Ebo Systems

Cable ladders in FRP/GRP

UL series - pultruded

Challenging time

Composites FRP/GRP

A material whose features
challenge time.

Five reasons to choose composites :

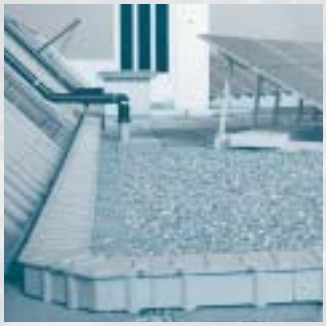
1 resistance to corrosion
2 insulating
3 extremely robust and light
4 long life span
5 excellent fire characteristics

Pressed cable trays
K^2 series

Pultruded cable Ladders

Pultruded cable trays
KP series

Supporting material
FX and FP series



Cable ducting system
BK series

Ebo Systems :
40 years of experience
in the manufacture of
composite materials.

Cable ladders in FRP/GRP *UL series*
Challenging time

Halve your installation time :
- a rapid connection system,
- the possibility of 6 m support distances.

Increase the life span of your installation* using Glass Reinforced Polyester (GRP) technology.

Summary

Cable ladders in FRF/GRP ***UL series*** : challlenging time 3

Advantages of ladders in GRP ***UL series*** 4

UL series heights 53 and 80 mm 6

UL series heights 100 and 150 mm 8

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Reference guide

UL | X | 600 | 150 / | - 600 - AC - RAL 9001

- series name
- function - fittings
- width
- height

options :
- length (m)
- radius (mm)
- resin : Acrylic (AC), Vinylester (VY), special (SP)
- RAL color

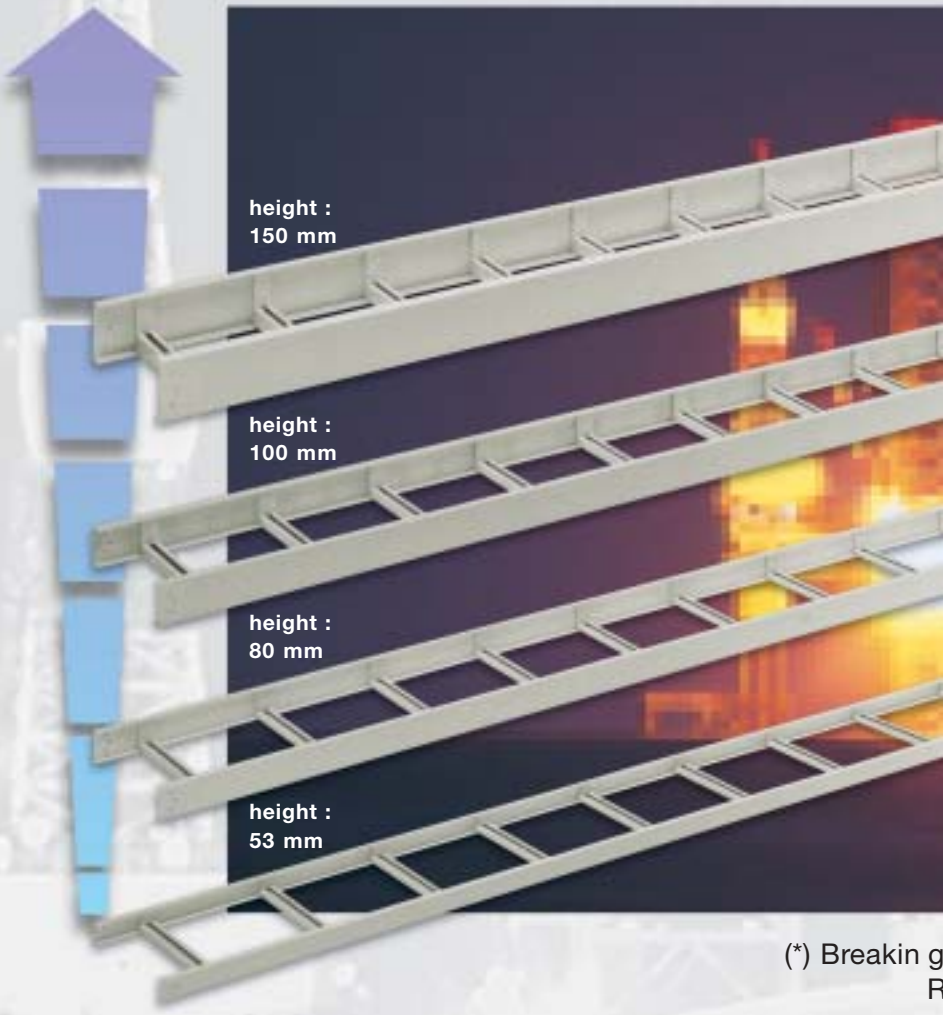
example :
- ladder series UL - width 600 mm height 150 mm
- cross type fitting
- fitting radius 600 mm
- acrylic resin AC
- white colour equiv. RAL 9001

(*) This gain in life span is variable according to applications ; the gain is much more marked when comparing a GRP installation to galvanised steel in a very corrosive environment (eg : coastal sites, road tunnels...)

Maintenance free

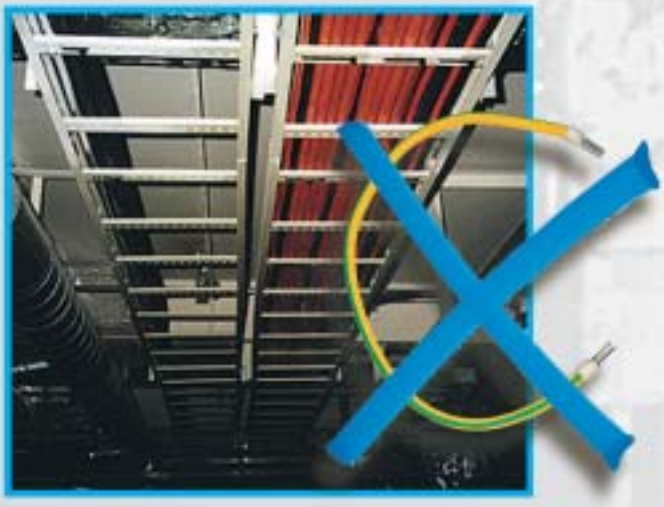
- No corrosion
- Examples available of products in situ in aggressive environment for more than 40 years
- No electrolytic corrosion
- No need for painting and protective varnishes

