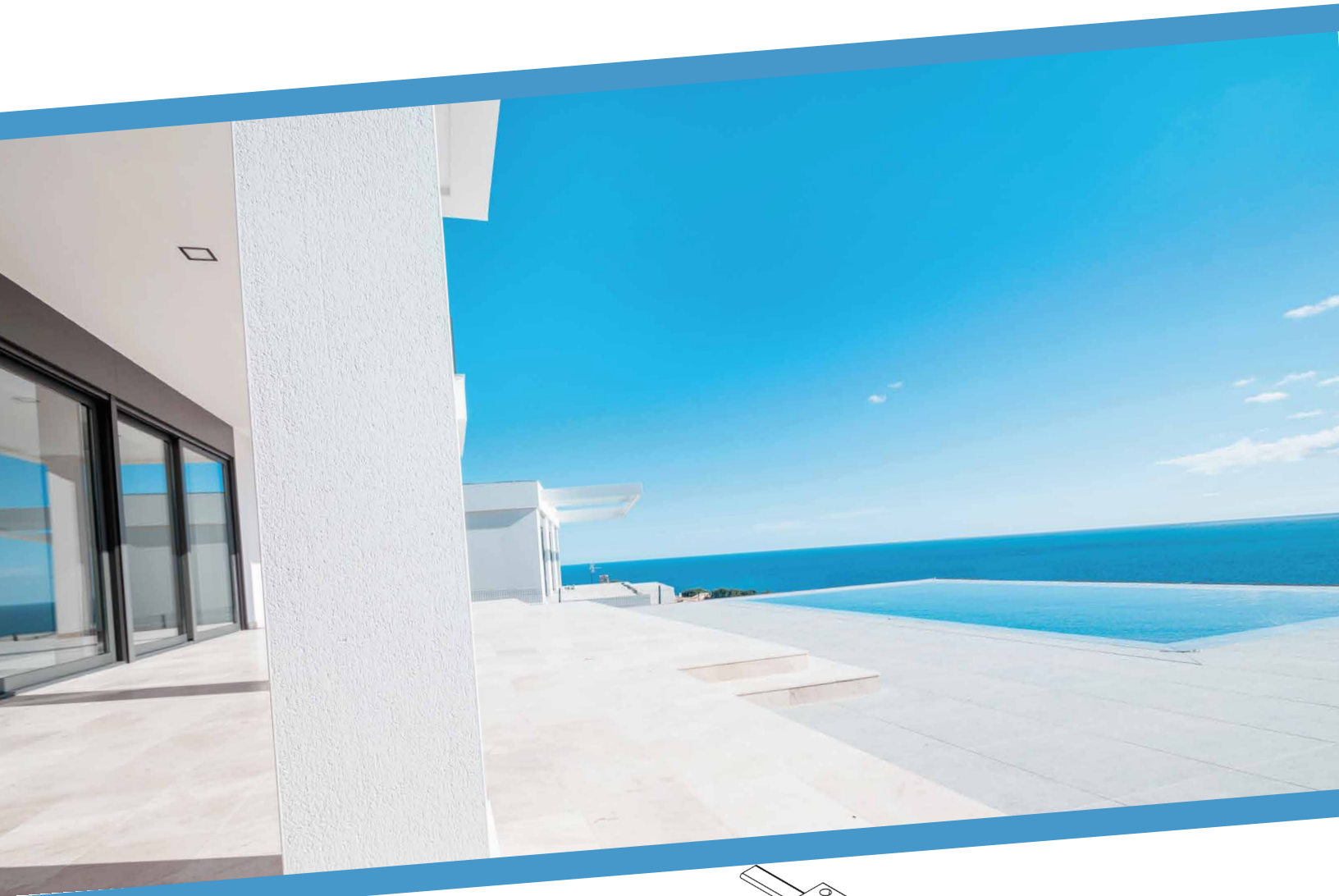


Multipoint Window Tie Bars

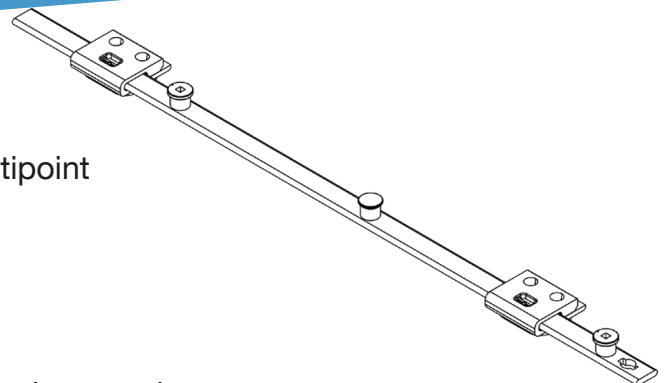
Roll-formed & full body systems



We are proud to present our innovative line of premium multipoint window tie bar systems:

- Trifecta
- Tandem
- Interlock roller
- Cone roller
- Cylindrical roller

Several materials available, from standard powder-coated carbon steel to high quality 304 austenitic stainless steel.



1.0 Trifecta | Specifications

30000 Series Trifecta

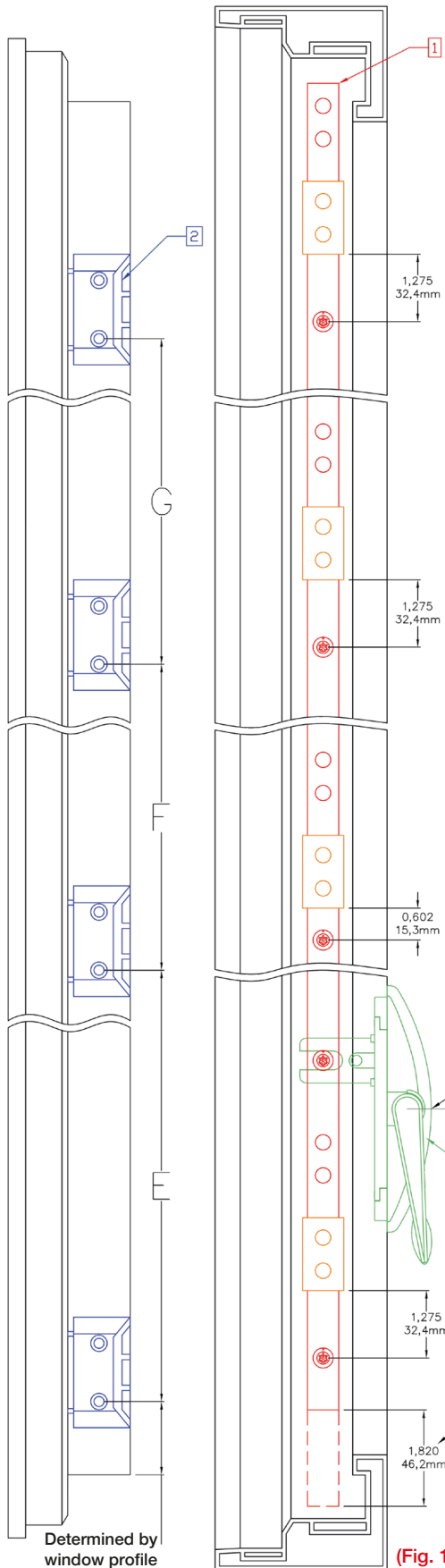
Standard lengths from 16" to 72" | 406mm to 1829mm

Features

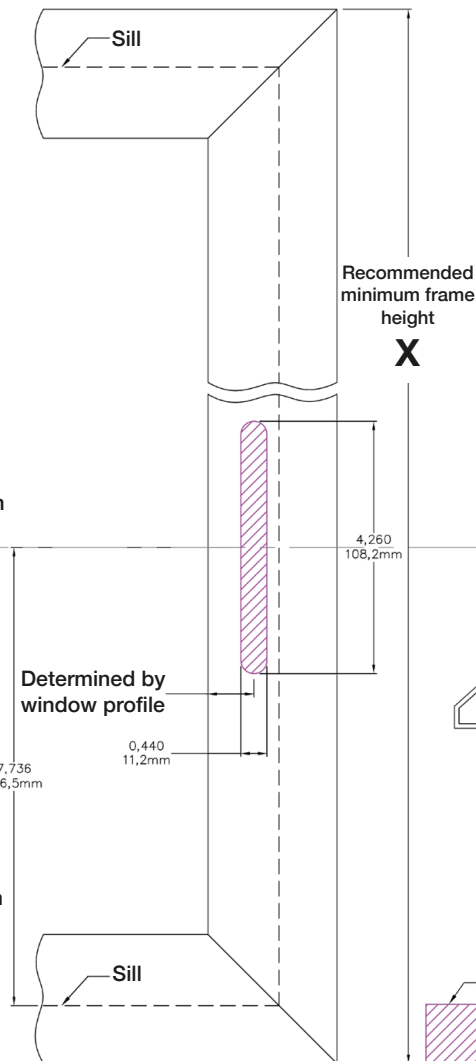
- Pre-installed guides allow for direct application as well as cost and time savings during installation
- Full cam adjustability allows for in-field and off-site adjustment, while maintaining optimal locking operation
- Available in standard 430 stainless steel or optional 304 austenitic stainless steel for coastal applications
- Available in the same configurations as other commonly used systems to allow for easy transition
- Customizable up to 5 locking points



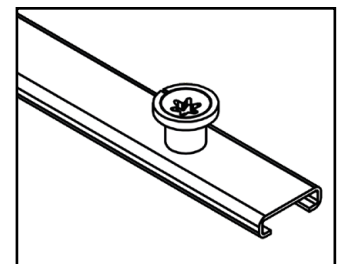
Made in



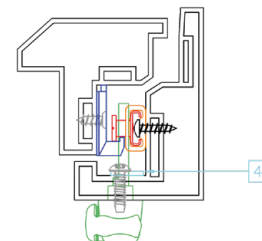
(Fig. 1.1)



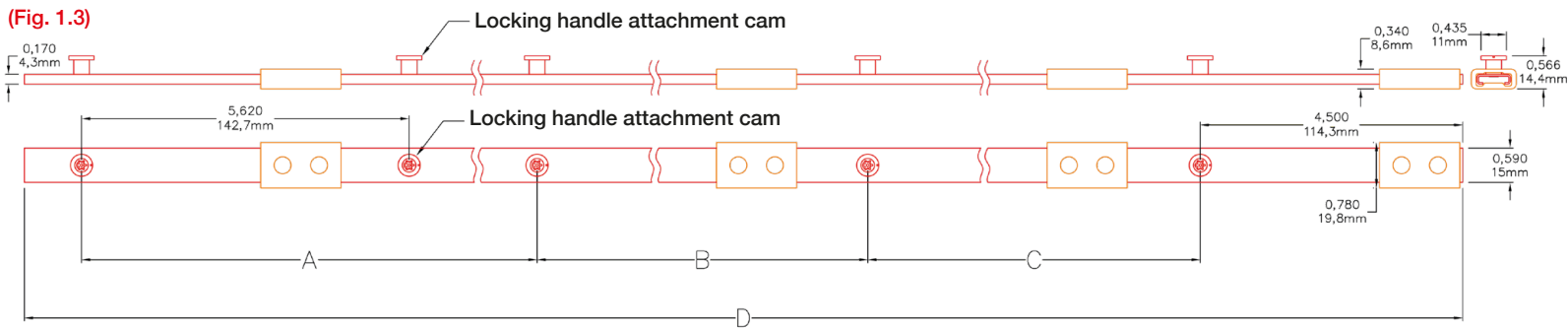
(Fig. 1.2)



