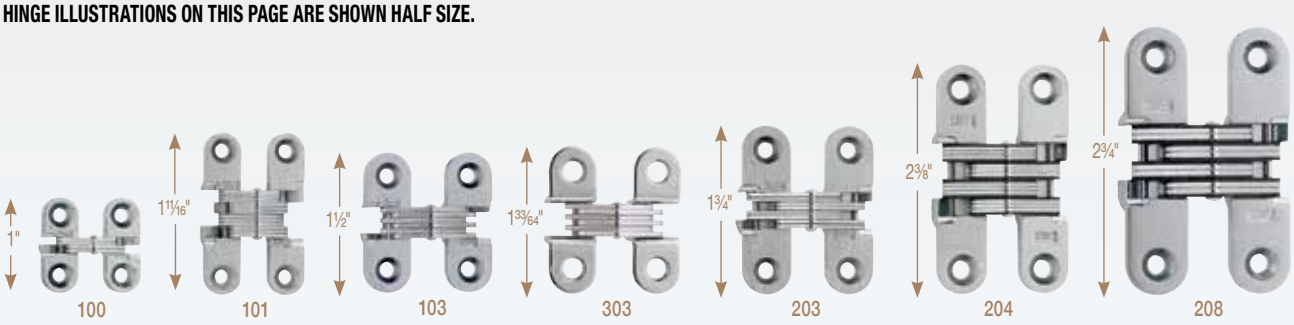
Specifications

FOR WOOD OR METAL APPLICATIONS

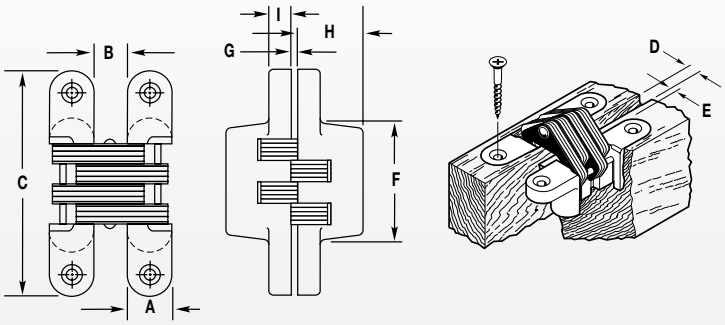
HINGE ILLUSTRATIONS ON THIS PAGE ARE SHOWN HALF SIZE.



