



## KINVARO D AND TIOMOS FLAP HINGE



**G\* GRASS®**

### KINVARO D/TIOMOS FLAP HINGE SYSTEM

The Kinvaro D together with the Tiomos Flap hinge system offer maximum functionality for drop-down opening compartments.



# Kinvaro D

## D-M flap stay with pull cable




- Gentle opening
- Opening angle adjustable (length of cable)
- Spring force adjustment
- Can be used with shallow cabinets from 110mm (4 5/16") depth
- Flap height 200mm – 480mm (7 7/8" - 18 7/8")
- Can be used on left/right side of cabinet
- Easy to install horizontally or vertically
- In White, Night, and Smoke finish
- Works perfectly with Tiomos flap hinge

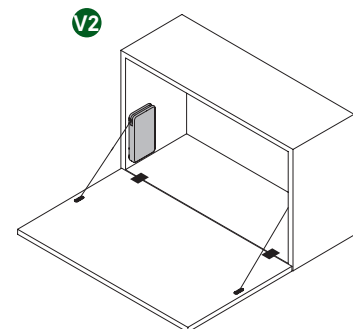
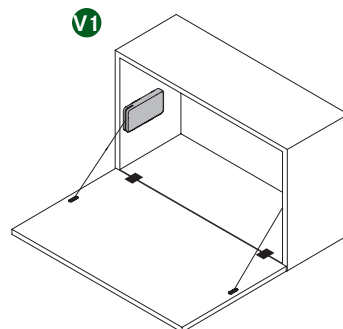
### Application Range

Flap Height (FH)	Horizontal Installation (V1)				Vertical Installation (V2)			
	Flap weight including handle in lb (kg)				Flap weight including handle in lb (kg)			
	Spring 60N		Spring 100N		Spring 60N		Spring 100N	
	1X	2X	1X	2X	1X	2X	1X	2X
7 7/8" - 9 1/16" (200 - 230)	8.82 - 10.58 (4.0 - 4.8)	-	9.25 - 13.66 (4.2 - 6.2)	-	9.03 - 13.00 (4.1 - 5.9)	-	11.68 - 16.09 (5.3 - 7.3)	-
9 1/16" - 10 5/8" (230 - 270)	6.61 - 9.70 (3.0 - 4.4)	13.22 - 18.51 (6.0 - 8.4)	7.93 - 11.46 (3.6 - 5.2)	14.99 - 21.16 (6.8 - 9.6)	7.27 - 10.58 (3.3 - 4.8)	14.99 - 21.16 (6.8 - 9.6)	9.25 - 13.22 (4.2 - 6.0)	21.16 - 28.21 (9.6 - 12.8)
10 5/8" - 13" (270 - 330)	6.39 - 8.37 (2.9 - 3.8)	12.34 - 17.19 (5.6 - 7.8)	6.61 - 10.14 (3.0 - 4.6)	14.10 - 19.40 (6.4 - 8.8)	7.05 - 9.92 (3.2 - 4.5)	13.88 - 17.85 (6.3 - 8.1)	8.37 - 11.24 (3.8 - 5.1)	17.41 - 24.47 (7.9 - 11.1)
13" - 14 15/16" (330 - 380)	5.95 - 8.15 (2.7 - 3.7)	11.02 - 17.63 (5.0 - 8.0)	7.05 - 9.47 (3.2 - 4.3)	14.33 - 18.73 (6.5 - 8.5)	5.73 - 7.49 (2.6 - 3.4)	11.02 - 14.33 (5.0 - 6.5)	7.27 - 9.92 (3.3 - 4.5)	16.09 - 18.73 (7.3 - 8.5)
14 15/16" - 16 15/16" (380 - 430)	6.39 - 7.93 (2.9 - 3.6)	9.92 - 13.44 (4.5 - 6.1)	6.83 - 8.59 (3.1 - 3.9)	12.56 - 16.09 (5.7 - 7.3)	5.15 - 7.49 (2.5 - 3.4)	11.02 - 13.66 (5.0 - 6.2)	7.05 - 9.25 (3.2 - 4.2)	13.66 - 18.07 (6.2 - 8.2)
16 15/16" - 18 1/8" (430 - 460)	5.95 - 6.83 (2.7 - 3.1)	9.47 - 13.44 (4.3 - 6.1)	5.95 - 8.59 (2.7 - 3.9)	13.00 - 18.29 (5.9 - 8.3)	5.07 - 6.61 (2.3 - 3.0)	10.14 - 13.66 (4.6 - 6.2)	6.61 - 8.37 (3.0 - 3.8)	13.66 - 17.19 (6.2 - 7.8)
18 1/8" - 18 7/8" (460 - 480)	5.51 - 6.39 (2.5 - 2.9)	9.03 - 12.56 (4.1 - 5.7)	6.17 - 8.37 (2.8 - 3.8)	11.68 - 16.97 (5.3 - 7.7)	5.29 - 7.05 (2.4 - 3.2)	10.14 - 13.22 (4.6 - 6.0)	6.17 - 8.81 (2.8 - 4.0)	12.34 - 17.19 (5.6 - 7.8)

