



CABINET HARDWARE SYSTEMS

CABINET & FURNITURE MECHANISMS

#CFM

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CABINET & FURNITURE MECHANISMS

CONTENTS

▪ Grass® Kinvaro Flap Systems	03
▪ Grass® Kinvaro F-20 Folding Flap Fitting	04
▪ Grass® Kinvaro L-80 Parallel Flap Fitting	08
▪ Grass® Kinvaro S-35 Up-And-Over Flap Fitting.....	11
▪ Grass® Kinvaro T-71 Lift-Up Flap Fitting	14
▪ Grass® Kinvaro T-76 Lift-Up Flap Fitting	17
▪ Grass® Kinvaro T-57 Lift-Up Flap Fitting	20
▪ Grass® Kinvaro T-105 Lift-Up Flap Fitting	23
▪ Sugatsune Flap Systems	26
▪ Pivoting Door Mechanisms Soft-Closing	27
▪ Sugatsune IF-102 Flipper Door Mechanism	27
▪ Sugatsune Vertical Soft-Close Door Mechanism	28
▪ Sugatsune OV Soft-Closing Pivot Door Mechanisms.....	29
▪ Sugatsune OVN Soft-Close Door Mechanism	31
▪ Flap And Door Stays	32
▪ Sugatsune NSD-10 Soft-Close Front Stay.....	32
▪ Sugatsune NSD-20 Soft-Close Lid Stay	33
▪ Sugatsune NSD-35 Overhead Soft-Close Stay.....	34
▪ Ball Bearing Flipper Door Slides	35
▪ K & V Ball Bearing Pivot Door Slides	35
▪ Repon Ball Bearing Pivot Door Slides	36
▪ Repon Ball Bearing Pivot Door Slides	37
▪ Flap And Door Stays	38
▪ Adjustable Braking Lid Stay	38
▪ Steel Spring Loaded Flap Stay	38
▪ Index Part Numbers	39

CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

With all the space available at the top of cabinets, the only limit is personal choice. The GRASS Kinvaro series redefines the principle of the classic wall cabinet. Wall cabinets continue to rank among the most favoured storage solutions for kitchens. And they are destined to remain so, thanks to our extremely functional and comfortable flap systems. Stable and reliable movement systems, easy and silent in application, ergonomically well designed and comfortable to operate – these are the special ingredients for modern storage concepts. Kinvaro flap systems represent the perfect synthesis of innovative design ambition and functional movement in the spirit of modern furniture culture.

Whichever way you need to open your wall cabinet – Kinvaro flap systems ensure perfect access and maximum freedom of movement.

 **GRASS®**



KINVARO F
FOLDING FLAP SYSTEM

The two-part front folds upwards to provide optimal access to the entire storage space. The particularly smooth movement sequence is enhanced by the integrated, adjustable Soft-close damping.



KINVARO L
PARALLEL LIFT FLAP SYSTEM

The single front opens in parallel with the cabinet and remains fixed in any position. Parallel lift flap systems are very elegant in their movement, extremely stable and particularly well suited to cabinets with kitchen equipment.



KINVARO S
UP-AND-OVER FLAP SYSTEM

The single front lifts up above the cabinet at an angle and remains fixed in any position. Up-and-over flap systems are extremely stable and particularly well suited to cabinets with cornices, pelmets and attached lights.



KINVARO T
LIFT-UP FLAP SYSTEMS

The single front opens up comfortably with a gentle lift movement. The particularly elegant movement sequence is enhanced by the integrated, adjustable Soft-close damping. Ideal for light to medium-weight fronts.

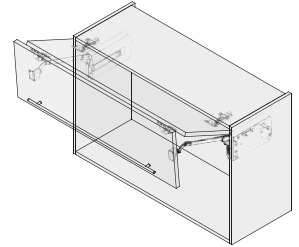
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro F-20 Folding Flap Fitting



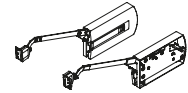
- Holds flap securely in any position
- Extremely smooth movement
- Adjustable spring force
- Integrated adjustable closing damper
- Flap with 3-dimensional adjustment – height, side, angle: Direct adjustment ± 1.5 mm
- 3-dimensional reveal height, side, depth adjustment: Direct adjustment
- Opening limiter adjustable to 90°
- Wide range of applications for many different flap materials
- Fast, tool-free clip fitting of the front
- Pre-assembled Euro screws and positioning pins for easy fixture of the fitting to the side wall
- Extremely strong
- Weight 3.8 to 19.2 kg
- Range of flaps:
Width: 400 – 1200 mm
Height: 520 – 799 mm
- Cover caps in white



Application Range		Flap Weight Incl. Handle (kg)		
Cabinet Height	Guide Lever	Spring B	Spring C	Spring D
520 - 559	Type 2	4.6 - 13.8		
560 - 599	Type 3	4.4 - 12.6		
600 - 649	Type 4	4.1 - 12.1		
700 - 749	Type 6	3.8 - 11.4	6.5 - 16.4	
750 - 900	Type 7			8.6 - 19.2

ORDER INFORMATION

Kinvaro F-20 Set



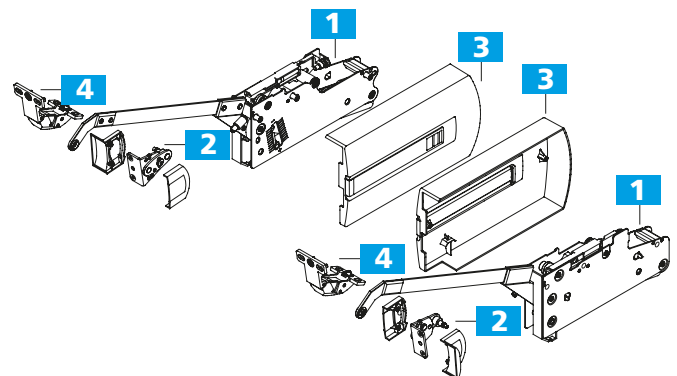
Cabinet Height	Spring B	Spring C	Spring D
520 - 559	128201 (F152147837)		
560 - 599	128202 (F152147838)		
600 - 649	128203 (F152147675)		
700 - 749	128204 (F152147840)	128205 (F152147844)	
750 - 900			128206 (F152147847)

Note:

Please order separately: Tiomos 120° hinges (**017123**) with spring, without damper, and Tiomos mounting plates for top panel.

Kinvaro F-20 Set Comprises:

- 1 Fitting, right and left (1x)
- 2 Screw-on bracket for wood, incl. cover caps (2x)
- 3 Cover caps, right and left, in white (1x)
- 4 Connecting hinges (2x)
Paper template (1x)
Installation instructions (1x)s (1x)



CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Assembly and Installation Instructions

All dimensions in millimetres

Required Space	Side Wall Drilling Positions	Side Wall Drilling Distance																																																			
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Number of hinges at top panel	Fixing positions for full extension drawer	Front Drilling Distance																																																			
<p>From 900 mm cabinet width: 3 hinges. Hinges with spring require an opening angle of min. 120°</p>	<p>Front: installation for wooden and frame flaps (min. 45 mm width)</p> <p>* Pre-drilling required - Ø 2 mm</p>	<table border="1"> <thead> <tr> <th>KH</th> <th>TYPE</th> <th>C</th> </tr> </thead> <tbody> <tr><td>520 – 529</td><td>2</td><td>133</td></tr> <tr><td>530 – 539</td><td>2</td><td>148</td></tr> <tr><td>540 – 549</td><td>2</td><td>163</td></tr> <tr><td>550 – 559</td><td>2</td><td>178</td></tr> <tr><td>560 – 569</td><td>3</td><td>145</td></tr> <tr><td>570 – 579</td><td>3</td><td>160</td></tr> <tr><td>580 – 589</td><td>3</td><td>175</td></tr> <tr><td>590 – 599</td><td>3</td><td>190</td></tr> <tr><td>600 – 609</td><td>4</td><td>138</td></tr> <tr><td>610 – 619</td><td>4</td><td>148</td></tr> <tr><td>620 – 629</td><td>4</td><td>168</td></tr> <tr><td>630 – 639</td><td>4</td><td>178</td></tr> <tr><td>640 – 649</td><td>4</td><td>188</td></tr> <tr><td>650 – 699</td><td>5</td><td>146</td></tr> <tr><td>700 – 749</td><td>6</td><td>156</td></tr> <tr><td>750 – 800</td><td>7</td><td>166</td></tr> </tbody> </table>	KH	TYPE	C	520 – 529	2	133	530 – 539	2	148	540 – 549	2	163	550 – 559	2	178	560 – 569	3	145	570 – 579	3	160	580 – 589	3	175	590 – 599	3	190	600 – 609	4	138	610 – 619	4	148	620 – 629	4	168	630 – 639	4	178	640 – 649	4	188	650 – 699	5	146	700 – 749	6	156	750 – 800	7	166
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Calculation of Flap Weight
 Flap width x flap height x flap thickness x density ¹ + weight of handle ² = weight of flap
¹ Densities: MDF 0.85 kg/dm³, chipboard 0.65 kg/dm³, spruce/pine 0.45 kg/dm³
² For bar handles, allow 0.1 kg for each 100 mm handle width. We recommend a trial fitting

WARNING!

IMPORTANT!
CAUTION - RISK OF INJURY!
FITTING IS SPRING-TENSIONED!

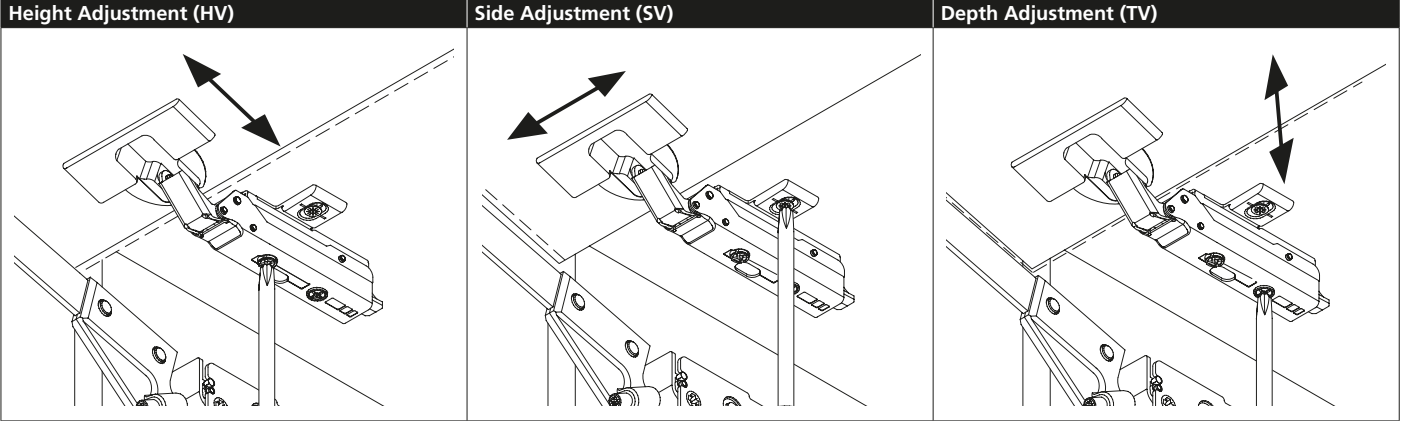
Legend			
B	Drilling dimension - side wall	C	Drilling dimension - front
FAS	Front overlay, side	KH	Cabinet height
		F	Reveal

CABINET & FURNITURE MECHANISMS

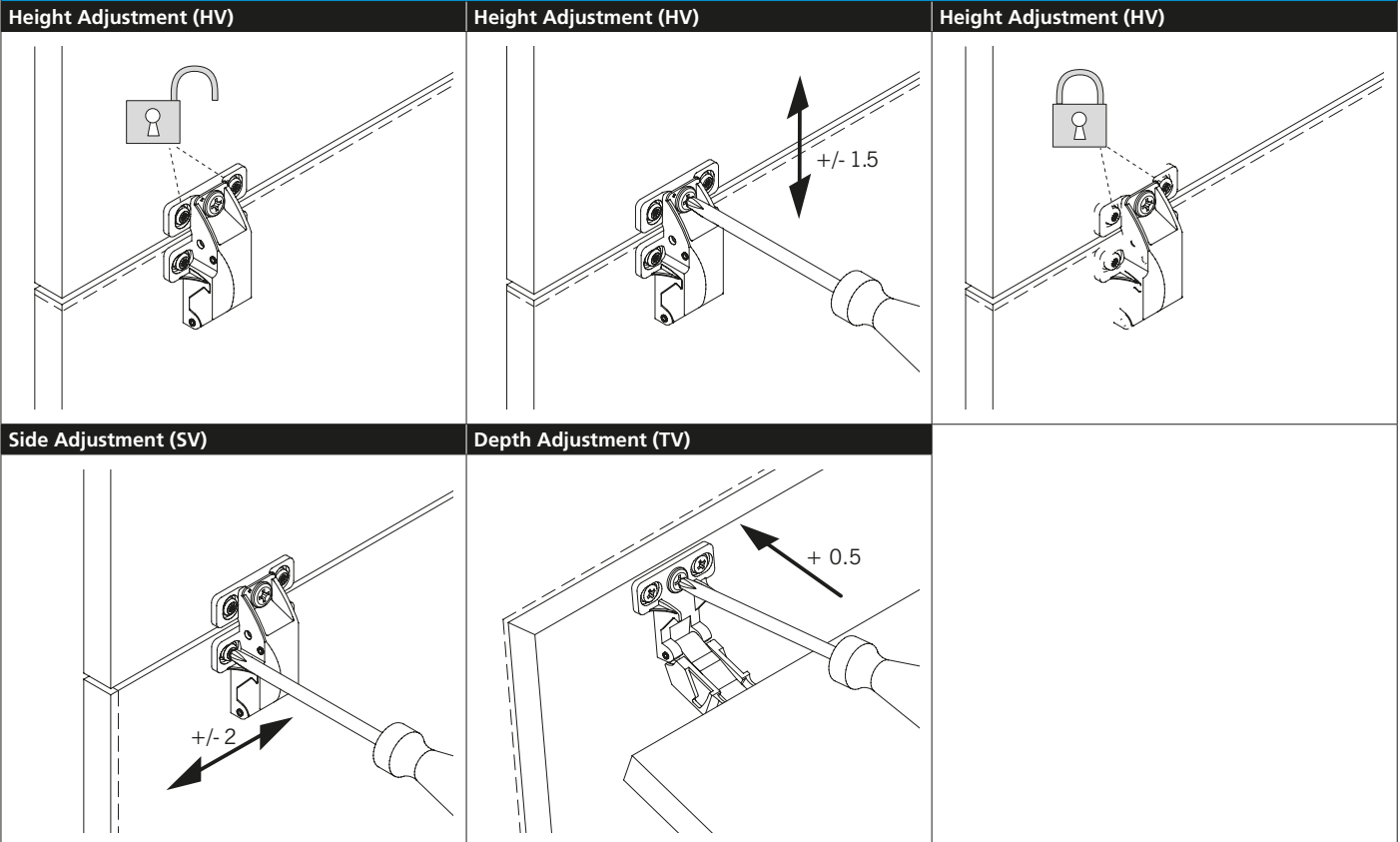
GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro F-20 Adjustment Options