Use Torx drive #25 for cam adjustment



(Fig. 1.3)



Recommended screw : Stainless steel Quadrex wood screw 10-12, undercut, head #7

		Cam positions <small>(Fig. 1.3)</small>			Suggested keeper positioning <small>(Fig. 1.1)</small>			RECOMMENDED MINIMUM FRAME HEIGHT <small>(Fig. 1.2)</small>	
TIE BAR LENGTH									
Part #	D	A	B	C	E	F	G	X	
2 CAMS	FM-X015-J000	15.785" 400.9mm	10.305" 261.7mm			10.805" 274.1mm			18" 457.2mm
	FM-X020-J000	19.785" 502.5mm	14.305" 363.3mm			14.805" 376mm			22" 558.8mm
	FM-X025-J000	23.785" 604.1mm	18.305" 464.9mm			18.805" 477.6mm			26" 660.4mm
	FM-X030-J000	27.785" 705.7mm	22.305" 566.5mm			22.805" 579.2mm			31" 787.4mm
	FM-X035-J000	31.785" 807.3mm	26.305" 668.1mm			26.805" 680.8mm			35" 889mm
	FM-X040-J000	35.785" 908.9mm	30.305" 769.7mm			30.805" 782.4mm			39" 990.6mm
3 CAMS	FM-X026-J000	23.785" 604.1mm	9.665" 245.5mm	8.640" 219.9mm		9.915" 251.8mm	8.890" 225.8mm		26" 660.4mm
	FM-X031-J000	27.785" 705.7mm	11.665" 296.3mm	10.640" 270.6mm		11.915" 302.6mm	10.890" 276.6mm		31" 787.4mm
	FM-X036-J000	31.785" 807.3mm	13.665" 347.1mm	12.640" 321.3mm		13.915" 353.4mm	12.890" 327.4mm		35" 889mm
	FM-X041-J000	35.785" 908.9mm	15.665" 397.9mm	14.640" 372mm		15.915" 405.1mm	14.890" 378.2mm		39" 990.6mm
	FM-X045-J000	39.785" 1010.5mm	17.665" 448.7mm	16.640" 422.7mm		17.915" 455.9mm	16.890" 429mm		44" 1117.6mm
	FM-X050-J000	43.785" 1112.1mm	19.665" 499.5mm	18.640" 473.4mm		19.915" 455.9mm	18.890" 479.8mm		48" 1219.2mm
	FM-X055-J000	47.785" 1213.7mm	21.665" 550.3mm	20.640" 524.1mm		21.915" 505.8mm	20.890" 530.6mm		52" 1319.6mm
	FM-X060-J000	51.785" 1315.3mm	23.665" 601.1mm	22.640" 574.8mm		23.915" 608.3mm	22.890" 581.4mm		57" 1447.8mm
	FM-X065-J000	55.785" 1416.9mm	25.665" 651.9mm	24.640" 625.5mm		25.915" 658.2mm	24.890" 632.2mm		61" 1549.4mm
	FM-X070-J000	59.785" 1518.5mm	27.665" 702.7mm	26.640" 676.8mm		27.915" 709.9mm	26.890" 683mm		65" 1650.9mm
	FM-X075-J000	63.785" 1620.1mm	29.665" 753.5mm	28.640" 726.9mm		29.915" 759.8mm	28.890" 733.8mm		70" 1778mm
	FM-X080-J000	67.785" 1823.3mm	31.665" 804.3mm	30.640" 777.6mm		31.915" 810.6mm	30.890" 784.6mm		74" 1879.6mm
FM-X085-J000	71.785" 1924.9mm	33.665" 855.1mm	32.640" 828.3mm		33.915" 861.4mm	32.890" 835.4mm		78" 1982.3mm	
4 CAMS	FM-X051-J000	43.785" 1112.1mm	12.830" 325.9mm	12.820" 325.6mm	12.655" 321.4mm	12.080" 325.1mm	13.070" 332mm	12.655" 321.4mm	48" 1219.2mm
	FM-X056-J000	47.785" 1213.7mm	14.150" 359.4mm	14.150" 359.9mm	14.005" 355.7mm	14.400" 365.8mm	14.400" 365.8mm	14.005" 355.7mm	52" 1319.6mm
	FM-X061-J000	51.785" 1315.3mm	15.470" 392.9mm	15.480" 393.2mm	15.355" 390mm	15.720" 399.3mm	15.730" 400mm	15.355" 390mm	57" 1447.8mm
	FM-X066-J000	55.785" 1416.9mm	16.790" 426.4mm	16.810" 427mm	16.705" 424.3mm	17.040" 432.8mm	17.060" 433.3mm	16.705" 424.3mm	61" 1549.4mm
	FM-X071-J000	59.785" 1518.5mm	18.110" 459.9mm	18.140" 460.8mm	18.055" 458.6mm	18.360" 466.3mm	18.390" 467.1mm	18.055" 458.6mm	65" 1650.9mm
	FM-X076-J000	63.785" 1620.1mm	19.430" 493.4mm	19.470" 494.6mm	19.405" 492.9mm	19.680" 499.9mm	19.720" 500.9mm	19.405" 492.9mm	70" 1778mm
	FM-X081-J000	67.785" 1823.3mm	20.750" 526.9mm	20.800" 528.4mm	20.755" 527.2mm	21.000" 533.4mm	21.050" 534.7mm	20.755" 527.2mm	74" 1879.6mm
	FM-X086-J000	71.785" 1924.9mm	22.070" 560.4mm	22.130" 562.2mm	22.105" 561.5mm	23.320" 592.3mm	22.380" 568.5mm	22.105" 561.5mm	78" 1982.3mm

1.1 Trifecta | Ordering

*The company has an ongoing development program and therefore reserves the right to make alterations without notice. Products that are not stocked items will be subject to longer lead times. Please confirm with your Radisson representative.

Replace the variable **X** with the desired value to specify material:

- 3 = Standard 430 stainless steel
- 4 = Optional 304 austenitic stainless steel (coastal applications)

Box/Qty.
45
Units

1.2 Trifecta | Part list

- FM-3061-J000 | 50.9" TRIFECTA tie bar system - 4 points
- GA-2390-110 | Multipoint composite keeper #09 with 0.110" positioning pin
- PO-2501 | LTS multipoint locking handle
- PO-2401-BP-00 | LTS multipoint locking handle fixture backer plate

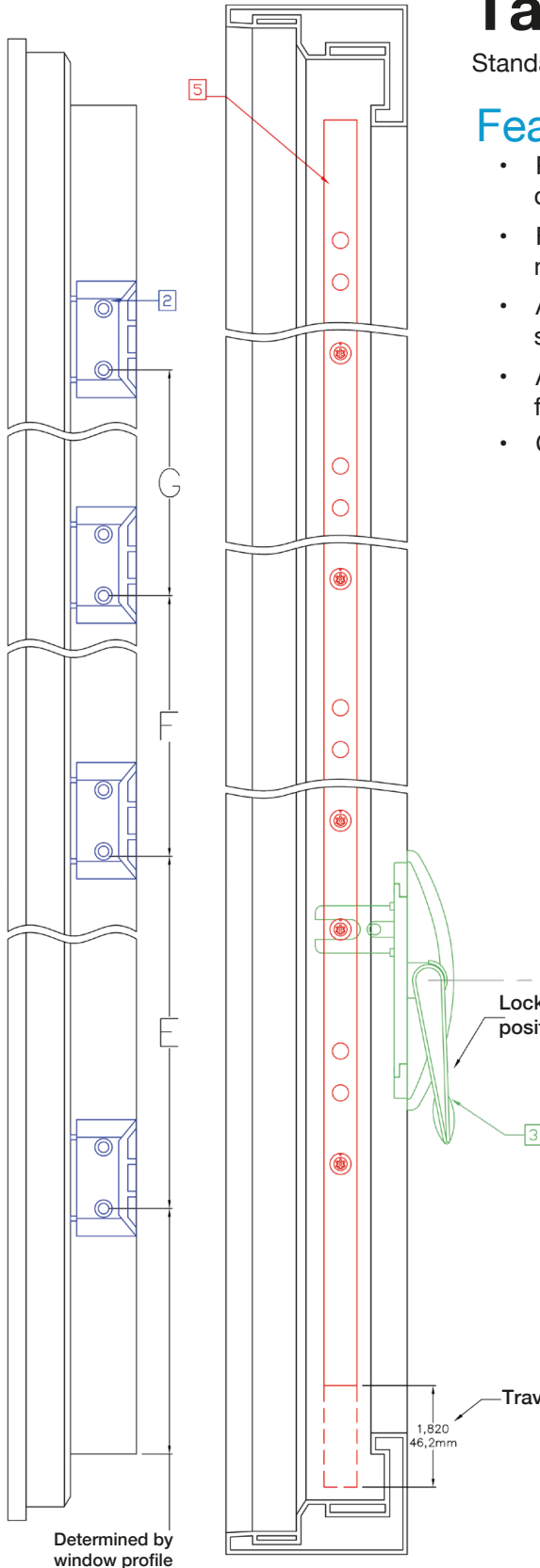
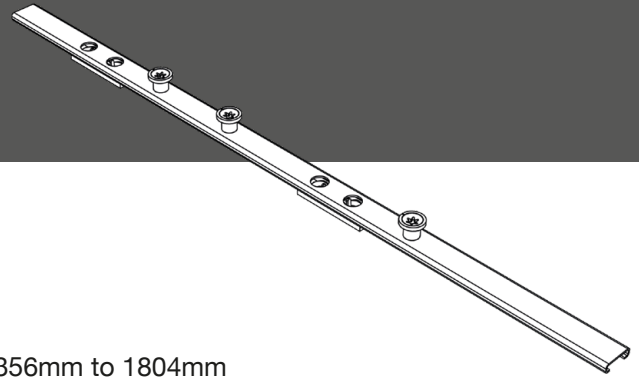
2.0 Tandem | Specifications

1500 Series Tandem

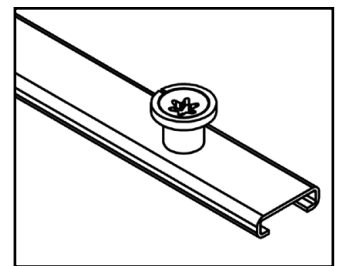
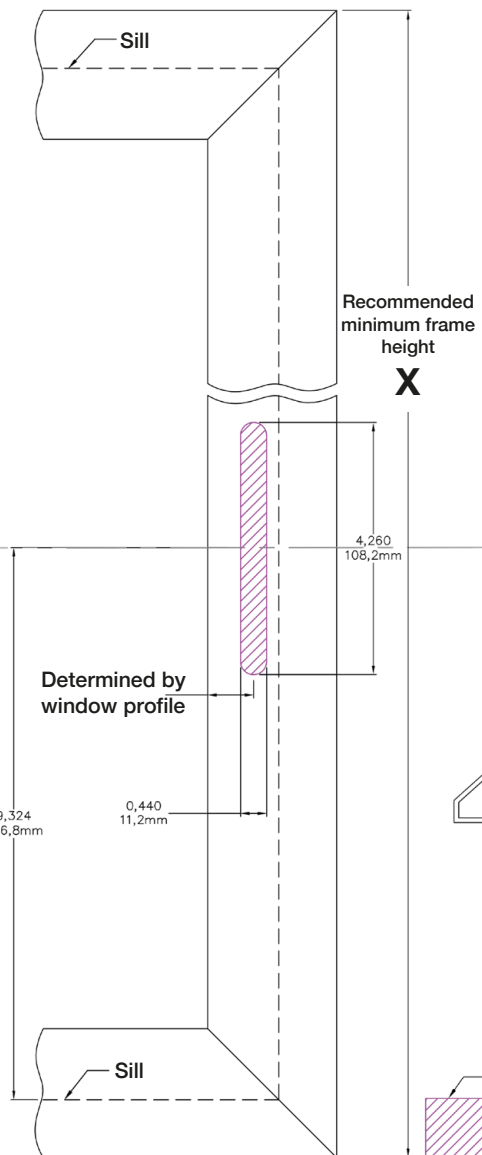
Standard lengths from 14" to 71" | 356mm to 1804mm