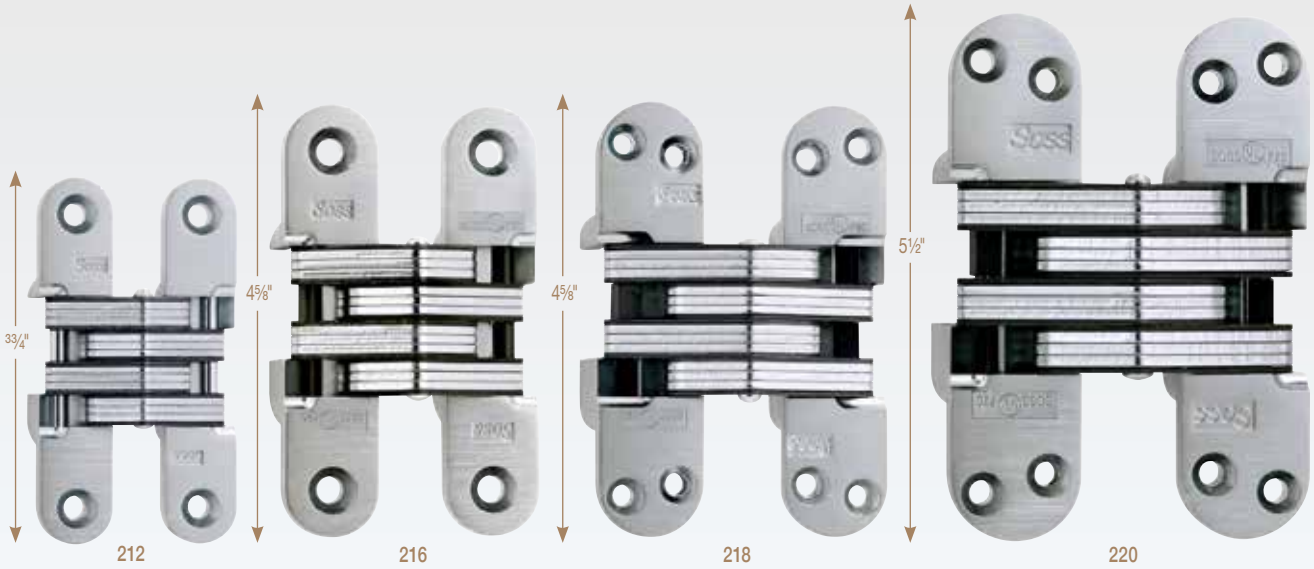
	Light Duty					*Medium Duty*	
Dimension	**100**	**101**	**103**	**303**	**203**	**204**	**208**
A	3/8"(9.53mm)	3/8"(9.53mm)	1/2"(12.70mm)	1/2"(12.70mm)	1/2"(12.70mm)	1/2"(12.70mm)	5/8"(15.8mm)
B	9/32"(7.14mm)	19/64"(7.54mm)	3/8"(9.53mm)	3/8"(9.53mm)	23/64"(9.13mm)	23/64"(9.13mm)	29/64"(11.51mm)
C	1"(25.40mm)	1 11/16"(42.86mm)	1 1/2"(38.10mm)	1 33/64"(38.50mm)	1 3/4"(44.45mm)	2 3/8"(60.33mm)	2 3/4"(69.85mm)
D	3/32"(2.38mm)	7/64"(2.78mm)	1/8"(3.18mm)	1/8"(3.18mm)	7/64"(2.78mm)	7/64"(2.78mm)	9/64"(3.57mm)
E	3/32"(2.38mm)	3/32"(2.38mm)	1/8"(3.18mm)	1/8"(3.18mm)	1/8"(3.18mm)	1/8"(3.18mm)	5/32"(3.97mm)
F	3/8"(9.53mm)	7/8"(22.23mm)	11/16"(17.46mm)	19/32"(15.08mm)	3/4"(19.05mm)	1 1/4"(31.75mm)	1 11/32"(34.13mm)
G	1/32"(.79mm)	1/32"(.79mm)	1/32"(.79mm)	1/32"(.79mm)	1/32"(.79mm)	1/32"(0.79mm)	3/64"(1.19mm)
H	15/32"(11.91mm)	29/64"(11.51mm)	19/32"(15.08mm)	41/64"(16.27mm)	23/32"(18.26mm)	23/32"(18.26mm)	29/32"(23.02mm)
I	15/64"(5.96mm)	7/32"(5.56mm)	7/32"(5.56mm)	.054"(1.37mm)	3/16"(4.76mm)	1/4"(6.35mm)	9/32"(7.14mm)
Minimum Material Thickness	1/2"(12.70mm)	1/2"(12.70mm)	3/4"(19.05mm)	11/16"(17.46mm)	3/4"(19.05mm)	3/4"(19.05mm)	1"(25.40mm)
Wood Screw Sizes	#5x3/4"(3.5x19mm)	#5x3/4"(3.5x19mm)	#6x1"(3.5x25mm)	#5x3/4"(3.5x19mm)	#6x1"(3.5x25mm)	#7x1 1/4"(3.9x32mm)	#8x1 1/4"(4.2x32mm)
Soft Wood Pilot Hole	No. 53	No. 53	No. 52	No. 53	No. 52	No. 51	No. 48
Hard Wood Pilot Hole	No. 47	No. 47	No. 44	No. 47	No. 44	No. 39	No. 35
Machine Screw Sizes	#4-40x1/2"	#4-40x1/2"	#6-40x1/2"	#5-40x1/2"	#6-40x1/2"	#8-32x5/8"	#8-32x5/8"
Hinge Weight	.04 lb.	.07 lb.	.09 lb.	.05 lb.	.11 lb.	.20 lb.	.34 lb.

NOTE: Refer to page 58 for assistance with choosing the right hinge for the job.

KEY TO DIMENSIONS SHOWN IN CHARTS



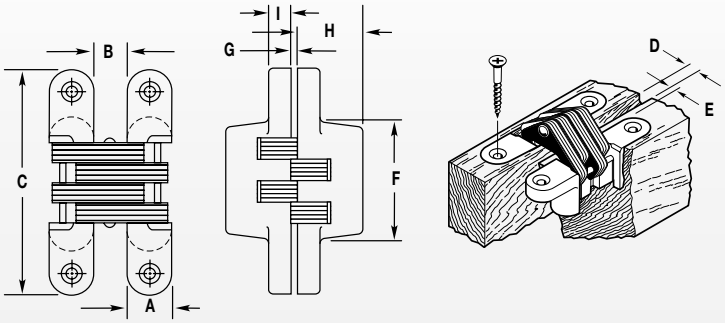
All hinges are shipped with the proper size wood screws unless ordered without. Machine screws available upon request for an additional charge.
Do not exceed "E" dimension.