Adjustment Options For Hinge In Cabinet – Top Panel



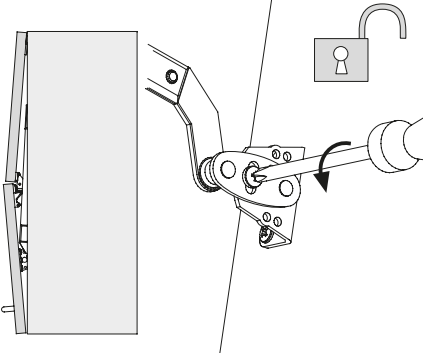
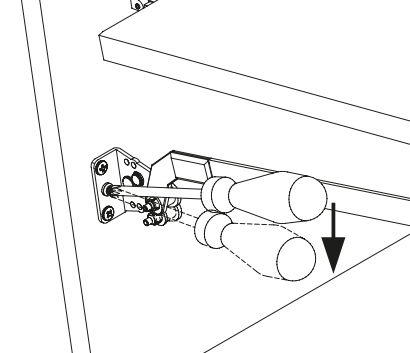
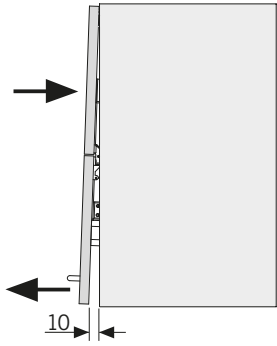
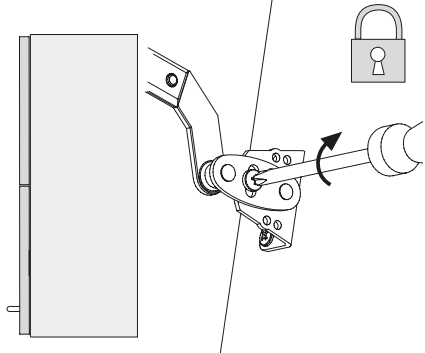
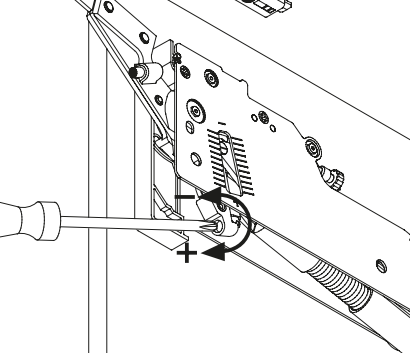
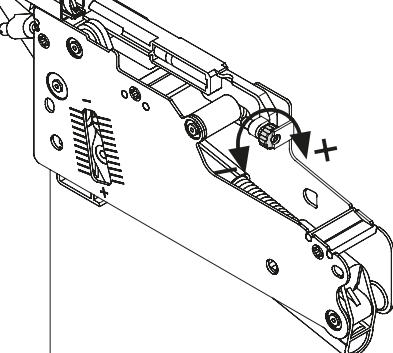
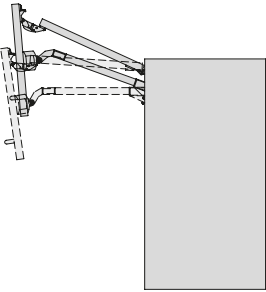
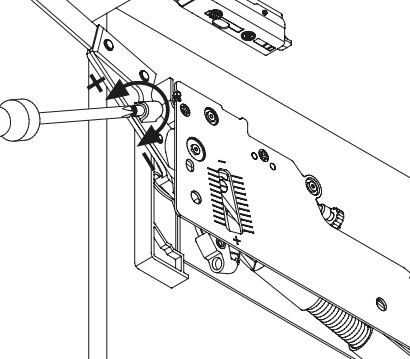
Adjustment Options for Intermediate Hinge



CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

▶ Adjustments

Adjusting the flap closing position	Adjusting the flap closing position	Adjusting the flap closing position
		
Adjusting the flap closing position	Adjusting the spring force	Adjusting the damping system
		
Adjusting the opening angle 90° to 120°	Adjusting the opening angle 90° to 120°	
		



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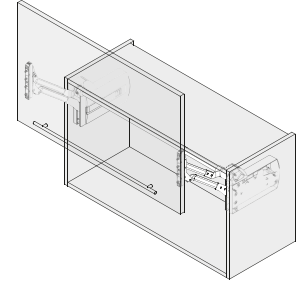
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro L-80 Parallel Flap Fitting



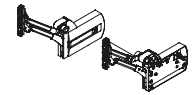
- Holds flap securely in any position
- Extremely smooth movement
- Adjustable spring force
- Integrated adjustable closing damper
- Flap 3-dimensionally adjustable – height, side, angle: direct adjustment ± 1.5 mm
- Allows the use of cornices, pelmets and attached lights
- Wide range of applications for many different flap materials
- Fast, tool-free clip fitting of the front
- Pre-assembled Euro screws and positioning pins for easy fixture of the fitting to the side wall
- Extremely strong
- Weight 1.9 to 14.6 kg
- Range of flaps:
Width: 450 – 1200 mm
Height: 350 – 600 mm
- Cover caps in white



Application Range			Flap Weight Incl. Handle (kg)	
Cabinet Height	Guide Lever	Spring B	Spring C	Spring D
350 – 369	TYPE 1	2.5 – 6.5	6.0 – 9.5	
370 – 389	TYPE 2	2.3 – 6.0	5.5 – 9.0	8.5 – 9.6
390 – 409	TYPE 3	2.1 – 5.5	5.0 – 8.5	8.0 – 10.1
410 – 429	TYPE 4	1.9 – 5.0	4.5 – 8.0	7.5 – 14.6
430 – 600	TYPE 5	2.0 – 4.5	4.0 – 7.5	7.0 – 14.6

ORDER INFORMATION

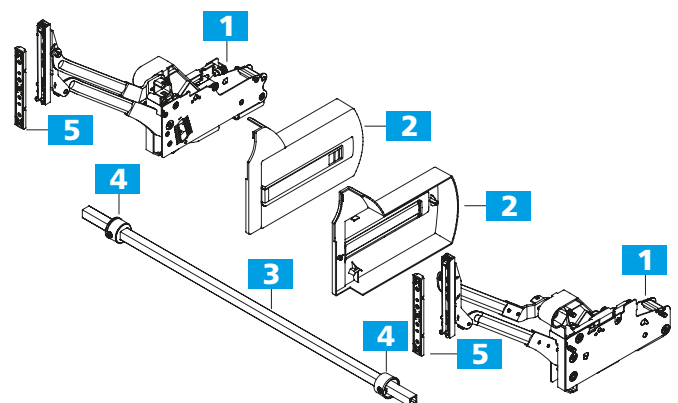
Kinvaro L-80 Set



Cabinet Height	Spring A	Spring B	Spring C
350 – 369	128801 (F152147781)		
370 – 389		128802 (F152147829)	
390 – 409		128803 (F152147830)	
410 – 429		128804 (F152147831)	
430 – 600			128805 (F152147788)

Kinvaro L-80 Set Comprises:

- 1 Fitting, right and left (1x)
- 2 Cover caps, right and left, in white (1x)
- 3 1090mm cross bar for cutting to length (1x)
- 4 Sliding sleeves (2x)
- 5 Mounting plates (2x)
Paper template (1x)
Installation instructions (1x)



CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Assembly and Installation Instructions

All dimensions in millimetres

Required Space	Side Wall Drilling Positions	Side Wall Drilling Distance																								
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Number of hinges at top panel	Fixing positions for full extension drawer	Front Drilling Distance																		
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Calculation of Flap Weight	WARNING!
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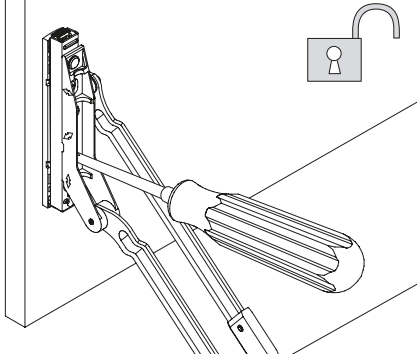
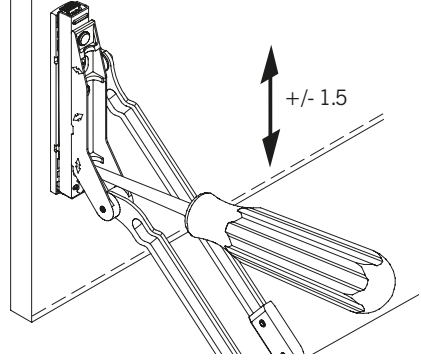
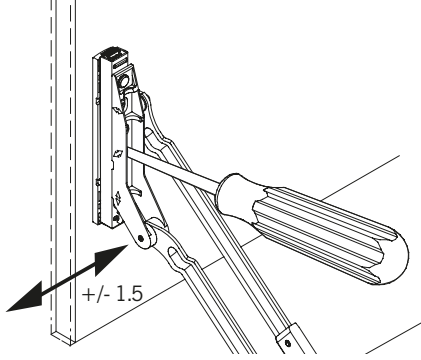
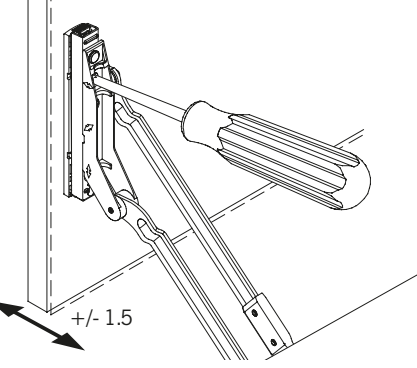
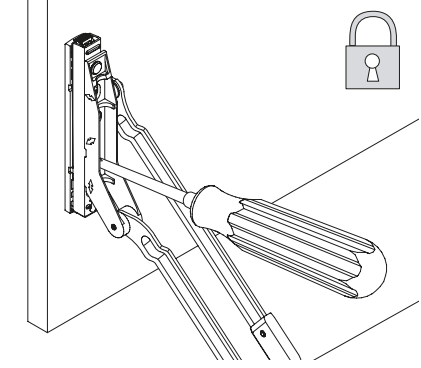
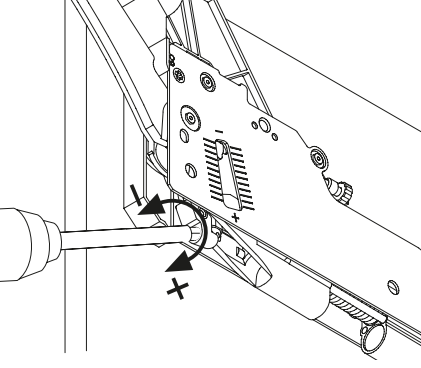
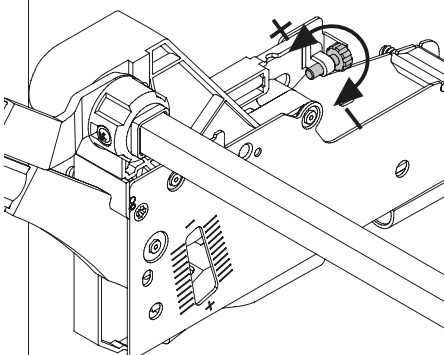
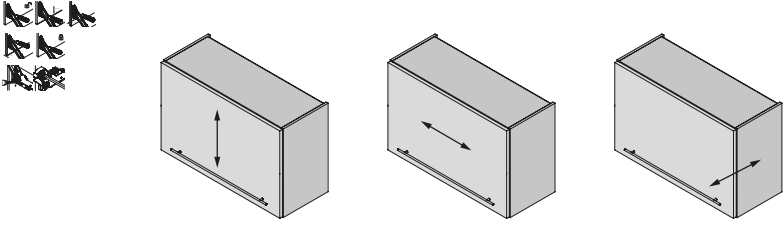
Legend			
D	Distance	F	Reveal
FAO	Front overlay, top	KH	Cabinet height
LHK	Inside cabinet height	FAS	Front overlay, side
		KP	Cornice

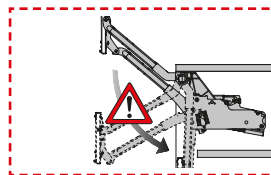
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro L-80 Adjustment Options

Adjustment Options / Adjustments

Unlocking	Height Adjustment (HV)	Side Adjustment (SV)
		
Depth Adjustment (TV)	Locking	Adjusting the Spring Force
		
Adjusting the Damping System		
	 <p data-bbox="746 1554 1406 1603">(HV) Height adjustment +/- 1.5 mm (SV) Side adjustment +/- 1.5 mm (TV) Depth adjustment +/- 1.5 mm</p> <p data-bbox="804 1626 1353 1653">All adjustments can be carried out independently of each other.</p>	



WARNING!
IMPORTANT!
CAUTION - RISK OF INJURY!
FITTING IS SPRING-TENSIONED!