A complete offer for large load



(*) Breakin g
R

Insulating

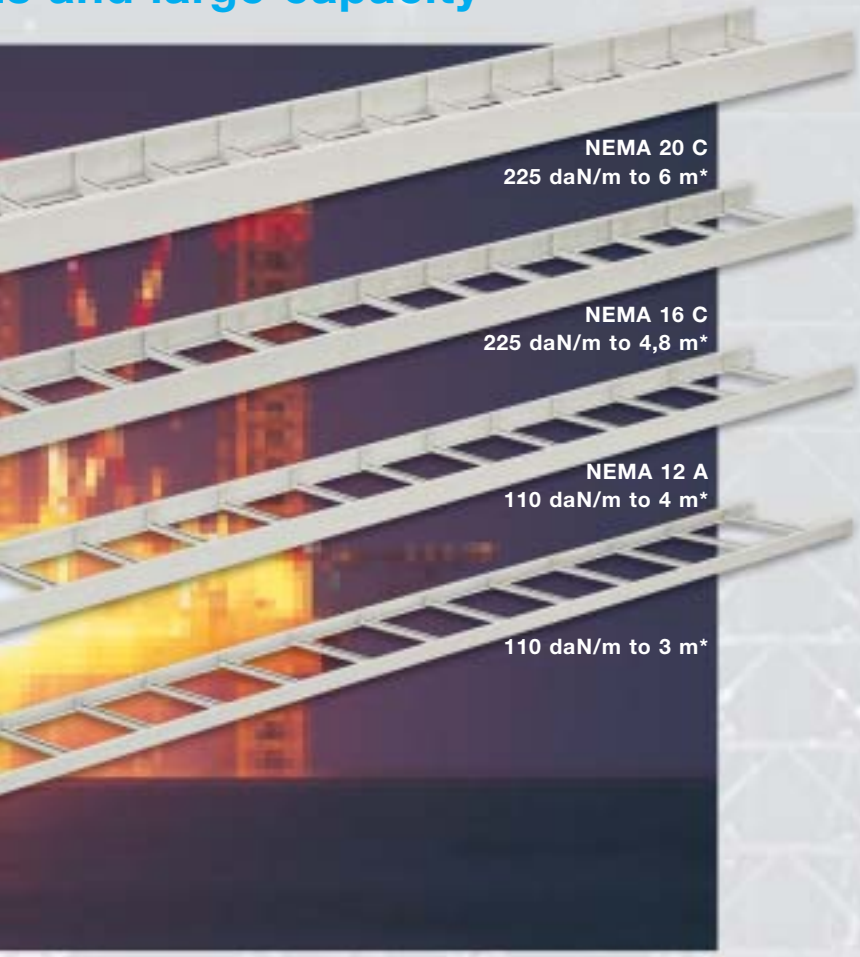


- Extremely insulating material (>7kV/m)
- No need to earth

- Patented clip in rungs, without metallic pieces
- No risk to cables when pulling
- Solidity of the installation over time
- Better behaviour to vibrations

- Strong fittings
- Reinforcements th
the solidity of the

ls and large capacity

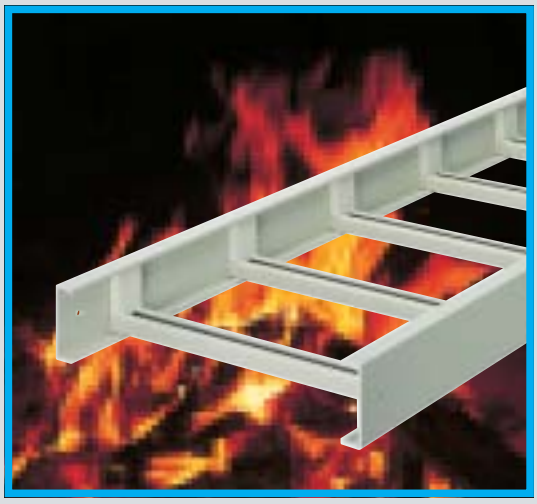


points determined according to the NEMA FG1 norm.
Refer to the technical notes at the end of this brochure.

h at increase
i nstallation

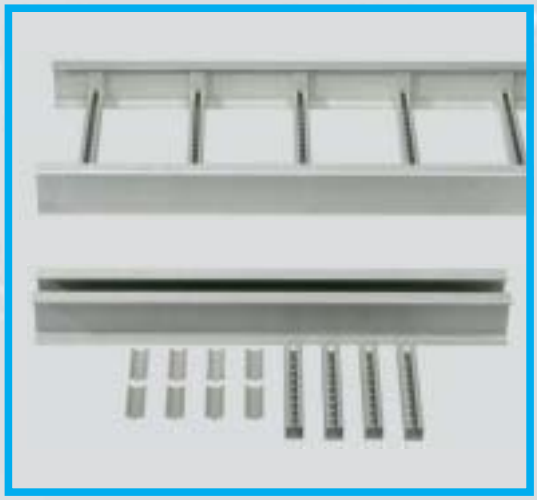
• Rapid connection with 4 bolts max. per splice plate

Maximum fire security



• Self-extinguishing, without toxic fumes,
• Answers to the most demanding international fire norms
• Zero halogen
• Does not conduct heat.

Easy handling



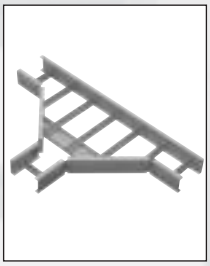
• Light and extremely robust
• Possibility of doing assemblies and configurations on site
• Optimized stocks

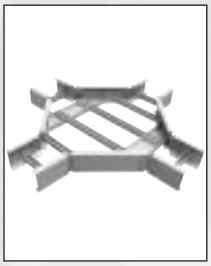
UL series heights 53 and 80 mm
Cable ladders, fittings, accessories and bolts

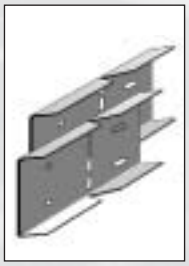
Standard radius of fittings : 250 mm

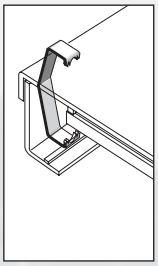
Cable ladders

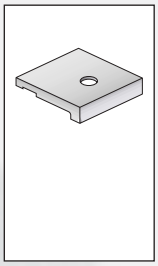
Height (mm)	Width (mm)		Length 3 m	Length 6 m	Horizontal elbow 90°	Vertical inter-ior and exterior	Reducer right/left
53	100						UL R10053
	150	Cable tray	UL 15053	UL 15053/6	UL B15053	UL BA15053	UL R15053
		Cover	KK D150		UL BD150	UL BAD150	
	200	Cable tray	UL 20053	UL 20053/6	UL B20053	UL BA20053	UL R20053
		Cover	KK D200		UL BD200	UL BAD200	
	300	Cable tray	UL 30053	UL 30053/6	UL B30053	UL BA30053	UL R30053
		Cover	KK D300		UL BD300	UL BAD300	
	400	Cable tray	UL 40053	UL 40053/6	UL B40053	UL BA40053	UL R40053
		Cover	KK D400		UL BD400	UL BAD400	
	500	Cable tray	UL 50053	UL 50053/6	UL B50053	UL BA50053	
		Cover	KK D500		UL BD500	UL BAD500	
	600	Cable tray	UL 60053	UL 60053/6	UL B60053	UL BA60053	
		Cover	KK D600		UL BD600	UL BAD600	
80	100						UL R10080
	150	Cable tray	UL 15080	UL 15080/6	UL B15080	UL BA15080	UL R15080
		Cover	KK D150		UL BD150	UL BAD150	
	200	Cable tray	UL 20080	UL 20080/6	UL B20080	UL BA20080	UL R20080
		Cover	KK D200		UL BD200	UL BAD200	
	300	Cable tray	UL 30080	UL 30080/6	UL B30080	UL BA30080	UL R30080
		Cover	KK D300		UL BD300	UL BAD300	
	400	Cable tray	UL 40080	UL 40080/6	UL B40080	UL BA40080	UL R40080
		Cover	KK D400		UL BD400	UL BAD400	
	500	Cable tray	UL 50080	UL 50080/6	UL B50080	UL BA50080	
		Cover	KK D500		UL BD500	UL BAD500	
	600	Cable tray	UL 60080	UL 60080/6	UL B60080	UL BA60080	
		Cover	KK D600		UL BD600	UL BAD600	
Unit			3 metres	6 metres	piece	piece	set of 2











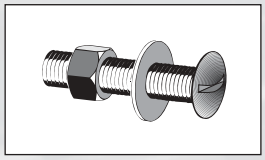
Tee	Cross	Height (mm)	Connector plate	Adjustable connector plate	Cover clip*	Ladder clamp in GRP*
		53	UL IH53	UL IV53	DF 50	UL KS
UL TE15053	UL X15053					
UL TED150	UL XD150	**80**	UL IH80**	UL IV80	DF 80	UL KS
UL TE20053	UL X20053					
UL TED200	UL XD200					
UL TE30053	UL X30053	**Unit**	set of 2 pieces	2 assembled pieces	50 pieces	piece
UL TED300	UL XD300					
UL TE40053	UL X40053	**Required bolts**	M616/V4A or M620/V4A or M820/PA6	M616/V4A or M620/V4A or M820/PA6		M1030/V4A
UL TED400	UL XD400					
UL TE50053	UL X50053					
UL TED500	UL XD500					
UL TE60053	UL X60053					
UL TED600	UL XD600					

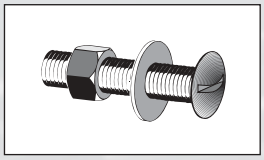
(*) refer to installation instructions on page 18