	Medium Duty		Heavy Duty	
Dimension	**212**	**216**	**218**	**220**
A	¾"(19. 05mm)	1"(25.40mm)	1⅛"(28.58mm)	1⅜"(34.93mm)
B	35/64"(13.89mm)	47/64"(18.65mm)	⅞"(22.23mm)	1 1/16"(26.99mm)
C	3¾"(95.25mm)	4⅝"(117.48mm)	4⅝"(117.48mm)	5½"(139.70mm)
D	1/16"(4.37mm)	15/64"(5.95mm)	⅜"(9.53mm)	½"(12.70mm)
E	3/16"(4.76mm)	¼"(6.35mm)	¼"(6.35mm)	9/32"(7.14mm)
F	2 1/16"(52.39mm)	2 19/32"(65.88mm)	2 15/32"(62.71mm)	2 15/16"(74.61mm)
G	3/64"(1.19mm)	1/16"(1.59mm)	1/16"(1.59mm)	1/16"(1.59mm)
H	15/64"(27.38mm)	1 15/32"(37.31mm)	1 41/64"(41.67mm)	1 63/64"(50.40mm)
I	⅜"(9.53mm)	15/32"(11.91mm)	13/32"(10.32mm)	15/32"(11.91mm)
Minimum Material Thickness	1⅛"(28.58mm)	1⅜"(34.93mm)	1¾"(44.45mm)	2"(50.80mm)
Wood Screw Sizes	#10x1¼"(4.8x32mm)	#14x1½"(6.3x38mm)	#10x1½"(4.8x38mm)	#12x1½"(5.5x38mm)
Soft Wood Pilot Hole	No. 43	No. 32	No. 43	No. 38
Hard Wood Pilot Hole	No. 31	No. 10	No. 31	No. 25
Machine Screw Sizes	#10-24x¾"	#¼-20x1"	#10-24x1"	#12-24x1"
Hinge Weight	.75 lb.	1.65 lb.	1.86 lb.	3.15 lb.

NOTE: Refer to page 58 for assistance with choosing the right hinge for the job.
Refer to page 49 for fire-rated information.