### Kinvaro D-M

Description	Springs	Color	Item No.	PU
 Kinvaro D-M flap stay including front holder and fixing screws	60N	Grey	<b>F053139661607</b>	10
	100N	Grey	<b>F053139662607</b>	10

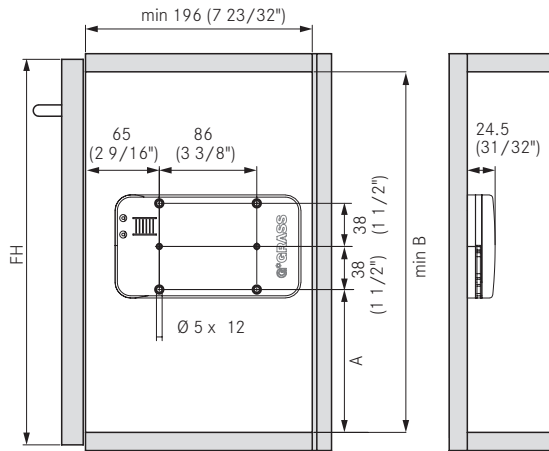
Description	Color	Item No.	PU
 Cover cap for Kinvaro D-M	White	<b>F053139668507</b>	10
	Night	<b>F053139669507</b>	10
	Smoke	<b>F053139670507</b>	10



**Note:** Please order Tiomos flap hinges separately

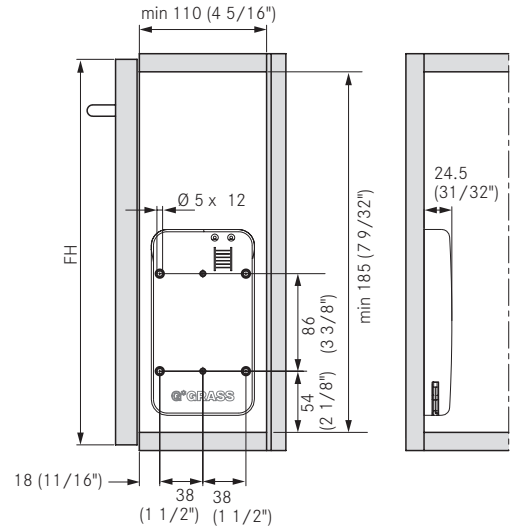
PU - Packaging unit

### Side Panel Drilling, V1 - Horizontal Installation

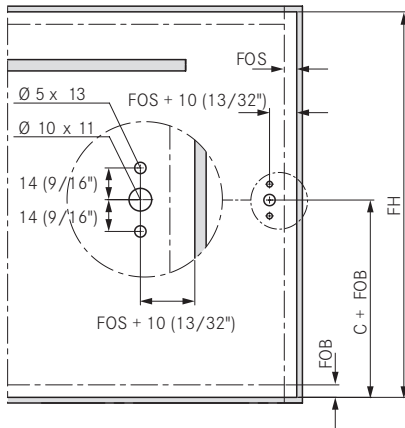


FH	A	B
200-330 (7 7/8" - 13")	102 (4")	194 (7 5/8")
330-430 (13" - 16 15/16")	126 (4 15/16")	218 (8 9/16")
430-480 (16 15/16" - 18 7/8")	136 (5 3/8")	228 (9")

### Side Panel Drilling, V2 - Vertical Installation



### Flap Drilling



FH	C (V1)	C (V2)
200-330 (7 7/8" - 13")	137 (5 3/8")	161 (6 5/16")
330-430 (13" - 16 15/16")	161 (6 5/16")	161 (6 5/16")
430-480 (16 15/16" - 18 7/8")	171 (6 3/4")	161 (6 5/16")

### Calculation of Flap Weight

Flap width x flap height x flap thickness x density\* + weight of handle\*\* = weight of flap

\*Densities: MDF 0.85 kg (1.9 lb)/dm<sup>3</sup>, chipboard 0.65 kg (1.4 lb) /dm<sup>3</sup>, spruce/pine 0.45 kg (1lb)/dm<sup>3</sup>

\*\*For bar handles allow 0.1 kg (.2 lb) for each 100mm handle width.

### IMPORTANT

To determine the correct application Grass strongly recommends a trial mounting.

Minimum gap and flap protrusion depend on the hinge used.