(**) also available in GRP - reference UL GH80

UL TE15080	UL X15080
UL TED150	UL XD150
UL TE20080	UL X20080
UL TED200	UL XD200
UL TE30080	UL X30080
UL TED300	UL XD300
UL TE40080	UL X40080
UL TED400	UL XD400
UL TE50080	UL X50080
UL TED500	UL XD500
UL TE60080	UL X60080
UL TED600	UL XD600
piece	piece

Bolts





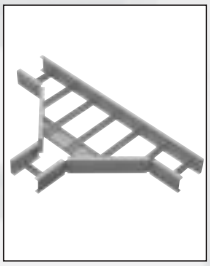
Diameter (mm)	Length (mm)	Dome head screw, nut and washer V4A stainless steel	Dome head screw, nut and washer reinforced polyamide
6	16	M616/V4A	
	20	M620/V4A	
8	20		M820/PA6
10	30	M1030/V4A	
Unit		100 pieces	100 pieces

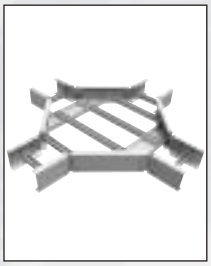
UL series heights 100 and 150 mm
Cable ladders, fittings, accessories and bolts

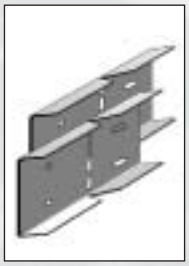
Standard radius
of fittings :
250 mm and 600 mm*

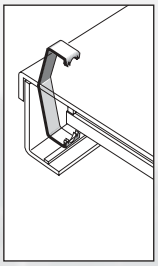
Cable ladders

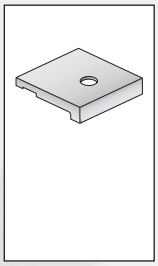
Height (mm)	Width (mm)		Length 3 m	Length 6 m	Horizontal elbow 90°	Vertical inter-ior and exterior	Reducer right/left
100	100						UL R100100
	150	Cable tray	UL 150100	UL 150100/6	UL B150100	UL BA150100	UL R150100
		Cover	KK D150		UL BD150	UL BAD150	
	200	Cable tray	UL 200100	UL 200100/6	UL B200100	UL BA200100	UL R200100
		Cover	KK D200		UL BD200	UL BAD200	
	300	Cable tray	UL 300100	UL 300100/6	UL B300100	UL BA300100	UL R300100
		Cover	KK D300		UL BD300	UL BAD300	
	400	Cable tray	UL 400100	UL 400100/6	UL B400100	UL BA400100	UL R400100
		Cover	KK D400		UL BD400	UL BAD400	
	500	Cable tray	UL 500100	UL 500100/6	UL B500100	UL BA500100	
		Cover	KK D500		UL BD500	UL BAD500	
	600	Cable tray	UL 600100	UL 600100/6	UL B600100	UL BA600100	
		Cover	KK D600		UL BD600	UL BAD600	
	700	Cable tray	UL 700100	UL 700100/6	UL B700100	UL BA700100	
		Cover	KK D700		UL BD700	UL BAD700	
	800	Cable tray	UL 800100	UL 800100/6	UL B800100	UL BA800100	
		Cover	KK D800		UL BD800	UL BAD800	
	900	Cable tray	UL 900100	UL 900100/6	UL B900100	UL BA900100	
		Cover	KK D900		UL BD900	UL BAD900	
150	100						UL R100150
	150	Cable tray	UL 150150	UL 150150/6	UL B150150	UL BA150150	UL R150150
		Cover	KK D150		UL BD150	UL BAD150	
	200	Cable tray	UL 200150	UL 200150/6	UL B200150	UL BA200150	UL R200150
		Cover	KK D200		UL BD200	UL BAD200	
	300	Cable tray	UL 300150	UL 300150/6	UL B300150	UL BA300150	UL R300150
		Cover	KK D300		UL BD300	UL BAD300	
	400	Cable tray	UL 400150	UL 400150/6	UL B400150	UL BA400150	UL R400150
		Cover	KK D400		UL BD400	UL BAD400	
	500	Cable tray	UL 500150	UL 500150/6	UL B500150	UL BA500150	
		Cover	KK D500		UL BD500	UL BAD500	
	600	Cable tray	UL 600150	UL 600150/6	UL B600150	UL BA600150	
		Cover	KK D600		UL BD600	UL BAD600	
	700	Cable tray	UL 700150	UL 700150/6	UL B700150	UL BA700150	
		Cover	KK D700		UL BD700	UL BAD700	
	800	Cable tray	UL 800150	UL 800150/6	UL B800150	UL BA800150	
		Cover	KK D800		UL BD800	UL BAD800	
	900	Cable tray	UL 900150	UL 900150/6	UL B900150	UL BA900150	
		Cover	KK D900		UL BD900	UL BAD900	
*	**Radius 600 mm**				UL B.../**600**	UL BA.../**600**	
	Unit		3 metres	6 metres	piece	piece	set of 2 pieces









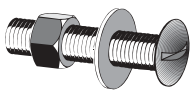


Tee	Cross	Height (mm)	Connector plate	Adjustable connector plate	Cover clip*	Ladder clamp in GRP*
		100	UL IH100	UL IV100	DF 100	UL KS
UL TE150100	UL X150100					
UL TED150	UL XD150	**150**	UL IH150	UL IV150	DF 150	UL KS
UL TE200100	UL X200100					
UL TED200	UL XD200					
UL TE300100	UL X300100	**Unit**	set of 2 pieces	2 assembled pieces	50 pieces	piece
UL TED300	UL XD300					
UL TE400100	UL X400100					
UL TED400	UL XD400	**Required bolts**	M616/V4A or M620/V4A	M616/V4A or M620/V4A		M1030/V4A
UL TE500100	UL X500100					
UL TED500	UL XD500					
UL TE600100	UL X600100					
UL TED600	UL XD600					
UL TE700100	UL X700100					
UL TED700	UL XD700					
UL TE800100	UL X800100					
UL TED800	UL XD800					
UL TE900100	UL X900100					
UL TED900	UL XD900					

(*) refer to installation instructions on page 18

UL TE150150	UL X150150
UL TED150	UL XD150
UL TE200150	UL X200150
UL TED200	UL XD200
UL TE300150	UL X300150
UL TED300	UL XD300
UL TE400150	UL X400150
UL TED400	UL XD400
UL TE500150	UL X500150
UL TED500	UL XD500
UL TE600150	UL X600150
UL TED600	UL XD600
UL TE700150	UL X700150
UL TED700	UL XD700
UL TE800150	UL X800150
UL TED800	UL XD800
UL TE900150	UL X900150
UL TED900	UL XD900
UL TE.../**600**	UL X.../**600**
piece	piece

Bolts



Diameter (mm)	Length (mm)	Dome head screw, nut and washer V4A stainless steel
6	16	M616/V4A
	20	M620/V4A
8	20	
10	30	M1030/V4A
Unit		100 pieces

Product selection
Cable ladders *UL series*

Optimize your installation :