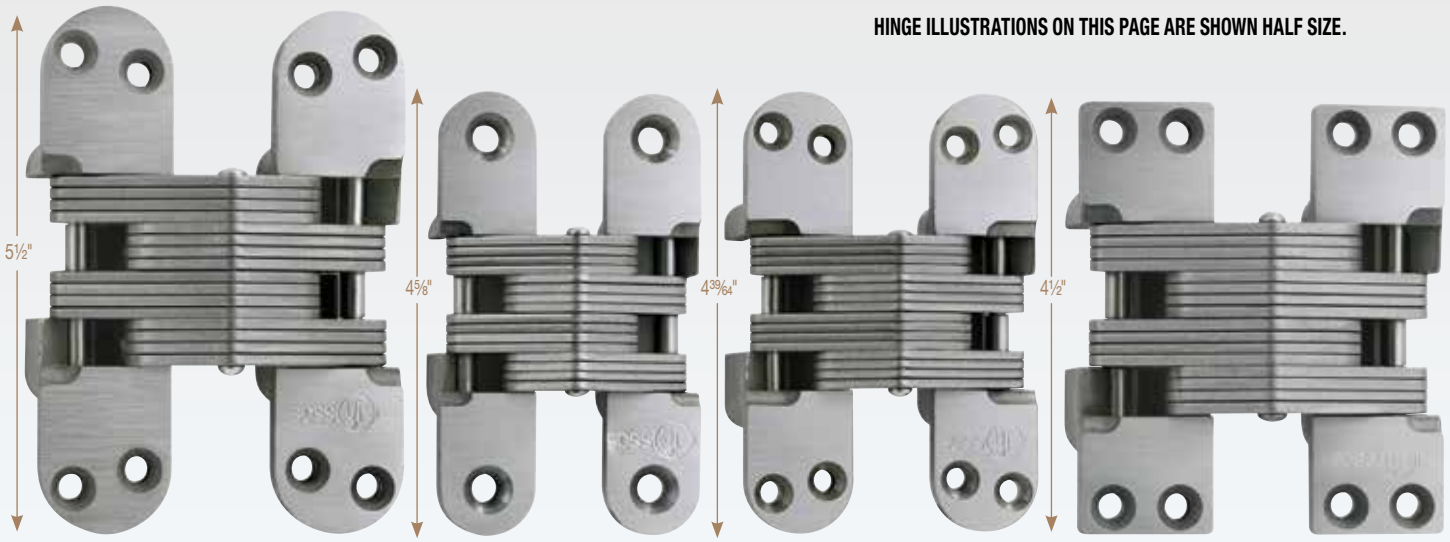
KEY TO DIMENSIONS SHOWN IN CHARTS



Watch Installation Video

All hinges are shipped with the proper size wood screws unless ordered without. Machine screws available upon request for an additional charge. Models 216, 218, and 220 are shipped with the proper size wood and machine screws unless ordered without.
Do not exceed "E" dimension.

HINGE ILLUSTRATIONS ON THIS PAGE ARE SHOWN HALF SIZE.

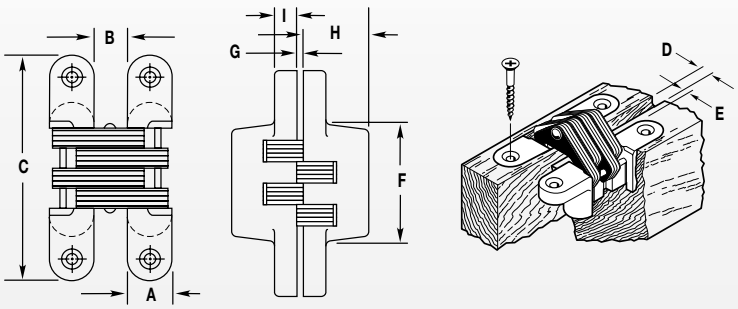


Fire-Rated Applications for Metal or Wood

Dimension	220AS/220SS	416/416SS	418/418SS	420/420SS
A	1⅜" (34.93mm)	1" (25.40mm)	1⅛" (28.58mm)	1⅜" (34.93mm)
B	1¹⁄₁₆" (26.99mm)	⁴⁷⁄₆₄" (18.65mm)	⁵⁵⁄₆₄" (21.83mm)	1³⁄₆₄" (26.59mm)
C	5½" (139.70mm)	4⅝" (117.48mm)	4³⁹⁄₆₄" (117.08mm)	4½" (114.30mm)
D	½" (12.70mm)	¹⁵⁄₆₄" (5.95mm)	²³⁄₆₄" (9.13mm)	³¹⁄₆₄" (12.30mm)
E	⁹⁄₃₂" (7.14mm)	¼" (6.35mm)	¼" (6.35mm)	⁹⁄₃₂" (7.15mm)
F	2³¹⁄₃₂" (75.41mm)	2³⁹⁄₆₄" (66.28mm)	2⁷⁄₁₆" (61.91mm)	2¹⁵⁄₁₆" (74.62mm)
G	³⁄₃₂" (2.38mm)	¹⁄₁₆" (1.59mm)	¹⁄₁₆" (1.59mm)	³⁄₃₂" (2.38mm)
H	1⁶³⁄₆₄" (50.40mm)	1¹⁵⁄₃₂" (37.31mm)	1⁴¹⁄₆₄" (41.67mm)	1³¹⁄₃₂" (50.01mm)
I	¹⁵⁄₃₂" (11.91mm)	¹⁵⁄₃₂" (11.91mm)	1³⁄₃₂" (10.32mm)	¹⁵⁄₃₂" (11.91mm)
Min. Mat. Thickness	2" (50.80mm)	1⅜" (34.93mm)	1¾" (44.45mm)	2" (50.80mm)
Wood Screw Sizes	#12x2½"	#14x2½"	#10x2½"	N/A
Soft Wood Pilot Hole	No. 38	No. 32	No. 43	N/A
Hard Wood Pilot Hole	No. 25	No. 10	No. 31	N/A
Machine Screw Sizes	#12-24x1"	#¼-20x1"	#10-24x1"	#12-24x1"
Hinge Weight	3.80 lbs.	1.92 lbs.	2.15 lbs.	3.44 lbs.

NOTE: Refer to page 49 for selecting the right hinge for fire-rated applications.