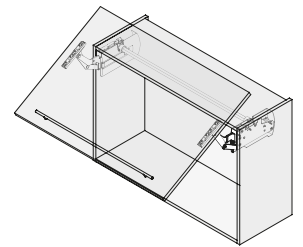
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro S-35 Up-And-Over Flap Fitting



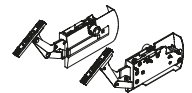
- Securely holds flap in any position from 45° opening angle
- Extremely smooth movement
- Adjustable spring force
- Integrated adjustable closing damper
- Flap 3-dimensionally adjustable – height, side, angle: direct adjustment ± 1.5 mm
- Allows the use of cornices, pelmets and attached lights
- Wide range of applications for many different flap materials
- Fast, tool-free clip fitting of the front
- Pre-assembled Euro screws and positioning pins for easy fixture of the fitting to the side wall
- Extremely strong
- Weight 1.5 to 17.5 kg
- Range of flaps:
Width: 450 – 1200 mm
Height: 420 – 750 mm
- Cover caps in white



Cabinet Height	Application Range		Flap Weight Incl. Handle (kg)	
	Guide Lever	Spring B	Spring C	Spring D
420 – 449	1.5 – 7.5	5.0 – 11.0		
450 – 479	1.8 – 7.5	5.0 – 12.0		
480 – 509	1.8 – 6.5	5.0 – 12.5		
510 – 539	2.0 – 6.0	5.0 – 13.0		
540 – 569	2.0 – 6.0	5.0 – 12.5	6.0 – 14.0	
570 – 599	2.0 – 6.0	5.0 – 11.0	5.5 – 12.0	11.5 – 14.5
600 – 629	2.0 – 5.5	4.5 – 10.0	5.5 – 11.5	10.5 – 15.5
630 – 659	2.0 – 5.5		4.5 – 11.0	8.5 – 16.0
660 – 689	2.0 – 5.0		4.0 – 10.0	7.5 – 15.0
690 – 719	2.0 – 5.0		4.0 – 8.5	6.5 – 13.5
720 – 750			4.0 – 8.0	6.5 – 12.5

ORDER INFORMATION

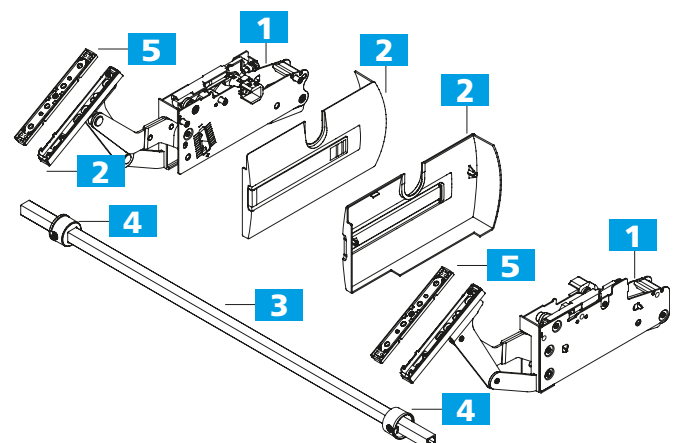
Kinvaro S-35 Set



Cabinet Height	Spring A	Spring B	Spring C	Spring D
420 - 750	128351 (F152147818)	128352 (F152147819)	128353 (F152147820)	128354 (F152147821)

Kinvaro S-35 Set Comprises:

- 1 Fitting, right and left (1x)
- 2 Cover caps, right and left, in white (1x)
- 3 1090mm cross bar for cutting to length (1x)
- 4 Sliding sleeves (2x)
- 5 Mounting plates (2x)
Paper template (1x)
Installation instructions (1x)



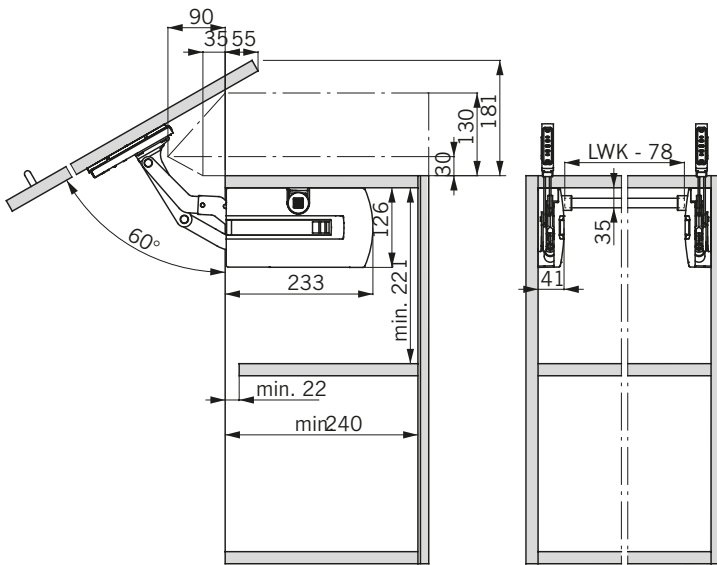
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

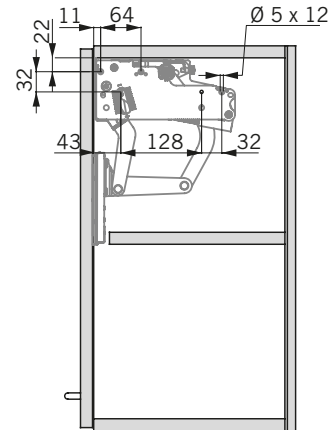
► Assembly and Installation Instructions

All dimensions in millimetres

Required Space

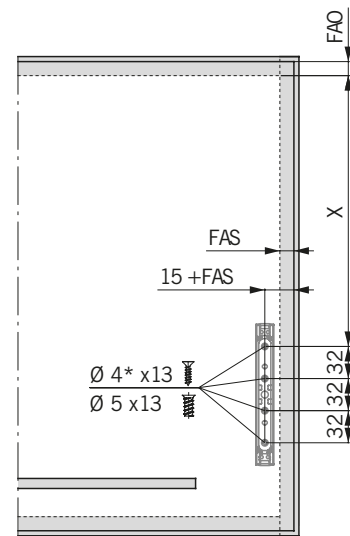


Side Wall Drilling Positions



Fixing Positions for Full Extension Drawer

Front: installation for wooden and frame flaps (min. 45 mm width)



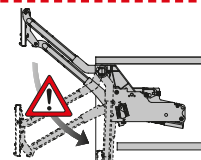
* Pre-drilling required - Ø 2 mm

Calculation of Flap Weight

Flap width x flap height x flap thickness x density ¹ + weight of handle ² = weight of flap

¹ Densities: MDF 0.85 kg/dm³, chipboard 0.65 kg/dm³, spruce/pine 0.45 kg/dm³

² For bar handles, allow 0.1 kg for each 100 mm handle width. We recommend a trial fitting



WARNING!

IMPORTANT!
CAUTION - RISK OF INJURY!
FITTING IS SPRING-TENSIONED!

Legend

FAO Front overlay, top

FAS Front overlay, side

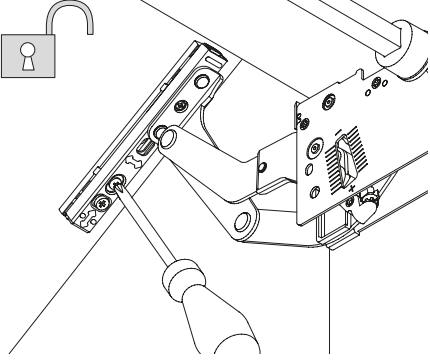
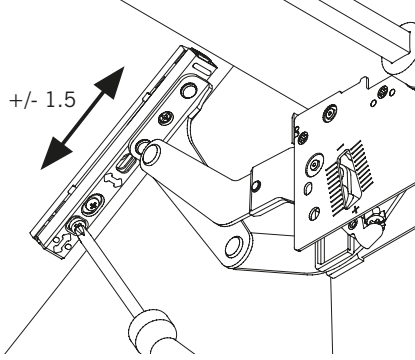
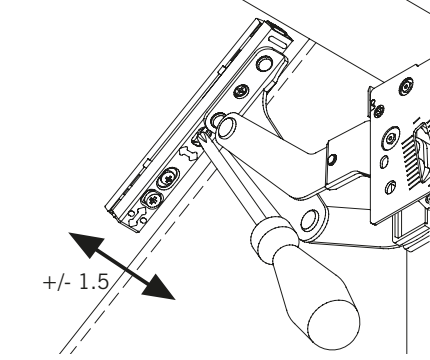
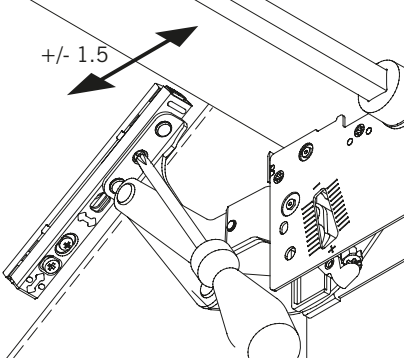
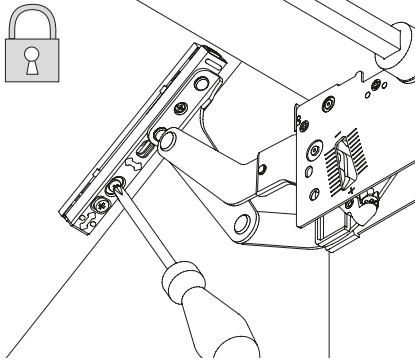
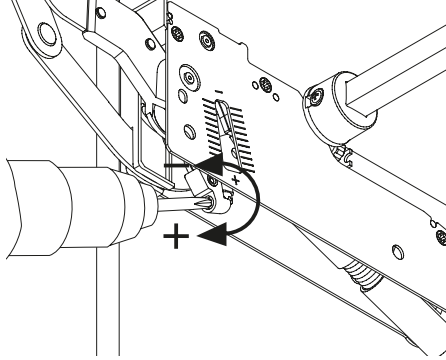
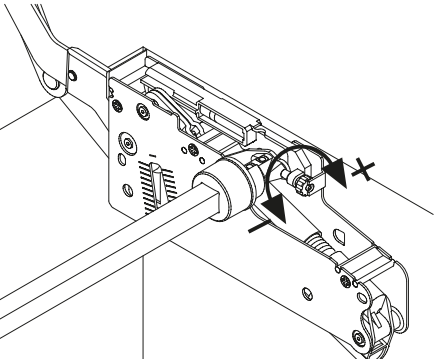

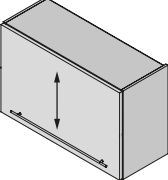
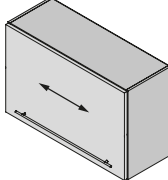
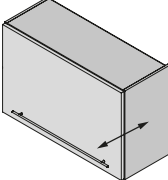
LWK Inside cabinet width

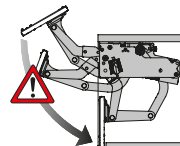
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro S-35 Adjustment Options

Adjustment Options / Adjustments

Unlocking	Height Adjustment (HV)	Side Adjustment (SV)
		
Depth Adjustment (TV)	Locking	Adjusting the Spring Force
		
Adjusting the Damping System	 <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;">   <p>(HV) Height adjustment +/- 1.5 mm</p> </div> <div style="text-align: center;">  <p>(SV) Side adjustment +/- 1.5 mm</p> </div> <div style="text-align: center;">  <p>(TV) Depth adjustment +/- 1.5 mm</p> </div> </div> <p style="text-align: center; margin-top: 5px;">All adjustments can be carried out independently of each other.</p>	



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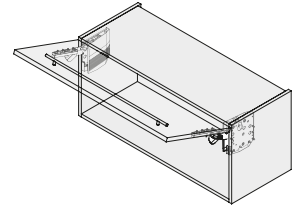
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-71 Lift-Up Flap Fitting



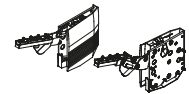
- Variable opening angle - holds flap securely at any angle between 45° and 110°
- Extremely comfortable opening thanks to spring-supported opening mechanism
- Adjustable spring force
- Integrated adjustable closing damper
- Flap 3-dimensionally adjustable - height, side, angle: direct adjustment ± 1.5 mm
- No hinges fitted to the top panel
- Allows additional cabinet installation above
- Can be used for wooden flaps or aluminium frames with glass infill
- Fast, tool-free clip fitting of the front
- Weight 1.4 to 8.5 kg
- Range of flaps:
Width: up to 1200 mm
Height: 300 – 600 mm
- Cover caps in white



Application Range Flap Height	Flap Weight Incl. Handle (kg)	
	Spring, White	Spring, Orange
300	2.1 – 7.4	2.5 – 8.5
350	1.8 – 6.3	2.3 – 7.5
400	1.7 – 5.4	2.1 – 6.8
450	1.6 – 4.7	2.0 – 5.8
500	1.5 – 4.0	1.8 – 5.0
550	1.4 – 3.7	1.6 – 4.6
600	1.4 – 3.3	1.4 – 4.2

ORDER INFORMATION

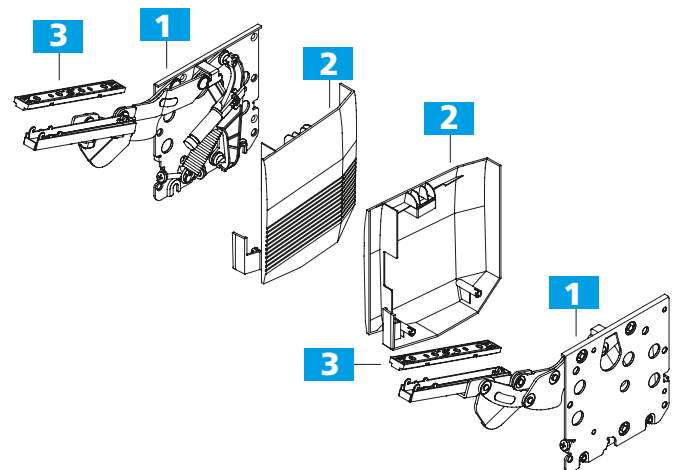
Kinvaro T-71 Set



Designation	Springs	Version For	Overlay	Code
Right without and left with damper, pre-assembled springs, white, incl. cover caps, white, 2 springs, orange, loose	White/Orange	Wood	Variable	128711 (F151147811)

Kinvaro T-71 Set Comprises:

- 1 Fitting on the right without and on the left with damper (1x)
- 2 Cover caps, right and left, in white (1x)
- 3 Mounting plates (2x)
Springs (orange), loose (2x)
Paper template (1x)
Installation instructions (1x)



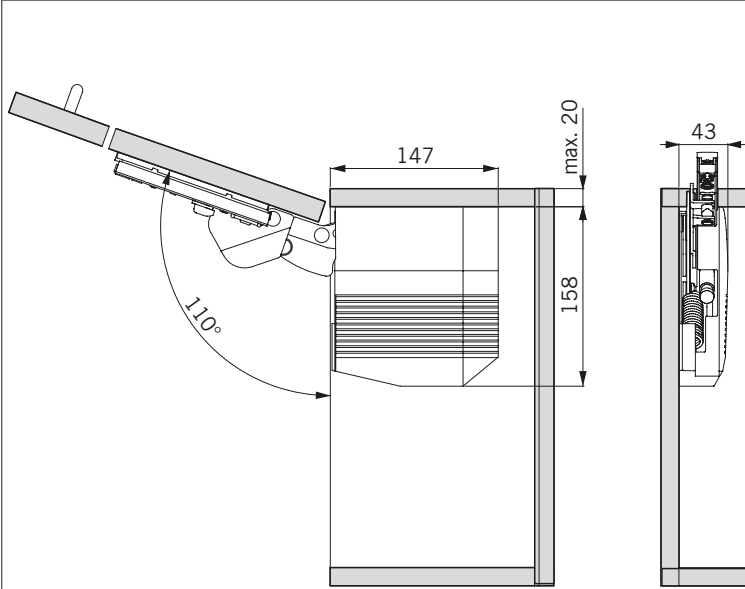
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