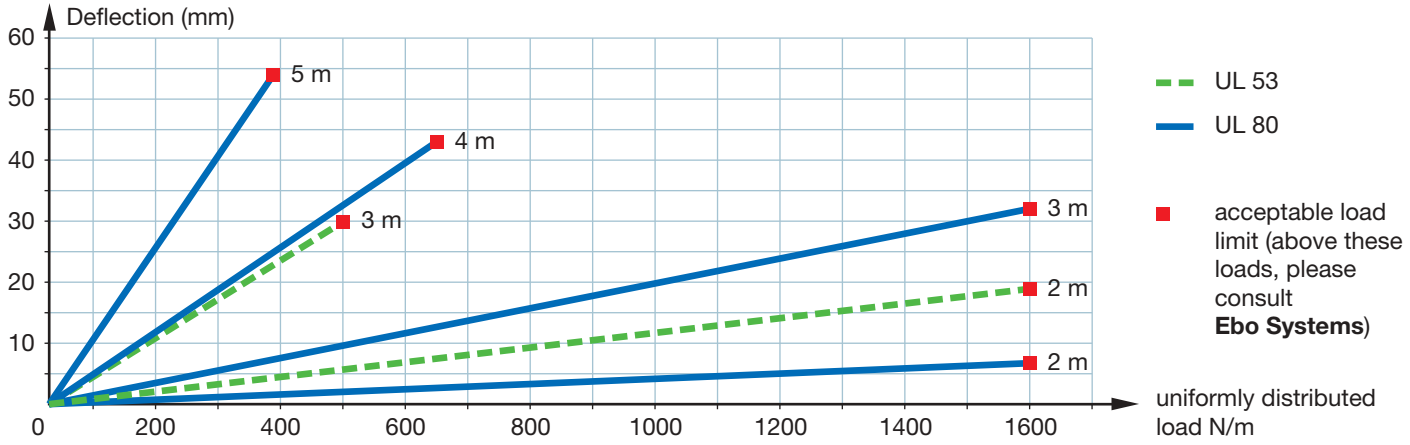
The exceptional resistance of our pultruded composite materials for the service of your electric installation

Section utile (see. p. 12)		Useful area (mm^2) / Weight of cables**(daN/m)	Maximum admissible load (daN/m)** according to the distance between supports* 2 m	3 m	4 m	5 m	6 m
UL...53	150 Ą 300	9520 ≈ 25	160	50			
	400 Ą 600	19720 ≈ 55		50			
UL...80	150 Ą 300	16840 ≈ 45	160	160	60	30	
	400 Ą 600	35140 ≈ 100			60		
UL...100	150 Ą 500	32060 ≈ 90	250	250	140	80	40
	600 Ą 900	60060 ≈ 170			140		
UL...150	150 Ą 500	45340 ≈ 125	250	250	250	230	130
	600 Ą 900	84940 ≈ 235					130

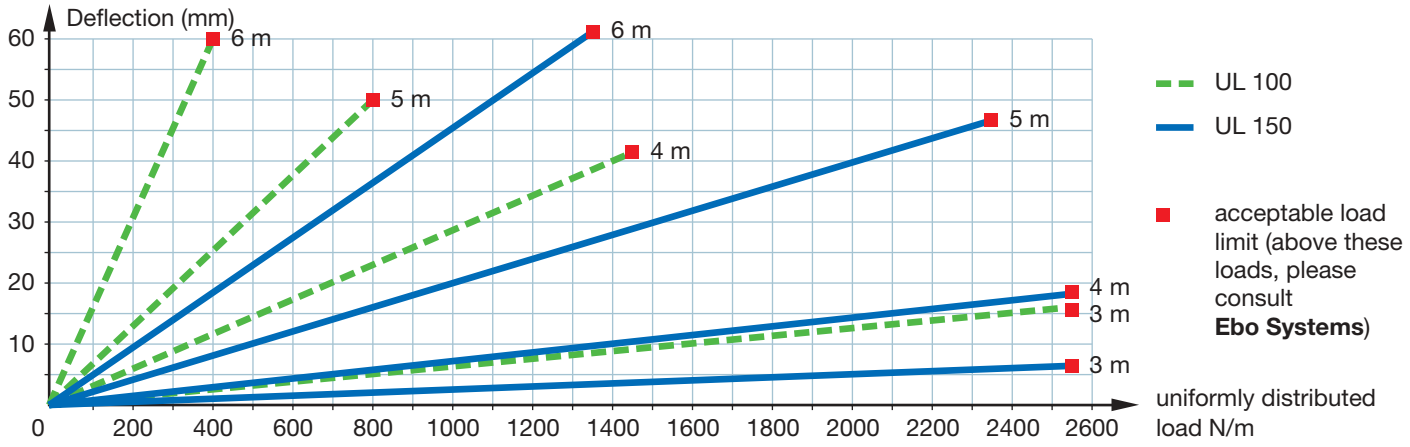
UL series optimal conditions, for cost reduction on your installation

(*) For supporting distances greater than 4 m, please consult us.
(**) This data is given for ladders jointed with bolts.
Without bolts, consult us.

Series UL53 and UL80 load diagram : supporting distances from 2 to 5 m



Series UL100 and UL150 load diagram : supporting distances from 3 to 6 m

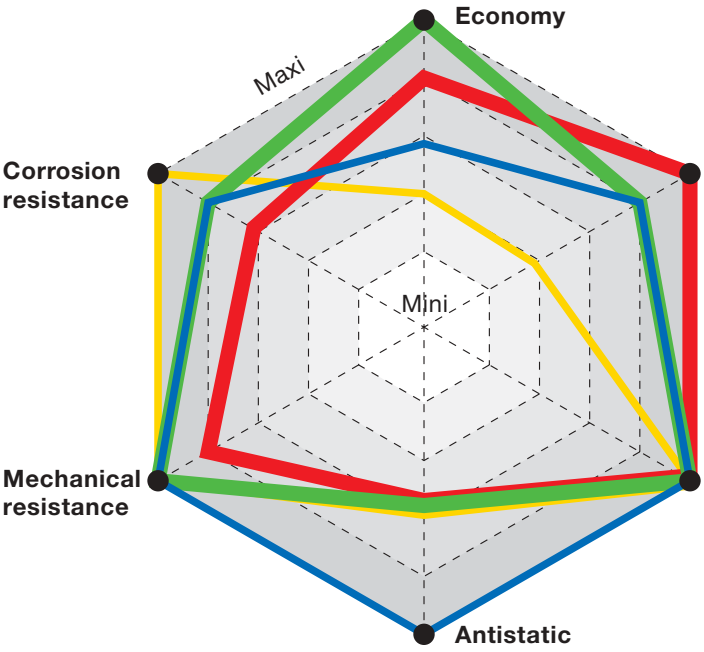


Remarks :
Above $f_{/l}$ = 1/200ème, one can clearly see mechanical distortion of the product.

All our cable ladders are tested in accordance with the project of international norm CEI 61537, at an ambient temperature of 25° C, and in accordance with our installation instructions.

Select your resins :

Dedicated solutions for aggressive environments



The nearer the curve to the outside of the hexagone, the better the solution.

You are in presence of :	Your environment :	Your requirements :	Our recommendation :
current corrosive atmosphere	strong atmospheric type corrosion (ex. : side of sea)	a very good holding in the time, a good behaviour to fire, without risk, for an optimal cost	Self-extinguishing polyester 0% halogen
	risk of fire in enclosed and corrosive environment (ex. : long tunnels)	an excellent resistance to fire for a maximal security	Self-extinguishing Acrylic 0% halogen
specific corrosive atmosphere	strong content of highly corrosive chemical agents (ex. : H_2SO_4, HCl,...)	a high resistance to the chemical corrosion	Vynilester 0 % halogen
	highly exploding atmosphere (ex. : mines, gas groups I)	the antistatic properties	carbon loaded polyester 0 % halogen

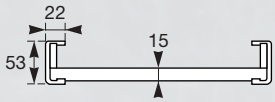
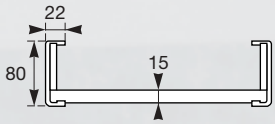
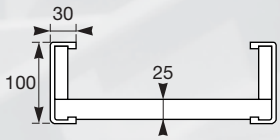
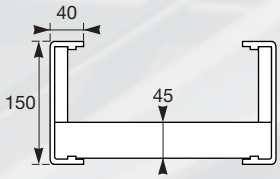
For specific projects we will define solutions to meet your needs.