KEY TO DIMENSIONS SHOWN IN CHARTS



All fire rated hinges are shipped with the proper size wood and machine screws unless ordered without. **Do not exceed "E" dimension.**

Fire-rated

SOSS offers a complete line of fire-rated invisible hinges. Whether your doorway is made of wood or metal, rated 20 minutes or three hours, there is a SOSS fire-rated hinge that will comply and still give you the "uniquely invisible" hinge that you expect from SOSS.

SOSS Invisible Hinge models #418, #418SS, #220AS, #220SS, #420 and #420SS are classified in accordance with Underwriters Laboratories test standards UL10C and UBC7-2(1997).

The chart below lists the SOSS Invisible Hinges that are currently available for fire-rating.

420, 420SS
The SOSS Invisible #420 Hinges are specifically designed with square edges for metal doors.

The Underwriters Laboratories labeled #420 SOSS Invisible Hinges can be used on hollow metal, sheet metal, tin clad and steel composite swinging-type fire doors and frames rated up to and including **three hours**. Additionally, they can be used on wood core doors and frames rated up to **20 minutes**.

Use at least one fire-rated hinge for every **20"** of door height or portion thereof, or one hinge for every **60 lbs.** or fraction thereof, whichever calculation demands more hinges.

416, 416SS, 418, 418SS, 418PT, 418SSPT, 220AS, 220SS, 220ASPT, 220SSPT
The Underwriters Laboratories labeled 416, 416SS, 418, 418SS, 418PT, 418SSPT, 220AS, 220SS, 220ASPT, 220SSPT. SOSS Invisible Hinges can be used on hollow metal, sheet metal, tin clad and steel composite swinging-type fire doors and frames rated up to and including **three hours**. They also can be used on wood core doors and frames rated up to **20 minutes**.

Additionally, they can be used on wood/plastic composite doors constructed with Georgia Pacific FS I or FS II banding for a rating up to and including **90 minutes**.

Use at least one fire-rated hinge for every **20"** of door height or portion thereof, or one hinge for every **60 lbs.** or fraction thereof, whichever calculation demands more hinges.

216, 218, 220, 218PT, and 220PT
The Underwriters Laboratories labeled 216, 218, 220, 218PT, and 220PT. SOSS Invisible Hinges can be used on hollow metal, sheet metal, tin clad, steel composite or wood core swinging-type fire doors and frames with **20 minute** ratings.

Use at least one fire-rated hinge for every **20"** of door height or portion thereof, or one hinge for each **60 lbs.** or fraction thereof, whichever calculation demands more hinges.

Special door and jamb preparation may be required for all fire-rated hinges.

NOTE: SOSS Invisible Hinge product specifications available on request.

Maximum size door tested was 4' x 8' tall. Consult door manufacturer for additional fire-rated door sizes available for use with SOSS Invisible Hinges.

Min. Door Thickness	Description	Rating	Door Material
1⅜"	216	20 Minutes	Wood or Metal
1¾"	218, 218PT	20 Minutes	Wood or Metal
2"	220, 220PT	20 Minutes	Wood or Metal
1⅜"	416, 416SS	90/180 Minutes*	Wood or Metal
1¾"	418, 418SS, 418PT, 418SSPT	90/180 Minutes*	Wood or Metal
2"	220AS, 220SS, 220ASPT, 220SSPT	90/180 Minutes*	Wood or Metal
2"	420, 420SS	180 Min.	Metal

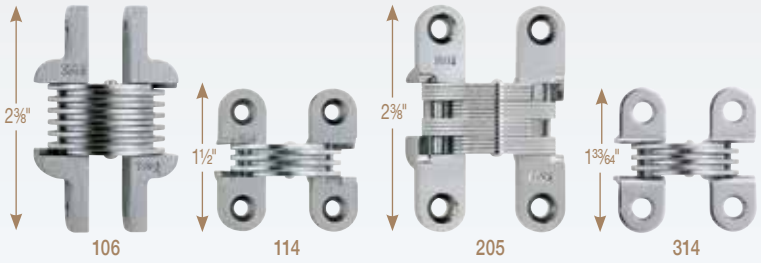
* All fire rated hinges are shipped with the proper size wood and machine screws unless ordered without. **Do not exceed "E" dimension.**

NOTE: The hinge side door style for 90 minute wood faced doors must be a minimum of 2¼" wide.

Metal Cabinet Applications

HINGES ARE SHOWN HALF SIZE.

An assortment of specially modified SOSS Invisible Hinges is available for use in cabinets, computers, copiers and other electronic equipment. If you have a unique hinge installation application for our invisible hinge, modifications can be made to any of our standard models.