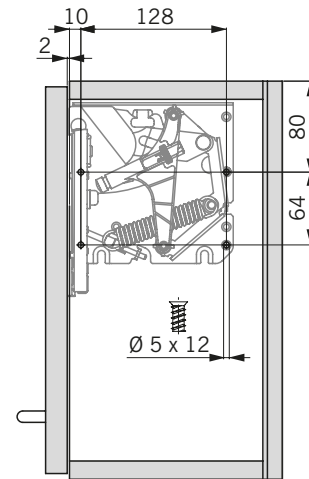
► Assembly and Installation Instructions

All dimensions in millimetres

Required Space

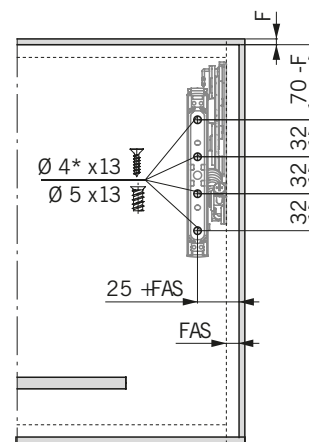


Side Wall Drilling Positions



Fixing Positions for Full Extension Drawer

Front: installation for wooden and frame flaps (min. 55 mm width)



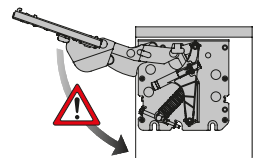
* Pre-drilling required - Ø 2 mm

Calculation of Flap Weight

Flap width x flap height x flap thickness x density ¹ + weight of handle ² = weight of flap

¹ Densities: MDF 0.85 kg/dm³, chipboard 0.65 kg/dm³, spruce/pine 0.45 kg/dm³

² For bar handles, allow 0.1 kg for each 100 mm handle width. We recommend a trial fitting



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Legend

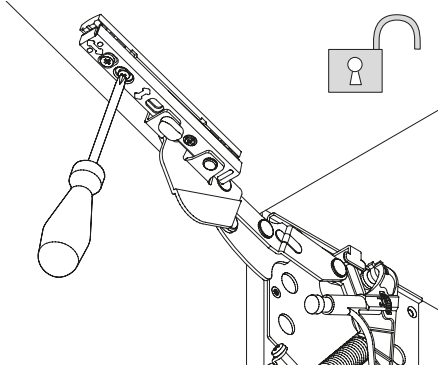
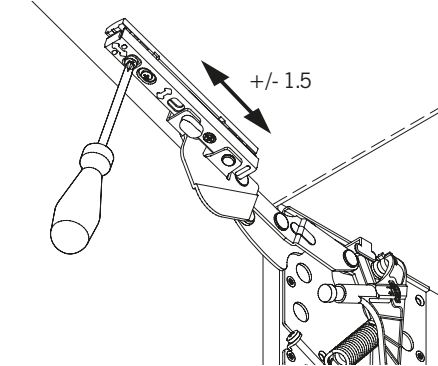
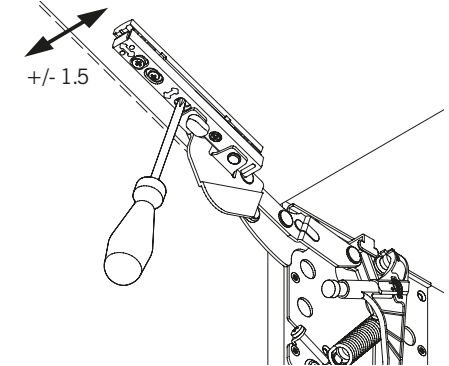
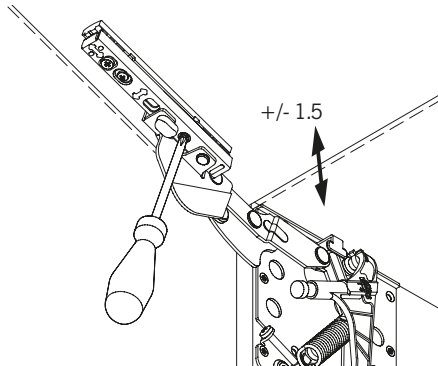
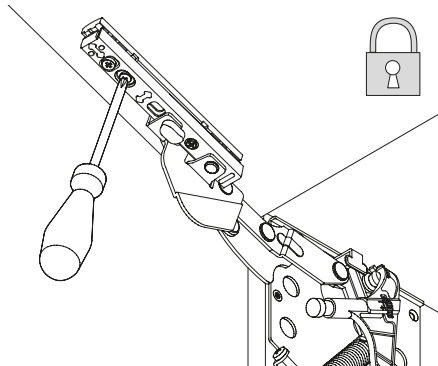
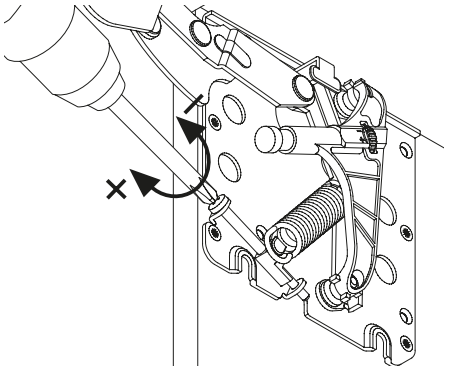
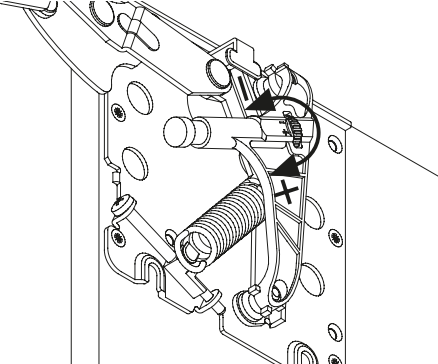

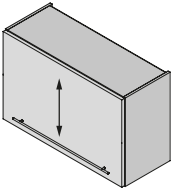
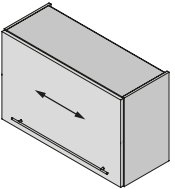
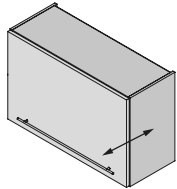
F Reveal **FAS** Front overlay, side

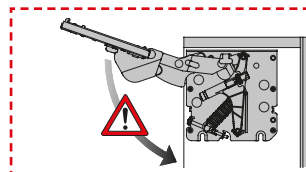
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-71 Adjustment Options

Adjustment Options / Adjustments

Unlocking	Height Adjustment (HV)	Side Adjustment (SV)
		
Depth Adjustment (TV)	Locking	Adjusting the Spring Force
		
Adjusting the Damping System		
 <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="text-align: center;">   <p>(HV) Height adjustment +/- 1.5 mm</p> </div> <div style="text-align: center;">  <p>(SV) Side adjustment +/- 1.5 mm</p> </div> <div style="text-align: center;">  <p>(TV) Depth adjustment +/- 1.5 mm</p> </div> </div> <p style="text-align: center; margin-top: 10px;">All adjustments can be carried out independently of each other.</p>		



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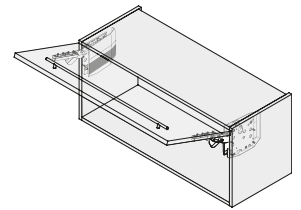
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-76 Lift-Up Flap Fitting



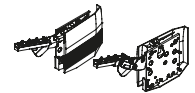
- Variable opening angle - holds flap securely at any angle between 45° and 110°
- Extremely comfortable opening thanks to spring-supported opening mechanism
- Adjustable spring force
- Integrated adjustable closing damper
- Flap 3-dimensionally adjustable - height, side, angle: direct adjustment ±1.5 mm
- No hinges fitted to the top panel
- Allows additional cabinet installation above
- Can be used for wooden flaps or aluminium frames with glass infill
- Fast, tool-free clip fitting of the front
- Weight 5.2 to 11.0 kg



Application Range	Flap Weight Incl. Handle (kg)
Flap Height	Spring, Standard
400	7.0 – 11.0
450	6.7 – 9.6
500	5.8 – 8.5
550	5.6 – 7.6
600	5.2 – 7.0

ORDER INFORMATION

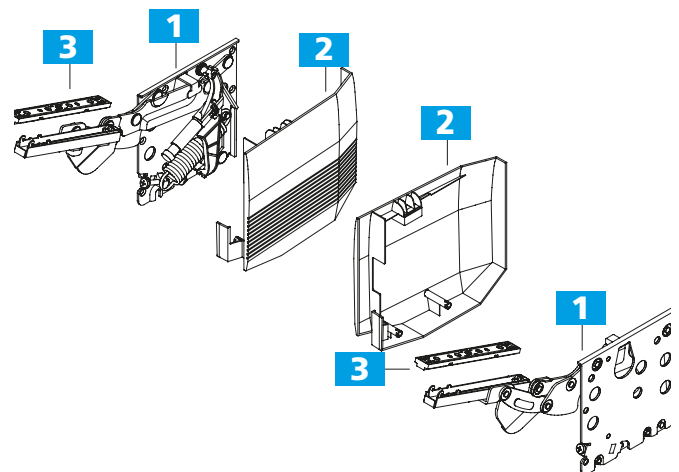
Kinvaro T-76 Set



Designation	Springs	Version For	Overlay	Code
On the right without and on the left with damper, pre-assembled springs, standard, incl. cover caps, white	Standard	Wood	Variable	128762 (F151147817)

Kinvaro T-76 Set Comprises:

- 1 Fitting on the right without and on the left with damper (1x)
- 2 Cover caps, right and left, in white (1x)
- 3 Mounting plates (2x)
Paper template (1x)
Installation instructions (1x)



CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Assembly and Installation Instructions

All dimensions in millimetres

Required Space	Side Wall Drilling Positions
	<h3>Fixing Positions for Full Extension Drawer</h3> <p>Front: installation for wooden and frame flaps (min. 55 mm width)</p> <p>* Pre-drilling required - Ø 2 mm</p>
<h3>Calculation of Flap Weight</h3> <p>Flap width x flap height x flap thickness x density ¹ + weight of handle ² = weight of flap</p> <p>¹ Densities: MDF 0.85 kg/dm³, chipboard 0.65 kg/dm³, spruce/pine 0.45 kg/dm³</p> <p>² For bar handles, allow 0.1 kg for each 100 mm handle width. We recommend a trial fitting</p>	<div style="border: 2px dashed red; padding: 5px; background-color: red; color: white; text-align: center;"> <p>WARNING!</p> <p>IMPORTANT!</p> <p>CAUTION - RISK OF INJURY!</p> <p>FITTING IS SPRING-TENSIONED!</p> </div>

Legend

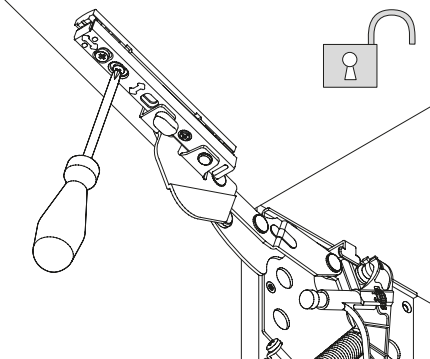
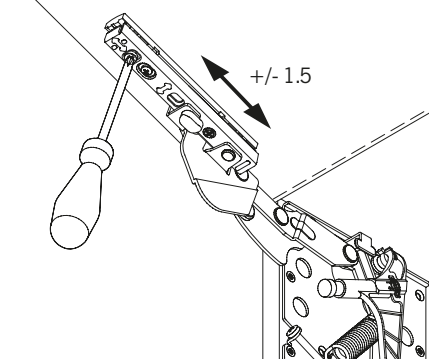
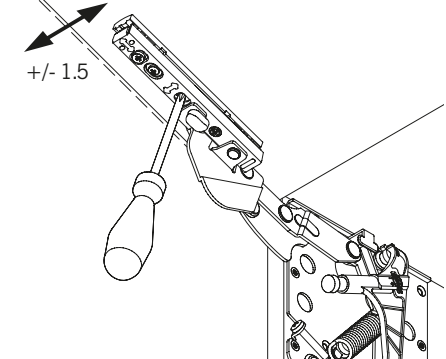
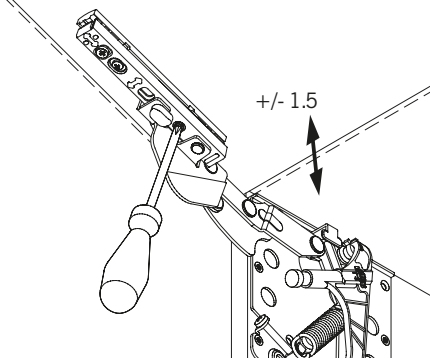
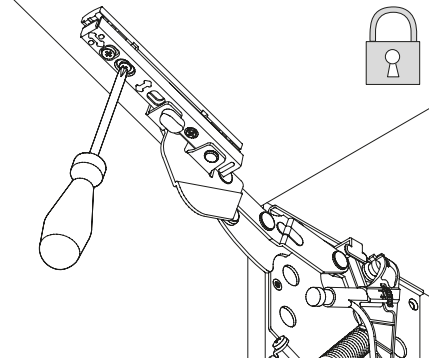
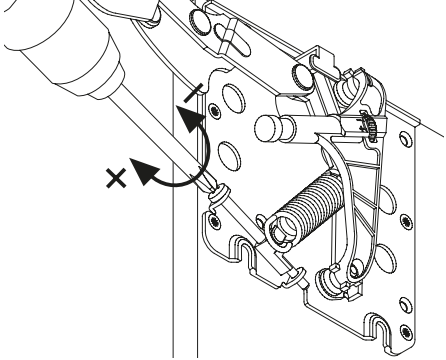
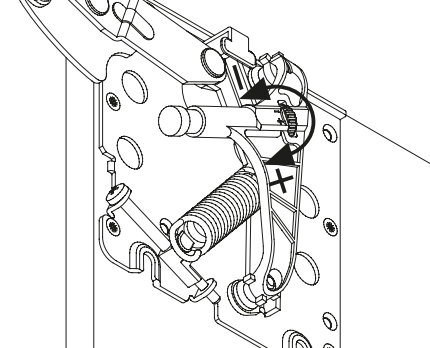
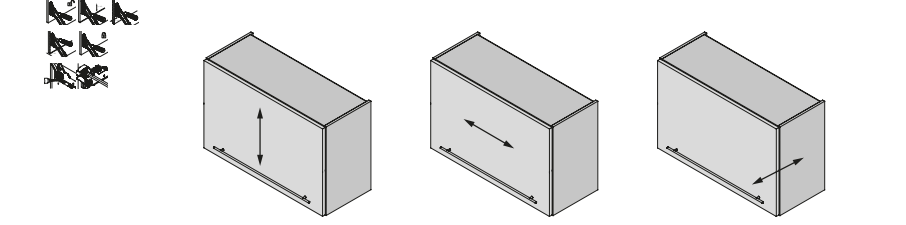
F Reveal **FAS** Front overlay, side

