

Multiple-Joint Hinges

General Notes

Multiple-joint hinges are a new type of hinge offering freedom of design. Mounted inside the housing to save space and protect against vandalism, they allow an opening angle of up to 180° on flaps, hatches and doors. This ensures that the inside of the housing is optimally accessible. In general, the outside of the housing remains free of attachments that do not match the design or must be avoided entirely due to special requirements, such as ease of cleaning.

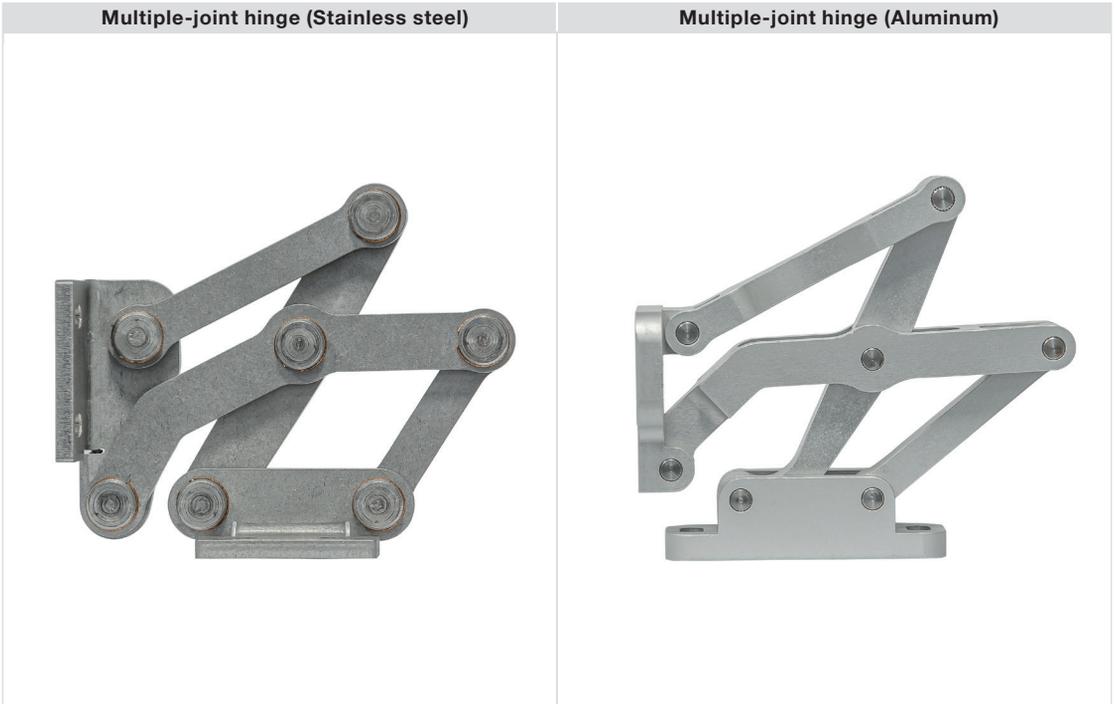
Multiple-joint hinges replace existing, conventional hinge solutions while opening up entirely new types of motion since they can do more than directly pivot flaps and doors. The zero-play, self-lubricated multiple-joint mechanism was designed with simulation software and allows a flap to be lifted first on opening and only then pivoted by 180°.

Jointed hinges and cup hinges have long been used in building furniture. These allow similar movements to a certain extent, but the challenges to mounting them in technical environments frequently make them difficult to use. They are also usually designed for low loads.

The fixing angle piece or fastening flange of the multiple-joint hinge is installed on the housing or the door and features slotted holes. Together with the spacer plates available as accessories, the hinges can be adjusted in three planes. This allows them to be used in practically any design. Plates with tapped holes or threaded studs are also available for fast and easy mounting.

Since the development process was focused on creating a design with the most uniform possible gradations of achievable door geometry and load capacity, the hinges are ideal for applications in logistics and vehicle manufacturing in addition to a wide range of industrial applications. The high-quality materials and attractive design open up an even greater range of applications. For example, these hinges are suitable for use in building services equipment as well as in furniture and display cases.