R = Reveal

FOB = Front overlay, bottom

FOS = Front overlay, side

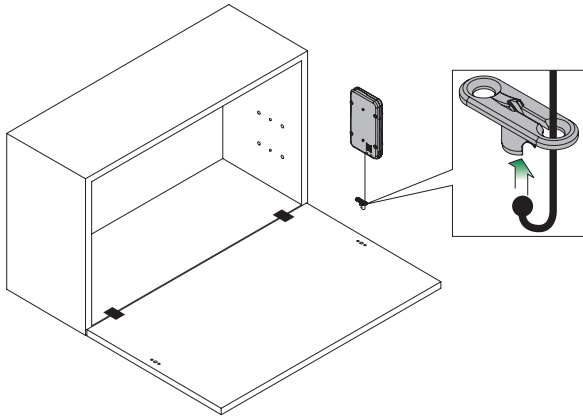
FH = Flap height

# Assembly Instructions

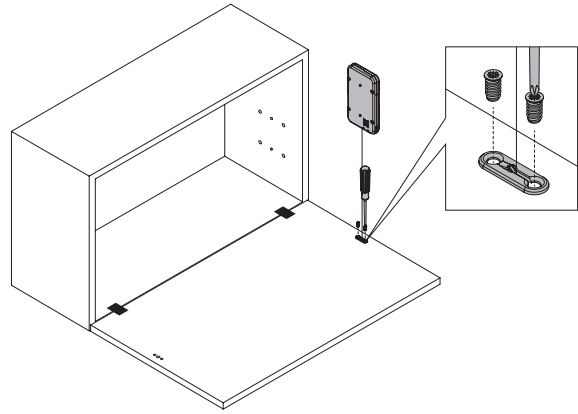
## Kinvaro D-M flap stay with pull cable

### Assembly Instructions

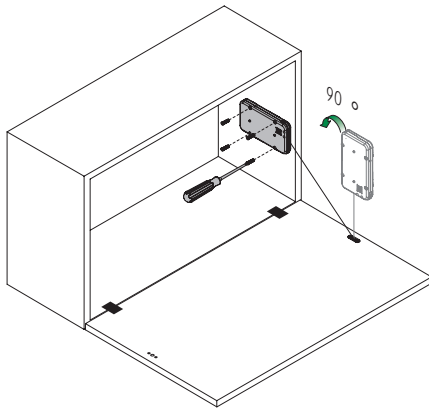
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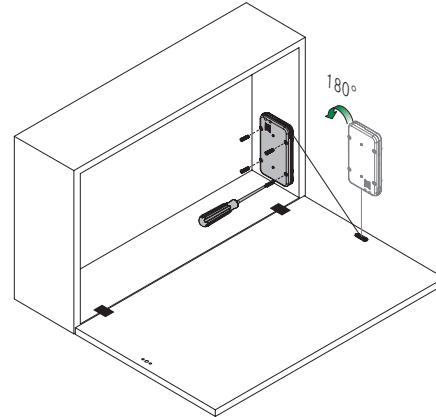
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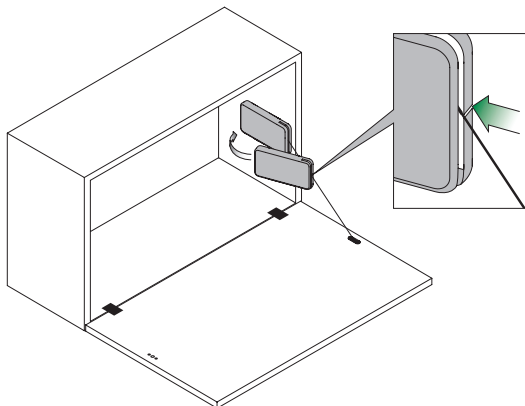
3(V1)



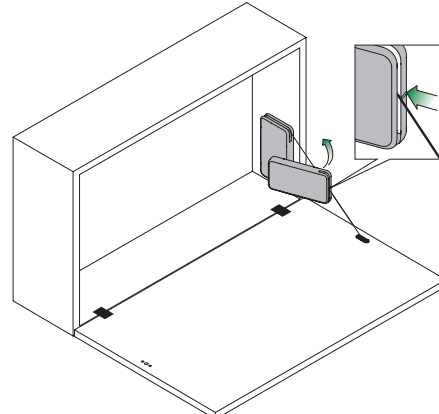
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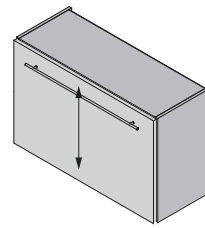


4(V1)

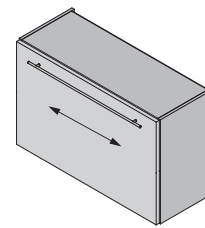


4(V2)

