



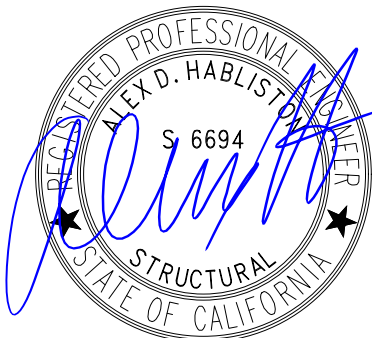
13228 NE 20th St, Suite 100, Bellevue, WA 98005
Phone (425) 614-0949 Fax (425) 614-0950

**STRUCTURAL CALCULATIONS FOR:
Break Strength Certified Pre-Stretched B-line Seismic Cable System**

Client:



ATTN: Zac Brown



07/06/2020

By
Eusonh Lim, E.I.T.
Alex Habliston, S.E.

AUE No. 20092

Date: 6/23/2020

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis Summary (3/32" Dia Cable System)

Ω System =	2.20	per ASCE 19-16	ϕ System =	0.64	per ASCE 19-16
Ω Bracket =	2.21	per AISI S100-2012 Section F1.2	ϕ Bracket =	0.72	per AISI S100-2012 Section F1.1
Ω Cable =	2.50	per IBC 2015 1709.3.1	ϕ Cable =	0.56	per IBC 2015 1709.3.1
Ω Connector =	2.00	per FM 1950 Section 4.2	ϕ Connector =	0.70	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Bracket 1	Bracket 2	Connector	Pallow (lb) (ASD)	Pallow (lb) (LRFD)
30	3/32	3/8" Eyelet	B154 Bracket	BKC 100	368	515
45	3/32	3/8" Eyelet	B154 Bracket	BKC 100	368	515
60	3/32	3/8" Eyelet	B154 Bracket	BKC 100	368	515
30	3/32	1/2" Eyelet	B154 Bracket	BKC 100	368	515
45	3/32	1/2" Eyelet	B154 Bracket	BKC 100	368	515
60	3/32	1/2" Eyelet	B154 Bracket	BKC 100	368	515
30	3/32	B154 Bracket	B154 Bracket	BKC 100	368	515
45	3/32	B154 Bracket	B154 Bracket	BKC 100	368	515
60	3/32	B154 Bracket	B154 Bracket	BKC 100	368	515
30	3/32	3/8" Eyelet	B650 Bracket	BKC 100	368	515
45	3/32	3/8" Eyelet	B650 Bracket	BKC 100	368	515
60	3/32	3/8" Eyelet	B650 Bracket	BKC 100	368	515
30	3/32	1/2" Eyelet	B650 Bracket	BKC 100	368	515
45	3/32	1/2" Eyelet	B650 Bracket	BKC 100	368	515
60	3/32	1/2" Eyelet	B650 Bracket	BKC 100	368	515
30	3/32	B650 Bracket	B650 Bracket	BKC 100	368	515
45	3/32	B650 Bracket	B650 Bracket	BKC 100	368	515
60	3/32	B650 Bracket	B650 Bracket	BKC 100	368	515
30	3/32	3/8" Eyelet	3/8" Eyelet	BKC 100	368	515
45	3/32	3/8" Eyelet	3/8" Eyelet	BKC 100	368	515
60	3/32	3/8" Eyelet	3/8" Eyelet	BKC 100	368	515
30	3/32	1/2" Eyelet	1/2" Eyelet	BKC 100	368	515
45	3/32	1/2" Eyelet	1/2" Eyelet	BKC 100	368	515
60	3/32	1/2" Eyelet	1/2" Eyelet	BKC 100	368	515



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 1
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis Summary (1/8" Dia Cable System)