Dimension	106	114	205	314
A	¹⁹⁄₃₂"(15.08mm)	½"(12.70mm)	½"(12.70mm)	½"(12.70mm)
B	⁷⁄₁₆"(11.11mm)	²⁹⁄₆₄"(11.51mm)	³⁷⁄₆₄"(14.68mm)	²⁹⁄₆₄"(11.51mm)
C	2⅜"(60.33mm)	1½"(38.10mm)	2⅜"(60.33mm)	1³³⁄₆₄"(38.50mm)
D	1³⁄₆₄"(5.16mm)	¹³⁄₆₄"(5.16mm)	²¹⁄₆₄"(8.33mm)	¹³⁄₆₄"(5.16mm)
E	N/A	⅛"(3.18mm)	⅛"(3.18mm)	⅛"(3.18mm)
F	N/A	¹¹⁄₁₆"(17.46mm)	1¼"(31.75mm)	¹⁹⁄₃₂"(15.08mm)
G	¹⁹⁄₃₂"(15.08mm)	³⁄₃₂"(2.38mm)	¹⁵⁄₆₄"(5.95mm)	³⁄₃₂"(2.38mm)
H	N/A	¹⁹⁄₃₂"(15.08mm)	²³⁄₃₂"(18.26mm)	⁴¹⁄₆₄"(16.27mm)
I	N/A	⁷⁄₃₂"(5.56mm)	¼"(6.35mm)	¹⁄₁₆"(1.59mm)
Max. Matl. Thickness	⁵⁄₆₄" (1.984mm)	³⁄₆₄" (1.190mm)	³⁄₃₂" (2.381mm)	N/A
Machine Screw Sizes	Various	#6-40x½"	#8-32x⅝"	#5-40x½"
Hinge Weight	.18 lb.	.10 lb.	.22 lb.	.06 lb.

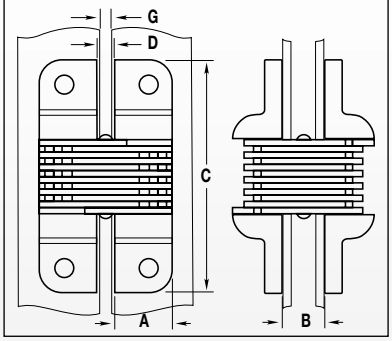
INSTALLATION OF METAL CABINET HINGES

Hinges 114, 205 and 314 are designed for easy installation in metal cabinets. A typical installation is shown in adjacent drawings. Hinge is shown in the open and closed position.

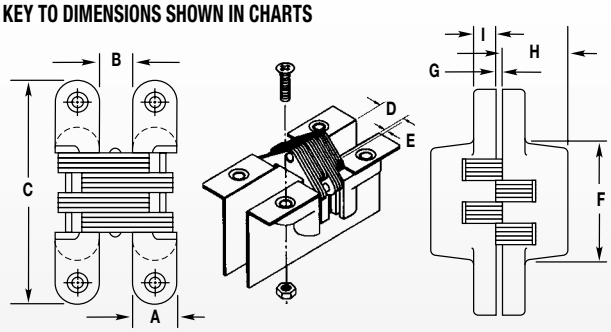
When installing hinges, sheet metal flange should be slotted for link bunch and drilled for fastener.

Model 106:
Mounts on BACK of door and frame and requires no mortise. Hinge is visible from the back, maximum door thickness is 5/64". Largest size screw that can be used is #8 without modifying the mounting holes.

KEY TO DIMENSIONS FOR 106 HINGE ONLY



KEY TO DIMENSIONS SHOWN IN CHARTS



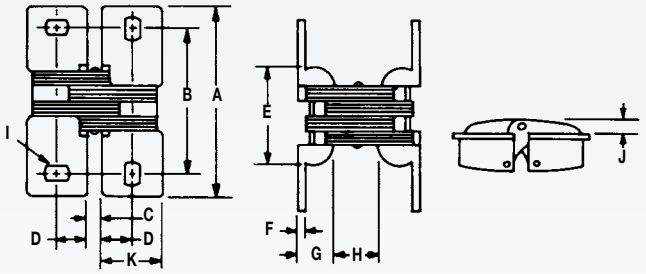
All metal cabinet hinges are shipped without screws unless otherwise specified.
Do not exceed "E" dimension.