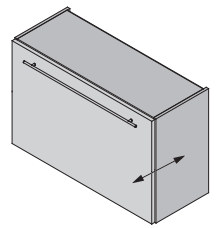




Height adjustment  
+2/-3mm



Side Adjustment  
±1mm

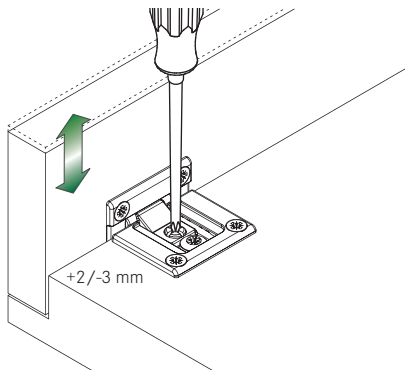


Depth adjustment  
+5/-0mm

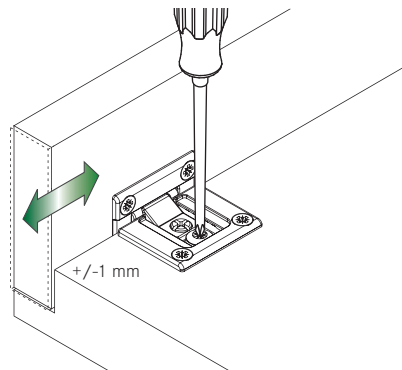
All adjustment options can be made independently of one another

### Adjustment Options, Hinge in the Cabinet Base

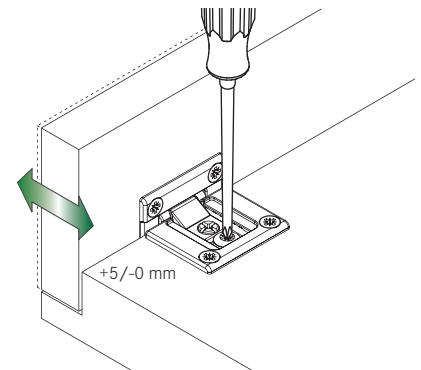
#### Height Adjustment



#### Side Adjustment

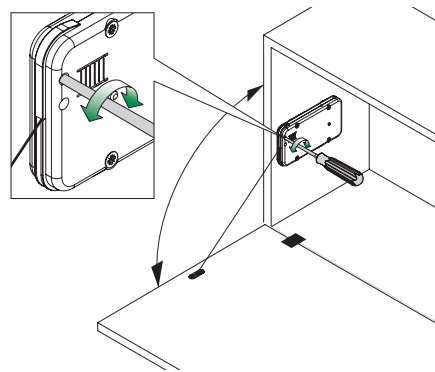
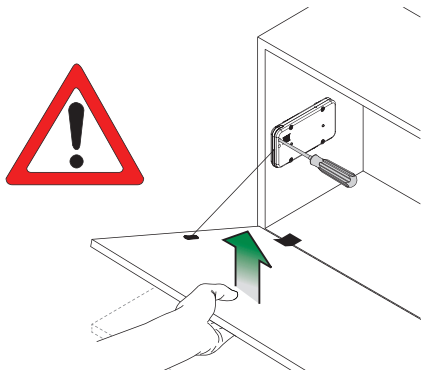


#### Depth Adjustment

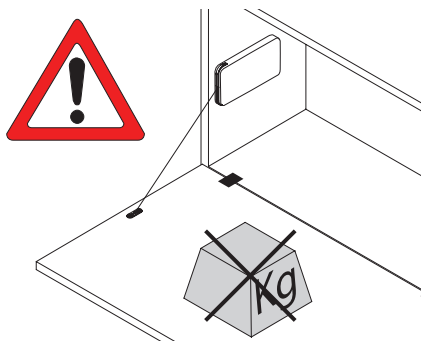
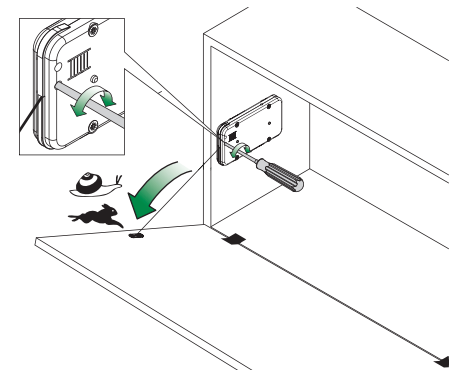


**Note:** The adjustments shown are for the Tiomos flap hinge.

### Adjusting the Opening Angle



### Adjusting the Opening Speed



# Kinvaro D

## D-S flap stay with pull cable




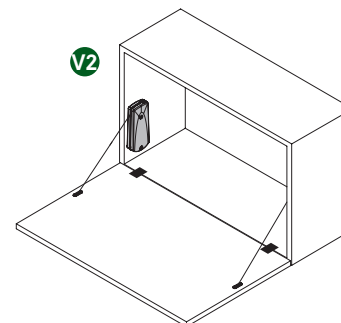
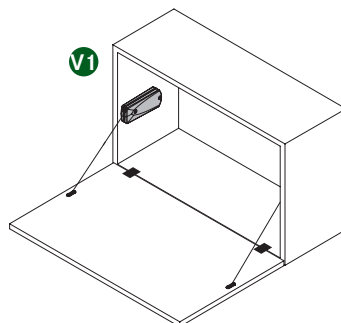
- Gentle opening
- Opening angle adjustable (length of cable)
- Can be used with shallow cabinets from 82mm (3 1/4") depth
- Flap height 200mm - 480mm (7 7/8" - 18 7/8")
- Can be used on left/right side of cabinet
- Easy to install horizontally or vertically
- In White or Night finish
- Works perfectly with Tiomos flap hinge