Ω System =	2.20	per ASCE 19-16	ϕ System =	0.64	per ASCE 19-16
Ω Bracket =	2.21	per AISI S100-2012 Section F1.2	ϕ Bracket =	0.72	per AISI S100-2012 Section F1.1
Ω Cable =	2.50	per IBC 2015 1709.3.1	ϕ Cable =	0.56	per IBC 2015 1709.3.1
Ω Connector =	2.00	per FM 1950 Section 4.2	ϕ Connector =	0.70	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Bracket 1	Bracket 2	Connector	Pallow (lb) (ASD)	Pallow (lb) (LRFD)
30	1/8	3/8" Eyelet	B154 Bracket	BKC 200	800	1120
45	1/8	3/8" Eyelet	B154 Bracket	BKC 200	800	1120
60	1/8	3/8" Eyelet	B154 Bracket	BKC 200	730	1023
30	1/8	1/2" Eyelet	B154 Bracket	BKC 200	800	1120
45	1/8	1/2" Eyelet	B154 Bracket	BKC 200	763	1068
60	1/8	1/2" Eyelet	B154 Bracket	BKC 200	764	1069
30	1/8	B154 Bracket	B154 Bracket	BKC 200	784	1097
45	1/8	B154 Bracket	B154 Bracket	BKC 200	800	1120
60	1/8	B154 Bracket	B154 Bracket	BKC 200	800	1120
30	1/8	3/8" Eyelet	B650 Bracket	BKC 200	748	1047
45	1/8	3/8" Eyelet	B650 Bracket	BKC 200	649	909
60	1/8	3/8" Eyelet	B650 Bracket	BKC 200	730	1022
30	1/8	1/2" Eyelet	B650 Bracket	BKC 200	760	1064
45	1/8	1/2" Eyelet	B650 Bracket	BKC 200	699	978
60	1/8	1/2" Eyelet	B650 Bracket	BKC 200	650	910
30	1/8	B650 Bracket	B650 Bracket	BKC 200	800	1120
45	1/8	B650 Bracket	B650 Bracket	BKC 200	800	1120
60	1/8	B650 Bracket	B650 Bracket	BKC 200	800	1120
30	1/8	3/8" Eyelet	3/8" Eyelet	BKC 200	748	1047
45	1/8	3/8" Eyelet	3/8" Eyelet	BKC 200	649	909
60	1/8	3/8" Eyelet	3/8" Eyelet	BKC 200	711	996
30	1/8	1/2" Eyelet	1/2" Eyelet	BKC 200	756	1058
45	1/8	1/2" Eyelet	1/2" Eyelet	BKC 200	699	978
60	1/8	1/2" Eyelet	1/2" Eyelet	BKC 200	650	910



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 2
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis Summary (3/16" Dia Cable System)

Ω System =	2.20	per ASCE 19-16	ϕ System =	0.64	per ASCE 19-16
Ω Bracket =	2.21	per AISI S100-2012 Section F1.2	ϕ Bracket =	0.72	per AISI S100-2012 Section F1.1
Ω Cable =	2.50	per IBC 2015 1709.3.1	ϕ Cable =	0.56	per IBC 2015 1709.3.1
Ω Connector =	2.00	per FM 1950 Section 4.2	ϕ Connector =	0.70	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Bracket 1	Bracket 2	Connector	Pallow (lb) (ASD)	Pallow (lb) (LRFD)
30	3/16	3/8" Eyelet	B154 Bracket	BKC 200	1653	2314
45	3/16	3/8" Eyelet	B154 Bracket	BKC 200	1405	1967
60	3/16	3/8" Eyelet	B154 Bracket	BKC 200	1411	1976
30	3/16	1/2" Eyelet	B154 Bracket	BKC 200	1587	2222
45	3/16	1/2" Eyelet	B154 Bracket	BKC 200	1573	2202
60	3/16	1/2" Eyelet	B154 Bracket	BKC 200	1474	2064
30	3/16	B154 Bracket	B154 Bracket	BKC 200	1652	2313
45	3/16	B154 Bracket	B154 Bracket	BKC 200	1657	2320
60	3/16	B154 Bracket	B154 Bracket	BKC 200	1576	2206
30	3/16	3/8" Eyelet	B650 Bracket	BKC 200	1315	1841
45	3/16	3/8" Eyelet	B650 Bracket	BKC 200	1306	1829
60	3/16	3/8" Eyelet	B650 Bracket	BKC 200	1126	1577
30	3/16	1/2" Eyelet	B650 Bracket	BKC 200	1282	1794
45	3/16	1/2" Eyelet	B650 Bracket	BKC 200	1280	1792
60	3/16	1/2" Eyelet	B650 Bracket	BKC 200	1144	1601
30	3/16	B650 Bracket	B650 Bracket	BKC 200	1617	2264
45	3/16	B650 Bracket	B650 Bracket	BKC 200	1546	2165
60	3/16	B650 Bracket	B650 Bracket	BKC 200	1568	2196
30	3/16	3/8" Eyelet	3/8" Eyelet	BKC 200	1315	1841
45	3/16	3/8" Eyelet	3/8" Eyelet	BKC 200	1306	1829
60	3/16	3/8" Eyelet	3/8" Eyelet	BKC 200	1126	1577
30	3/16	1/2" Eyelet	1/2" Eyelet	BKC 200	1282	1794
45	3/16	1/2" Eyelet	1/2" Eyelet	BKC 200	1280	1792
60	3/16	1/2" Eyelet	1/2" Eyelet	BKC 200	1144	1601