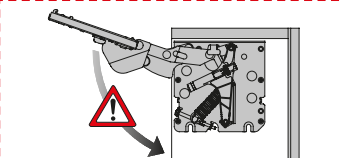
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-76 Adjustment Options

Adjustment Options / Adjustments

Unlocking	Height Adjustment (HV)	Side Adjustment (SV)
		
Depth Adjustment (TV)	Locking	Adjusting the Spring Force
		
Adjusting the Damping System		
	 <p>(HV) Height adjustment +/- 1.5 mm (SV) Side adjustment +/- 1.5 mm (TV) Depth adjustment +/- 1.5 mm</p> <p>All adjustments can be carried out independently of each other.</p>	



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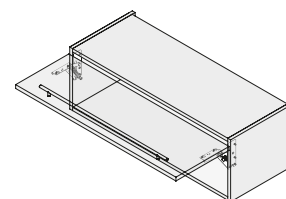
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-57 Lift-Up Flap Fitting



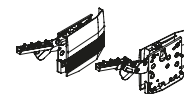
- Opening angle adjustable to 75° or 90°
- Easy to fit
- Adjustable spring force
- Adjustable flap height ± 1.0 mm
- No hinges fitted to the top panel
- Allows additional cabinet installation above
- Can be used for wooden flaps or aluminium frames with glass infill
- Weight 1.0 to 6.2 kg
- Range of flaps:
Width: up to 1200 mm
Height: 300 – 600 mm
- High-quality finish, nickel-plated



Application Range Flap Height (Front Thickness 19mm)	Flap Weight Incl. Handle (kg)	
	Min.	Max.
300	1	6.2
350	1.2	4.9
400	1.4	3.8
450	1.5	3.6
500	1.7	2.9
550	1.9	2.7
600	2.1	2.5

ORDER INFORMATION

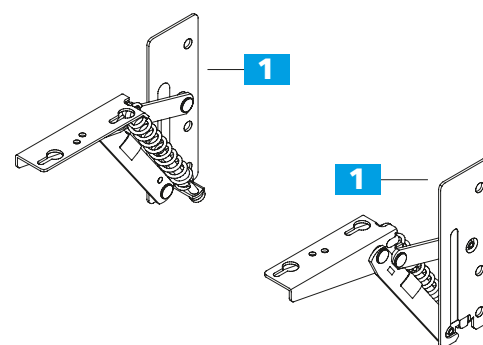
Kinvaro T-57 Set



Designation	Side	Version For	Overlay	Code
Kinvaro T-57 nickel-plated adjustable springs right and left	1 set	Wood	Variable	128571 (F151145224)

Kinvaro T-57 Set Comprises:

- 1 Fitting, right and left (1x)
- Paper template (1x)
- Installation instructions (1x)

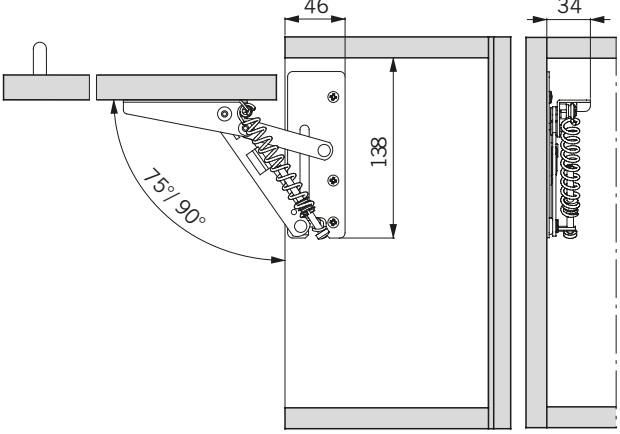
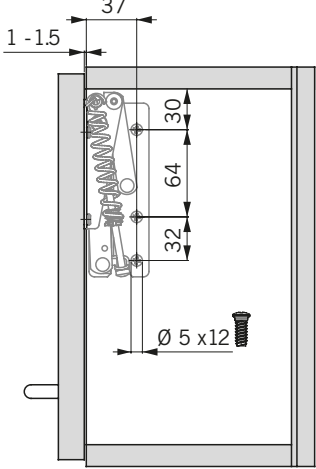
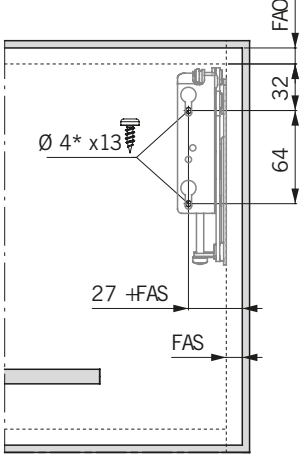
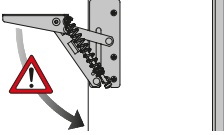


CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Assembly and Installation Instructions

All dimensions in millimetres

Required Space	Side Wall Drilling Positions
	
	<p>Fixing Positions for Full Extension Drawer Front: installation for wooden and frame flaps (min. 55 mm width)</p>  <p>* Pre-drilling required - Ø 2 mm</p>
<p>Calculation of Flap Weight Flap width x flap height x flap thickness x density ¹ + weight of handle ² = weight of flap ¹ Densities: MDF 0.85 kg/dm³, chipboard 0.65 kg/dm³, spruce/pine 0.45 kg/dm³ ² For bar handles, allow 0.1 kg for each 100 mm handle width. We recommend a trial fitting</p>	 <div style="border: 2px dashed red; padding: 5px; background-color: #ff0000; color: white; text-align: center;"> <p>WARNING!</p> <p>IMPORTANT! CAUTION - RISK OF INJURY! FITTING IS SPRING-TENSIONED!</p> </div>

Legend

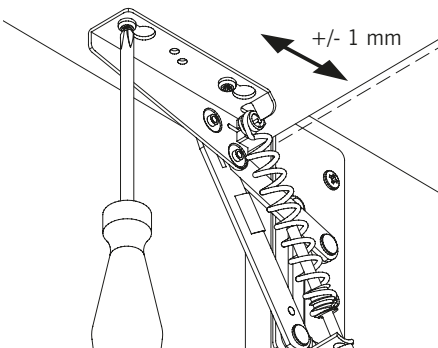
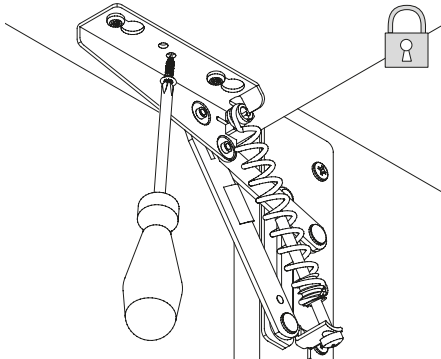
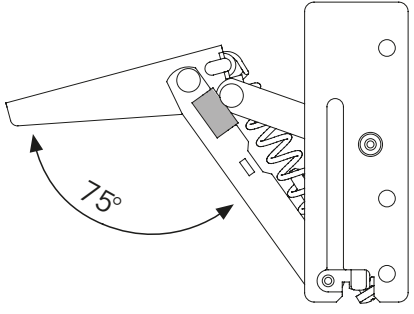
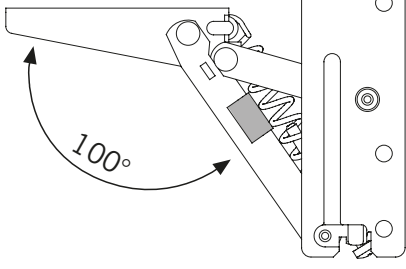
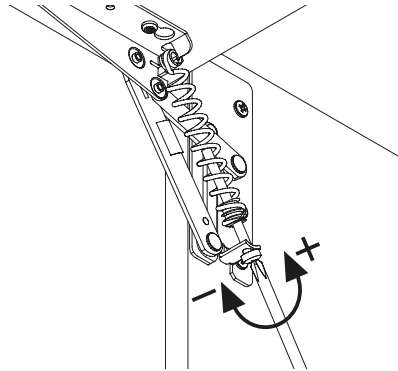
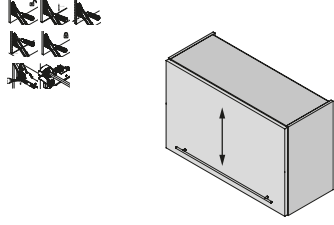
F	Reveal	FAO	Front overlay, top	FAS	Front overlay, side
PH	Stamping height				

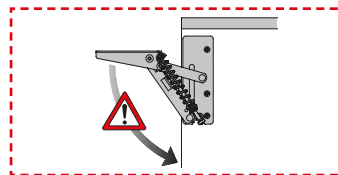
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-57 Adjustment Options

Adjustment Options / Adjustments

Height Adjustment (HV)	Locking	
		
Adjusting to 75° Opening Angle	Adjusting to 100° Opening Angle	Adjusting to the Spring Force
		
	 <p>(HV) Height adjustment +/-1.5 mm</p> <p>All adjustments can be carried out independently of each other.</p>	



WARNING!

IMPORTANT!
CAUTION - RISK OF INJURY!
FITTING IS SPRING-TENSIONED!

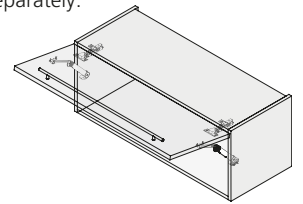
CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

▶ Grass® Kinvaro T-105 Lift-Up Flap Fitting

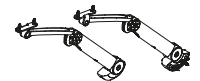


- Variable opening angle, holds flaps securely from 45° to 105°
 - Spring-supported opening function
 - Convenient access, flap lifts clear of the work area
 - Suitable for wooden doors
 - Allows additional cabinet installation above
 - Maintenance-free, no readjustment required
 - High-quality zinc diecasting, nickel-plated
- Range of flaps:
Width: up to 1200 mm
Weight: 250 –500 mm
 - **Note:** Tiomos 120° hinges with spring, without damper, and Tiomos mounting plates for top panel need to be ordered separately.



Application Range Flap Height	Flap Weight Incl. Handle (kg)	
	Number of Flap Stay	Spring, Standard
250	1	1.4 - 4.4
	2	3.4 - 8.9
300	1	1.6 - 4.3
	2	3.2 - 8.6
350	1	1.3 - 4.1
	2	2.6 - 8.1
400	1	1.3 - 3.4
	2	2.6 - 6.8
450	1	1.2 - 3.0
	2	2.4 - 6.1
500	1	1.1 - 2.9
	2	2.2 - 5.8

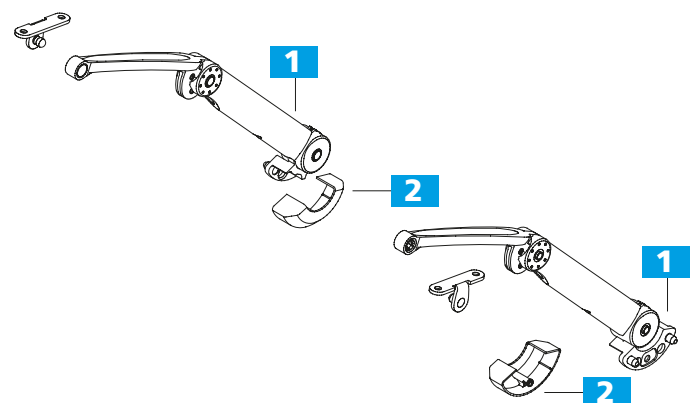
ORDER INFORMATION Kinvaro T-105 Set



Designation	Springs	Version For	Overlay	Left Code	Right Code
Right, adjustable standard springs, incl. black cover cap	Standard	Wood	Variable	012741 (F151145220)	012742 (F151145221)

Kinvaro T-105 Set Comprises:

- 1 Fitting, right and left (1x)
- 2 Cover caps, right and left, in black (1x)
Paper template (1x)
Installation instructions (1x)

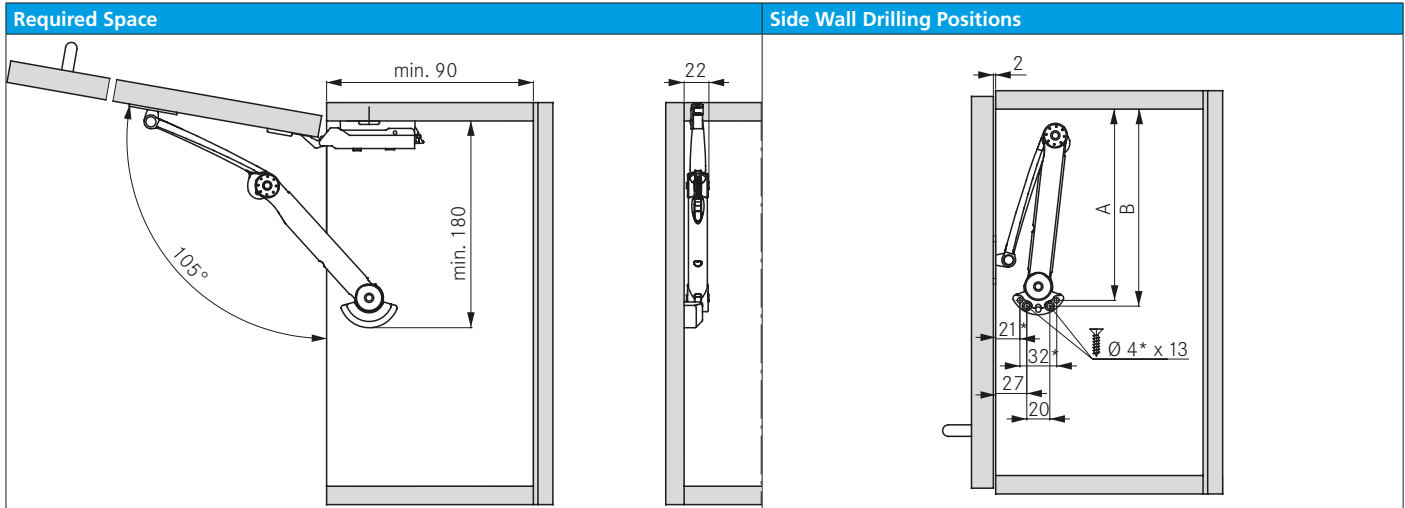


CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Assembly and Installation Instructions

All dimensions in millimetres



Opening Angle	A	B	C
95°	169 + MH	174 + MH	118 + MH
≥ 105°	164 + MH	169 + MH	113 + MH

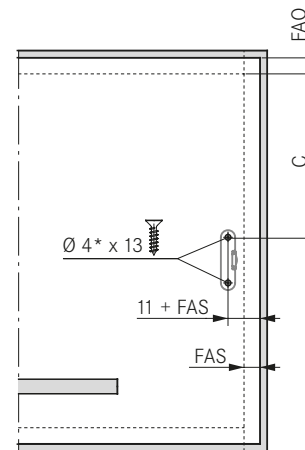
The installation dimensions apply to hinges with 0 cranking and the respective mounting plate height. The opening angle can vary between 95° and 105° (approx.), depending on type of hinge and application method.