### Application Range

Flap Height (FH)	Horizontal Installation (V1) or Vertical Installation (V2)			
	Flap weight including handle in lb (kg)			
	Spring 40N		Spring 60N	
	1X	2X	1X	2X
7 7/8" - 10 5/8" (200 - 270)	3.74 - 6.61 (1.7 - 3.0)	8.59 - 9.92 (3.9 - 4.5)	6.83 - 8.81 (3.1 - 4.0)	16.53 - 17.63 (7.5 - 8.0)
10 5/8" - 13" (270 - 330)	3.74 - 6.61 (1.7 - 3.0)	7.27 - 9.92 (3.3 - 4.5)	6.83 - 8.81 (3.1 - 4.0)	13.44 - 16.31 (6.1 - 7.4)
13" - 14 15/16" (330 - 380)	3.74 - 4.18 (1.7 - 1.9)	7.05 - 7.71 (3.2 - 3.5)	6.39 - 7.71 (2.9 - 3.5)	11.24 - 14.99 (5.1 - 6.8)
14 15/16" - 16 15/16" (380 - 430)	3.30 - 3.96 (1.5 - 1.8)	5.95 - 7.27 (2.7 - 3.3)	5.51 - 7.27 (2.5 - 3.3)	10.58 - 14.55 (4.8 - 6.6)
16 15/16" - 18 1/8" (430 - 460)	2.64 - 3.74 (1.2 - 1.7)	5.51 - 6.83 (2.5 - 3.1)	5.07 - 7.27 (2.3 - 3.3)	10.14 - 13.22 (4.6 - 6.0)
18 1/8" - 18 7/8" (460 - 480)	-	-	4.85 - 6.17 (2.2 - 2.8)	9.70 - 11.68 (4.4 - 5.3)

### Kinvaro D-S

Description	Springs	Color	Item No.	PU
 Kinvaro D-S flap stay including front holder and fixing screws	40N	White	<b>F053139664</b> 607	10
		Night	<b>F053139665</b> 607	10
	60N	White	<b>F053139666</b> 607	10
		Night	<b>F053139667</b> 607	10



**Note:** Please order Tiomos flap hinges separately

PU - Packaging unit

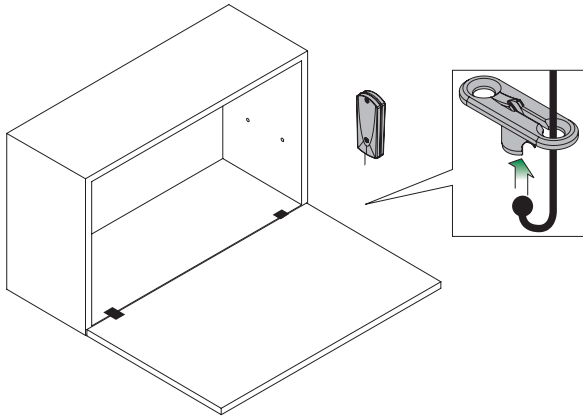


# Assembly Instructions

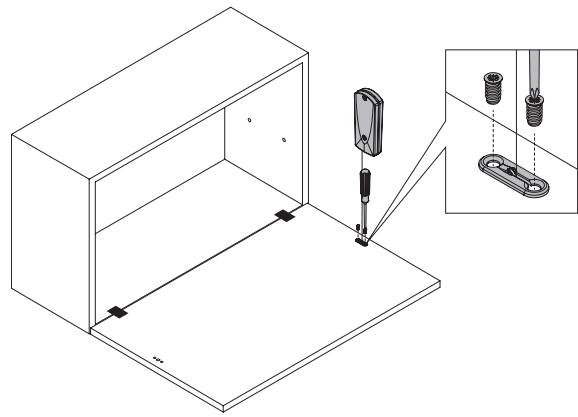
## Kinvaro D-S flap stay with pull cable