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 3
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis (3/32" Dia Cable)

ASD Design

Ω System = 2.20 per ASCE 19-16
 Ω Bracket = 2.21 per AISI S100-2012 Supplement No. 2 Section F1.2
 Ω Cable = 2.50 per IBC 2015 1709.3.1
 Ω Connector = 2.00 per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Pallow (lb)	Bracket 1	Pallow (lb)	Bracket 2	Pallow (lb)	Connector	Pallow (lb)	System	Pallow (lb)	Pallow (lb)
30	3/32	368	3/8" Eyelet	550	B154 Bracket	556	BKC 100	558	System 16 - 30	487	368
45	3/32	368	3/8" Eyelet	552	B154 Bracket	535	BKC 100	558	System 16 - 45	477	368
60	3/32	368	3/8" Eyelet	553	B154 Bracket	553	BKC 100	558	System 16 - 60	437	368
30	3/32	368	1/2" Eyelet	545	B154 Bracket	556	BKC 100	558	System 17 - 30	489	368
45	3/32	368	1/2" Eyelet	514	B154 Bracket	535	BKC 100	558	System 17 - 45	466	368
60	3/32	368	1/2" Eyelet	550	B154 Bracket	553	BKC 100	558	System 17 - 60	466	368
30	3/32	368	B154 Bracket	556	B154 Bracket	556	BKC 100	558	System 18 - 30	465	368
45	3/32	368	B154 Bracket	535	B154 Bracket	535	BKC 100	558	System 18 - 45	465	368
60	3/32	368	B154 Bracket	553	B154 Bracket	553	BKC 100	558	System 18 - 60	465	368
30	3/32	368	3/8" Eyelet	550	B650 Bracket	535	BKC 100	558	System 19 - 30	476	368
45	3/32	368	3/8" Eyelet	552	B650 Bracket	537	BKC 100	558	System 19 - 45	456	368
60	3/32	368	3/8" Eyelet	553	B650 Bracket	549	BKC 100	558	System 19 - 60	435	368
30	3/32	368	1/2" Eyelet	545	B650 Bracket	535	BKC 100	558	System 20 - 30	488	368
45	3/32	368	1/2" Eyelet	514	B650 Bracket	537	BKC 100	558	System 20 - 45	435	368
60	3/32	368	1/2" Eyelet	550	B650 Bracket	549	BKC 100	558	System 20 - 60	431	368
30	3/32	368	B650 Bracket	535	B650 Bracket	535	BKC 100	558	System 21 - 30	465	368
45	3/32	368	B650 Bracket	537	B650 Bracket	537	BKC 100	558	System 21 - 45	464	368
60	3/32	368	B650 Bracket	549	B650 Bracket	549	BKC 100	558	System 21 - 60	455	368
30	3/32	368	3/8" Eyelet	550	3/8" Eyelet	550	BKC 100	558	System 26 - 30	476	368
45	3/32	368	3/8" Eyelet	552	3/8" Eyelet	552	BKC 100	558	System 26 - 45	434	368
60	3/32	368	3/8" Eyelet	553	3/8" Eyelet	553	BKC 100	558	System 26 - 60	416	368
30	3/32	368	1/2" Eyelet	545	1/2" Eyelet	545	BKC 100	558	System 27 - 30	477	368
45	3/32	368	1/2" Eyelet	514	1/2" Eyelet	514	BKC 100	558	System 27 - 45	435	368
60	3/32	368	1/2" Eyelet	550	1/2" Eyelet	550	BKC 100	558	System 27 - 60	426	368



