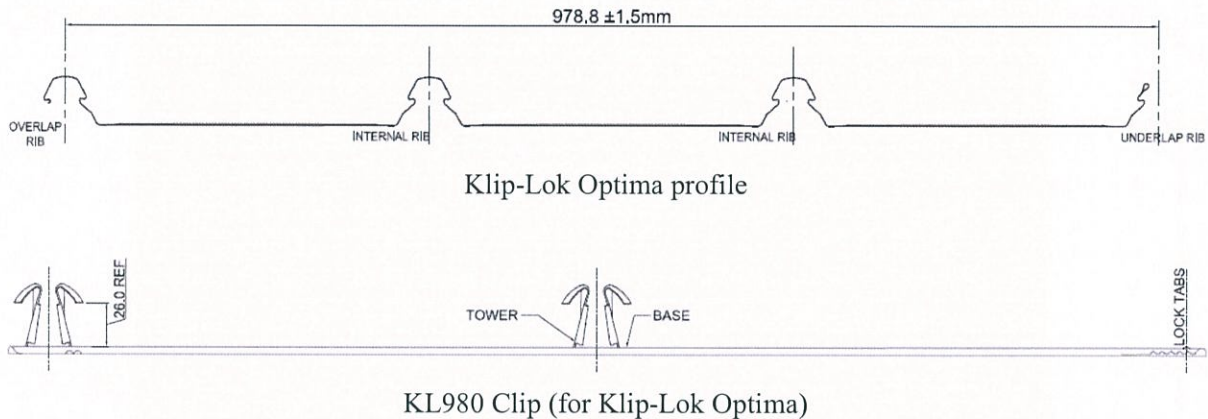


Profile:



1. Limit State Load capacity for Klip-Lok Optima is provided for 0.40, 0.42, 0.48 & 0.60 BMT (G550).
2. Klip-Lok Optima is fastened using 1 clip assembly per sheet to the support. Mounting clips are fastened to the support using 2, #12-14x30 wafer head self-drilling screws with washer (or higher specification).
3. The capacity tables are based on testing carried out at Lysaght's NATA registered testing laboratory by using the direct pressure testing rig.
4. Testing was carried out in accordance to the following Australian Standards:
 - a. AS 1562-1992 – Design and Installation of sheet roof and wall cladding-Part 1: Metal
 - b. AS 4040.0-1992 – Methods for testing sheet roof and wall cladding-Part 0: Introduction, list of methods and general requirements
 - c. AS 4040.1-1992 – Methods for testing sheet roof and wall cladding - Method 1: Resistance to concentrated loads
 - d. AS 4040.2-1992 – Methods for testing sheet roof and wall cladding - Method 2: Resistance to wind pressure for non-cyclone regions



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KLIP-LOK OPTIMA

TEST REPORT SUMMARY

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LYSAGHT® KLIP-LOK® OPTIMA™: LIMIT STATE WIND PRESSURE CAPACITIES (kPa)

LYSAGHT® KLIP-LOK® OPTIMA™ 0.42mm BMT / 0.47mm TCT		Without edge stiffener (mm)									
Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	0.96	0.85	0.75	0.66	0.56	0.49	0.41	0.34	0.28	-
	Strength*	2.02	1.85	1.69	1.52	1.36	1.21	1.07	0.92	0.78	-
End	Serviceability	0.85	0.83	0.80	0.76	0.71	0.64	0.57	0.50	0.43	0.35
	Strength*	1.66	1.73	1.58	1.39	1.20	1.04	1.00	0.97	0.94	0.91
Internal	Serviceability	0.78	0.76	0.74	0.72	0.69	0.64	0.59	0.54	0.50	0.45
	Strength*	1.91	1.76	1.61	1.45	1.31	1.19	1.10	1.05	1.00	0.98
LYSAGHT® KLIP-LOK® OPTIMA™ 0.48mm BMT / 0.53mm TCT		Without edge stiffener (mm)									
Span type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	1.11	1.00	0.89	0.79	0.69	0.59	0.50	0.41	0.32	-
	Strength*	2.40	2.12	1.85	1.61	1.40	1.25	1.13	1.04	0.97	-
End	Serviceability	1.20	1.18	1.14	1.05	0.94	0.82	0.71	0.62	0.53	0.45
	Strength*	2.34	2.29	2.25	2.01	1.68	1.39	1.33	1.27	1.22	1.16
Internal	Serviceability	1.18	1.17	1.15	1.10	0.99	0.87	0.77	0.69	0.64	0.58
	Strength*	2.21	2.15	2.03	1.79	1.52	1.30	1.28	1.27	1.26	1.24
LYSAGHT® KLIP-LOK® OPTIMA™ 0.60mm BMT / 0.65mm TCT		Without edge stiffener (mm)									
Span type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	1.72	1.53	1.34	1.16	0.99	0.83	0.67	0.53	0.38	-
	Strength*	3.74	3.39	3.05	2.73	2.41	2.11	1.82	1.53	1.25	-
End	Serviceability	1.77	1.76	1.69	1.54	1.33	1.12	0.95	0.81	0.70	0.60
	Strength*	3.58	3.05	2.57	2.20	1.90	1.67	1.46	1.30	1.20	1.10
Internal	Serviceability	2.03	1.94	1.82	1.67	1.49	1.32	1.16	1.00	0.86	0.72
	Strength*	3.25	3.21	3.06	2.73	2.30	1.90	1.63	1.48	1.40	1.36