### Assembly Instructions

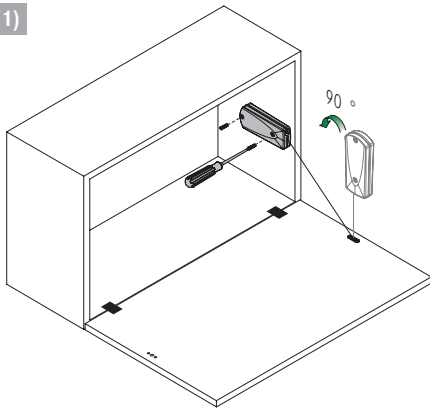
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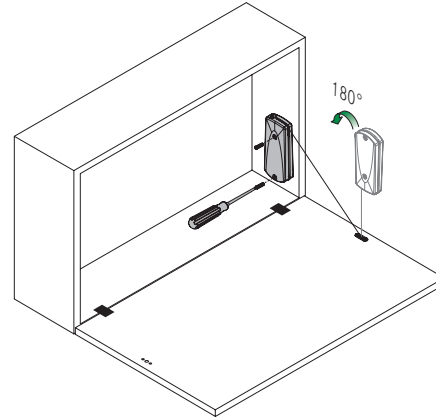
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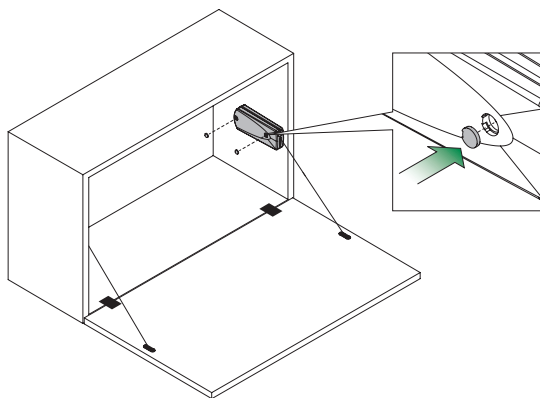
3(V1)



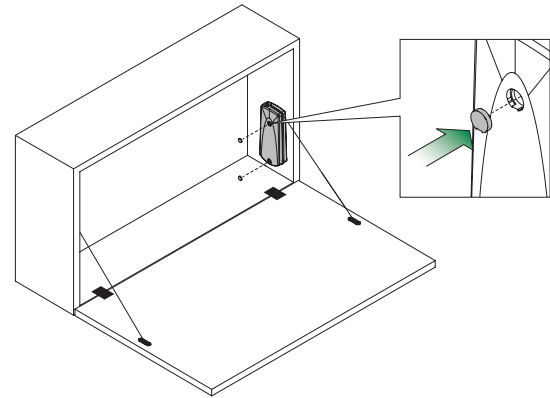
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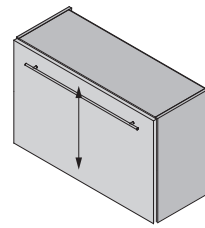
4(V1)



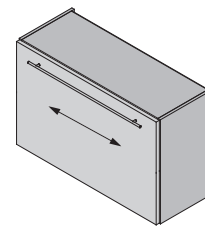
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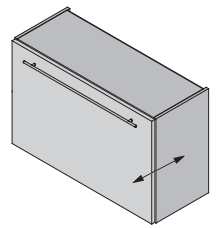




Height adjustment  
+2/-3mm



Side Adjustment  
±1mm

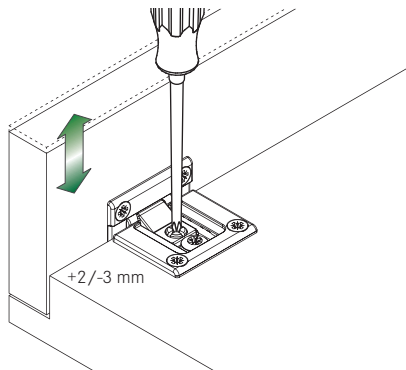


Depth adjustment  
+5/-0mm

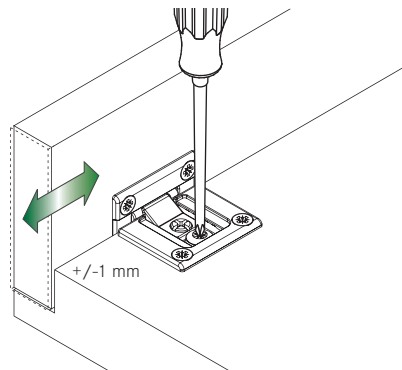
All adjustment options can be made independently of one another