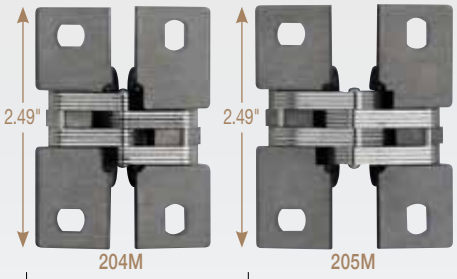
Metal Cabinet Applications

Special Applications

HINGES ARE SHOWN HALF SIZE.

KEY TO DIMENSIONS SHOWN IN CHARTS





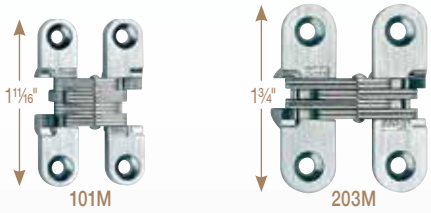
Dimension	204M	205M
A	2.49"(63.25mm)	2.49"(63.25mm)
B	1.89"(48mm)	1.89"(48mm)
C	.05"(1.27mm)	.23"(5.84mm)
D	.41"(10.41mm)	.41"(10.41mm)
E	1.25"(31.75mm)	1.25"(31.75mm)
F	.11"(2.79mm)	.11"(2.79mm)
G	.50"(12.70mm)	.50"(12.70mm)
H	.36"(9.14mm)	.58"(14.73mm)
I	.31"x.22"(7.87x5.59mm)	.31"x.22"(7.87x5.59mm)
J	–	.18"(4.57mm)
K	.80"(20.32mm)	.80"(20.32mm)
Hinge Weight	.20 lb.	.22 lb.

Modifications Are Available!

HINGES AT RIGHT ARE SHOWN HALF SIZE.

For special applications, unusual sizes and weights, engineering and design assistance is available free of charge. Please consult the SOSS Home Office.

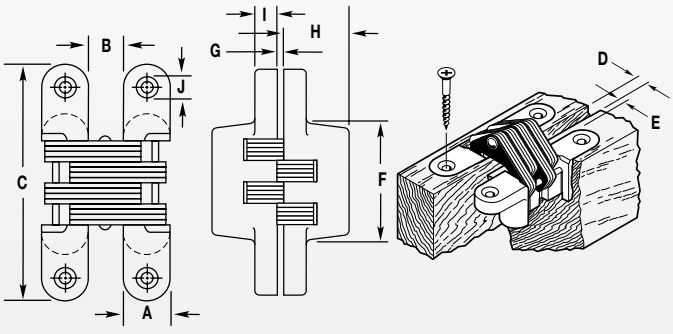
We have modified the screw hole sizes for special uses.



Dimension	101M	203M
A	3/8"(9.53mm)	1/2"(12.70mm)
B	19/64"(7.54mm)	23/64"(9.13mm)
C	1 11/16"(42.86mm)	1 3/4"(44.45mm)
D	7/64"(2.78mm)	7/64"(2.78mm)
E	3/32"(2.38mm)	1/8"(3.18mm)
F	7/8"(22.23mm)	3/4"(19.05mm)
G	1/32"(.79mm)	1/32"(.79mm)
H	29/64"(11.51mm)	23/32"(18.26mm)
I	7/32"(5.56mm)	3/16"(4.76mm)
J	.150"(w/.281" Countersink)	.230"(w/3/8" dia. x .09" Deep C'Bore)
Min. Mat. Thickness	1/2"(12.70mm)	3/4"(19.05mm)

Counterboring available by special request.

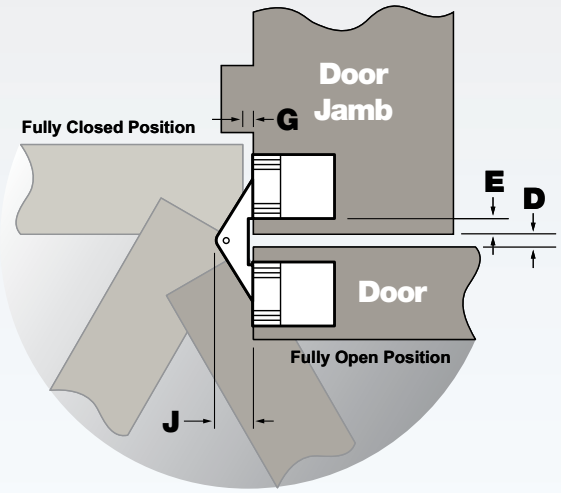
KEY TO DIMENSIONS SHOWN IN CHARTS



Modified hinges are not supplied with screws.
Do not exceed "E" dimension.

