

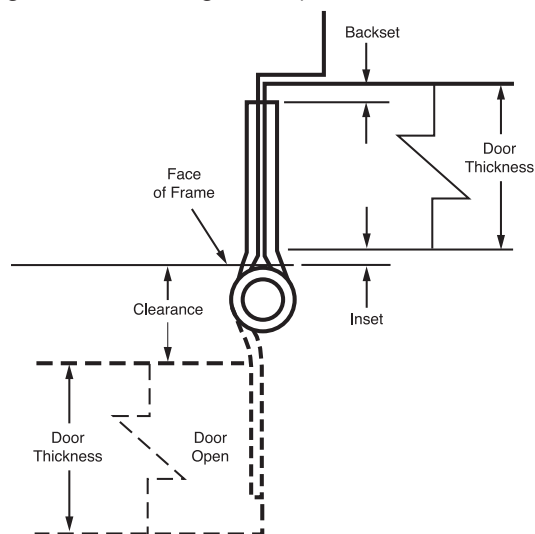
GENERAL HINGE INFORMATION

Hinge Width

Thickness of Door		Clearance Required		Open Width of Hinge	
inches	mm	inches	mm	inches	mm
1 ³ / ₈ "	35	1 ¹ / ₄ "	32	3 ¹ / ₂ "	89
		1 ³ / ₄ "	44	4 "	102
1 ³ / ₄ "	44	1 "	25	4 "	102
		1 ¹ / ₂ "	38	4 ¹ / ₂ "	114
		2 "	51	5 "	127
		3 "	76	6 "	152
2 "	51	1 "	25	4 ¹ / ₂ "	114
		1 ¹ / ₂ "	38	5 "	127
		2 ¹ / ₂ "	64	6 "	152
2 ¹ / ₄ "	57	1 "	25	5 "	127
		2 "	51	6 "	152
2 ¹ / ₂ "	64	³ / ₄ "	19	5 "	127
		1 ³ / ₄ "	44	6 "	152
3 "	76	³ / ₄ "	19	6 "	152
		2 ³ / ₄ "	70	8 "	203
		4 ³ / ₄ "	121	10 "	254

Formula to determine hinge width where additional clearance is required

(door thickness minus backset) times 2 plus clearance required plus inset (if any) EQUALS hinge width (if not standard width – use next larger standard hinge width)



For Other Hinges

Full Surface, Half Surface, Half Mortise – clearance is dictated by the amount of offset rather than hinge width.

Frequency of Door Operation

Type of Building and Door	Estimated Frequency		Hinge Type
	Daily	Yearly	
Large dept. store entrance	5,000	1,500,000	Heavy Weight
Large office bldg. entrance	4,000	1,200,000	
School entrance	1,250	225,000	
School toilet door	1,250	225,000	
Store or bank entrance	500	150,000	
Office bldg. toilet door	400	118,000	Standard Weight
School corridor door	80	15,000	
Office bldg. corridor door	75	22,000	
Store toilet door	60	18,000	
Dwelling entrance	40	15,000	
Dwelling toilet door	25	9,000	Plain Bearing Hinges may be used on light doors
Dwelling corridor door	10	3,600	
Dwelling closet door	6	2,200	

Average Door Weights of Architectural Grade Doors

Door Thickness	inches	mm	inches	mm	inches	mm
	1 ³ / ₈ "	35	1 ³ / ₄ "	44	2 "	51
	lbs/ft ²	kg/m ²	lbs/ft ²	kg/m ²	lbs/ft ²	kg/m ²
Hollow Metal	4	19.5	5	24.4	6 ¹ / ₂	31.7
Kalamein	—	—	5	24.4	—	—
Hollow Core	2	9.8	2 ¹ / ₂	12.2	—	—
Solid Core	3 ¹ / ₂	17	4 ¹ / ₂	22	5 ¹ / ₄	25.6
Mineral Core	3 ¹ / ₂	17	4	19.5	—	—
Pine (White)	3	14.6	3 ¹ / ₂	17	4	19.5
Oak	5	24.4	7	34.2	8	39
Ash	4	19.5	5	24.4	6	29.3
Fir	3	14.6	3 ¹ / ₂	17	4	19.5
Birch	4 ¹ / ₄	20.8	5 ¹ / ₂	26.9	6 ¹ / ₄	30.5
Mahogany	3 ¹ / ₂	17	4 ¹ / ₂	22	5 ¹ / ₄	25.6