* A capacity reduction factor of 0.9 is applied to strength capacities.
These capacities are based on tests conducted at BlueScope Steel's NATA registered testing laboratory using a direct pressure testing rig.

LYSAGHT® KLIP-LOK® OPTIMA™: LIMIT STATE WIND PRESSURE CAPACITIES (kPa)

LYSAGHT® KLIP-LOK® OPTIMA™ 0.42 MM BMT / 0.47MM TCT		With edge stiffener (mm)									
Span type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	2.05	1.65	1.29	0.96	0.70	0.52	0.39	0.32	0.26	-
	Strength*	5.16	4.70	4.25	3.83	3.44	3.10	2.81	2.53	2.27	-
End	Serviceability	1.44	1.20	1.01	0.87	0.79	0.72	0.64	0.55	0.45	0.34
	Strength*	3.64	2.79	2.07	1.60	1.32	1.17	1.09	1.05	1.04	1.05
Internal	Serviceability	0.97	0.85	0.74	0.71	0.69	0.67	0.64	0.59	0.53	0.46
	Strength*	2.92	2.26	1.74	1.48	1.40	1.38	1.33	1.24	1.12	0.99
LYSAGHT® KLIP-LOK® OPTIMA™ 0.48 mm BMT / 0.53mm TCT		With edge stiffener (mm)									
Span type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	2.57	2.07	1.60	1.19	0.85	0.62	0.46	0.36	0.29	-
	Strength*	7.13	6.07	5.07	4.19	3.51	3.07	2.81	2.68	2.63	-
End	Serviceability	1.73	1.54	1.36	1.18	1.03	0.89	0.77	0.66	0.56	0.47
	Strength*	3.78	3.26	2.74	2.24	1.81	1.48	1.40	1.33	1.26	1.18
Internal	Serviceability	1.43	1.19	1.02	1.01	0.98	0.94	0.89	0.81	0.69	0.56
	Strength*	3.65	2.76	2.10	2.00	1.90	1.80	1.76	1.65	1.29	1.29
LYSAGHT® KLIP-LOK® OPTIMA™ 0.60 mm BMT / 0.65mm TCT		With edge stiffener (mm)									
Span type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
Single	Serviceability	3.56	2.78	2.05	1.42	1.03	0.71	0.53	0.43	0.38	-
	Strength*	8.80	7.34	5.96	4.78	3.90	3.71	3.53	3.33	3.15	-
End	Serviceability	2.54	2.33	2.09	1.79	1.46	1.17	0.95	0.80	0.69	0.61
	Strength*	4.63	3.85	3.14	2.54	2.06	1.70	1.45	1.30	1.19	1.12
Internal	Serviceability	2.08	1.81	1.61	1.58	1.56	1.54	1.44	1.26	1.04	0.78
	Strength*	4.29	3.81	3.33	2.88	2.48	2.15	1.92	1.76	1.64	1.55

* A capacity reduction factor of 0.9 is applied to strength capacities.
These capacities are based on tests conducted at BlueScope Steel's NATA registered testing laboratory using a direct pressure testing rig.