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 4
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis (1/8" Dia Cable)

ASD Design

Ω System =	2.20	per ASCE 19-16
Ω Bracket =	2.21	per AISI S100-2012 Supplement No. 2 Section F1.2
Ω Cable =	2.50	per IBC 2015 1709.3.1
Ω Connector =	2.00	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Pallow (lb)	Bracket 1	Pallow (lb)	Bracket 2	Pallow (lb)	Connector	Pallow (lb)	System	Pallow (lb)	Pallow (lb)
30	1/8	800	3/8" Eyelet	905	B154 Bracket	929	BKC 200	981	System 1 - 30	838	800
45	1/8	800	3/8" Eyelet	905	B154 Bracket	856	BKC 200	981	System 1 - 45	839	800
60	1/8	800	3/8" Eyelet	960	B154 Bracket	915	BKC 200	981	System 1 - 60	730	730
30	1/8	800	1/2" Eyelet	929	B154 Bracket	929	BKC 200	981	System 2 - 30	849	800
45	1/8	800	1/2" Eyelet	858	B154 Bracket	856	BKC 200	981	System 2 - 45	763	763
60	1/8	800	1/2" Eyelet	876	B154 Bracket	915	BKC 200	981	System 2 - 60	764	764
30	1/8	800	B154 Bracket	929	B154 Bracket	929	BKC 200	981	System 3 - 30	784	784
45	1/8	800	B154 Bracket	856	B154 Bracket	856	BKC 200	981	System 3 - 45	877	800
60	1/8	800	B154 Bracket	915	B154 Bracket	915	BKC 200	981	System 3 - 60	854	800
30	1/8	800	3/8" Eyelet	905	B650 Bracket	947	BKC 200	981	System 5 - 30	748	748
45	1/8	800	3/8" Eyelet	905	B650 Bracket	902	BKC 200	981	System 5 - 45	649	649
60	1/8	800	3/8" Eyelet	960	B650 Bracket	906	BKC 200	981	System 5 - 60	730	730
30	1/8	800	1/2" Eyelet	929	B650 Bracket	947	BKC 200	981	System 6 - 30	760	760
45	1/8	800	1/2" Eyelet	858	B650 Bracket	902	BKC 200	981	System 6 - 45	699	699
60	1/8	800	1/2" Eyelet	876	B650 Bracket	906	BKC 200	981	System 6 - 60	650	650
30	1/8	800	B650 Bracket	947	B650 Bracket	947	BKC 200	981	System 7 - 30	894	800
45	1/8	800	B650 Bracket	902	B650 Bracket	902	BKC 200	981	System 7 - 45	857	800
60	1/8	800	B650 Bracket	906	B650 Bracket	906	BKC 200	981	System 7 - 60	875	800
30	1/8	800	3/8" Eyelet	905	3/8" Eyelet	905	BKC 200	981	System 22 - 30	748	748
45	1/8	800	3/8" Eyelet	905	3/8" Eyelet	905	BKC 200	981	System 22 - 45	649	649
60	1/8	800	3/8" Eyelet	960	3/8" Eyelet	960	BKC 200	981	System 22 - 60	711	711
30	1/8	800	1/2" Eyelet	929	1/2" Eyelet	929	BKC 200	981	System 23 - 30	756	756
45	1/8	800	1/2" Eyelet	858	1/2" Eyelet	858	BKC 200	981	System 23 - 45	699	699
60	1/8	800	1/2" Eyelet	876	1/2" Eyelet	876	BKC 200	981	System 23 - 60	650	650



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 5
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis (3/16" Dia Cable)