Lead Lining Weights

Thickness			
inches	mm	lbs/ft ²	kg/m ²
¹ / ₆₄	.4	1	4.9
¹ / ₁₆	1.6	3.75	18.3
¹ / ₈	3.2	7.5	36.6

Glass Door Weights

Thickness			
inches	mm	lbs/ft ²	kg/m ²
¹ / ₄	6.4	3.5	17

PlexiGlass Door Weights

Thickness			
inches	mm	lbs/ft ²	kg/m ²
¹ / ₄	6.4	1.6	7.8

GENERAL HINGE INFORMATION

Special Situation Products

Raised Barrel Hinges

Specify hand of door when ordering

Specify whether hinges are for square edge or beveled edge doors on the hinge side

Specify equal or unequal leaves when ordering

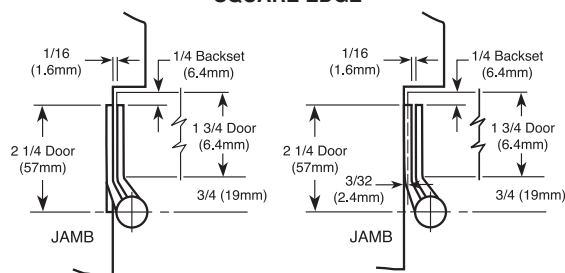
- For application where doors are set deep on a wide frame
- Frame leaf may be either surface mounted or mortised as illustrated in sketches below
- Available special for doors that must open 180 degrees
- Supply detail of door and frame condition
- For other hinge types than listed below, consult factory



Can be furnished on the following class numbers:

RBCB179	RBCB191	RBCB168	RBCB199
RBFB179	RBFB191	RBFB168	RBFB199
RBCB1900R	RBCB1960R	RBCB1901R	RBCB1961R

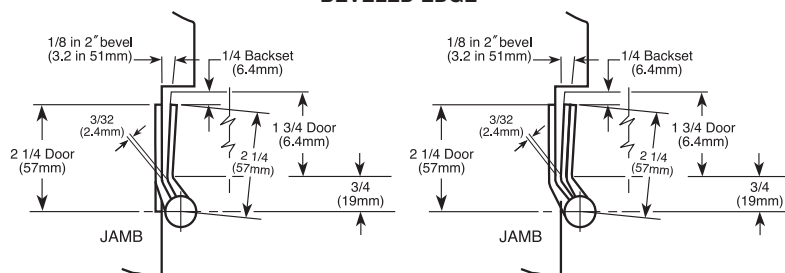
SQUARE EDGE



Mortise Application

Surface Application

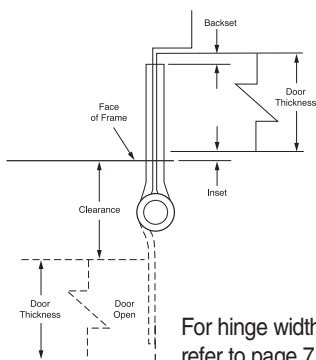
BEVELED EDGE



Mortise Application

Surface Application

- A full mortise hinge with wider than normal leaves, positions the door out further, when open, than with conventional hinges
- Normally used when doors are set in a reveal and are required to open 180°
- **Specify whether hinges are for square or beveled edge doors on the hinge side when ordering**



Wide Throw Hinge



Hinge Swaging

- Swaging is a slight offset of the hinge leaf at the barrel which permits the leaves to come closer together when parallel
- Hinges are slightly less in width when both leaves are not swaged
- Not swaged leaf is shorter when only one leaf is swaged. **EXCEPTION: Specify "leaves must be equal"** when ordering template hinges for metal door and metal frame (furnished all machine screws) when both leaves must be the same width
- When leaves are parallel, standard swaging for most architectural hinges provides a 1/16" (1.6mm) clearance.



