / 1.5
Bolt length (mm)	30 - 45	40 - 60	40 - 60	50 - 75	60 - 90
Max. assembly prestressing force (kN)	31	55	72	91	130
Min. fatigue life (MPa) for 1×10^7 fatigue (in line with DIN 969)	90	85	80	80	70

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