Features

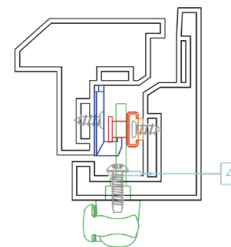
- Pre-positioned sliders allow for direct application as well as cost and time savings during installation
- Full cam adjustability allows for in-field and off-site adjustment, while maintaining optimal locking operation
- Available in standard 430 stainless steel or optional 304 austenitic stainless steel for coastal applications
- Available in the same configurations as other commonly used systems to allow for easy transition
- Customizable up to 5 locking points



(Fig. 2.1)



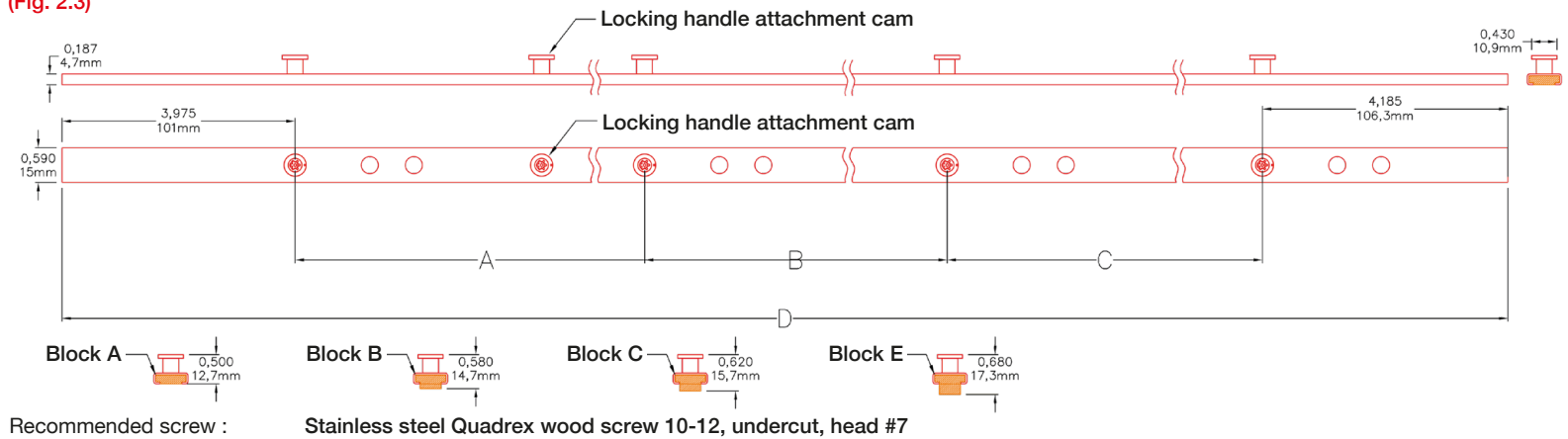
Use Torx drive #25 for cam adjustment



Wall cut

(Fig. 2.2)

(Fig. 2.3)



		TIE BAR LENGTH	Cam positions <small>(Fig. 2.3)</small>			Suggested keeper positioning <small>(Fig. 2.1)</small>			RECOMMENDED MINIMUM FRAME HEIGHT <small>(Fig. 2.2)</small>
Part #	D	A	B	C	E	F	G	X	
2 CAMS	FM-1X09-Y	13.376" 355mm	5.816" 147.7mm			6.057" 274.1mm			16" 406.4mm
	FM-1X11-Y	17.243" 438mm	9.083" 230.7mm			9.583" 376mm			19" 482.6mm
	FM-1X12-Y	23.621" 600mm	15.460" 392.7mm			15.960" 477.6mm			26" 660.4mm
	FM-1X13-Y	27.558" 700mm	19.397" 492.7mm			19.897" 579.2mm			31" 787.4mm
	FM-1X14-Y	31.496" 800mm	23.334" 592.7mm			23.834" 680.8mm			35" 889mm
	FM-1X15-Y	35.433" 900mm	27.271" 692.7mm			27.771" 782.4mm			39" 990.6mm
3 CAMS	FM-1X16-Y	39.370" 1000mm	15.708" 399mm	31.208" 792.7mm		15.958" 251.8mm	15.750" 400.1mm		44" 1117.6mm
	FM-1X17-Y	43.307" 1100mm	17.677" 449mm	35.145" 892.7mm		17.927" 302.6mm	17.718" 450mm		48" 1219.2mm
	FM-1X18-Y	47.244" 1200mm	19.646" 499mm	39.082" 992.7mm		19.896" 353.4mm	19.687" 500mm		52" 1319.6mm
	FM-1X19-Y	51.181" 1300mm	21.615" 549mm	43.019" 1092.7mm		21.865" 405.1mm	21.656" 550.1mm		56" 1422.4mm
	FM-1X20-Y	55.118" 1400mm	23.583" 599mm	46.956" 1192.7mm		23.833" 605.4mm	23.623" 600mm		61" 1549.4mm
	FM-1X21-Y	59.055" 1500mm	25.552" 649mm	50.893" 1292.7mm		25.802" 604.6mm	25.592" 650mm		65" 1650.9mm
	FM-1X22-Y	62.992" 1600mm	27.520" 699mm	54.830" 1392.7mm		27.770" 705.4mm	27.560" 700mm		69" 1752.6mm
	FM-1X23-Y	66.929" 1700mm	29.489" 749mm	58.767" 1492.7mm		23.739" 755.4mm	29.529" 750mm		74" 1879.6mm
FM-1X24-Y	70.866" 1800mm	31.457" 799mm	62.704" 1592.7mm		31.707" 805.4mm	31.497" 800mm		78" 1982.3mm	
4 CAMS	FM-1X28-Y	47.244" 1200mm	11.773" 299mm	27.519" 699mm	39.082" 992.7mm	12.023" 305.4mm	15.996" 406.3mm	11.563" 293.7mm	52" 1319.6mm
	FM-1X29-Y	51.181" 1300mm	13.742" 349mm	29.488" 749mm	43.019" 1092.7mm	13.992" 355.4mm	15.996" 406.3mm	13.531" 343.7mm	56" 1422.4mm
	FM-1X30-Y	55.118" 1400mm	15.710" 399mm	31.456" 799mm	46.956" 1192.7mm	15.960" 405.4mm	15.996" 406.3mm	15.500" 393.7mm	61" 1549.4mm
	FM-1X31-Y	59.055" 1500mm	17.678" 449mm	33.425" 849mm	50.893" 1292.7mm	17.929" 861.4mm	15.996" 406.3mm	17.469" 443.7mm	65" 1650.9mm
	FM-1X32-Y	62.992" 1600mm	19.647" 499mm	35.393" 899mm	54.830" 1392.7mm	19.898" 505.4mm	15.996" 406.3mm	19.438" 493.7mm	69" 1752.6mm
	FM-1X33-Y	66.929" 1700mm	21.615" 549mm	37.362" 949mm	58.767" 1492.7mm	21.867" 555.4mm	15.996" 406.3mm	21.407" 543.7mm	74" 1879.6mm
	FM-1X34-Y	70.866" 1800mm	23.584" 599mm	39.330" 999mm	62.704" 1592.7mm	23.836" 605.4mm	15.996" 406.3mm	23.376" 593.8mm	78" 1982.3mm

2.1 Tandem | Ordering

*The company has an ongoing development program and therefore reserves the right to make alterations without notice. Products that are not stocked items will be subject to longer lead times. Please confirm with your Radisson representative.

Replace the variable **X** with the desired value to specify material:

- 5 = Standard 430 stainless steel
- 2 = Optional 304 austenitic stainless steel (coastal applications)

Replace the variable **Y** with the desired value to specify required shim block

A-B-C-E

(Refer to figure 2.3 above to select appropriate shim block thickness)

Box/Qty.
50
Units

2.2 Tandem | Part list

- 5 FM-1529-B | 1300mm TANDEM B tie bar system - 4 points
- 2 GA-2390-110 | Multipoint composite keeper #09 with 0.110" positioning pin
- 3 PO-2501 | LTS multipoint locking handle
- 4 PO-2401-BP-00 | LTS multipoint locking handle fixture backer plate