Minimum reveal and protrusion depend on the hinge used. For suitable hinges please refer to the Hinge Systems section.

Where cup hinges with different opening angles are used in a combination of wooden flaps and aluminium frame flaps, the smaller opening angle of the hinges used determines the installation dimensions for both flaps.

Fixing Positions for Full Extension Drawer

Front: installation for wooden and frame flaps (min. 45 mm width)



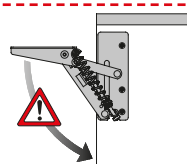
* Pre-drilling required - Ø 2 mm

Calculation of Flap Weight

Flap width x flap height x flap thickness x density ¹ + weight of handle ² = weight of flap

¹ Densities: MDF 0.85 kg/dm³, chipboard 0.65 kg/dm³, spruce/pine 0.45 kg/dm³

² For bar handles, allow 0.1 kg for each 100 mm handle width. We recommend a trial fitting



WARNING!

IMPORTANT!
CAUTION - RISK OF INJURY!
FITTING IS SPRING-TENSIONED!

Legend

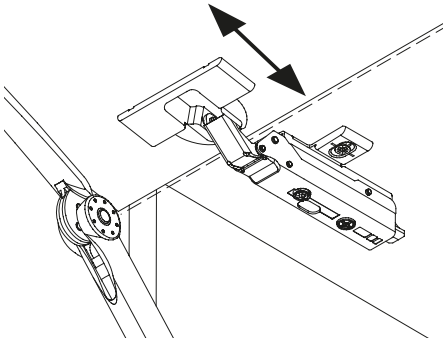
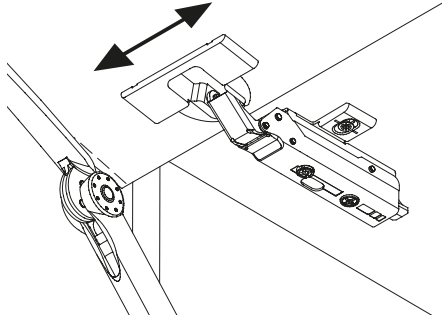
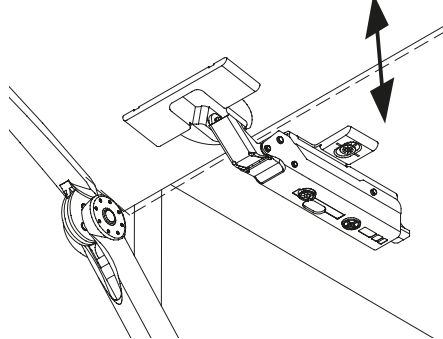
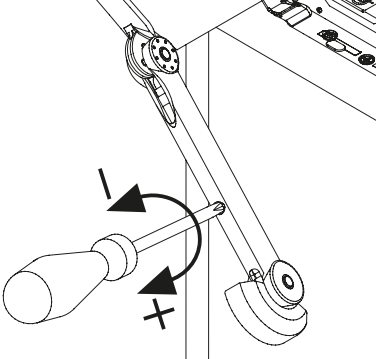
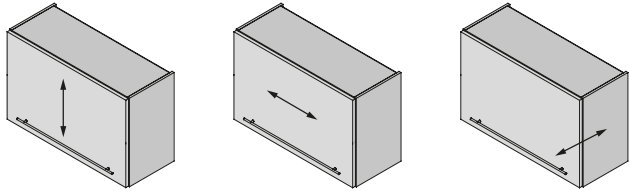
A	Fixing dimensions, side wall	B	Fixing dimensions, side wall	C	Fixing dimensions, front
FAO	Front overlay, top	FAS	Front overlay, side	MH	Mounting plate height

CABINET & FURNITURE MECHANISMS

GRASS® KINVARO FLAP SYSTEMS

► Grass® Kinvaro T-105 Adjustment Options

Adjustment Options / Adjustments

Height Adjustment (HV)	Side Adjustment (SV)	Depth Adjustment (DV)
		
Adjusting the Spring Force		
		
	 <p>(HV) Height adjustment ± 1.5 mm (SV) Side adjustment ± 1.5 mm (TV) Depth adjustment ± 1.5 mm</p> <p>All adjustments can be carried out independently of each other.</p>	



WARNING!

IMPORTANT!
CAUTION - RISK OF INJURY!
FITTING IS SPRING-TENSIONED!

CABINET & FURNITURE MECHANISMS

SUGATSUNE FLAP SYSTEMS

SUGATSUNE

Ever since its establishment in Tokyo in 1930, SUGATSUNE has had a rich tradition of manufacturing and distributing premium high-quality hardware.

Under the motto of "Be original" SUGATSUNE, continues to be a leading source for unique, high-quality solutions.

For example, over 25 years ago, SUGATSUNE was the first company in the world to bring the concept of soft-close stays to the kitchen world.



SOFT-CLOSE STAYS

Soft-close stays absorb the impact of doors, lids and flaps when closing. The mechanism enables doors, panels, lids and hatches to close silently and smoothly without slamming shut. As well as reducing wear and mechanical stress on the doors and hinges, fingers are less likely to be caught in doors. The speed of the motion is adjustable with simple everyday tools.



LIFT-UP DOOR MECHANISMS

The OV-1 for example is attached to the top section of the cabinet, maximising interior space without any hardware elements intruding, also allowing for 100% access to all items inside the cabinet. It has a built-in soft-closing mechanism with adjustable closing speed to prevent it from slamming.

The IF-102 is an inset door mechanism which allows the front door to be "pushed" into the top of the cabinet. Benefit; the door is not in the way when opened, and the space above can be used for another cabinet or shelves.

CABINET & FURNITURE MECHANISMS

PIVOTING DOOR MECHANISMS SOFT-CLOSING

► Sugatsune IF-102 Flipper Door Mechanism

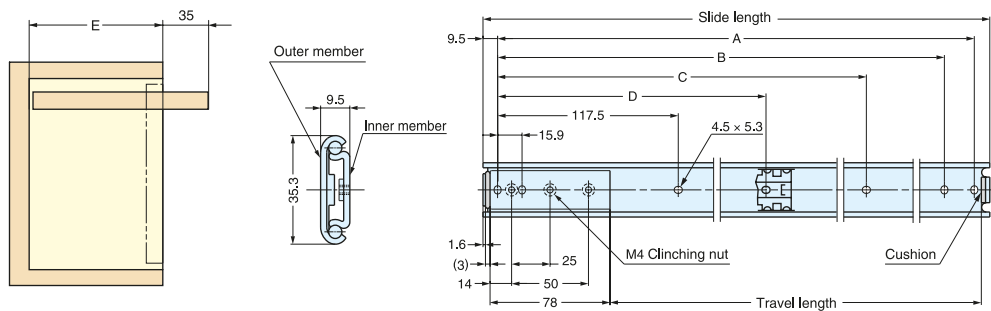


- Receding door mechanism with soft-closing action, for inset installation of upward-opening flap doors
- Door retracts inside cabinet, allowing other cabinets to be installed on top.
- Works on ball bearing slides attached to the mechanism.
- Ideal for overhead office file storage, laboratory cabinets, kitchen cupboards, living and dining room furniture
- Built-in damper provides soft closing near closing radius, preventing slamming. Adjustable closing speed.
- Tested to 30,000 opening/closing cycles



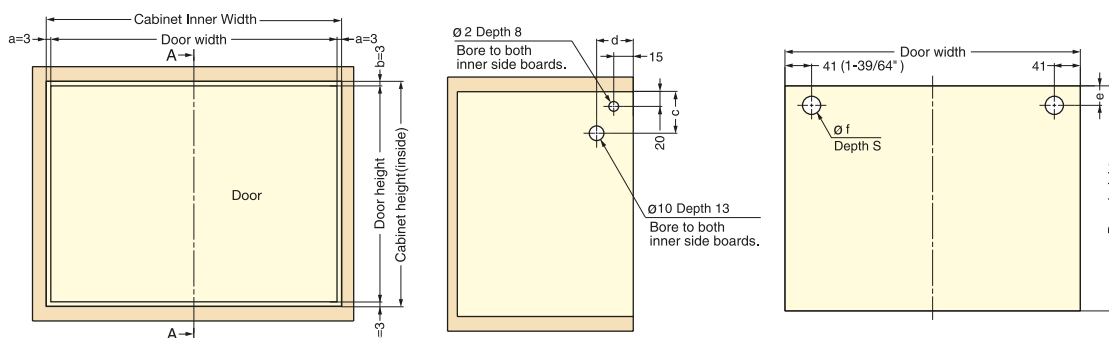
* Image for illustrative purposes only, product supplied with LH stay

Code	Description	Slide Length	Slide Travel	Door Weight	Max. Door Width	Door Height	Set Includes:
185571	IF-102S	406.4	319.2	1.5 - 4kg	1200	315 - 450	<ul style="list-style-type: none"> ▪ Soft-down stay x 1 (LH) ▪ Brackets, hinges, & slide runners (in pairs) ▪ Fixing components



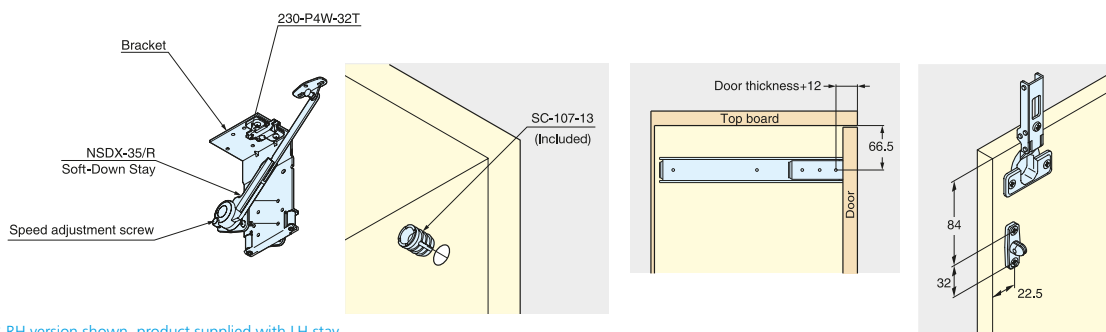
A	B	C	D	E
387.4	371.5	269.9		315.3 + Door

Cabinet Preparation



C	D	E	F	S
37.5	9.5 + t	22.5	35	11

Installation



* RH version shown, product supplied with LH stay

► All dimensions in millimetres

CABINET & FURNITURE MECHANISMS

PIVOTING DOOR MECHANISMS SOFT-CLOSING

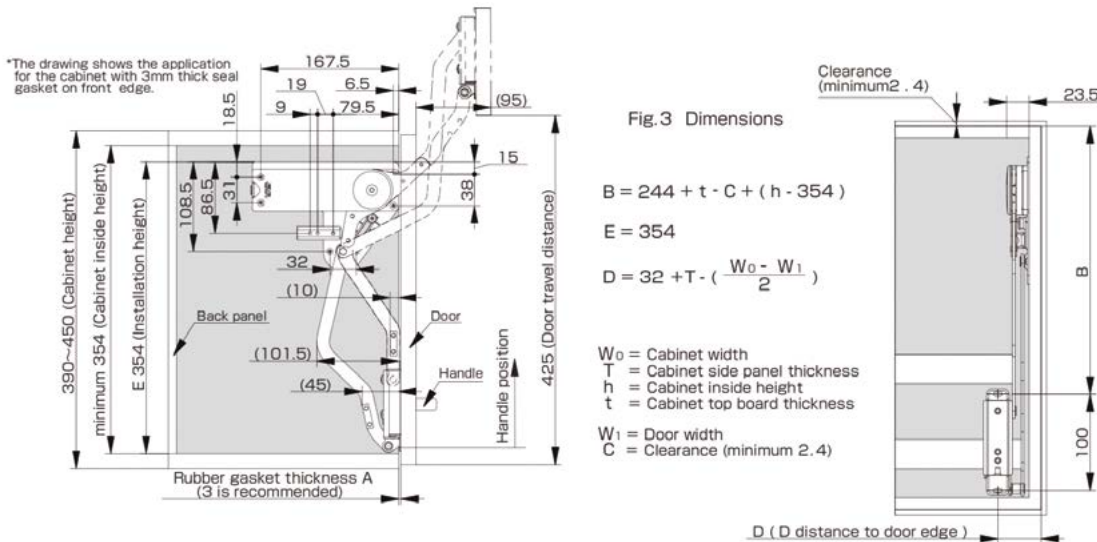
► Sugatsune Vertical Soft-Close Door Mechanism



- For upward-opening flap doors.
- Assists in lifting door to open position whilst providing maximum access to cabinet.
- After pulling the flap forward 50 - 70mm, a spring will help gently lift the flap.
- Soft-close feature slows down closing speed and prevents slamming.
- Sleek and compact design - Placed at the top of interior of the cabinet, significantly reducing dead space and not getting in the way when installing shelves.
- Adjustable mounting plate. Includes 835mm wide guide bar for cutting to required cabinet width.
- Suitable for doors 600-900mm wide and 390-450mm high
- Tested to 30,000 opening/closing cycles



Code	Description	Finish	Door Weight	Pack Size
185403	SLUN-3N	Grey	2.6 - 3.5kg	1 pair (incl. guide bar)
185405	SLUN-5N	Grey	4.6 - 5.2kg	1 pair (incl. guide bar)



CABINET & FURNITURE MECHANISMS

PIVOTING DOOR MECHANISMS SOFT-CLOSING

► Sugatsune OV Soft-Closing Pivot Door Mechanisms

- Externally opening flipper door mechanism with adjustable closing speed, for upward-opening flap doors.
- Flap door retracts above cabinet top and OV-1 is installed into frame, almost completely eliminating dead space.
- Built-in damper provides soft closing near closing radius, preventing slamming.
- Door holds it position when pulling the flap door out horizontally.
- Adjustable closing speed.
- Position adjustable post-installation ($\pm 1.5\text{mm}$).
- Ball bearing slide rails provide smooth movement in rail section.