Composite cable ladders ***Series UL*** are available :

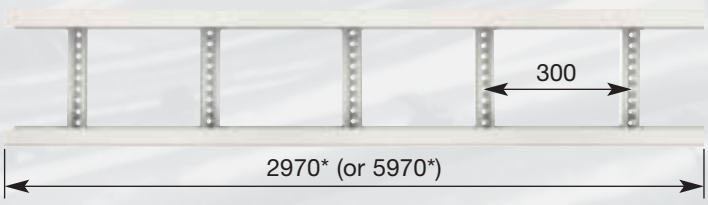
as standard : - with polyester resin, Zero halogen,
- in color equiv. RAL 7032 (light grey),

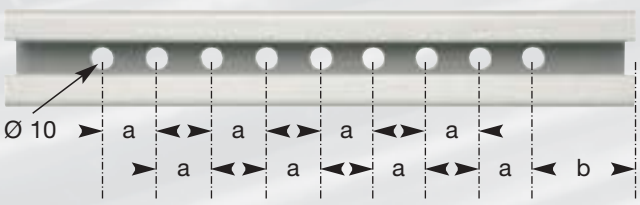
on request : - please consult our technical resin cards

UL

Height (mm) H	Width (mm) W	Cable ladder reference	Weight (kg/m) Base	Weight (kg/m) Base + Cover	Usable area mm²
					
53	150	UL 15053 (/6)	1,7	2,8	4420
	200	UL 20053 (/6)	1,8	3,2	6120
	300	UL 30053 (/6)	2,0	3,9	9520
	400	UL 40053 (/6)	2,1	4,4	12920
	500	UL 50053 (/6)	2,3	5,2	16320
	600	UL 60053 (/6)	2,4	5,6	19720
					
80	150	UL 15080 (/6)	2,3	3,4	7690
	200	UL 20080 (/6)	2,4	3,8	10740
	300	UL 30080 (/6)	2,6	4,6	16840
	400	UL 40080 (/6)	2,8	5,1	22940
	500	UL 50080 (/6)	3,0	5,9	29040
	600	UL 60080 (/6)	3,1	6,4	35140
					
100	150	UL 150100 (/6)	3,3	4,3	7560
	200	UL 200100 (/6)	3,3	4,7	11060
	300	UL 300100 (/6)	3,5	5,5	18060
	400	UL 400100 (/6)	3,7	6,0	25060
	500	UL 500100 (/6)	3,9	6,8	32060
	600	UL 600100 (/6)	4,1	7,3	39060
	700	UL 700100 (/6)	4,2	9,8	46060
	800	UL 800100 (/6)	4,4	10,6	53060
	900	UL 900100 (/6)	4,6	11,1	60060
					
150	150	UL 150150 (/6)	6,0	7,0	10690
	200	UL 200150 (/6)	6,1	7,5	15640
	300	UL 300150 (/6)	6,5	8,4	25540
	400	UL 400150 (/6)	6,8	9,1	35440
	500	UL 500150 (/6)	7,2	10,1	45340
	600	UL 600150 (/6)	7,5	10,7	55240
	700	UL 700150 (/6)	7,8	13,4	65140
	800	UL 800150 (/6)	8,2	14,3	75040
	900	UL 900150 (/6)	8,5	15,0	84940

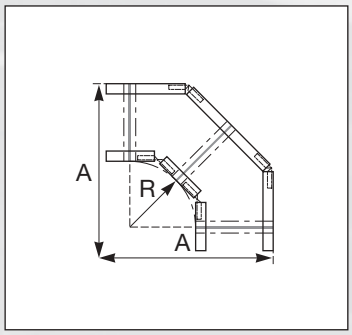
Height / Distance	53	80	100	150
a	25	25	25	25
b	32,5	32,5	44	43

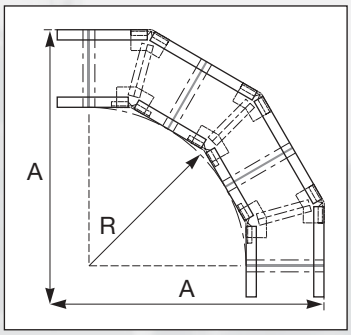




(*) permits a garanteed constant length of 3000 mm (or 6000 mm) after assembly with UL IH connector plates.

Fittings
Horizontal elbows 90°

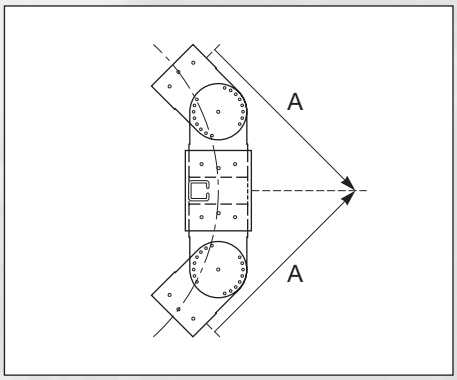


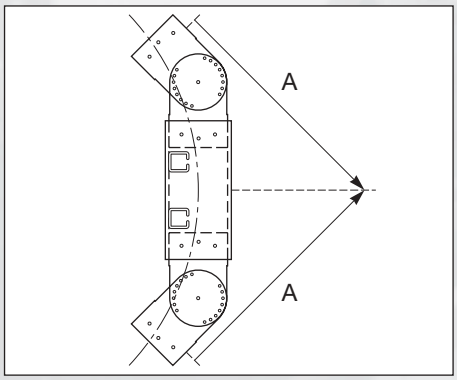


Height (mm) H	Width (mm) W	Base references (UL B.../600 for radius 600 mm)	Curvature radius = 250 mm			Curvature radius = 600 mm		
			Distance A (mm)*	Weight (kg)		Distance A (mm)*	Weight (kg)	
				Base	Base + Cover		Base	Base + Cover
53	150	UL B15053	505	1,6	2,3			
	200	UL B20053	555	1,8	2,7			
	300	UL B30053	655	2,0	3,6			
	400	UL B40053	755	2,7	4,7			
	500	UL B50053	855	3,0	5,8			
	600	UL B60053	955	3,3	6,7			
80	150	UL B15080	505	2,2	2,9			
	200	UL B20080	555	2,4	3,3			
	300	UL B30080	655	2,7	4,3			
	400	UL B40080	755	3,6	5,6			
	500	UL B50080	855	4,0	6,8			
	600	UL B60080	955	4,4	7,8			
100	150	UL B150100	505	3,2	3,9	885	5,6	7,1
	200	UL B200100	555	3,4	4,3	935	5,7	7,6
	300	UL B300100	655	3,7	5,3	1035	6,0	8,7
	400	UL B400100	755	4,7	6,7	1135	7,1	10,2
	500	UL B500100	855	5,2	8,0	1235	7,5	11,4
	600	UL B600100	955	5,7	9,1	1335	7,9	12,3
	700	UL B700100	1055	6,2	12,4	1435	8,2	15,8
	800	UL B800100	1155	6,7	14,1	1535	8,6	17,0
	900	UL B900100	1255	7,2	15,6	1635	9,0	17,8
150	150	UL B150150	505	5,4	6,1	885	9,8	11,2
	200	UL B200150	555	5,8	6,7	935	10	11,8
	300	UL B300150	655	6,5	8,1	1035	10,4	13,1
	400	UL B400150	755	8,3	10,3	1135	12,5	15,6
	500	UL B500150	855	9,3	12,0	1235	13,2	17,1
	600	UL B600150	955	10,2	13,6	1335	13,9	18,3
	700	UL B700150	1055	11,1	17,3	1435	14,6	22,2
	800	UL B800150	1155	12,0	19,4	1535	15,3	23,7
	900	UL B900150	1255	13,0	21,3	1635	16,1	24,9

(*) distance including connector plate

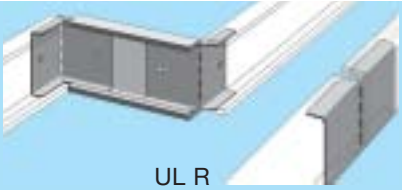
Fittings
Vertical interior/outside elbows 90°