3.0 Interlock ILA | Specifications

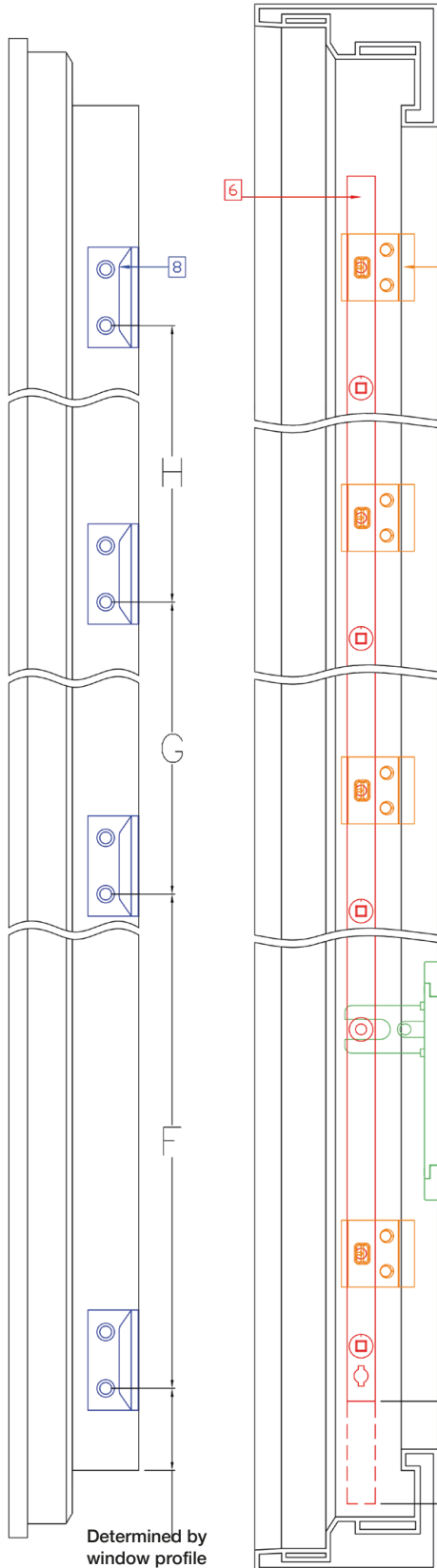
ILA Series

Adjustable Interlock Roller

Standard lengths from 11" to 79" | 280mm to 2008mm

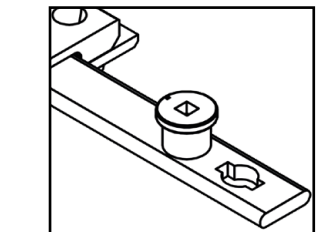
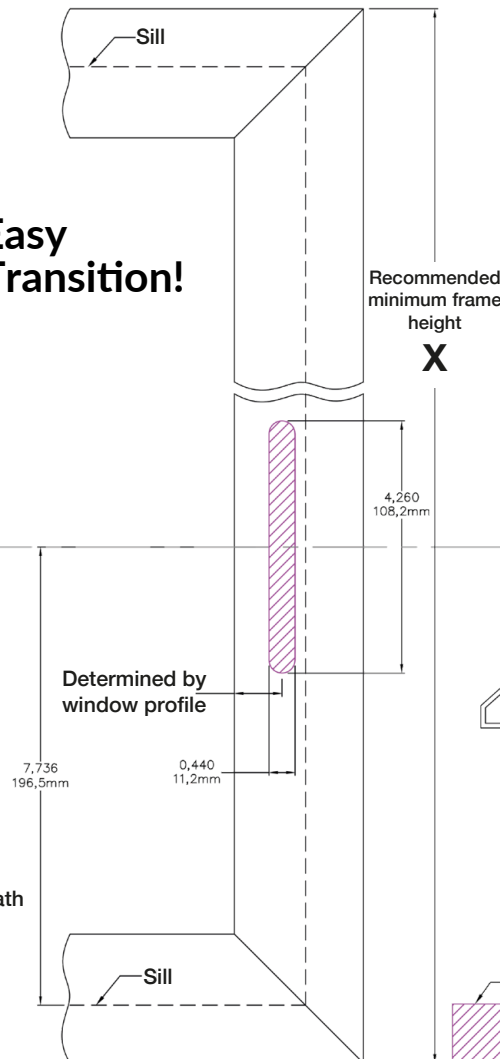
Features

- Pre-punched positioned holes and guides allow for direct application as well as cost and time savings during installation
- Full cam adjustability allows for in-field and off-site adjustment, while maintaining optimal locking operation
- A complete range of security keepers combined with customizable heavy duty guides allows you to meet the highest impact test ratings
- Available in standard 430 stainless steel or optional 304 austenitic stainless steel for coastal applications
- Available in the same configurations as other commonly used systems to allow for easy transition
- Customizable up to 5 locking points

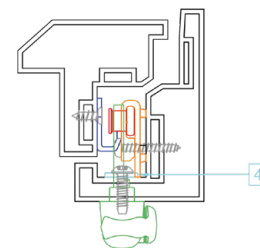


(Fig. 3.1)

Easy Transition!

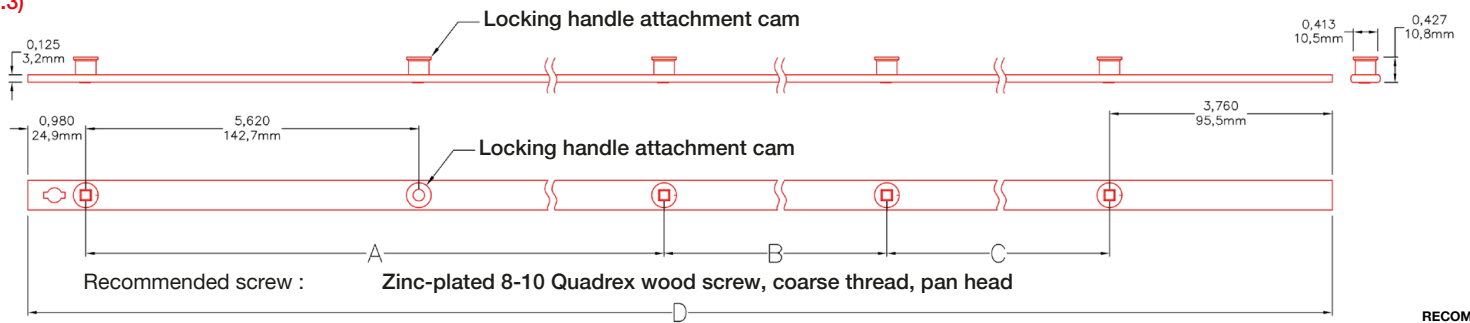


Use Robertson square drive #3 for cam adjustment



(Fig. 3.2)

(Fig. 3.3)



RECOMMENDED
MINIMUM FRAME
HEIGHT
(Fig. 3.2)

TIE BAR LENGTH		Cam positions <small>(Fig. 3.3)</small>				Suggested Keeper Positioning <small>(Fig. 3.1)</small>			MINIMUM FRAME HEIGHT <small>(Fig. 3.2)</small>
Part #	D	A	B	C	F	G	H	X	
FM-ILA-16100-XX	11.045" 280.5mm							12" 305mm	
2 CAMS	FM-ILA-16101-XX	15.045" 382.1mm	10.305" 261.7mm					16" 415.5mm	
	FM-ILA-16110-XX	19.045" 483.7mm	14.305" 363.3mm					21" 526mm	
	FM-ILA-16120-XX	23.045" 583.3mm	18.305" 464.9mm					25" 636.4mm	
	FM-ILA-16130-XX	27.045" 686.9mm	22.305" 566.5mm					29" 746.9mm	
	FM-ILA-16140-XX	31.045" 788.5mm	26.305" 668.1mm					34" 857.4mm	
	FM-ILA-16150-XX	35.045" 890.1mm	30.305" 769.7mm					38" 968.8mm	
3 CAMS	FM-ILA-16121-XX	23.045" 585.3mm	9.665" 245.5.3mm	8.640" 219.9mm		9.915" 251.8mm	8.890" 225.8mm	25" 636.4mm	
	FM-ILA-16131-XX	27.045" 686.9mm	11.665" 296.3mm	10.640" 270.6mm		11.915" 302.6mm	10.890" 276.6mm	29" 746.9mm	
	FM-ILA-16141-XX	31.045" 788.5mm	13.665" 347.1mm	12.640" 321.3mm		13.915" 353.4mm	12.890" 327.4mm	34" 857.4mm	
	FM-ILA-16151-XX	35.045" 890.1mm	15.665" 397.9mm	14.640" 372mm		15.915" 405.1mm	14.890" 378.2mm	38" 968.8mm	
	FM-ILA-16160-XX	39.045" 991.7mm	17.665" 448.7mm	16.640" 422.7mm		17.915" 455.9mm	16.890" 429mm	42" 1078.3mm	
	FM-ILA-16170-XX	43.045" 1093.3mm	19.665" 499.5mm	18.640" 473.4mm		19.915" 455.9mm	18.890" 479.8mm	47" 1188.8mm	
	FM-ILA-16180-XX	47.045" 1194.9mm	21.665" 550.3mm	20.640" 524.1mm		21.915" 505.8mm	20.890" 530.6mm	51" 1299.2mm	
	FM-ILA-16190-XX	51.045" 1296.5mm	23.665" 601.1mm	22.640" 574.8mm		23.915" 608.3mm	22.890" 581.4mm	56" 1409.7mm	
	FM-ILA-16200-XX	55.045" 1398.1mm	25.665" 651.9mm	24.640" 625.5mm		25.915" 658.2mm	24.890" 632.2mm	60" 1520.2mm	
	FM-ILA-16210-XX	59.045" 1499.7mm	27.665" 702.7mm	26.640" 676.8mm		27.915" 709.9mm	26.890" 683mm	64" 1630.6mm	
	FM-ILA-16220-XX	63.045" 1601.3mm	29.665" 753.5mm	28.640" 726.9mm		29.915" 759.8mm	28.890" 733.8mm	69" 1741.1mm	
	FM-ILA-16230-XX	67.045" 1702.9mm	31.665" 804.3mm	30.640" 777.6mm		31.915" 810.6mm	30.890" 784.6mm	73" 1851.6mm	
	FM-ILA-16240-XX	71.045" 1804.5mm	33.665" 855.1mm	32.640" 828.3mm		33.915" 861.4mm	32.890" 835.4mm	77" 1962mm	
	FM-ILA-16250-XX	75.045" 1906.1mm	46.850" 1190mm	23.455" 595.8mm		35.915" 912.2mm	34.890" 886.2mm	82" 2072.5mm	
FM-ILA-16260-XX	79.045" 2007.7mm	49.500" 1257.3mm	24.805" 630mm		37.915" 963mm	36.890" 937mm	86" 2183mm		
4 CAMS	FM-ILA-16171-XX	43.045" 1093.3mm	12.830" 325.9mm	12.820" 325.6mm	12.655" 321.4mm	12.080" 325.1mm	13.070" 332mm	12.655" 321.4mm	47" 1188.8mm
	FM-ILA-16181-XX	47.045" 1194.9mm	14.150" 359.4mm	14.150" 359.4mm	14.005" 355.7mm	14.400" 365.8mm	14.040" 365.8mm	14.005" 355.7mm	51" 1299.2mm
	FM-ILA-16191-XX	51.045" 1296.5mm	15.470" 392.9mm	15.480" 393.2mm	15.355" 390mm	15.720" 399.3mm	15.730" 400mm	15.355" 390mm	56" 1409.7mm
	FM-ILA-16201-XX	55.045" 1398.1mm	16.790" 426.4mm	16.810" 427mm	16.705" 424.3mm	17.040" 432.8mm	17.060" 433.3mm	16.705" 424.3mm	60" 1520.2mm
	FM-ILA-16211-XX	59.045" 1499.7mm	18.110" 459.9mm	18.140" 460.8mm	18.055" 458.6mm	18.360" 466.3mm	18.390" 467.1mm	18.055" 458.6mm	64" 1630.6mm
	FM-ILA-16221-XX	63.045" 1601.3mm	19.430" 493.4mm	19.470" 494.6mm	19.405" 492.9mm	19.680" 499.9mm	19.720" 500.9mm	19.405" 492.9mm	69" 1741.1mm
	FM-ILA-16231-XX	67.045" 1702.9mm	20.750" 526.9mm	20.800" 528.4mm	20.755" 527.2mm	21.000" 533.4mm	21.050" 534.7mm	20.755" 527.2mm	73" 1851.6mm
	FM-ILA-16241-XX	71.045" 1804.5mm	22.070" 560.4mm	22.130" 562.2mm	22.105" 561.5mm	23.320" 592.3mm	22.380" 568.5mm	22.105" 561.5mm	77" 1962mm
	FM-ILA-16251-XX	75.045" 1906.1mm	23.390" 594.1mm	23.460" 595.9mm	23.455" 595.8mm	24.640" 625.9mm	23.710" 602.2mm	23.455" 595.8mm	82" 2072.5mm
	FM-ILA-16261-XX	79.045" 2007.7mm	24.710" 627.6mm	24.790" 629.7mm	24.805" 630mm	25.960" 559.4mm	25.040" 661.4mm	24.805" 630mm	86" 2183mm

3.1 Interlock Roller | Ordering

*The company has an ongoing development program and therefore reserves the right to make alterations without notice. Products that are not stocked items will be subject to longer lead times. Please confirm with your Radisson representative.