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Codes	Description	Door Weight (kg)	Door Thickness	Door Width	Slide Length	Travel	A	B	Pack Size
185645	OV-1 Main Body Black	3-May	19 – 20	700 – 1400					1 pair
185664	OV-14 Slide				355.6	249.2	203.2	304.8	1 pair
185666	OV-16 Slide				406.4	300	254	355.6	1 pair



See following page for Cabinet Dimensions, Door Fabrication, Top Panel Fabrication and Installation

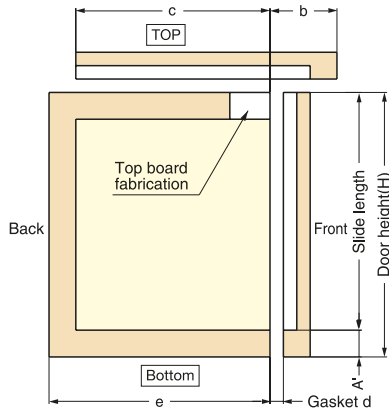
CABINET & FURNITURE MECHANISMS

PIVOTING DOOR MECHANISMS SOFT-CLOSING

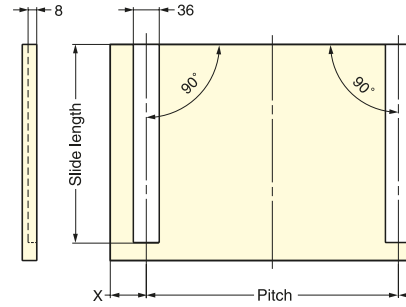
Installation Information



Cabinet Dimensions



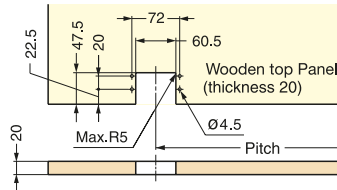
Door Fabrication



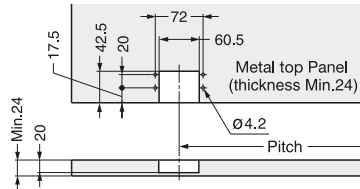
	B	C	D	E
Wooden Top Panel	A + 81.4	H-b	2.5	Min. C+7
Metal Top Panel	A + 86.4	H-b	7.5	Min. C+7

Top Panel Fabrication

(Wooden Panel)

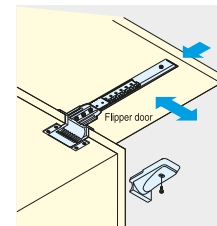
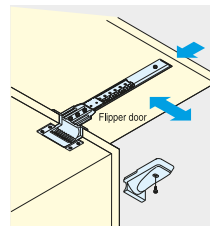
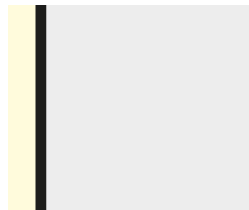
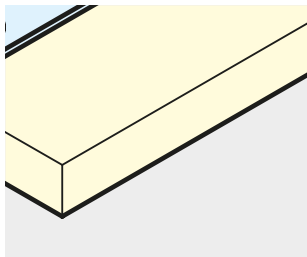


(Sheet Metal)



	x
Inset application	80mm
Overlay application	Side thickness + 80mm

Installation



▶ All dimensions in millimetres

CABINET & FURNITURE MECHANISMS

PIVOTING DOOR MECHANISMS SOFT-CLOSING

► Sugatsune OVN Soft-Close Door Mechanism

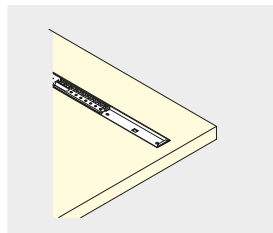
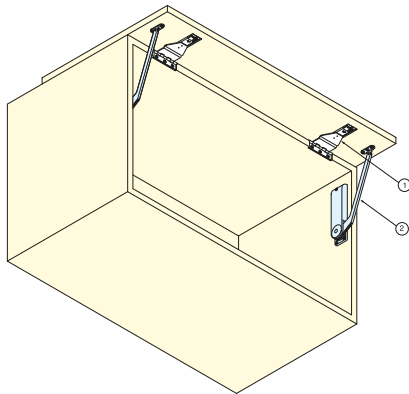
- Soft-closing door mechanism for upward-opening flap doors that retract above cabinet top when opened.
- For installation with Over-the-top Flipper Door Mechanism (not included, available separately).
- Allows door to open and close in one continuous soft action.
- Built-in damper provides soft closing near closing radius, preventing slamming.
- Recommended depth of cabinet 350 to 400mm
- Recommended door height approx. 400mm, max. 1,500mm wide



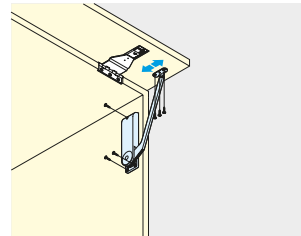
Code	Description	Door Weight	Door Height	Cabinet Depth	Pack Size
185033	OVN-3	3 - 5kg	370 - 450	350 - 450	1 pair
185035	OVN-5	5 - 7kg	370 - 450	350 - 450	1 pair



Installation

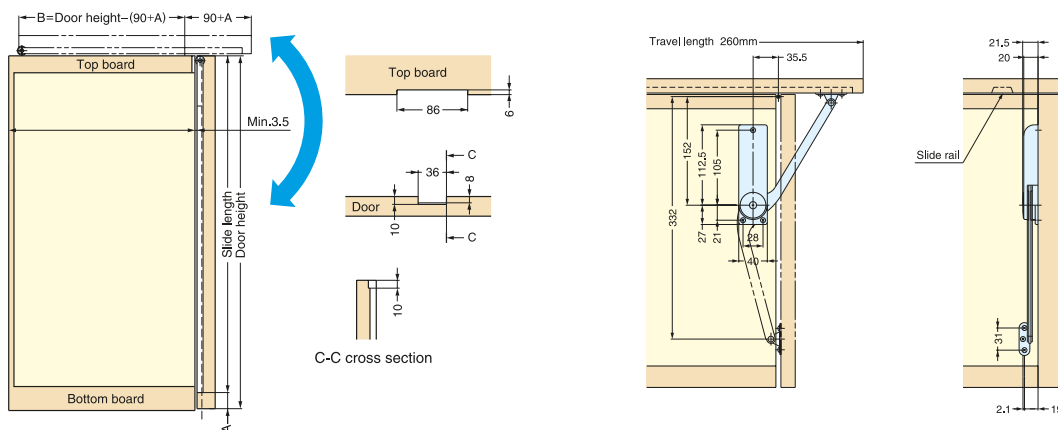


1. Install ball bearing flipper slide rails (to be ordered separately)



2. Mount the OVN unit to the side wall of the cabinet as illustrated in installation instruction provided with the product

Cabinet Preparation



► All dimensions in millimetres

CABINET & FURNITURE MECHANISMS

FLAP AND DOOR STAYS

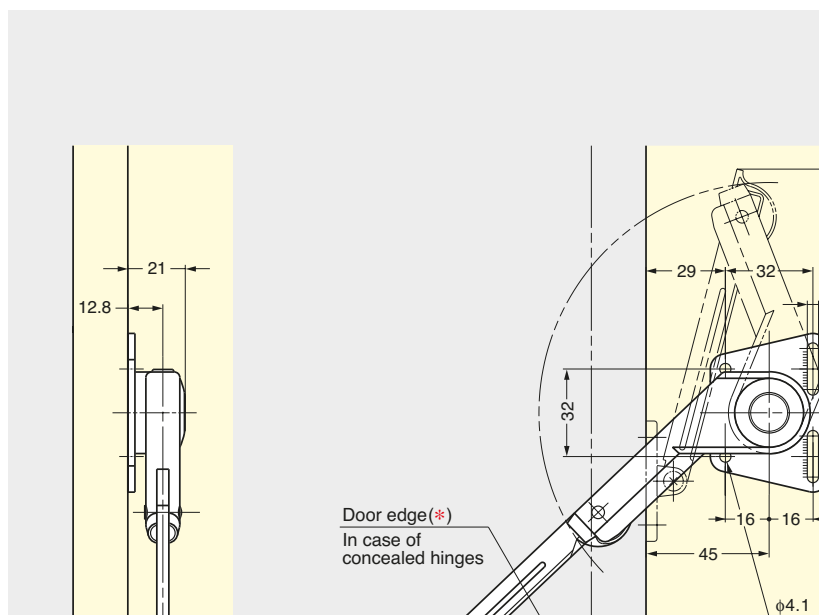
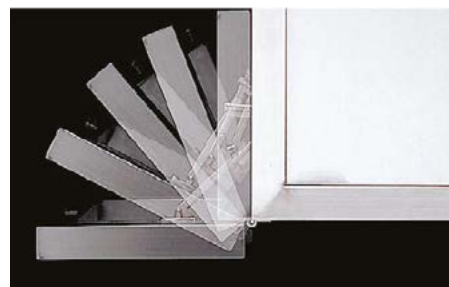
► Sugatsune NSD-10 Soft-Close Front Stay

- For downward opening flap doors, designed to hold door in closed position
- Closing speed adjustable, adjustment screw located on front for easy access
- For installation with concealed, piano, or butt hinges (not included)
- Tested to 50,000 opening/closing cycles



SUGATSUNE

Code	Description	Finish
185025	NSD-10 (left hand)	Nickel Plated
185026	NSD-10 (right hand)	Nickel Plated



Hinge Type	A	B	C	D
Piano / Butt Hinge	90	99	115	204

► All dimensions in millimetres

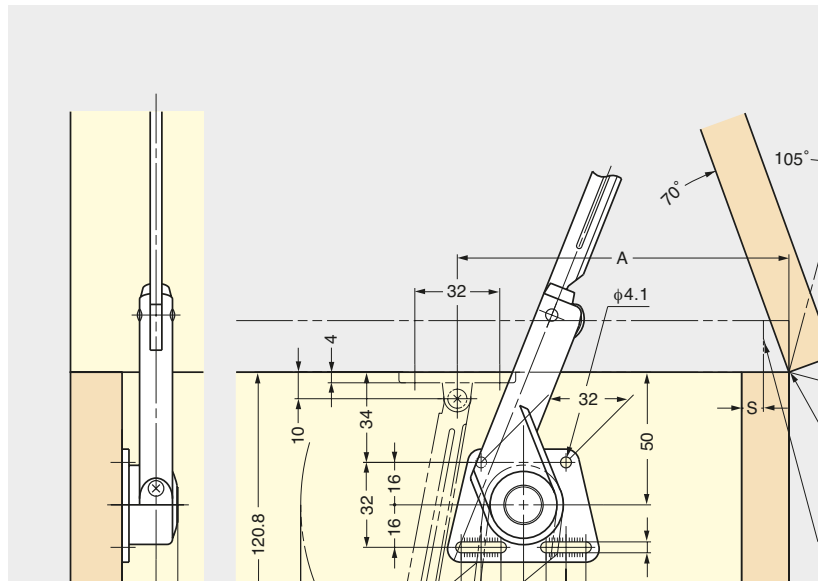
CABINET & FURNITURE MECHANISMS

FLAP AND DOOR STAYS

► Sugatsune NSD-20 Soft-Close Lid Stay

- For top opening flap doors, designed to hold the flap in a fully opened position.
- Opening angle adjustable from 70° to 105°
- Closing speed adjustable, adjustment screw located on front for easy access
- For installation with concealed, piano, or butt hinges (not included)
- Tested to 50,000 opening/closing cycles.

Code	Description	Finish
185028	NSD-20 (left hand)	Nickel Plated
185029	NSD-20 (right hand)	Nickel Plated



The distance for A, B (B1), C (C1) is measured from "door edge (*)" and "inner side of back board" when European concealed hinges are used, and from "hinge centre (**)" and "backside of back board" when piano or butt hinges are used.

Opening Angle	Hinge Type	A	B	C	D	B1	C1	D1
70°	Concealed Hinge	126	85-S	101-S	185-S			
70°	Piano / Butt Hinge	125				84	100	184
105°	Concealed Hinge	103	62-S	78-S	162-S			
105°	Piano / Butt Hinge	97				56	72	156

S = overlay

CABINET & FURNITURE MECHANISMS

FLAP AND DOOR STAYS

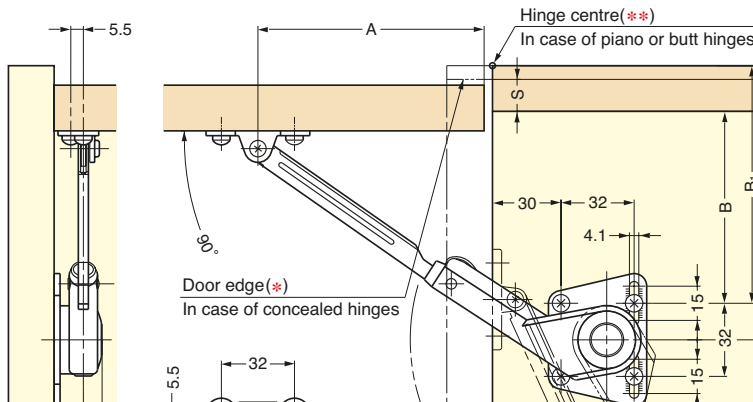
► Sugatsune NSD-35 Overhead Soft-Close Stay

- For upward opening flap doors, designed to hold door in fully opened position
- Opening angle adjustable from 80° to 100°.
- Closing speed adjustable, adjustment screw located on front for easy access
- For installation with concealed, piano, or butt hinges (not included)
- Tested to 50,000 opening/closing cycles.