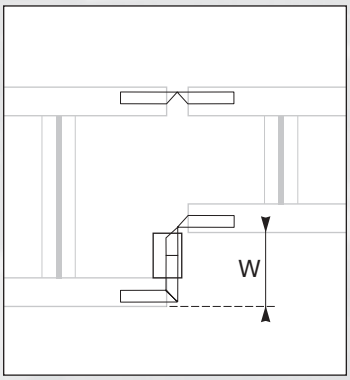




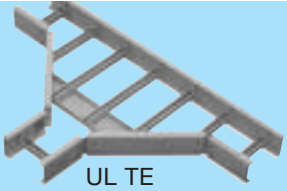
Height (mm)	Width (mm)	Base ref. (UL BA.../600 for radius 600 mm)	Curvature radius	Distance A (mm)*	Weight (kg)		Curvature radius	Distance A (mm)*	Weight (kg)	
					Base	Base + cover			Base	Base + cover
53	150	UL BA15053	300	240	0,9	1,2				
	200	UL BA20053	300	240	0,9	1,3				
	300	UL BA30053	300	240	1,0	1,5				
	400	UL BA40053	300	240	1,0	1,6				
	500	UL BA50053	300	240	1,1	1,8				
	600	UL BA60053	300	240	1,1	1,9				
80	150	UL BA15080	340	285	1,3	1,6				
	200	UL BA20080	340	285	1,4	1,7				
	300	UL BA30080	340	285	1,4	2,0				
	400	UL BA40080	340	285	1,5	2,1				
	500	UL BA50080	340	285	1,5	2,3				
	600	UL BA60080	340	285	1,6	2,5				
100	150	UL BA150100	380	335	2,2	2,6	600	465	2,8	3,3
	200	UL BA200100	380	335	2,3	2,7	600	465	2,9	3,5
	300	UL BA300100	380	335	2,3	2,9	600	465	3,0	3,9
	400	UL BA400100	380	335	2,4	3,1	600	465	3,1	4,1
	500	UL BA500100	380	335	2,4	3,3	600	465	3,2	4,5
	600	UL BA600100	380	335	2,5	3,5	600	465	3,3	4,8
	700	UL BA700100	380	335	2,5	4,3	600	465	3,4	5,9
	800	UL BA800100	380	335	2,6	4,5	600	465	3,5	6,3
	900	UL BA900100	380	335	2,6	4,7	600	465	3,7	6,6
150	150	UL BA150150	440	420	4,0	4,4	600	515	5,1	5,6
	200	UL BA200150	440	420	4,1	4,5	600	515	5,2	5,9
	300	UL BA300150	440	420	4,2	4,9	600	515	5,4	6,4
	400	UL BA400150	440	420	4,3	5,1	600	515	5,6	6,8
	500	UL BA500150	440	420	4,4	5,4	600	515	5,8	7,3
	600	UL BA600150	440	420	4,5	5,7	600	515	6,1	7,7
	700	UL BA700150	440	420	4,6	6,6	600	515	6,3	9,0
	800	UL BA800150	440	420	4,7	6,9	600	515	6,5	9,5
	900	UL BA900150	440	420	4,8	7,1	600	515	6,7	9,9

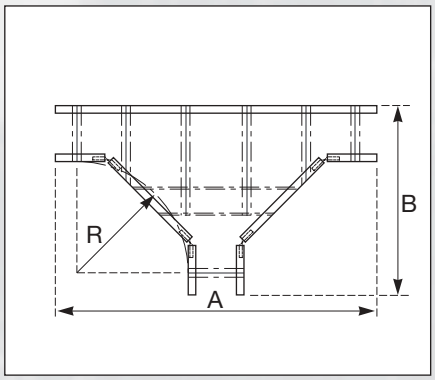
(*) distance including connector plate


UL R



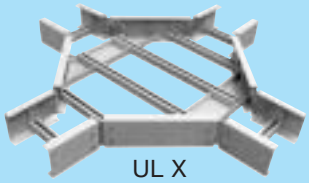
Height (mm)	Width (mm) W	Reference	Weight (kg) of the set of 2 pieces
53	100	UL R10053	0,3
	150	UL R15053	0,3
	200	UL R20053	0,3
	300	UL R30053	0,4
	400	UL R40053	0,5
80	100	UL R10080	0,3
	150	UL R15080	0,4
	200	UL R20080	0,4
	300	UL R30080	0,5
	400	UL R40080	0,6
100	100	UL R100100	0,5
	150	UL R150100	0,6
	200	UL R200100	0,7
	300	UL R300100	0,8
	400	UL R400100	0,9
150	100	UL R100150	0,8
	150	UL R150150	0,9
	200	UL R200150	1,0
	300	UL R300150	1,3
	400	UL R400150	1,5

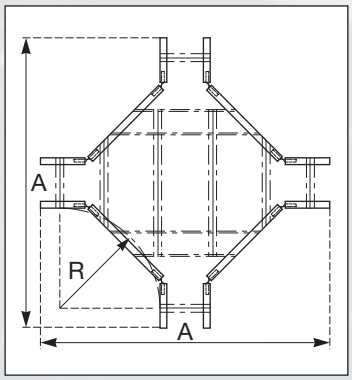




Height (mm) H	Width (mm) W	Base references (UL TE.../600 for radius 600 mm)	Curvature radius = 250 mm				Curvature radius = 600 mm			
			Distance (mm)*		Weight (kg)		Distance (mm)*		Weight (kg)	
			A	B	Base	Base + cover	A	B	Base	Base + cover
53	150	UL TE15053	840	505	2,7	3,1				
	200	UL TE20053	890	505	2,9	3,3				
	300	UL TE30053	990	655	3,4	3,9				
	400	UL TE40053	1090	755	3,8	4,3				
	500	UL TE50053	1190	855	4,5	5,0				
	600	UL TE60053	1290	955	5,0	5,6				
80	150	UL TE15080	865	505	3,7	4,1				
	200	UL TE20080	915	505	4,0	4,3				
	300	UL TE30080	1015	655	4,5	5,0				
	400	UL TE40080	1115	755	5,0	5,5				
	500	UL TE50080	1215	855	5,9	6,5				
	600	UL TE60080	1315	955	6,5	7,1				
100	150	UL TE150100	865	505	5,2	5,6	1620	885	8,2	10,0
	200	UL TE200100	915	555	5,5	5,9	1670	935	8,5	10,3
	300	UL TE300100	1015	655	6,1	6,7	1770	1035	9,1	11,4
	400	UL TE400100	1115	755	6,8	7,3	1870	1135	9,8	12,0
	500	UL TE500100	1215	855	7,8	8,3	1970	1235	10,9	13,2
	600	UL TE600100	1315	955	8,5	9,1	2070	1335	11,6	14,1
	700	UL TE700100	1415	1055	9,2	9,8	2170	1435	12,3	14,8
	800	UL TE800100	1515	1155	9,8	10,4	2270	1535	12,9	15,5
	900	UL TE900100	1615	1255	10,5	11,3	2370	1635	13,6	16,2
150	150	UL TE150150	865	505	9,1	9,5	1620	885	14,7	16,5
	200	UL TE200150	915	555	9,7	10,0	1670	935	15,3	17,1
	300	UL TE300150	1015	655	10,9	11,4	1770	1035	16,4	18,7
	400	UL TE400150	1115	755	12,0	12,5	1870	1135	17,6	19,9
	500	UL TE500150	1215	855	14,0	14,5	1970	1235	19,8	22,0
	600	UL TE600150	1315	955	15,3	15,9	2070	1335	21,0	23,6
	700	UL TE700150	1415	1055	16,6	17,1	2170	1435	22,3	24,9
	800	UL TE800150	1515	1155	17,8	18,4	2270	1535	23,6	26,2
	900	UL TE900150	1615	1255	19,1	19,9	2370	1635	24,9	27,5