### Adjustment Options, Hinge in the Cabinet Base

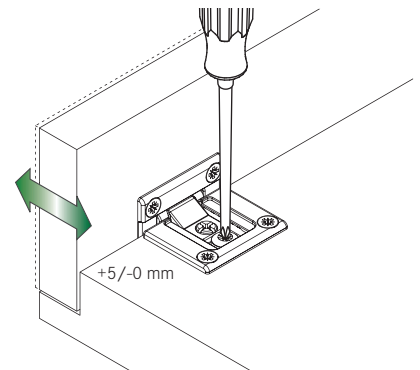
#### Height Adjustment



#### Side Adjustment

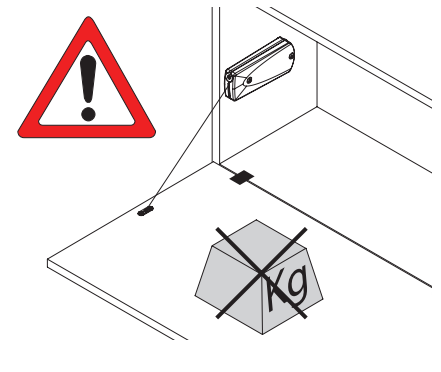
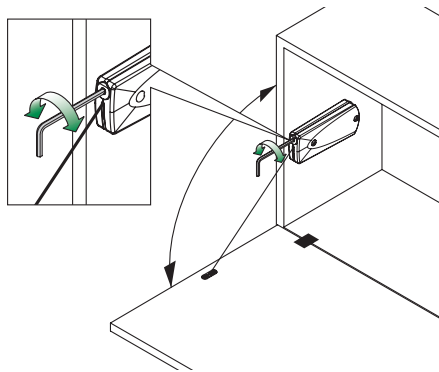
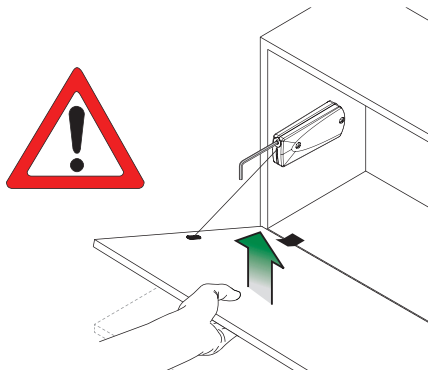


#### Depth Adjustment



**Note:** The adjustments shown are for the Tiomos flap hinge.

### Adjusting the Opening Angle

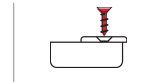


# Tiomos Flap Hinge

90° hinge for flap door



- Sleek modern design
- 90° opening angle
- For flap thicknesses of up to 30mm (1 3/16")
- Narrow joint
- Large overlay of up to 19mm (3/4")
- 3-dimensional adjustment
- Compatible with Tipmatic pin system
- Compatible with Kinvaro D-M/D-S flap system



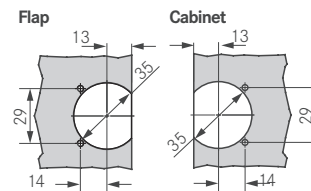
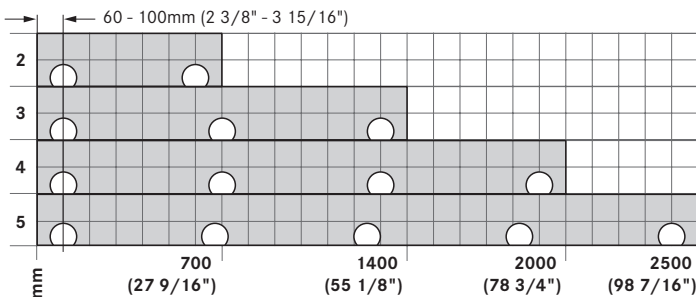
## Tiomos Flap Hinge Opening Angle 90° Screw-On

Overlay	For Flap Thickness 14-21mm	Color	Cup Depth	Item No.	PU
	Hinge: zinc die-cast, nickel-plated	Nickel	12mm	<b>F053139671223</b>	100
	Hinge: zinc die-cast, night	Night	12mm	<b>F053139677223</b>	100

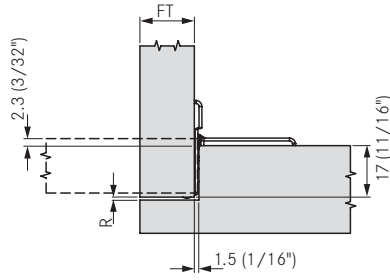
Overlay	For Flap Thickness 22-28mm	Color	Cup Depth	Item No.	PU
	Hinge: zinc die-cast, nickel-plated	Nickel	17mm	<b>F053139672223</b>	100
	Hinge: zinc die-cast, night	Night	17mm	<b>F053139678223</b>	100

Cover Cap for Flap Hinge	Item No.	PU	1.5mm Spacer for Tiomos Flap Hinge	Item No.	PU		
	Steel, nickel plated	<b>F053139675223</b>	100		Steel, nickel plated	<b>F053139676223</b>	100
	Steel, night	<b>F053139683223</b>	100		Steel, night	<b>F053139684223</b>	100

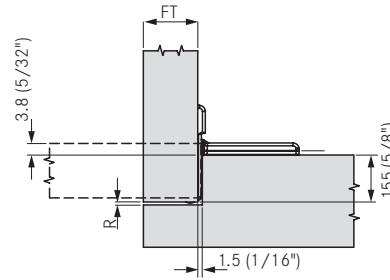
## Number of Hinges per Door Drilling Pattern