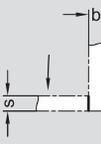
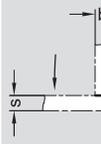
To support more complex applications with specific movement sequences, special versions are available that extend beyond the typical applications involving flaps, hatches and doors. Examples include 4x, 7x or 10x joint mechanisms for corresponding lifting, scissoring or extension systems.



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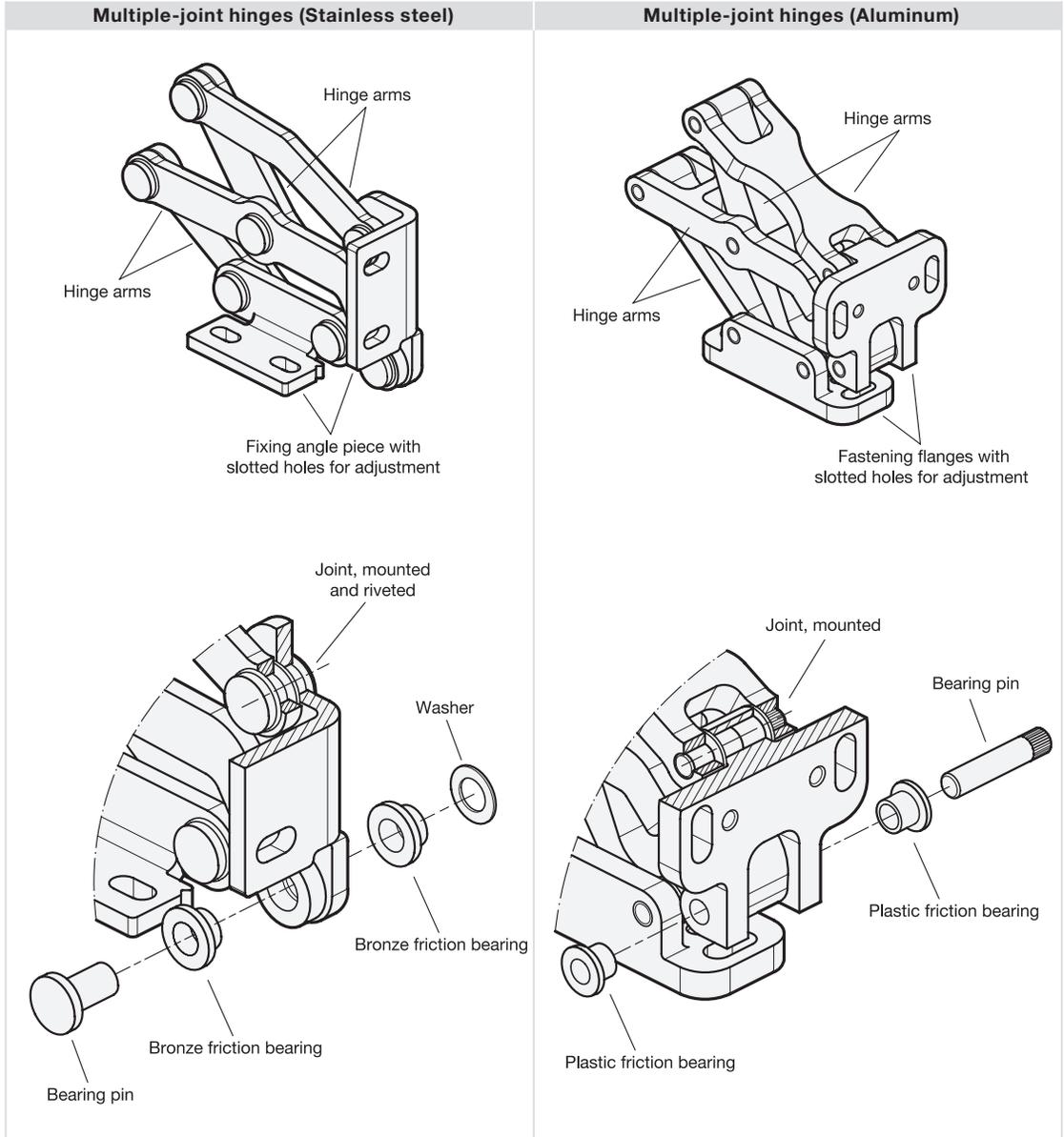
Overview of Types