(*) distance including connector plate

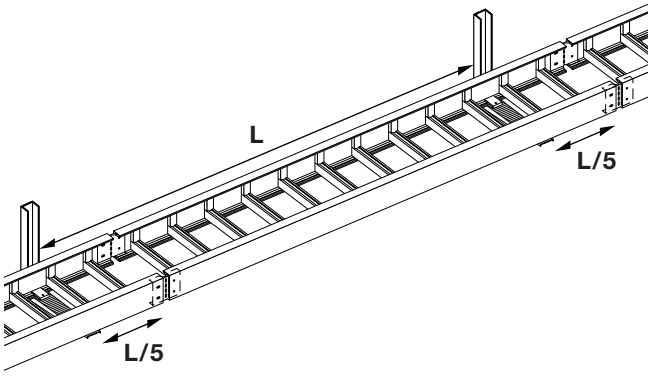

UL X



Height (mm) H	Width (mm) W	Base references (UL X.../600 for radius 600 mm)	Curvature radius = 250 mm			Curvature radius = 600 mm		
			Distance A (mm)*	Weight (kg)		Distance A (mm)*	Weight (kg)	
				Base	Base + Cover		Base	Base + Cover
53	150	UL X15053	840	3,7	4,4			
	200	UL X20053	890	4,0	4,7			
	300	UL X30053	990	4,4	5,5			
	400	UL X40053	1090	4,9	5,9			
	500	UL X50053	1190	5,7	6,8			
	600	UL X60053	1290	6,2	7,4			
80	150	UL X15080	865	5,1	5,8			
	200	UL X20080	915	5,3	6,0			
	300	UL X30080	1015	5,9	7,0			
	400	UL X40080	1115	6,5	7,5			
	500	UL X50080	1215	7,6	8,6			
	600	UL X60080	1315	8,2	9,4			
100	150	UL X150100	865	7,1	7,8	1620	11,5	15,0
	200	UL X200100	915	7,5	8,2	1670	11,8	15,4
	300	UL X300100	1015	8,1	9,2	1770	12,5	17,0
	400	UL X400100	1115	8,8	9,9	1870	13,2	17,7
	500	UL X500100	1215	10,0	11,0	1970	14,5	19,1
	600	UL X600100	1315	10,7	11,9	2070	15,3	20,4
	700	UL X700100	1415	11,5	12,7	2170	16,0	21,1
	800	UL X800100	1515	12,2	13,4	2270	16,7	21,9
	900	UL X900100	1615	13,0	14,5	2370	17,5	22,6
150	150	UL X150150	865	12,2	12,9	1620	20,2	23,8
	200	UL X200150	915	12,8	13,5	1670	20,9	24,5
	300	UL X300150	1015	14,1	15,1	1770	22,2	26,7
	400	UL X400150	1115	15,4	16,4	1870	23,5	28,0
	500	UL X500150	1215	17,6	18,6	1970	26,0	30,6
	600	UL X600150	1315	19,0	20,2	2070	27,4	32,5
	700	UL X700150	1415	20,4	21,6	2170	28,8	33,9
	800	UL X800150	1515	21,8	23,0	2270	30,2	35,3
	900	UL X900150	1615	23,2	24,7	2370	31,6	36,8

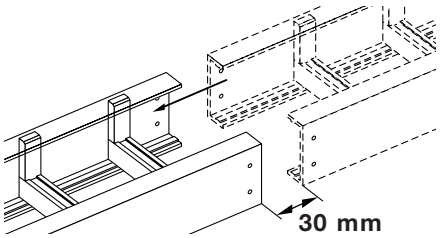
(*) distance including connector plate

1. Place the end of the ladder about L/5 away from the supporting bracket

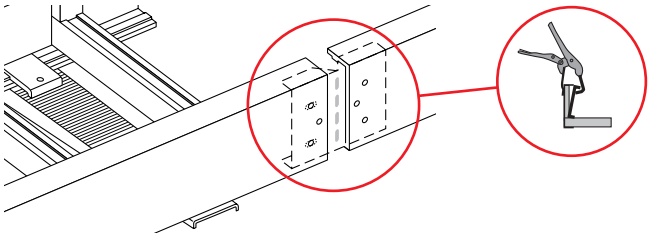


L/5 corresponds to the ideal place for mechanical stability : place the junction between 2 ladders at this point.

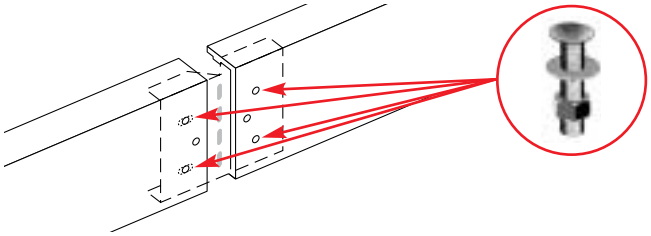
2. Connect the ladders together



Place the side-rails facing each other.



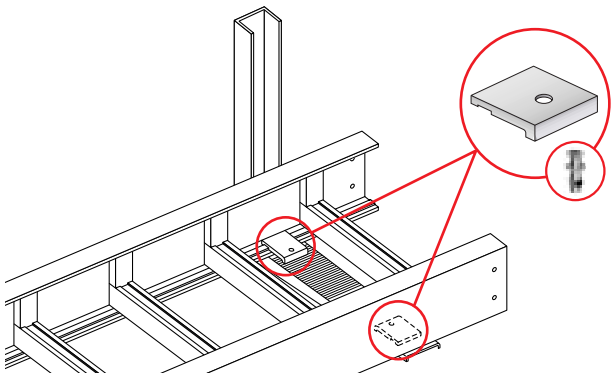
Fix the stainless steel splice plates UL IH with the help of clip stalls, the oblong holes* placed near the supporting bracket.



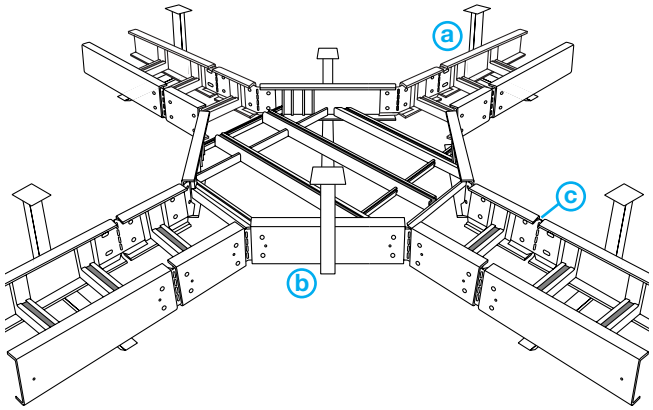
Lock the junction with 4 M620/V4AS bolts.

(*) The splice plates UL IH are pre-punched with 2 holes Ø 8 mm and 2 oblong holes 20 x 8 mm in order to assure a solid fixing and to allow the expansion of the GRP material.

3. Fix the ladder at each support with 2 hold-down clamps UL KS and 2 M1030/V4A bolts

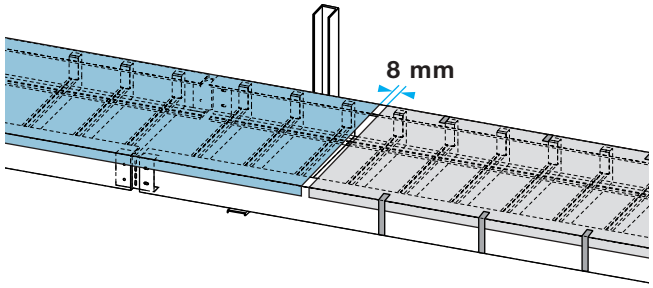


4. Respect the rules of installation



a. All fittings must be supported at every cables entry
b. Add a central support for all fittings with radius greater than 250 mm, and/or with width greater than 400 mm,
c. Lock systematically each splice plate UL IH with 4 M620/V4AS bolts on fittings' extremities

5. Fix the cover with clips made of stainless steel 316 (ref. DF50, DF80, DF100 and DF150)



Under normal conditions use 3 clips alternatively on each side per 3 metres of ladders.

Under extreme conditions (strong winds > 60 km/h), use 7 clips per 3 metres of ladders.

Dedicated services

Attending to your needs
EBO teams are dedicated to ensuring the success of your project. Our aim is to be available at all stagesof a project, from design to installation, in order
to propose the best technical and economic solutions.

Continuous support
In order to ensure the optimal solution, Ebo Systems offers :
- an initial technical survey,
- on-going training, either in our own extensive facilities or on-site,
- technical advice on-site,
- continuous personal advice from design to installation.