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KLIP-LOK OPTIMA TEST REPORT SUMMARY

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Limit state wind pressure capacities (kPa)

LYSAGHT® KLIP-LOK® OPTIMA™		Không sử dụng nẹp tăng cứng (mm) / Without edge stiffener (mm)									
0.40mm BMT Loại Nhip / Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
SINGLE / NHỊP ĐƠN	Độ võng / Serviceability	0.91	0.80	0.70	0.61	0.52	0.45	0.38	0.32	0.27	
	Cường độ vật liệu / Strength	1.89	1.76	1.63	1.49	1.35	1.20	1.04	0.88	0.72	
END / NHỊP CUỐI	Độ võng / Serviceability	0.73	0.71	0.69	0.66	0.63	0.58	0.52	0.46	0.39	0.31
	Cường độ vật liệu / Strength	1.70	1.53	1.36	1.19	1.04	0.93	0.86	0.83	0.83	0.83
INTERNAL / NHỊP GIỮA	Độ võng / Serviceability	0.65	0.62	0.60	0.59	0.58	0.56	0.53	0.49	0.45	0.41
	Cường độ vật liệu / Strength	1.81	1.63	1.47	1.34	1.23	1.15	1.07	1.02	0.95	0.89

LYSAGHT® KLIP-LOK® OPTIMA™		Không sử dụng nẹp tăng cứng (mm) / Without edge stiffener (mm)									
0.48mm BMT Loại Nhip / Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
SINGLE / NHỊP ĐƠN	Độ võng / Serviceability	1.11	1.00	0.89	0.79	0.69	0.59	0.50	0.41	0.32	
	Cường độ vật liệu / Strength	2.40	2.12	1.85	1.61	1.40	1.25	1.13	1.04	0.97	
END / NHỊP CUỐI	Độ võng / Serviceability	1.20	1.18	1.14	1.05	0.94	0.82	0.71	0.62	0.53	0.45
	Cường độ vật liệu / Strength	2.34	2.29	2.25	2.01	1.68	1.39	1.33	1.27	1.22	1.16
INTERNAL / NHỊP GIỮA	Độ võng / Serviceability	1.18	1.17	1.15	1.10	0.99	0.87	0.77	0.69	0.64	0.58
	Cường độ vật liệu / Strength	2.21	2.15	2.03	1.79	1.52	1.30	1.28	1.27	1.26	1.24

LYSAGHT® KLIP-LOK® OPTIMA™		Không sử dụng nẹp tăng cứng (mm) / Without edge stiffener (mm)									
0.60mm BMT Loại Nhip / Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
SINGLE / NHỊP ĐƠN	Độ võng / Serviceability	1.72	1.53	1.34	1.16	0.99	0.83	0.67	0.53	0.38	
	Cường độ vật liệu / Strength	3.74	3.39	3.05	2.73	2.41	2.11	1.82	1.53	1.25	
END / NHỊP CUỐI	Độ võng / Serviceability	1.77	1.76	1.69	1.54	1.33	1.12	0.95	0.81	0.70	0.60
	Cường độ vật liệu / Strength	3.58	3.05	2.57	2.20	1.90	1.67	1.46	1.30	1.20	1.10
INTERNAL / NHỊP GIỮA	Độ võng / Serviceability	2.03	1.94	1.82	1.67	1.49	1.32	1.16	1.00	0.86	0.72
	Cường độ vật liệu / Strength	3.25	3.21	3.06	2.73	2.30	1.90	1.63	1.48	1.40	1.36

Limit state wind pressure capacities (kPa)

LYSAGHT® KLIP-LOK® OPTIMA™		Sử dụng nẹp tăng cứng (mm) / With edge stiffener (mm)									
0.40 mm BMT Loại Nhip / Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
SINGLE / NHỊP ĐƠN	Khả năng làm việc / Serviceability	1.87	1.51	1.18	0.88	0.65	0.48	0.37	0.30	0.25	
	Cường độ vật liệu / Strength	4.50	4.24	3.98	3.71	3.42	3.11	2.81	2.48	2.15	
END / NHỊP CUỐI	Khả năng làm việc / Serviceability	1.34	1.09	0.89	0.77	0.71	0.66	0.59	0.51	0.41	0.30
	Cường độ vật liệu / Strength	3.59	2.64	1.85	1.39	1.16	1.07	1.03	1.01	1.00	1.00
INTERNAL / NHỊP GIỮA	Khả năng làm việc / Serviceability	0.82	0.73	0.65	0.61	0.59	0.58	0.55	0.52	0.47	0.42
	Cường độ vật liệu / Strength	2.68	2.09	1.62	1.37	1.28	1.24	1.19	1.11	1.00	0.89