Replace the variable **XX** with the desired value to specify material:
 Leave blank = Standard powder-coated steel
 SS = Optional 304 austenitic stainless steel (coastal applications)

Box/Qty.
25
 Units

3.2 Interlock Roller | Part list

6	FM-ILA-13191 50.9" Adjustable interlock roller tie bar - 4 points
8	GA-ILF-006 Interlock roller keeper
3	PO-2501 LTS multipoint locking handle
4	PO-2401-BP-00 LTS multipoint locking handle fixture backer plate
7	FM-TGW-MD2-XXX-XXX Self-locating heavy duty tie bar guide

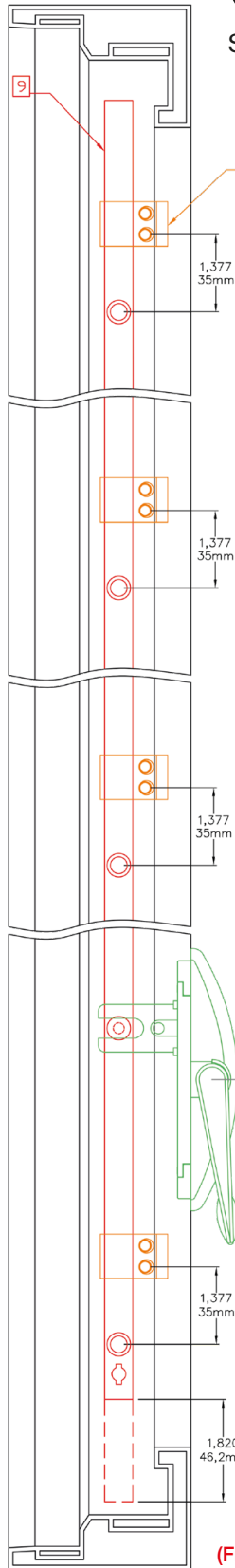
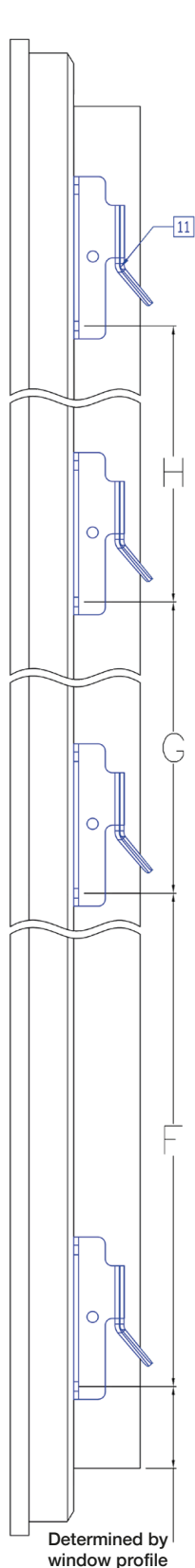
4.0 Cone Roller | Specifications

CR Series Cone Roller

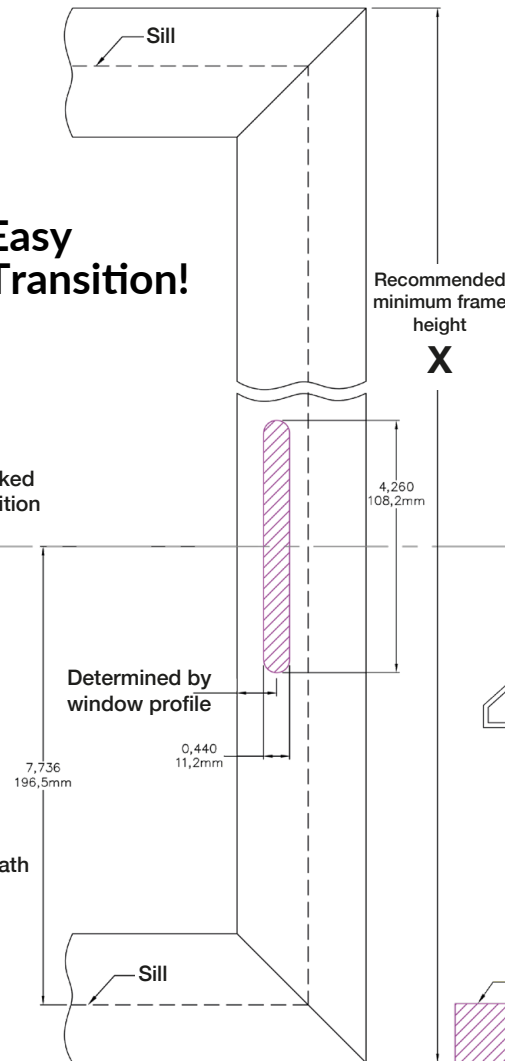
Standard lengths from 11" to 79" | 280mm to 2008mm

Features

- The conic shape of the roller cams extends keeper reach and provides strong progressive compression of the sash
- A complete range of security keepers combined with customizable heavy duty guides allows you to meet the highest impact test ratings
- Available in standard 430 stainless steel or optional 304 austenitic stainless steel for coastal applications
- Available in the same configurations as other commonly used systems to allow for easy transition
- Customizable up to 5 locking points



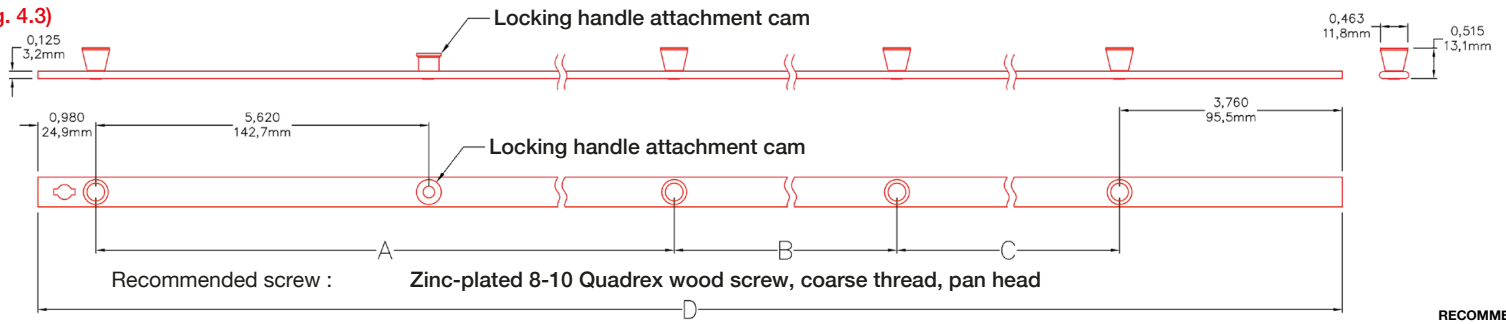
Easy Transition!



(Fig. 4.1)

(Fig. 4.2)

(Fig. 4.3)



RECOMMENDED MINIMUM FRAME HEIGHT (Fig. 4.2)

TIE BAR LENGTH		Cam positions (Fig. 4.3)			Suggested Keeper Positioning (Fig. 4.1)			
Part #	D	A	B	C	F	G	H	X
FM-13100-CR ^X	11.045" 280.5mm							12" 305mm
FM-13101-CR ^X	15.045" 382.1mm	10.305" 261.7mm						16" 415.5mm
FM-13110-CR ^X	19.045" 483.7mm	14.305" 363.3mm						21" 526mm
FM-13120-CR ^X	23.045" 583.3mm	18.305" 464.9mm						25" 636.4mm
FM-13130-CR ^X	27.045" 686.9mm	22.305" 566.5mm						29" 746.9mm
FM-13140-CR ^X	31.045" 788.5mm	26.305" 668.1mm						34" 857.4mm
FM-13150-CR ^X	35.045" 890.1mm	30.305" 769.7mm						38" 968.8mm
FM-13121-CR ^X	23.045" 585.3mm	9.665" 245.53mm	8.640" 219.9mm		9.915" 251.8mm	8.890" 225.8mm		25" 636.4mm
FM-13131-CR ^X	27.045" 686.9mm	11.665" 296.3mm	10.640" 270.6mm		11.915" 302.6mm	10.890" 276.6mm		29" 746.9mm
FM-13141-CR ^X	31.045" 788.5mm	13.665" 347.1mm	12.640" 321.3mm		13.915" 353.4mm	12.890" 327.4mm		34" 857.4mm
FM-13151-CR ^X	35.045" 890.1mm	15.665" 397.9mm	14.640" 372mm		15.915" 405.1mm	14.890" 378.2mm		38" 968.8mm
FM-13160-CR ^X	39.045" 991.7mm	17.665" 448.7mm	16.640" 422.7mm		17.915" 455.9mm	16.890" 429mm		42" 1078.3mm
FM-13170-CR ^X	43.045" 1093.3mm	19.665" 499.5mm	18.640" 473.4mm		19.915" 455.9mm	18.890" 479.8mm		47" 1188.8mm
FM-13180-CR ^X	47.045" 1194.9mm	21.665" 550.3mm	20.640" 524.1mm		21.915" 505.8mm	20.890" 530.6mm		51" 1299.2mm
FM-13190-CR ^X	51.045" 1296.5mm	23.665" 601.1mm	22.640" 574.8mm		23.915" 608.3mm	22.890" 581.4mm		56" 1409.7mm
FM-13200-CR ^X	55.045" 1398.1mm	25.665" 651.9mm	24.640" 625.5mm		25.915" 658.2mm	24.890" 632.2mm		60" 1520.2mm
FM-13210-CR ^X	59.045" 1499.7mm	27.665" 702.7mm	26.640" 676.8mm		27.915" 709.9mm	26.890" 683mm		64" 1630.6mm
FM-13220-CR ^X	63.045" 1601.3mm	29.665" 753.5mm	28.640" 726.9mm		29.915" 759.8mm	28.890" 733.8mm		69" 1741.1mm
FM-13230-CR ^X	67.045" 1702.9mm	31.665" 804.3mm	30.640" 777.6mm		31.915" 810.6mm	30.890" 784.6mm		73" 1851.6mm
FM-13240-CR ^X	71.045" 1804.5mm	33.665" 855.1mm	32.640" 828.3mm		33.915" 861.4mm	32.890" 835.4mm		77" 1962mm
FM-13250-CR ^X	75.045" 1906.1mm	46.850" 1190mm	23.455" 595.8mm		35.915" 912.2mm	34.890" 886.2mm		82" 2072.5mm
FM-13260-CR ^X	79.045" 2007.7mm	49.500" 1257.3mm	24.805" 630mm		37.915" 963mm	36.890" 937mm		86" 2183mm
FM-13171-CR ^X	43.045" 1093.3mm	12.830" 325.9mm	12.820" 325.6mm	12.655" 321.4mm	12.080" 325.1mm	13.070" 332mm	12.655" 321.4mm	47" 1188.8mm
FM-13181-CR ^X	47.045" 1194.9mm	14.150" 359.4mm	14.150" 359.4mm	14.005" 355.7mm	14.400" 365.8mm	14.040" 365.8mm	14.005" 355.7mm	51" 1299.2mm
FM-13191-CR ^X	51.045" 1296.5mm	15.470" 392.9mm	15.480" 393.2mm	15.355" 390mm	15.720" 399.3mm	15.730" 400mm	15.355" 390mm	56" 1409.7mm
FM-13201-CR ^X	55.045" 1398.1mm	16.790" 426.4mm	16.810" 427mm	16.705" 424.3mm	17.040" 432.8mm	17.060" 433.3mm	16.705" 424.3mm	60" 1520.2mm
FM-13211-CR ^X	59.045" 1499.7mm	18.110" 459.9mm	18.140" 460.8mm	18.055" 458.6mm	18.360" 466.3mm	18.390" 467.1mm	18.055" 458.6mm	64" 1630.6mm
FM-13221-CR ^X	63.045" 1601.3mm	19.430" 493.4mm	19.470" 494.6mm	19.405" 492.9mm	19.680" 499.9mm	19.720" 500.9mm	19.405" 492.9mm	69" 1741.1mm
FM-13231-CR ^X	67.045" 1702.9mm	20.750" 526.9mm	20.800" 528.4mm	20.755" 527.2mm	21.000" 533.4mm	21.050" 534.7mm	20.755" 527.2mm	73" 1851.6mm
FM-13241-CR ^X	71.045" 1804.5mm	22.070" 560.4mm	22.130" 562.2mm	22.105" 561.5mm	23.320" 592.3mm	22.380" 568.5mm	22.105" 561.5mm	77" 1962mm
FM-13251-CR ^X	75.045" 1906.1mm	23.390" 594.1mm	23.460" 595.9mm	23.455" 595.8mm	24.640" 625.9mm	23.710" 602.2mm	23.455" 595.8mm	82" 2072.5mm
FM-13261-CR ^X	79.045" 2007.7mm	24.710" 627.6mm	24.790" 629.7mm	24.805" 630mm	25.960" 559.4mm	25.040" 661.4mm	24.805" 630mm	86" 2183mm