Respect for the environment
Ebo Systems is committed to respect for the environment and is actively progressing towards ISO 14001 certification.
All our products are zero halogen.

Dedicated solutions
Every project requires a solution. Ebo Systems is available to advise on all aspects of a project, taking in account dimensional constraints and material requirements.

Logistical support
Ebo Systems keeps a large range of references permanently in stock which can be delivered quickly to site.
Our logistics department can schedule planned deliveries to meet specific requirements.

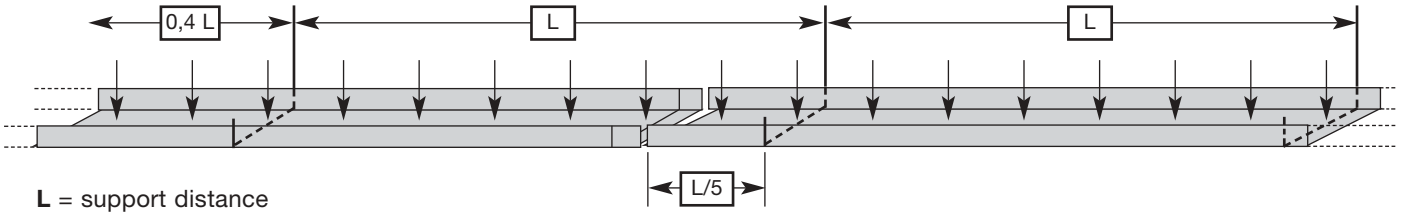
AFAQ ISO 9001
AFAQ N 1994/2826

Quality control
Ebo Systems has been ISO 9001 qualified since 1994.
We commit to
- regularly assess our own suppliers for quality,
- verify their own technical data on their products, communicated by these regularly,
- systematically control materials entering our manufacturing process,
- continually look to improve our designs of products,
- 100% control of all critical stages of manufacture,
- do final control and inspection before despatch.

UL

Test conditions

All of the loading values indicated in the catalogue are achieved in accordance with the international standard IEC 61537, accordind to the following diagram :



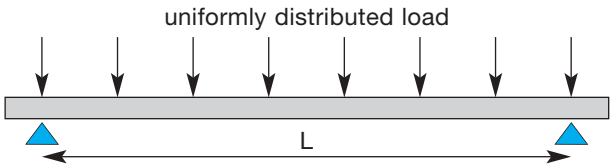
L = support distance

The deflection values are measured with the position of the junction between 2 ladders at a distance L/5 from a support. If this distance is not respected, it is necessary to raise the deflection values by about 30%.

Tests NEMA FG1 1993

The NEMA norm defines a classification according to the supporting distance and the allowable load.

Load tests are carried out on a section of ladder non fixed at the extremities, and are conducted up until the rupture of the product.



The supporting distance is expressed in feet.
The allowable maximum load is derived by dividing the rupture load by a coefficient of safety of 1,5.
This load is classified according to three categories : A, B and C

Results of the NEMA tests

UL series Ladders underwent rupture tests and achieved the following classification :

UL 80 : 12 A UL 100 : 16 C & 20 A UL 150 : 20 C

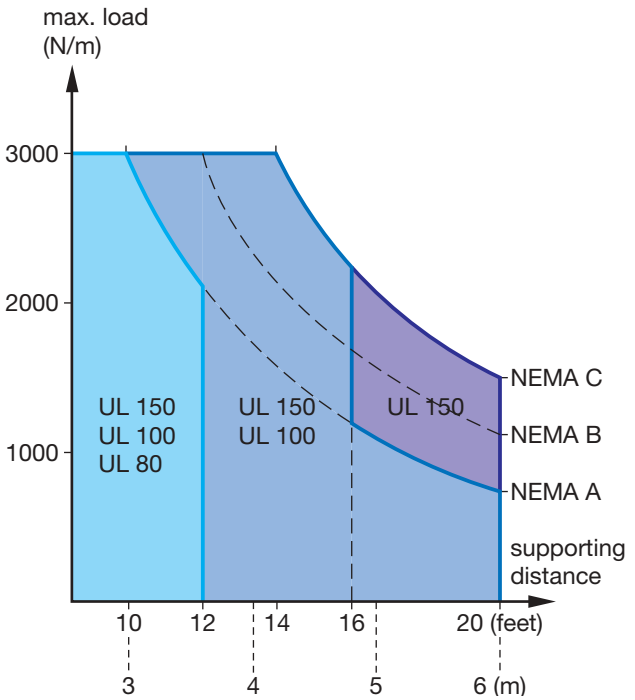
Values of the norm NEMA FG1 - 1993 are indicated in the diagram below :

UL 100 : 20 A, 16 C, 16 B, 16 A, 12 C ...

Localised loads

To be able to compare this to a uniformly distributed load it is necessary to double the value of the localised load.

Example : A 60 kg local load at the centre of a ladder with 6 m of support distance.
Equivalent load : 60 x 2 = 120 kg uniformly distributed along 6 m (ie 20 daN/m).



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Corporate brochure and CD-Rom

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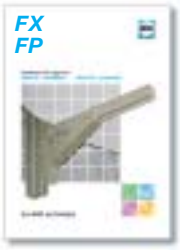
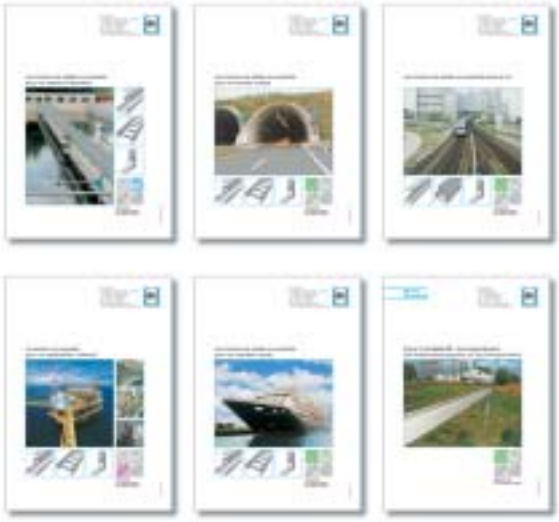


Market application sheets



Resin characteristics

Ebo Systems

Head office

Ebo Systems
Boulevard d'Europe
B.P. 10
F - 67211 Obernai Cedex
Tel. +33 (0)3 88 49 50 51
Fax. +33 (0)3 88 49 50 14
e-mail : info@ebo-systems.com

Production

Ebo Systems S.A.S.
Zone industrielle
B.P. 5
F - 54920 Villers-la-Montagne
Tel. +33 (0)3 82 44 01 07
Fax. +33 (0)3 82 26 10 41
e-mail : info.prod@ebo-systems.com

Market areas

Belgium, Spain, France, Luxembourg Portugal
Ebo Systems
4, allée du Carré
Parc des Barbanniers
F - 92230 Gennevilliers
Tél. +33 (0)1 40 85 44 86
Fax. +33 (0)1 40 85 44 79
e-mail : info.fr@ebo-systems.com

Germany
Ebo Systems GmbH
Zum Gunterstal
D - 66440 Blieskastel
Tel. +49 (0)6842 - 945 6302
Fax +49 (0)6842 - 945 5284
e-mail : info.de@ebo-systems.com

Italy
Ebo Systems S.r.l.
Via Guido Rossa 5 / 7
I - 24035 Curno (BG)
Tel. +39 (0)35 46 20 88
Fax +39 (0)35 46 20 89
e-mail : info.it@ebo-systems.com

Switzerland, Austria, Eastern Europe
Ebo Systems SA
Postfach
Tambourstrasse 8
CH - 8833 Samstagern
Tel. +41 (0)1 787 87 87
Fax +41 (0)1 787 87 99
e-mail : info.ch@ebo-systems.com

English-speaking Europe, Asia, Middle East, Africa, America, Australia
Ebo Systems
Boulevard d'Europe
B.P. 10
F - 67211 Obernai Cedex
Tel. +33 (0)3 88 49 50 51
Fax. +33 (0)3 88 49 50 14
e-mail : info@ebo-systems.com

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