Not swaged - Hinge closed



Both leaves swaged - Hinge closed (standard)



One leaf swaged (special)



Flat back - not swaged



Both leaves swaged

5 KNUCKLE HINGES

Full Mortise Standard Weight Plain Bearing

F179 – (ANSI A8133 except for 3" x 3") Steel – polished and plated or phosphated and prime coated for painting

F191 – (ANSI A2133) Brass or bronze – polished and plated or painted

F191 (32) – (ANSI A5133) Stainless steel – highly polished

F191 (32D) – (ANSI A5133) Stainless steel – satin finish

- For use on internal or external doors without door closers in hospitals, churches, schools, airports, hotels, malls, apartment houses, office buildings, etc.
- All hinges have template screw hole location for use on either wood or hollow metal doors and frames
- Use anti-friction bearing hinges on high and average frequency doors and all doors equipped with door closers
- Hinges can be furnished with hospital tips (HT)



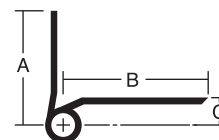
Size Open		Gauge of Metal		Flat Head Screws/Per Piece		Quantity		Case Weight	
								Steel	Brass
Inches	(mm)	Inches	(mm)	Machine	Wood	Per Box	Per Case	Lbs. (Kg)	Lbs. (Kg)
3 x 3*	(76 x 76)	.080	(2)		6 - 9 x 3/4	2 EA.	100 EA.	32 (15)	
3 1/2 x 3	(89 x 76)	.123	(3.1)	6 - 10-24 x 1/2	6 - 10 x 1	2 EA.	100 EA.	60 (27)	64 (29)
3 1/2 x 3 1/2	(89 x 89)	.123	(3.1)	6 - 10-24 x 1/2	6 - 10 x 1	2 EA.	100 EA.	66 (30)	72 (33)
4 x 3 1/2	(102 x 89)	.130	(3.3)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	48 EA.	38 (17)	44 (20)
4 x 4	(102 x 102)	.130	(3.3)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	48 EA.	43 (20)	46 (21)
4 1/2 x 4	(114 x 102)	.134	(3.4)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	48 EA.	51 (23)	54 (25)
4 1/2 x 4 1/2	(114 x 114)	.134	(3.4)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	48 EA.	55 (25)	60 (27)
5 x 4	(127 x 102)	.146	(3.7)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	30 EA.	40 (18)	43 (20)
5 x 4 1/2	(127 x 114)	.146	(3.7)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	30 EA.	43 (20)	46 (21)
5 x 5*	(127 x 127)	.146	(3.7)	8 - 12-24 x 1/2	8 - 12 x 1 1/4	3 EA.	30 EA.	46 (21)	51 (23)

*Steel only – for other substrates consult factory

Half Surface Standard Weight Plain Bearing

F173 – (ANSI A8433) Steel – polished and plated or phosphated and prime coated for painting

- For low frequency kalamein or wood doors with hollow metal frames (use ball bearing hinges on all doors equipped with door closers)
- Easily applied as only jamb leaf is mortised
- Packed with machine screws and grommet nuts



Measurements below

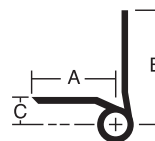


Size Length of Joint	Width		Offset (C)	Gauge of Metal	Flat head Machine Screws/Per Piece		Quantity Per Box	Quantity Per Case	Case Weight
	Frame Leaf (A)	Door Leaf (B)			Frame Leaf	Door Leaf			
Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)					Lbs. (Kg)
4 1/2 (114)	2 1/16 (52.4)	2 9/16 (65.1)	9/16 (14.3)	.134 (3.4)	4-12-24 X 1/2	3-1/4-20 X 2	3 EA.	30 EA.	37 (17)

Half Mortise Standard Weight Plain Bearing

F167 – (ANSI A8233) Steel – polished and plated or phosphated and prime coated for painting

- For low frequency hollow metal or wood doors with channel iron frames (use ball bearing hinges on all doors equipped with door closers)
- Easily applied as only door leaf is mortised



Measurements below



Size Length of Joint	Width		Offset (C)	Gauge of Metal	Quantity & Size of Screws/Per Piece		Quantity Per Box	Quantity Per Case	Case Weight
	Frame Leaf (A)	Door Leaf (B)			Frame Leaf	Door Leaf			
Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)					Lbs. (Kg)
4 1/2 (114)	1 1/2 (38.1)	2 1/16 (52.4)	7/16 (11.1)	.134 (3.4)	4-12-24 X 1/2	3-12-24 X 1/2	3 EA.	30 EA.	28 (13)

Conversion Tips and Pins

- Converts standard flush tip hinges
- Available in three styles, Ball, Crown and Steeple
- Same tips fit "CB", "1900R" and "F" line hinges
- Conversion pins are stainless
- Conversion pins accept NRP screw
- Knurl eliminates pin rotation
- For heavy weight consult factory

Standard weight Tips and Pins



Pin



Ball



Crown



Steeple