LYSAGHT® KLIP-LOK® OPTIMA™		Sử dụng nẹp tăng cứng (mm) / With edge stiffener (mm)									
0.48 mm BMT Loại Nhip / Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
SINGLE / NHỊP ĐƠN	Khả năng làm việc / Serviceability	2.57	2.07	1.60	1.19	0.85	0.62	0.46	0.36	0.29	
	Cường độ vật liệu / Strength	7.13	6.07	5.07	4.19	3.51	3.07	2.81	2.68	2.63	
END / NHỊP CUỐI	Khả năng làm việc / Serviceability	1.73	1.54	1.36	1.18	1.03	0.89	0.77	0.66	0.56	0.47
	Cường độ vật liệu / Strength	3.78	3.26	2.74	2.24	1.81	1.48	1.40	1.33	1.26	1.18
INTERNAL / NHỊP GIỮA	Khả năng làm việc / Serviceability	1.43	1.19	1.02	1.01	0.98	0.94	0.89	0.81	0.69	0.56
	Cường độ vật liệu / Strength	3.65	2.76	2.10	2.00	1.90	1.80	1.76	1.65	1.29	1.29

LYSAGHT® KLIP-LOK® OPTIMA™		Sử dụng nẹp tăng cứng (mm) / With edge stiffener (mm)									
0.60 mm BMT Loại Nhip / Span Type		900	1200	1500	1800	2100	2400	2700	3000	3300	3600
SINGLE / NHỊP ĐƠN	Khả năng làm việc / Serviceability	3.56	2.78	2.05	1.42	1.03	0.71	0.53	0.43	0.38	
	Cường độ vật liệu / Strength	8.00	7.34	5.96	4.78	3.90	3.71	3.53	3.33	3.15	
END / NHỊP CUỐI	Khả năng làm việc / Serviceability	2.54	2.33	2.09	1.79	1.46	1.17	0.95	0.8	0.69	0.61
	Cường độ vật liệu / Strength	4.63	3.85	3.14	2.54	2.06	1.70	1.45	1.30	1.19	1.12
INTERNAL / NHỊP GIỮA	Khả năng làm việc / Serviceability	2.08	1.81	1.61	1.58	1.56	1.54	1.44	1.26	1.04	0.78
	Cường độ vật liệu / Strength	4.29	3.81	3.33	2.88	2.48	2.15	1.92	1.76	1.64	1.55

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1. Strength limit state pressure capacities have been determined by testing the cladding to failure. A capacity reduction factor of 0.9 is applied to derive the design capacity in the table above.
2. Serviceability limit state pressure capacities are based on a deflection limit of (span/120) + (maximum fastener pitch/30).

MAXIMUM SUPPORT SPACINGS

LYSAGHT® KLIP-LOK® OPTIMA™						
Type of Span	Without Edge Stiffeners			With Edge Stiffeners		
	BMT (mm) / TCT (mm)			BMT (mm) / TCT (mm)		
	0.42/0.47	0.48/0.53	0.60/0.65	0.42/0.47	0.48/0.53	0.60/0.65
Roofs (mm)						
Single Span	850	1000	1500	850	1000	1500
End Span	900	1200	1500	1050	1200	1500
Internal Span	1450	2200	3000	1450	2200	3500
Unstiffened Eaves Overhang	150	200	250	150	200	250
Stiffened Eaves Overhang	450	500	550	450	500	550
Walls (mm)						
Single Span	1550	2000	2500	1900	2400	2500
End Span	1550	2300	2700	1900	2500	2700
Internal Span	2700	3600	3600	3075	3600	3600
Overhang	150	200	250	150	200	250

Khoảng cách dòn tay tối đa / Maximum Support Spacings

LYSAGHT® KLIP-LOK® OPTIMA™						
LOẠI NHẬP / TYPE OF SPAN	Không sử dụng nẹp tăng cứng Without Edge Stiffeners			Sử dụng nẹp tăng cứng With Edge Stiffeners		
	BMT (mm)			BMT (mm)		
	0.40	0.48	0.60	0.40	0.48	0.60
Tấm lợp mái / Roofs						
Nhập đơn / Single Span	800	1000	1500	800	1000	1500
Nhập cuối / End Span	800	1200	1500	1000	1200	1500
Nhập giữa / Internal Span	1200	2200	3000	1200	2200	3500
Nhập hàng không cần gia cường / Unstiffened Eaves Overhang	150	200	250	150	200	250
Nhập hàng cần gia cường / Stiffened Eaves Overhang	400	500	550	400	500	550
Tấm lợp vách / Walls						
Nhập đơn / Single Span	1300	2000	2500	1700	2400	2500
Nhập cuối / End Span	1300	2300	2700	1700	2500	2700
Nhập giữa / Internal Span	2400	3600	3600	2900	3660	3600
Nhập hàng / Overhang	150	200	250	150	200	250

1. The maximum recommended support spacings are based on testing.
2. Roof spans consider both resistance to wind pressure and light roof traffic (traffic arising from incidental maintenance).

**note: further details refer to Lysaght Klip-Lok Optima Brochure.*

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