4.1 Cone Roller | Ordering

*The company has an ongoing development program and therefore reserves the right to make alterations without notice. Products that are not stocked items will be subject to longer lead times. Please confirm with your Radisson representative.

Replace the variable ^X with the desired value to specify material:

Leave blank = Standard powder-coated steel
SS = Optional 304 austenitic stainless steel (coastal applications)

Box/Qty.
25
Units

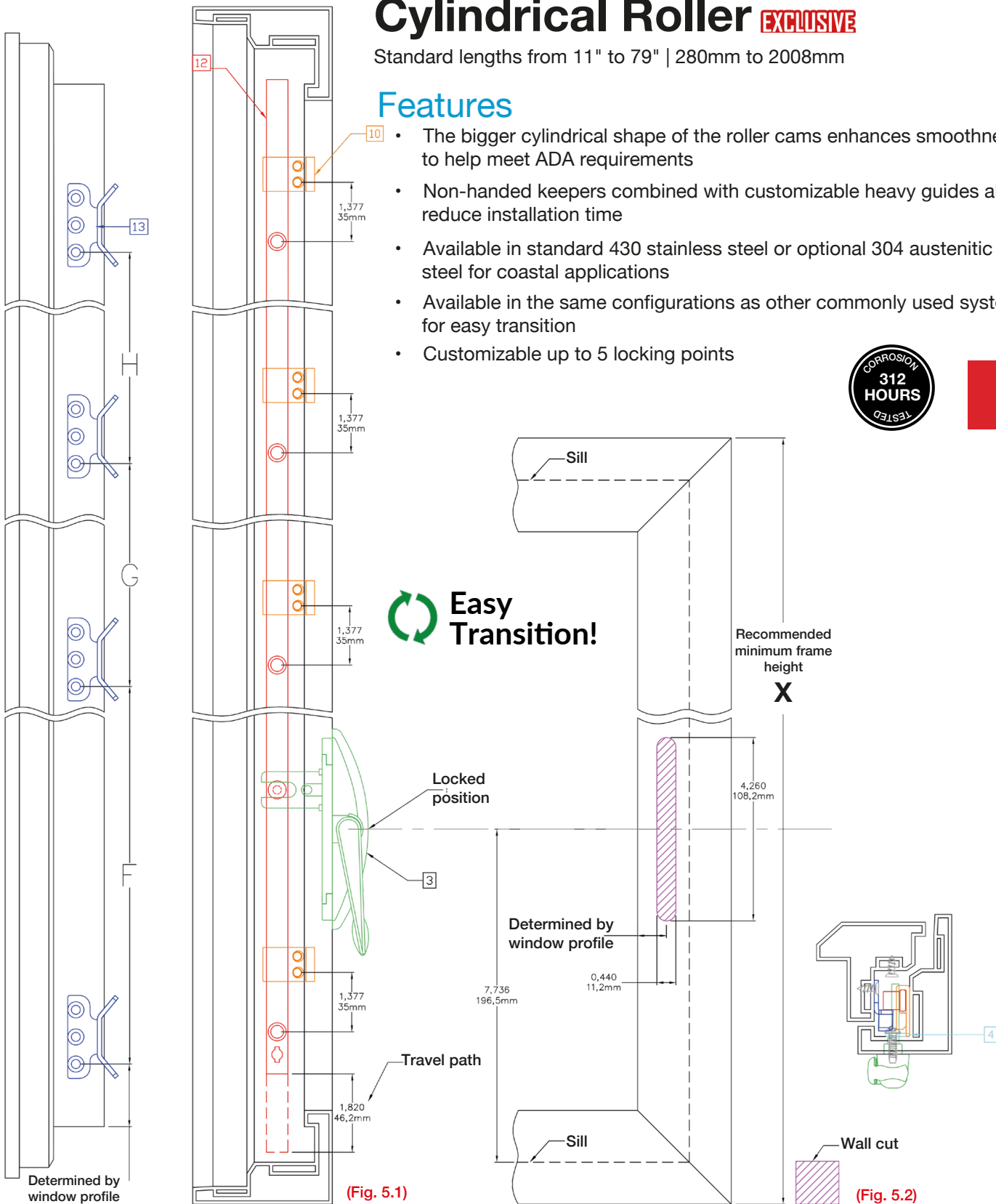
4.2 Cone Roller | Part list

9	FM-13191-CR 50.9" Cone roller tie bar - 4 points
11	GA-CR-001R Right hand facemount cone roller keeper
3	PO-2501 LTS multipoint locking handle
4	PO-2401-BP-00 LTS multipoint locking handle fixture backer plate
10	TGW-XXX-XXX Standard tie bar guide

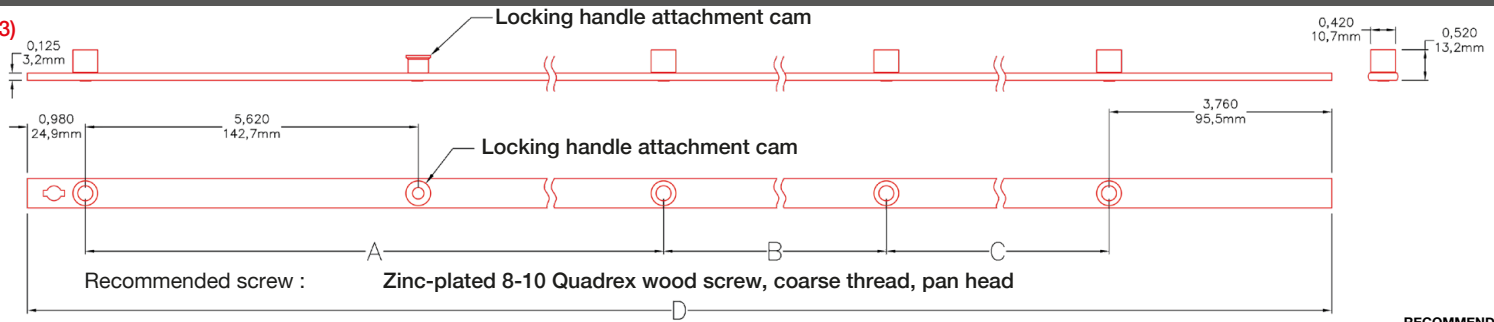
GRF Series Cylindrical Roller **EXCLUSIVE**

Features

- 



(Fig. 5.3)



TIE BAR LENGTH		Cam positions (Fig. 5.3)				Suggested Keeper Positioning (Fig. 5.1)				RECOMMENDED MINIMUM FRAME HEIGHT (Fig. 5.2)
Part #	D	A	B	C	F	G	H	X		
FM-13100-GRX	11.045" 280.5mm								12" 305mm	
FM-13101-GRX	15.045" 382.1mm	10.305" 261.7mm							16" 415.5mm	
FM-13110-GRX	19.045" 483.7mm	14.305" 363.3mm							21" 526mm	
FM-13120-GRX	23.045" 583.3mm	18.305" 464.9mm							25" 636.4mm	
FM-13130-GRX	27.045" 686.9mm	22.305" 566.5mm							29" 746.9mm	
FM-13140-GRX	31.045" 788.5mm	26.305" 668.1mm							34" 857.4mm	
FM-13150-GRX	35.045" 890.1mm	30.305" 769.7mm							38" 968.8mm	
FM-13121-GRX	23.045" 585.3mm	9.665" 245.5.3mm	8.640" 219.9mm		9.915" 251.8mm	8.890" 225.8mm			25" 636.4mm	
FM-13131-GRX	27.045" 686.9mm	11.665" 296.3mm	10.640" 270.6mm		11.915" 302.6mm	10.890" 276.6mm			29" 746.9mm	
FM-13141-GRX	31.045" 788.5mm	13.665" 347.1mm	12.640" 321.3mm		13.915" 353.4mm	12.890" 327.4mm			34" 857.4mm	
FM-13151-GRX	35.045" 890.1mm	15.665" 397.9mm	14.640" 372mm		15.915" 405.1mm	14.890" 378.2mm			38" 968.8mm	
FM-13160-GRX	39.045" 991.7mm	17.665" 448.7mm	16.640" 422.7mm		17.915" 455.9mm	16.890" 429mm			42" 1078.3mm	
FM-13170-GRX	43.045" 1093.3mm	19.665" 499.5mm	18.640" 473.4mm		19.915" 455.9mm	18.890" 479.8mm			47" 1188.8mm	
FM-13180-GRX	47.045" 1194.9mm	21.665" 550.3mm	20.640" 524.1mm		21.915" 505.8mm	20.890" 530.6mm			51" 1299.2mm	
FM-13190-GRX	51.045" 1296.5mm	23.665" 601.1mm	22.640" 574.8mm		23.915" 608.3mm	22.890" 581.4mm			56" 1409.7mm	
FM-13200-GRX	55.045" 1398.1mm	25.665" 651.9mm	24.640" 625.5mm		25.915" 658.2mm	24.890" 632.2mm			60" 1520.2mm	
FM-13210-GRX	59.045" 1499.7mm	27.665" 702.7mm	26.640" 676.8mm		27.915" 709.9mm	26.890" 683mm			64" 1630.6mm	
FM-13220-GRX	63.045" 1601.3mm	29.665" 753.5mm	28.640" 726.9mm		29.915" 759.8mm	28.890" 733.8mm			69" 1741.1mm	
FM-13230-GRX	67.045" 1702.9mm	31.665" 804.3mm	30.640" 777.6mm		31.915" 810.6mm	30.890" 784.6mm			73" 1851.6mm	
FM-13240-GRX	71.045" 1804.5mm	33.665" 855.1mm	32.640" 828.3mm		33.915" 861.4mm	32.890" 835.4mm			77" 1962mm	
FM-13250-GRX	75.045" 1906.1mm	46.850" 1190mm	23.455" 595.8mm		35.915" 912.2mm	34.890" 886.2mm			82" 2072.5mm	
FM-13260-GRX	79.045" 2007.7mm	49.500" 1257.3mm	24.805" 630mm		37.915" 963mm	36.890" 937mm			86" 2183mm	
FM-13171-GRX	43.045" 1093.3mm	12.830" 325.9mm	12.820" 325.6mm	12.655" 321.4mm	12.080" 325.1mm	13.070" 332mm	12.655" 321.4mm		47" 1188.8mm	
FM-13181-GRX	47.045" 1194.9mm	14.150" 359.4mm	14.150" 359.4mm	14.005" 355.7mm	14.400" 365.8mm	14.040" 365.8mm	14.005" 355.7mm		51" 1299.2mm	
FM-13191-GRX	51.045" 1296.5mm	15.470" 392.9mm	15.480" 393.2mm	15.355" 390mm	15.720" 399.3mm	15.730" 400mm	15.355" 390mm		56" 1409.7mm	
FM-13201-GRX	55.045" 1398.1mm	16.790" 426.4mm	16.810" 427mm	16.705" 424.3mm	17.040" 432.8mm	17.060" 433.3mm	16.705" 424.3mm		60" 1520.2mm	
FM-13211-GRX	59.045" 1499.7mm	18.110" 459.9mm	18.140" 460.8mm	18.055" 458.6mm	18.360" 466.3mm	18.390" 467.1mm	18.055" 458.6mm		64" 1630.6mm	
FM-13221-GRX	63.045" 1601.3mm	19.430" 493.4mm	19.470" 494.6mm	19.405" 492.9mm	19.680" 499.9mm	19.720" 500.9mm	19.405" 492.9mm		69" 1741.1mm	
FM-13231-GRX	67.045" 1702.9mm	20.750" 526.9mm	20.800" 528.4mm	20.755" 527.2mm	21.000" 533.4mm	21.050" 534.7mm	20.755" 527.2mm		73" 1851.6mm	
FM-13241-GRX	71.045" 1804.5mm	22.070" 560.4mm	22.130" 562.2mm	22.105" 561.5mm	23.320" 592.3mm	22.380" 568.5mm	22.105" 561.5mm		77" 1962mm	
FM-13251-GRX	75.045" 1906.1mm	23.390" 594.1mm	23.460" 595.9mm	23.455" 595.8mm	24.640" 625.9mm	23.710" 602.2mm	23.455" 595.8mm		82" 2072.5mm	
FM-13261-GRX	79.045" 2007.7mm	24.710" 627.6mm	24.790" 629.7mm	24.805" 630mm	25.960" 559.4mm	25.040" 661.4mm	24.805" 630mm		86" 2183mm	