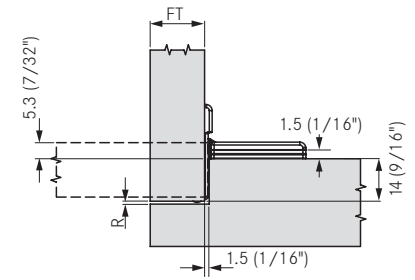
PU - Packaging unit

**Overlay, Without Spacer, 12mm Cup Depth**


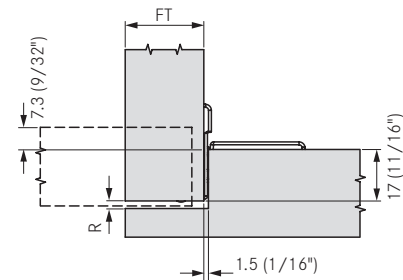
Flap Thickness (FT)		21	20	19	18	17	16	15	14
Min Reveal (R)		2.5	1.5	1	1	1	1	1	1

**Overlay, with 1 Spacer, 12mm Cup Depth**


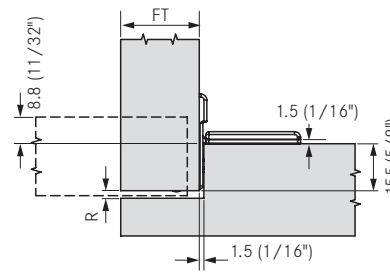
Flap Thickness (FT)		21	20	19	18	17	16	15	14
Min Reveal (R)		2.5	1.5	1	1	1	1	1	1

**Overlay, with 2 Spacers, 12mm Cup Depth**


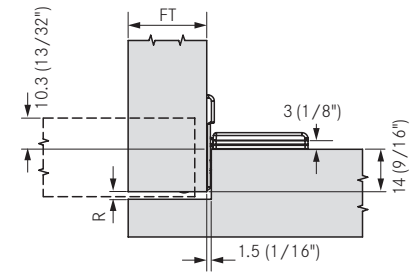
Flap Thickness (FT)		21	20	19	18	17	16	15	14
Min Reveal (R)		2.5	1.5	1	1	1	1	1	1

**Overlay, Without Spacer, 17mm Cup Depth**


Flap Thickness (FT)		30	29	28	27	26	25	24	23	22
Min Reveal (R)		6.5	5.5	4.5	3.5	2.5	1.5	1	1	1

**Overlay, with 1 Spacer, 17mm Cup Depth**


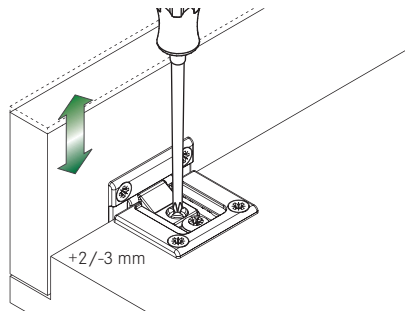
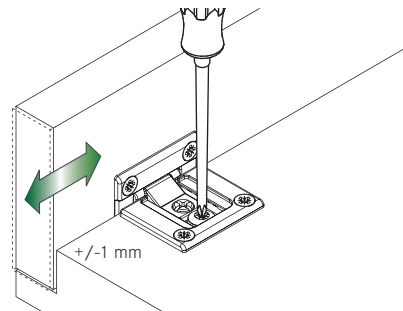
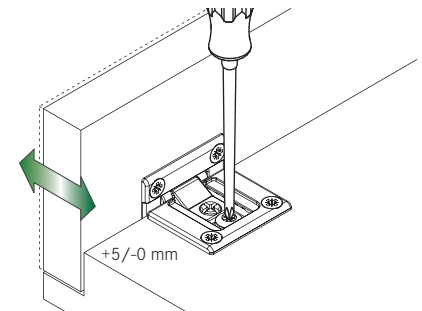
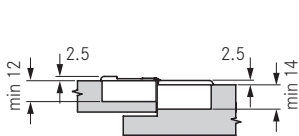
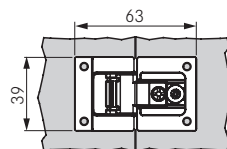
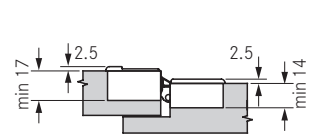
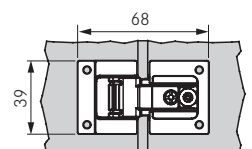
Flap Thickness (FT)		30	29	28	27	26	25	24	23	22
Min Reveal (R)		6.5	5.5	4.5	3.5	2.5	1.5	1	1	1

**Overlay, with 2 Spacers, 17mm Cup Depth**


Flap Thickness (FT)		30	29	28	27	26	25	24	23	22
Min Reveal (R)		6.5	5.5	4.5	3.5	2.5	1.5	1	1	1

**Note:** Hinge dimensions and reveal calculation based on factory setting.

**IMPORTANT**  
To determine the correct application Grass strongly recommends a trial mounting for all hinges and base plates.

**Overlay Adjustment**

**Side Adjustment**

**Depth Adjustment**

**Cup Dimensions, 12mm cup depth**

**Hinge Dimension, 12mm cup depth**

**Cup Dimensions, 17mm cup depth**

**Hinge Dimensions, 17mm cup depth**




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