ASD Design

Ω System =	2.20	per ASCE 19-16
Ω Bracket =	2.21	per AISI S100-2012 Supplement No. 2 Section F1.2
Ω Cable =	2.50	per IBC 2015 1709.3.1
Ω Connector =	2.00	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Pallow (lb)	Bracket 1	Pallow (lb)	Bracket 2	Pallow (lb)	Connector	Pallow (lb)	System	Pallow (lb)	Pallow (lb)
30	3/16	1680	3/8" Eyelet	2100	B154 Bracket	2062	BKC 200	1971	System 9 - 30	1653	1653
45	3/16	1680	3/8" Eyelet	2026	B154 Bracket	1959	BKC 200	1971	System 9 - 45	1405	1405
60	3/16	1680	3/8" Eyelet	2161	B154 Bracket	2056	BKC 200	1971	System 9 - 60	1411	1411
30	3/16	1680	1/2" Eyelet	2063	B154 Bracket	2062	BKC 200	1971	System 10 - 30	1587	1587
45	3/16	1680	1/2" Eyelet	2117	B154 Bracket	1959	BKC 200	1971	System 10 - 45	1573	1573
60	3/16	1680	1/2" Eyelet	2142	B154 Bracket	2056	BKC 200	1971	System 10 - 60	1474	1474
30	3/16	1680	B154 Bracket	2062	B154 Bracket	2062	BKC 200	1971	System 11 - 30	1652	1652
45	3/16	1680	B154 Bracket	1959	B154 Bracket	1959	BKC 200	1971	System 11 - 45	1657	1657
60	3/16	1680	B154 Bracket	2056	B154 Bracket	2056	BKC 200	1971	System 11 - 60	1576	1576
30	3/16	1680	3/8" Eyelet	2100	B650 Bracket	1656	BKC 200	1971	System 13 - 30	1315	1315
45	3/16	1680	3/8" Eyelet	2026	B650 Bracket	1834	BKC 200	1971	System 13 - 45	1306	1306
60	3/16	1680	3/8" Eyelet	2161	B650 Bracket	1830	BKC 200	1971	System 13 - 60	1126	1126
30	3/16	1680	1/2" Eyelet	2063	B650 Bracket	1656	BKC 200	1971	System 14 - 30	1282	1282
45	3/16	1680	1/2" Eyelet	2117	B650 Bracket	1834	BKC 200	1971	System 14 - 45	1280	1280
60	3/16	1680	1/2" Eyelet	2142	B650 Bracket	1830	BKC 200	1971	System 14 - 60	1144	1144
30	3/16	1680	B650 Bracket	1656	B650 Bracket	1656	BKC 200	1971	System 15 - 30	1617	1617
45	3/16	1680	B650 Bracket	1834	B650 Bracket	1834	BKC 200	1971	System 15 - 45	1546	1546
60	3/16	1680	B650 Bracket	1830	B650 Bracket	1830	BKC 200	1971	System 15 - 60	1568	1568
30	3/16	1680	3/8" Eyelet	2100	3/8" Eyelet	2100	BKC 200	1971	System 24 - 30	1315	1315
45	3/16	1680	3/8" Eyelet	2026	3/8" Eyelet	2026	BKC 200	1971	System 24 - 45	1306	1306
60	3/16	1680	3/8" Eyelet	2161	3/8" Eyelet	2161	BKC 200	1971	System 24 - 60	1126	1126
30	3/16	1680	1/2" Eyelet	2063	1/2" Eyelet	2063	BKC 200	1971	System 25 - 30	1282	1282
45	3/16	1680	1/2" Eyelet	2117	1/2" Eyelet	2117	BKC 200	1971	System 25 - 45	1280	1280
60	3/16	1680	1/2" Eyelet	2142	1/2" Eyelet	2142	BKC 200	1971	System 25 - 60	1144	1144



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 6
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis (3/32" Dia Cable)