5.1 Cylindrical Roller | Ordering

*The company has an ongoing development program and therefore reserves the right to make alterations without notice. Products that are not stocked items will be subject to longer lead times. Please confirm with your Radisson representative.

Replace the variable **X** with the desired value to specify material:
 Leave blank = Standard powder-coate steel
 SS = Optional 304 austenitic stainless steel (coastal applications)

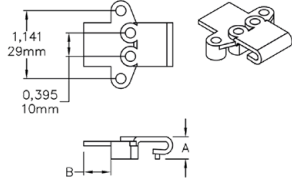
Box/Qty.
25
 Units

5.2 Cylindrical Roller | Part list

12	FM-13191-GRF 50.9" Cylindrical roller tie bar - 4 points
13	GA-CRF-005 Cylindrical roller keeper
3	PO-2501 LTS multipoint locking handle
4	PO-2401-BP-00 LTS multipoint locking handle fixture backer plate
10	TGW-XXX-XXX Standard tie bar guide

6.0 Tie bar guide | Specifications & Ordering

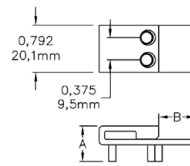
TG-AAA-BBB



	A	B*	Box/Qty.
TG-	300-	Custom	500
TG-	375-	Custom	500
TG-	430-	Custom	500
TG-	500-	Custom	500
TG-	600-	Custom	500
TG-	640-	Custom	500

*Maximum "B" length is 0.465" | 11.8mm

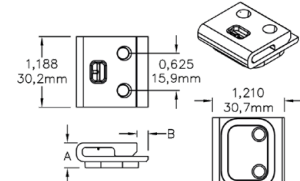
TGW-AAA-BBB



	A	B*	Box/Qty.
TGW-	320-	Custom	500
TGW-	390-	Custom	500
TGW-	437-	Custom	500
TGW-	500-	Custom	500
TGW-	600-	Custom	500
TGW-	640-	Custom	500

*Maximum "B" length is 0.465" | 11.8mm

FM-TGW-MD2-AAA-BBB



	A	B*	Box/Qty.
FM-TGW-MD2-	300-	Custom	1000
FM-TGW-MD2-	400-	Custom	1000
FM-TGW-MD2-	500-	Custom	1000

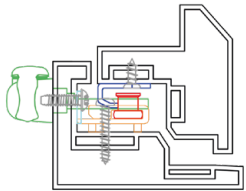
*Maximum "B" length is 0.500" | 12.7mm

Recommended screw : Zinc-plated 8-10 Quadrex wood screw, coarse thread, pan head

7.0 Metal keeper

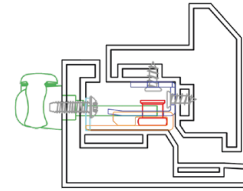
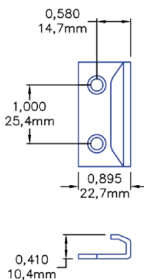
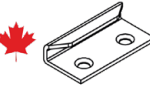
Interlock

To be used with
interlock tie bar systems



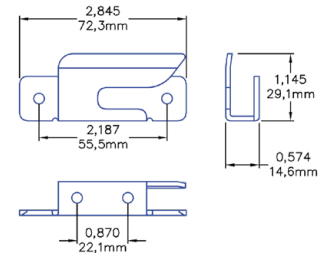
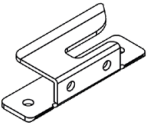
GA-ILF-006

Non-handed



GA-ILF-017

Left hand shown



7.1 Ordering | Metal keeper

Part Number	Description	Box/Qty.
GA-ILF-006-XX	Interlock roller keeper	500
GA-ILF-014L-XX	Interlock roller face mount keeper, left hand	500
GA-ILF-014R-XX	Interlock roller face mount keeper, right hand	500
GA-ILF-017L-XX	Interlock roller face mount keeper, left hand	500
GA-ILF-017R-XX	Interlock roller face mount keeper, right hand	500

Replace the variable **XX** with the desired value to specify material:

Blank = Standard powder-coated steel

SS = Optional 304 austenitic stainless steel (coastal applications)

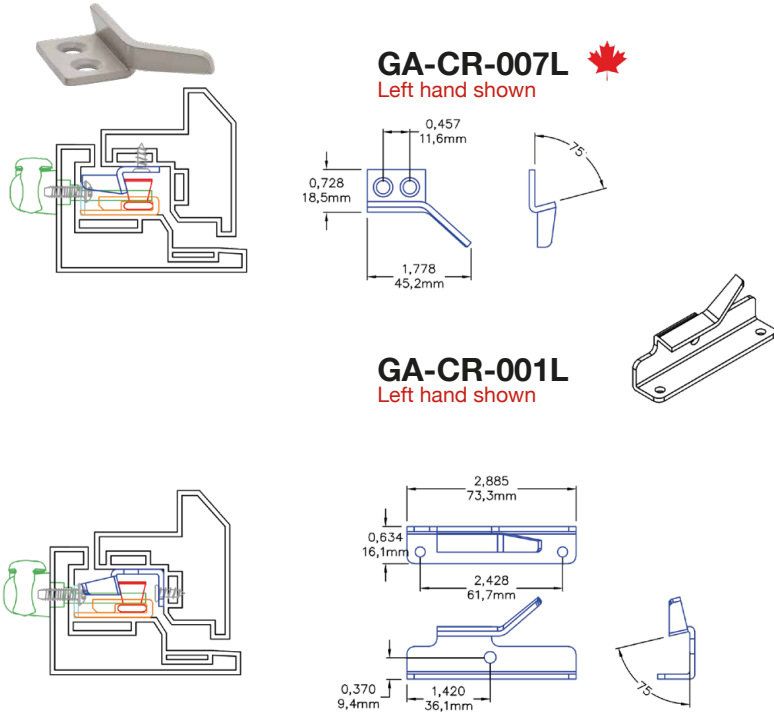
Recommended screw :

Stainless steel Quadrex wood screw 10-12, undercut, head #7

8.0 Metal keeper | Application (cont'd)

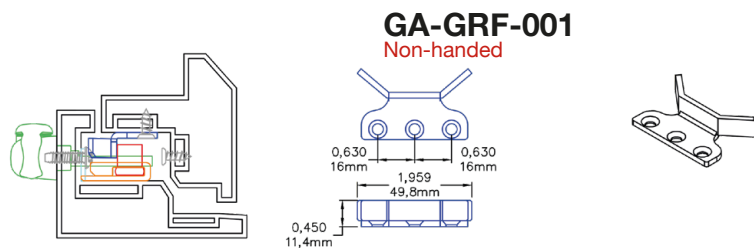
Cone Roller

To be used with CR tie bar systems



Cylindrical Roller

To be used with GRF tie bar systems



8.1 Ordering | Metal keeper (cont'd)

Part Number	Description	Box/Qty.
GA-CR-007L-XX	Cone roller keeper, left hand	200
GA-CR-007R-XX	Cone roller keeper, right hand	200
GA-CR-001L-XX	Cone roller face mount keeper, left hand	200
GA-CR-001R-XX	Cone roller face mount keeper, right hand	200
GA-GRF-001-XX	Cylindrical roller keeper	500

Replace the variable **XX** with the desired value to specify material:

Blank = Standard powder-coated steel

SS = Optional 304 austenitic stainless steel (coastal applications)

Recommended screw :

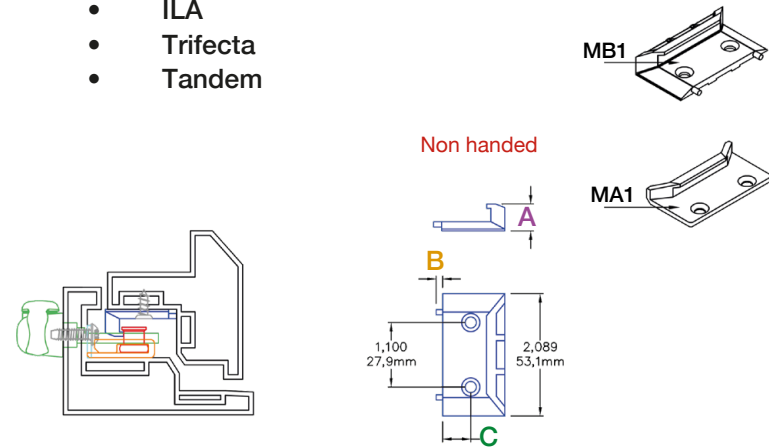
Stainless steel Quadrex wood screw 10-12, undercut, head #7

9.0 Composite keeper

Composite hybride 2390

Can be used with the following tie bar systems:

- ILA
- Trifecta
- Tandem



MB1 Models

XX	Dimension A	Dimension B*	Dimension C*
09	0.440" 11.2mm	CUSTOM Length range from 0.050" 1.2mm TO 0.275" 6.8mm (Rounded to 0.005")	CUSTOM MADE (Rounded to 0.005")
11	0.530" 13.5mm		
17	0.600" 15.2mm		
19	0.665" 15.9mm		

MA1 Models

XX	Dimension A	Dimension B*	Dimension C*
00	0.090" 2.2mm	N/A	CUSTOM MADE (Rounded to 0.005")
0	0.155" 3.8mm		
01	0.195" 4.8mm		
03	0.275" 6.8mm		
05	0.375" 9.2mm		
07	0.430" 10.5mm		

9.1 Ordering | Composite keeper

Part Number	Description	Box/Qty.
GA-2390-XX	Composite keeper	500

Replace the variable **XX** with the desired value to specify keeper model # corresponding to the desired dimensions of the above.