Path & Clearance for Doors

The diagram below left shows the typical path of a SOSS hinged door. The table shows the door clearance when fully opened for each SOSS hinge.

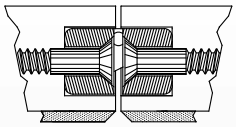


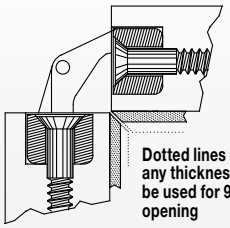
	Dimensions							
	E		D		G		J	
Hinge No.	Inch	mm	Inch	mm	Inch	mm	Inch	mm
101	3/32	2.4	7/64	2.78	1/32	0.8	11/64	4.37
103	1/8	3.2	1/8	3.18	1/32	0.8	7/32	5.56
303	1/8	3.2	1/8	3.18	1/32	0.8	15/64	5.95
314	1/8	3.18	13/64	5.16	3/32	2.4	1/4	6.35
203	1/8	3.2	7/64	2.78	1/32	0.8	15/64	5.95
204	1/8	3.2	7/64	2.78	1/32	0.79	15/64	5.95
208	5/32	4.0	9/64	3.57	3/64	1.2	5/16	7.94
212	3/16	4.8	11/64	4.37	3/64	1.2	3/8	9.53
216	1/4	6.4	15/64	5.95	1/16	1.6	33/64	13.10
218	1/4	6.4	3/8	9.53	1/16	1.2	1/2	12.70
220	9/32	7.1	1/2	12.7	1/16	1.6	39/64	15.48

Open Clearance for Special Doors with Added Material

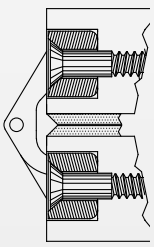
Many doors often have applied material to the pull or push side of a door. This could be an applied mirror, paneling, trim or baseboard. When using SOSS Invisible hinges and applying material to the push side of your door and/or frame, there is no concern with the hinges working as designed. However, as material is applied to the pull side face of the door and/or frame, modifications to how the hinges are installed are often times required. Following are diagrams and information about typical modifications to the installation of SOSS Invisible Hinges when applying material to the pull side face of the door and/or frame.

180° Opening – Standard backset with material applied to door and frame



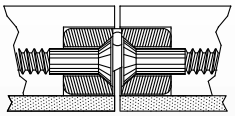


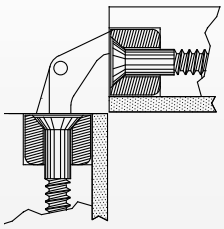
Dotted lines show any thickness can be used for 90° opening



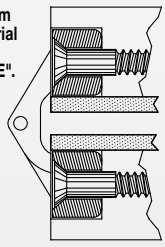
A 45° bevel on applied material with a thickness less than half the max. door clearance will provide 180° door opening. See hinge template drawing for door clearance at 180° opening.

180° Opening with no backset and material applied to door and frame

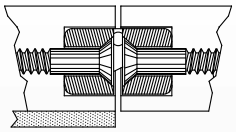


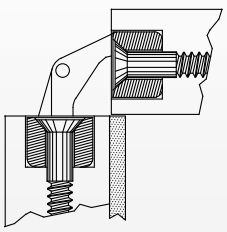


The maximum added material thickness = dimension "E".

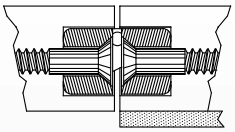


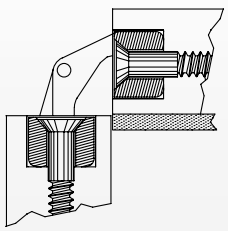
90° Opening – Standard backset with material applied to door only

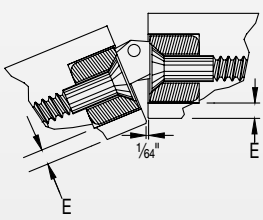




90° Opening – Standard backset with material applied to frame only







Clearance reduces to approximately 1/64" as door approaches the frame upon opening. Beyond that point, the clearance increases to the maximum clearance when the door reaches its fully open position at 180°. See the hinge template drawing for that dimension. If the template "E" dimension is exceeded, the door will hit the jamb and bind. See specifications for SOSS Invisible Hinges on previous pages for dimension "E".