Series	Opening angle	Load capacity per pair	Max. door or housing thickness (s or b) for design variants			Material
			Insert	Flush	Mitered	
GN 7231 Page XYZ 	90°	$F_A = 39 \text{ lbf}$ (175 N) $F_R = 169 \text{ lbf}$ (750 N)	 $s_{\max.} = 60$ $b_{\max.} = \infty$	 $s_{\max.} = \infty$ $b_{\max.} = 60$	 $s_{\max.} = 50$ $b_{\max.} = 50$	Stainless steel
GN 7233 Page XYZ 	120°	$F_A = 175$ $F_R = 169 \text{ lbf}$ (750 N)	$s_{\max.} = 50$ $b_{\max.} = \infty$	$s_{\max.} = \infty$ $b_{\max.} = 50$	$s_{\max.} = 40$ $b_{\max.} = 40$	Stainless steel
GN 7237 Page XYZ 	180°	$F_A = 175$ $F_R = 169 \text{ lbf}$ (750 N)	$s_{\max.} = 25$ $b_{\max.} = \infty$	$s_{\max.} = \infty$ $b_{\max.} = 25$	$s_{\max.} = 21$ $b_{\max.} = 21$	Stainless steel
GN 7241 Page XYZ 	90°	$F_A = 146 \text{ lbf}$ (650 N) $F_R = 169 \text{ lbf}$ (750 N)	$s_{\max.} = 30$ $b_{\max.} = \infty$	$s_{\max.} = \infty$ $b_{\max.} = 30$	$s_{\max.} = 30$ $b_{\max.} = 30$	Aluminum
GN 7243 Page XYZ 	120°	$F_A = 146 \text{ lbf}$ (650 N) $F_R = 169 \text{ lbf}$ (750 N)	$s_{\max.} = 24$ $b_{\max.} = \infty$	$s_{\max.} = \infty$ $b_{\max.} = 24$	$s_{\max.} = 20$ $b_{\max.} = 20$	Aluminum
GN 7247 Page XYZ 	180°	$F_A = 146 \text{ lbf}$ (650 N) $F_R = 169 \text{ lbf}$ (750 N)	$s_{\max.} = 15$ $b_{\max.} = \infty$	$s_{\max.} = \infty$ $b_{\max.} = 15$	$s_{\max.} = 11$ $b_{\max.} = 11$	Aluminum

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Design



Applications

Multiple-joint hinges in stainless steel feature joints arranged in two levels that are very close to each other. This makes them particularly suited for applications involving flaps and hatches.

The joint levels of the multiple-joint hinges in aluminum are spaced more widely, making them suitable for use with doors, even heavy ones.

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Uses and Requirements

	Industries	Examples of use	Examples of requirements
Manufacturing	Machine and plant construction	Machine doors, cleaning flaps	Kinematics <ul style="list-style-type: none"> - Large opening angle - Concealed mounting, space-saving, zero play and self-lubricated, reliable, adjustable - Movement sequence as per specification - Lifting with subsequent pivoting - With additional latching or spring elements
	Medical and pharmaceutical industry	Repair and maintenance hatches	
	Chemical and electrical industry	Pivot mechanisms, shelves	
	Logistics and conveyor systems	Safety mechanisms, conveyor hatches, adjusting units and guide systems	
Transport	Bus and rail industry	Luggage hatches, storage compartments, rear and skirting hatches	Design <ul style="list-style-type: none"> - Surface finish - Refined appearance - Round, convex, concave housing shapes - Inset, flush and mitered - Vandalism-proof, concealed mounting, gap-free
	Agricultural and construction machinery	Cabin construction, supplemental equipment, motor covers, front hatches, repair and maintenance openings	
	Ship and yacht building	Exterior hatches, floor hatches, door and maintenance systems	
Architecture	Furniture and display case construction	Interior furnishings and glass enclosures	Safety <ul style="list-style-type: none"> - Stability and high load capacity - Reliability - Compliance with safety requirements - Avoidance of collisions - High load capacity - Long lifespan - Corrosion resistance
	Building services equipment	Door systems, glass facades, skylights, maintenance and repair shafts, emergency openings, access hatches, stair and floor hatches, fire safety systems	

Examples of Use