*It is mandatory to specify the required **B** and **C** dimensions when ordering. Otherwise, your order won't be processed and further delays may apply.

Recommended screw :

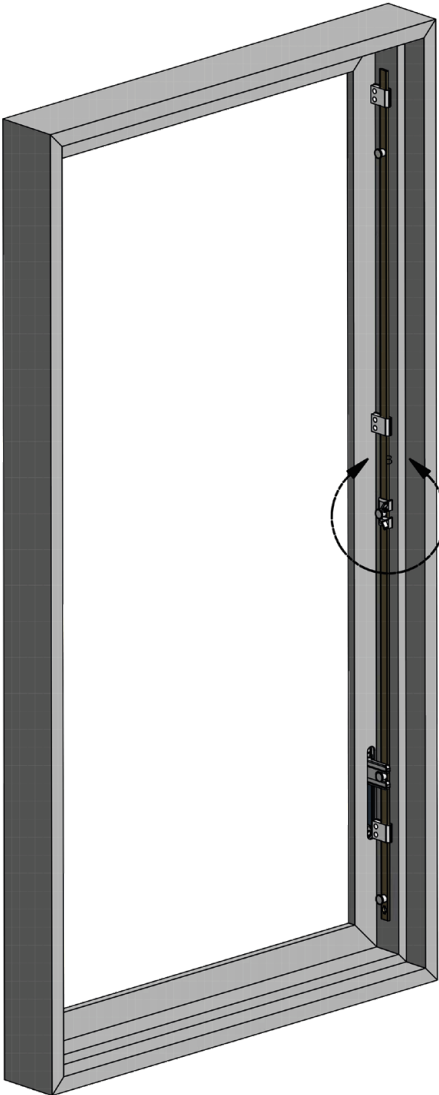
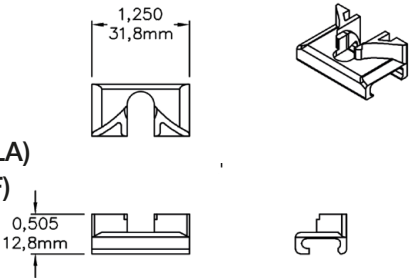
Stainless steel Quadrex wood screw 10-12, undercut, head #7

10.0 Accessories | Ramps

Tie bar ramp **EXCLUSIVE**

Can be used with the following tie bar systems:

- Trifecta
- Tandem
- Adjustable Interlock (ILA)
- Standard Interlock (ILF)



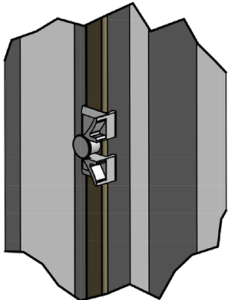
Interlock tie bar systems on a 38" | 1000mm window

Features

- Provides approximately 0.500" | 12.3mm additional keeper reach, reducing the need to over-crank when closing the sash
- Snap-on feature for fastener free installation on and off-site
- Tie bar ramps are non-handed to ensure easy installation and reduce inventory costs
- A fast and easy solution for service calls concerning locking issues



Application

- 14" | 355mm to 34" | 900mm tie bar systems: install the ramp on the highest locking point.
- 38" | 1000mm to 70" | 1800mm tie bar systems: install the ramp on the second highest locking point.



Fast and easy solution for service calls

10.1 Tie bar ramp | Ordering

Part Number	Description		Box/Qty.
FM-1300	Trifecta / Tandem tie bar ramp		1000
FM-13000	Interlock tie bar ramp		1000

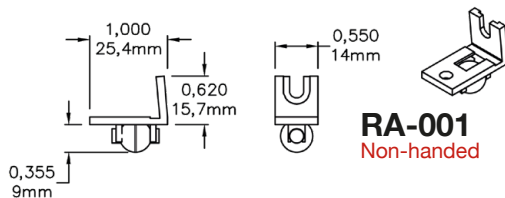
11.0 Accessories | Ramps (cont'd)

Sash ramp

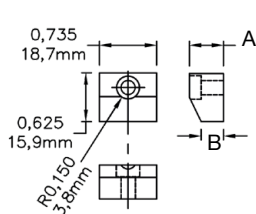
Can be used with any type of window

Features

- Prevents deformation of the sash
- Reduces the need to overcrank operator mechanisms as well as the locking handle when closing and locking the sash



RA-001
Non-handed



RA-002 / RA-003
Non-handed

11.1 Ramp | Ordering

Part Number	Description	Box/Qty.
RA-001*	Lift wheel casement window ramp	1000
RA-002	Fixed window ramp type 002 - A: 0.435" 11mm B : 0.300" 7.6mm	1000
RA-003	Fixed casement ramp type 003 - A: 0.390" 10mm B : 0.250" 6.4mm	1000

Recommended screw :

*Stainless steel Quadrex wood screw 6-10, coarse thread, pan head

**Stainless steel Quadrex wood screw 10-12, undercut, head #7

12.0 Accessories - Snubbers

Snubbers

Can be used with any type of window

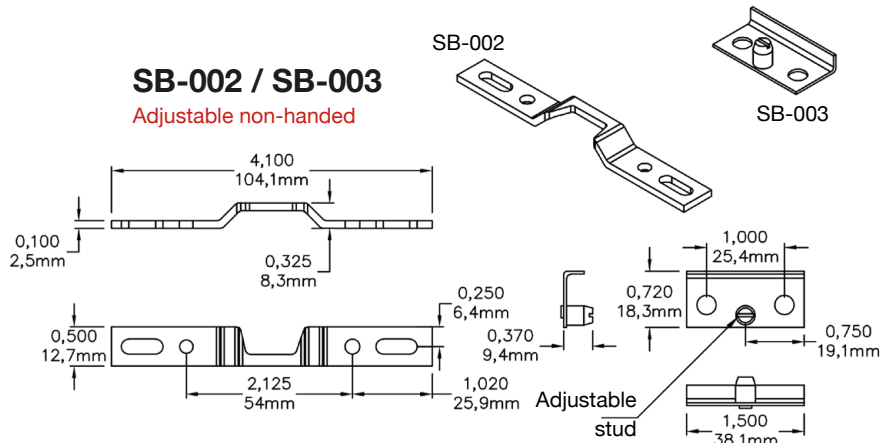
Features

- Prevents tall sashes from bowing
- Provides enhanced protection against home invasion
- Boots impact test performance ratings

12.0 Accessories | Snubbers (cont'd)

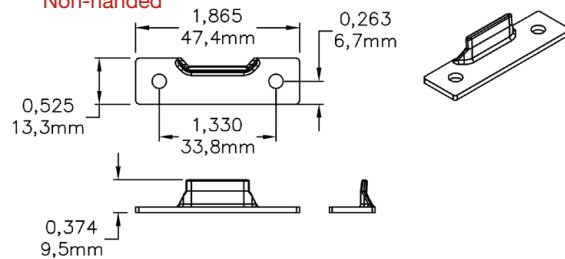
SB-002 / SB-003

Adjustable non-handed



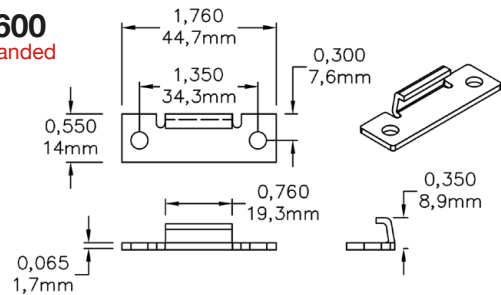
SB-500

Non-handed



SB-600

Non-handed



12.1 Snubbers | Ordering

Part Number	Description	Box/Qty.
SB-002-XX	Adjustable snubber (Sash part)	1000
SB-003-XX	Adjustable snubber (Frame part)	1000
SB-500-XX	Regular snubber 500 series	1000
SB-600-XX	Regular snubber 600 series	1000

Replace the variable **X** with the desired value to specify material :

Blank = Standard finish powder-coated or zinc-plated

SS = Optional 304 austenitic stainless steel
(coastal applications)

Recommended screw :

Stainless steel Quadrex wood screw 6-10, coarse thread, pan head

Compression adjustment

When installing tie bars, the rivet positioning should always be preset to the neutral position.

Upward marker = Neutral

To INCREASE sash compression to maximum:

Turn the eccentric rivet positioning marker 90° toward the home interior.



Neutral marker

Certifications



ASTM B117-16 | CORROSION TESTED
Corrosion salt spray tested for over 312 hours

Contact us

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Maintenance

We strongly recommend performing hardware maintenance at least once a year or more depending on need. Regular cleaning and lubrication of these items will prolong component life and keep them working properly.

Cleaning

For optimal corrosion resistance, always keep the surfaces clean. This can be achieved by wiping them with a damp clean cloth using either a very mild detergent or soap, then rinsing with warm, clean water to avoid soap residue build-up and drying with a soft cloth. Do NOT use abrasive, chemical, acidic or citrus-based cleaners, gasoline, wire brushes, scrubbers, and wire wool. They can permanently alter or damage surfaces or hardware finishes.

Lubrication

Because of their sealing properties, petroleum-based lubricant sprays (e.g., WD-40) are highly recommended for lubricating functioning hardware.



LIFETIME WARRANTY

**Our products are warranted against all manufacturing defects and malfunctions of the material used during fabrication.

About us

A FAMILY STORY

Radisson Industries is a family business specializing in designing and manufacturing innovative door and window hardware components.

In 1996, after 40 years of experience in processing metals for the construction industry, we put our knowledge and expertise to work to serve door and window manufacturers.

Now, 24 years later, we've established ourselves as a major player in the window industry.

OUR MISSION

To design and manufacture innovative, quality hardware products and work hand-in-hand with customers, from production to marketing, so that they can maximize profitability.



** Failure to ensure proper maintenance in accordance with the above instructions will invalidate the replacement warranty. Does not cover normal wear and tear, discoloration, rust, or any other alteration of the finishes. This warranty will not be honored if the product is not used or maintained properly or if it has been modified or improperly installed.