SUGATSUNE

Code	Description	Finish
185030	NSD-35 (left hand)	Nickel Plated
185031	NSD-35 (right hand)	Nickel Plated



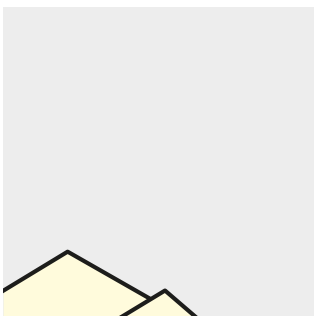
Hinge Type	A	B	C	D	B ₁	C ₁	D ₁
Concealed Hinge	99	98-S	114-S	200-S			
Piano / Butt Hinge	93				92	108	194

S = overlay

The distance for A, B (B₁), C (C₁) is measured from "door edge (*)" and "underside of top board" when European concealed hinges are used, and from "hinge centre (**)" and "topside of top board" when piano or butt hinges are used. "S" denotes the overlay distance for concealed hinges.

When 80° or 100° opening is desired, move the mounting plate and arm bracket by sliding them in the oblong slots (7.5mm) as shown in the drawing below.

Opening angle	80°		90°		100°	
	Down		Middle		Up	
	Mounting Plate	Arm Bracket	Mounting Plate	Arm Bracket	Mounting Plate	Arm Bracket
For Hinge Centre						
(Up)						
↑ ↓						
(Down)						



► All dimensions in millimetres

CABINET & FURNITURE MECHANISMS

BALL BEARING FLIPPER DOOR SLIDES

► K & V Ball Bearing Pivot Door Slides

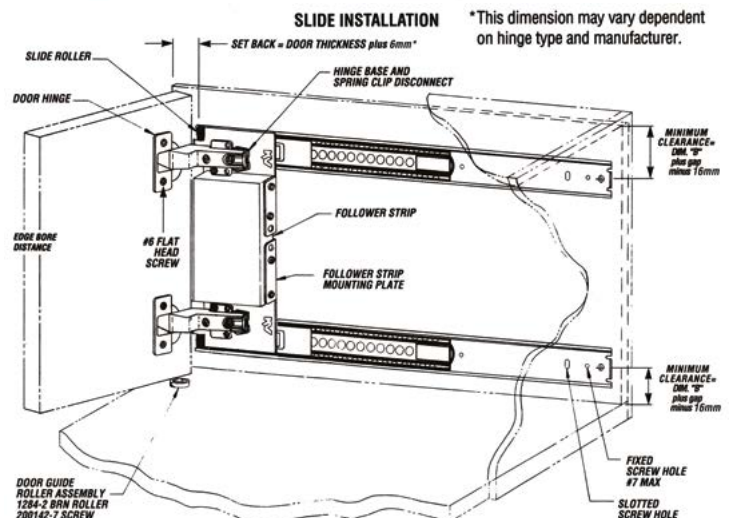
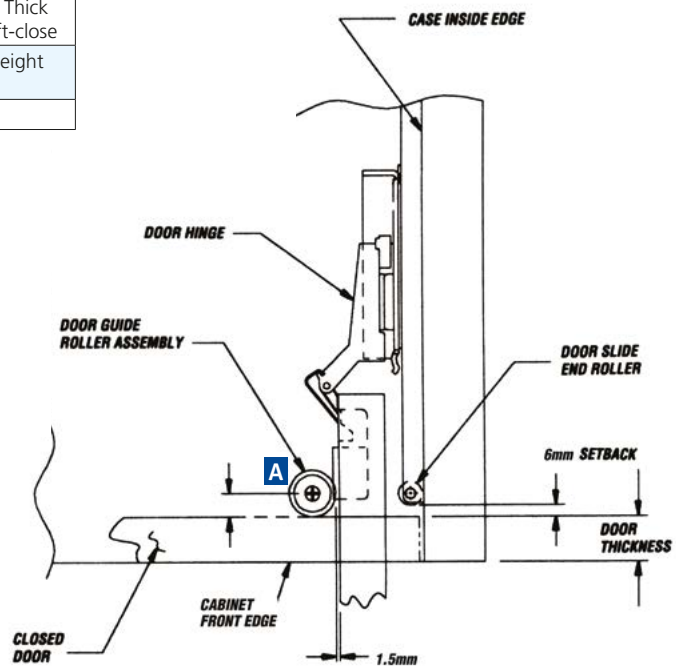
- Designed to be installed to side of cabinet for pocket door mode.
- For flipper mode, installation underneath cabinet top for door to retract inside the cabinet.
- Maximum door weight 12kg
- Door thickness 16mm to 19mm (subject to hinge selection)
- Large follower mounting plates for additional stability
- Zinc plated steel finish with self lubricating linear ball-bearings
- Hinge not included



Code	Length	Travel	Finish	Pack
080430	305	210	Zinc	10
080435	356	260	Zinc	10
080440	406	301	Zinc	10
080445	457	360	Zinc	10
080450	508	412	Zinc	10
080460	610	514	Zinc	10

Recommended Assembly Parts

Code	Type	Description
017117	Door hinge	Grass® F045138871228 Tiomos 95 Deg for Thick Doors. Crank 9.5. Screw Fix I pattern. Non Soft-close
013711	Mounting plate	Grass® F05813972228 Eco Cross, 2mm Height Adjustment via slot. Screw fix
080994	Door guide roller	Anti-sag



► All dimensions in millimetres

CABINET & FURNITURE MECHANISMS

BALL BEARING FLIPPER DOOR SLIDES

▶ Repon Ball Bearing Pivot Door Slides

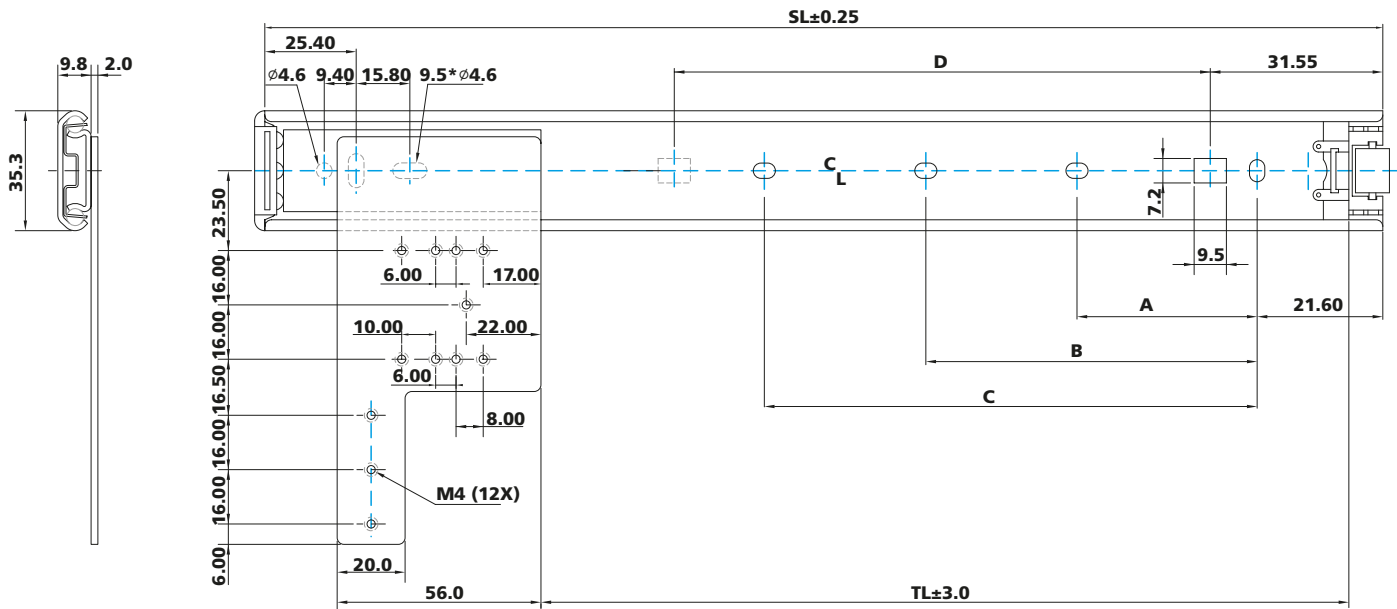
- Load capacity 9kg
- Door thickness 16mm to 19mm (subject to hinge selection)
- Suited to both vertical and horizontal doors



Code	Length	Finish	Pack
268570	353	zinc	25
268571	404	zinc	25

Size	SL	TL	A	B	C	D	S	T
14" (353mm)	352.85	261.7	103.4	128.4	207.3	251.3	352.85	261.7
16" (404mm)	403.65	312.5	103.4	179.2	258.1	302.1	403.65	312.5

Cabinet Dimensions



▶ All dimensions in millimetres

CABINET & FURNITURE MECHANISMS

BALL BEARING FLIPPER DOOR SLIDES

▶ Repon Ball Bearing Pivot Door Slides

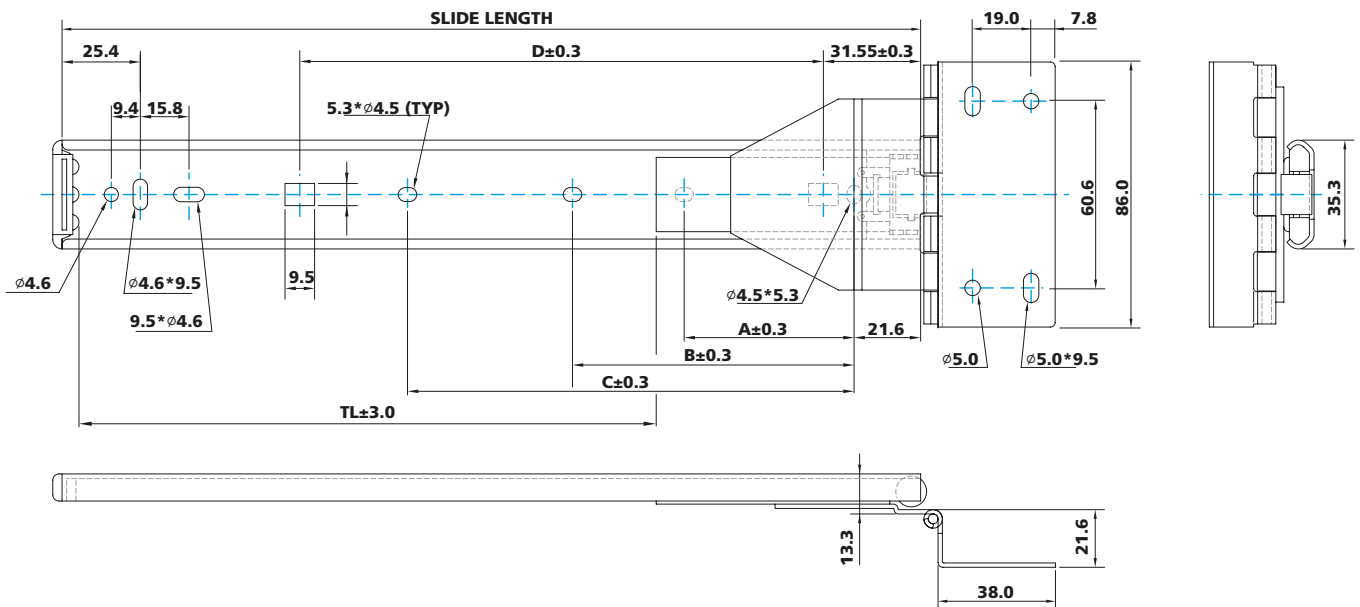
- Maximum weight per door 9kg per pair
- Hinge return to suit doors approximately 19mm thick
- Suited to both vertical and horizontal doors



Code	Length	Finish	Pack
268644	356	Zinc	20

Size	SL	TL	A	B	C	D
14" (356mm)	352.85	265	103.4	128.4	207.3	251.3

Cabinet Dimensions



▶ All dimensions in millimetres

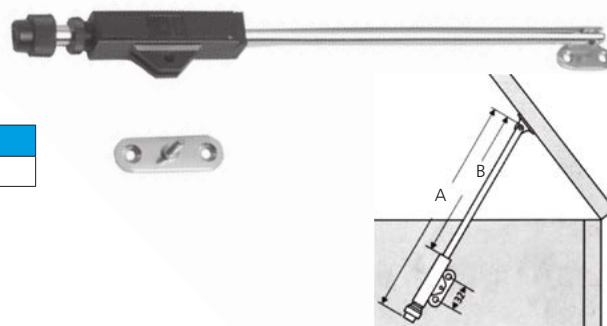
CABINET & FURNITURE MECHANISMS

FLAP AND DOOR STAYS

▶ Adjustable Braking Lid Stay

- Features free opening action with adjustable friction braking on closing
- Body - black plastic with nickel plated swivel base
- Arm - nickel finish with nickel plated swivel foot

Code	A	B	Pack Size
426365	260	160	1



▶ Steel Spring Loaded Flap Stay

- Simple design for basic flap door applications
- Stays are spring loaded to assist with opening and closing action
- Body and arm - antique brass finish

Code	Length	Finish	Pack Size
226.31152.338	145	Antique Brass	400



CABINET & FURNITURE MECHANISMS

INDEX PART NUMBERS

Part Number.....	Page
226.31152.338.....	38
012741 (F151145220).....	23
012742 (F151145221).....	23
013711.....	35
017117.....	35
080430.....	35
080435.....	35
080440.....	35
080445.....	35
080450.....	35
080460.....	35
080994.....	35
128201 (F152147837).....	04
128202 (F152147838).....	04
128203 (F152147675).....	04
128204 (F152147840).....	04
128205 (F152147844).....	04
128206 (F152147847).....	04
128351 (F152147818).....	11
128352 (F152147819).....	11
128353 (F152147820).....	11
128354 (F152147821).....	11
128571 (F151145224).....	20
128711 (F151147811).....	14
128762 (F151147817).....	17
128801 (F152147781).....	08
128802 (F152147829).....	08
128803 (F152147830).....	08
128804 (F152147831).....	08
128805 (F152147788).....	08
185025.....	32
185026.....	32
185028.....	33
185029.....	33
185030.....	34
185031.....	34
185033.....	31
185035.....	31
185403.....	28
185405.....	28
185571.....	27
185645.....	29
185664.....	29
185666.....	29
268570.....	36
268571.....	36
268644.....	37
426365.....	38



CABINET HARDWARE SYSTEMS

CABINET & FURNITURE MECHANISMS

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