LRFD Design

Φ System =	0.64	per ASCE 19-16
Φ Bracket =	0.72	per AISI S100-2012 Supplement No. 2 Section F1.1
Φ Cable =	0.56	per IBC 2015 1709.3.1
Φ Connector =	0.70	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Pallow (lb)	Bracket 1	Pallow (lb)	Bracket 2	Pallow (lb)	Connector	Pallow (lb)	System	Pallow (lb)	Pallow (lb)
30	3/32	515	3/8" Eyelet	880	B154 Bracket	890	BKC 100	781	System 16 - 30	682	515
45	3/32	515	3/8" Eyelet	883	B154 Bracket	855	BKC 100	781	System 16 - 45	668	515
60	3/32	515	3/8" Eyelet	885	B154 Bracket	885	BKC 100	781	System 16 - 60	612	515
30	3/32	515	1/2" Eyelet	872	B154 Bracket	890	BKC 100	781	System 17 - 30	684	515
45	3/32	515	1/2" Eyelet	822	B154 Bracket	855	BKC 100	781	System 17 - 45	652	515
60	3/32	515	1/2" Eyelet	880	B154 Bracket	885	BKC 100	781	System 17 - 60	653	515
30	3/32	515	B154 Bracket	890	B154 Bracket	890	BKC 100	781	System 18 - 30	651	515
45	3/32	515	B154 Bracket	855	B154 Bracket	855	BKC 100	781	System 18 - 45	652	515
60	3/32	515	B154 Bracket	885	B154 Bracket	885	BKC 100	781	System 18 - 60	652	515
30	3/32	515	3/8" Eyelet	880	B650 Bracket	856	BKC 100	781	System 19 - 30	666	515
45	3/32	515	3/8" Eyelet	883	B650 Bracket	860	BKC 100	781	System 19 - 45	638	515
60	3/32	515	3/8" Eyelet	885	B650 Bracket	878	BKC 100	781	System 19 - 60	609	515
30	3/32	515	1/2" Eyelet	872	B650 Bracket	856	BKC 100	781	System 20 - 30	683	515
45	3/32	515	1/2" Eyelet	822	B650 Bracket	860	BKC 100	781	System 20 - 45	608	515
60	3/32	515	1/2" Eyelet	880	B650 Bracket	878	BKC 100	781	System 20 - 60	603	515
30	3/32	515	B650 Bracket	856	B650 Bracket	856	BKC 100	781	System 21 - 30	652	515
45	3/32	515	B650 Bracket	860	B650 Bracket	860	BKC 100	781	System 21 - 45	650	515
60	3/32	515	B650 Bracket	878	B650 Bracket	878	BKC 100	781	System 21 - 60	637	515
30	3/32	515	3/8" Eyelet	880	3/8" Eyelet	880	BKC 100	781	System 26 - 30	666	515
45	3/32	515	3/8" Eyelet	883	3/8" Eyelet	883	BKC 100	781	System 26 - 45	608	515
60	3/32	515	3/8" Eyelet	885	3/8" Eyelet	885	BKC 100	781	System 26 - 60	582	515
30	3/32	515	1/2" Eyelet	872	1/2" Eyelet	872	BKC 100	781	System 27 - 30	668	515
45	3/32	515	1/2" Eyelet	822	1/2" Eyelet	822	BKC 100	781	System 27 - 45	608	515
60	3/32	515	1/2" Eyelet	880	1/2" Eyelet	880	BKC 100	781	System 27 - 60	597	515



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 7
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis (1/8" Dia Cable)

LRFD Design

Φ System =	0.64	per ASCE 19-16
Φ Bracket =	0.72	per AISI S100-2012 Supplement No. 2 Section F1.1
Φ Cable =	0.56	per IBC 2015 1709.3.1
Φ Connector =	0.70	per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Pallow (lb)	Bracket 1	Pallow (lb)	Bracket 2	Pallow (lb)	Connector	Pallow (lb)	System	Pallow (lb)	Pallow (lb)
30	1/8	1120	3/8" Eyelet	1448	B154 Bracket	1487	BKC 200	1373	System 1 - 30	1173	1120
45	1/8	1120	3/8" Eyelet	1447	B154 Bracket	1369	BKC 200	1373	System 1 - 45	1175	1120
60	1/8	1120	3/8" Eyelet	1536	B154 Bracket	1464	BKC 200	1373	System 1 - 60	1023	1023
30	1/8	1120	1/2" Eyelet	1486	B154 Bracket	1487	BKC 200	1373	System 2 - 30	1188	1120
45	1/8	1120	1/2" Eyelet	1372	B154 Bracket	1369	BKC 200	1373	System 2 - 45	1068	1068
60	1/8	1120	1/2" Eyelet	1402	B154 Bracket	1464	BKC 200	1373	System 2 - 60	1069	1069
30	1/8	1120	B154 Bracket	1487	B154 Bracket	1487	BKC 200	1373	System 3 - 30	1097	1097
45	1/8	1120	B154 Bracket	1369	B154 Bracket	1369	BKC 200	1373	System 3 - 45	1228	1120
60	1/8	1120	B154 Bracket	1464	B154 Bracket	1464	BKC 200	1373	System 3 - 60	1195	1120
30	1/8	1120	3/8" Eyelet	1448	B650 Bracket	1515	BKC 200	1373	System 5 - 30	1047	1047
45	1/8	1120	3/8" Eyelet	1447	B650 Bracket	1444	BKC 200	1373	System 5 - 45	909	909
60	1/8	1120	3/8" Eyelet	1536	B650 Bracket	1449	BKC 200	1373	System 5 - 60	1022	1022
30	1/8	1120	1/2" Eyelet	1486	B650 Bracket	1515	BKC 200	1373	System 6 - 30	1064	1064
45	1/8	1120	1/2" Eyelet	1372	B650 Bracket	1444	BKC 200	1373	System 6 - 45	978	978
60	1/8	1120	1/2" Eyelet	1402	B650 Bracket	1449	BKC 200	1373	System 6 - 60	910	910
30	1/8	1120	B650 Bracket	1515	B650 Bracket	1515	BKC 200	1373	System 7 - 30	1252	1120
45	1/8	1120	B650 Bracket	1444	B650 Bracket	1444	BKC 200	1373	System 7 - 45	1200	1120
60	1/8	1120	B650 Bracket	1449	B650 Bracket	1449	BKC 200	1373	System 7 - 60	1225	1120
30	1/8	1120	3/8" Eyelet	1448	3/8" Eyelet	1448	BKC 200	1373	System 22 - 30	1047	1047
45	1/8	1120	3/8" Eyelet	1447	3/8" Eyelet	1447	BKC 200	1373	System 22 - 45	909	909
60	1/8	1120	3/8" Eyelet	1536	3/8" Eyelet	1536	BKC 200	1373	System 22 - 60	996	996
30	1/8	1120	1/2" Eyelet	1486	1/2" Eyelet	1486	BKC 200	1373	System 23 - 30	1058	1058
45	1/8	1120	1/2" Eyelet	1372	1/2" Eyelet	1372	BKC 200	1373	System 23 - 45	978	978
60	1/8	1120	1/2" Eyelet	1402	1/2" Eyelet	1402	BKC 200	1373	System 23 - 60	910	910



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 8
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Assembly Load Analysis (3/16" Dia Cable)

LRFD Design

ϕ System = 0.64 per ASCE 19-16
 ϕ Bracket = 0.72 per AISI S100-2012 Supplement No. 2 Section F1.1
 ϕ Cable = 0.56 per IBC 2015 1709.3.1
 ϕ Connector = 0.70 per FM 1950 Section 4.2

Angle (deg)	Cable Dia (in)	Pallow (lb)	Bracket 1	Pallow (lb)	Bracket 2	Pallow (lb)	Connector	Pallow (lb)	System	Pallow (lb)	Pallow (lb)
30	3/16	2352	3/8" Eyelet	3360	B154 Bracket	3299	BKC 200	2759	System 9 - 30	2314	2314
45	3/16	2352	3/8" Eyelet	3242	B154 Bracket	3134	BKC 200	2759	System 9 - 45	1967	1967
60	3/16	2352	3/8" Eyelet	3457	B154 Bracket	3289	BKC 200	2759	System 9 - 60	1976	1976
30	3/16	2352	1/2" Eyelet	3301	B154 Bracket	3299	BKC 200	2759	System 10 - 30	2222	2222
45	3/16	2352	1/2" Eyelet	3387	B154 Bracket	3134	BKC 200	2759	System 10 - 45	2202	2202
60	3/16	2352	1/2" Eyelet	3427	B154 Bracket	3289	BKC 200	2759	System 10 - 60	2064	2064
30	3/16	2352	B154 Bracket	3299	B154 Bracket	3299	BKC 200	2759	System 11 - 30	2313	2313
45	3/16	2352	B154 Bracket	3134	B154 Bracket	3134	BKC 200	2759	System 11 - 45	2320	2320
60	3/16	2352	B154 Bracket	3289	B154 Bracket	3289	BKC 200	2759	System 11 - 60	2206	2206
30	3/16	2352	3/8" Eyelet	3360	B650 Bracket	2649	BKC 200	2759	System 13 - 30	1841	1841
45	3/16	2352	3/8" Eyelet	3242	B650 Bracket	2934	BKC 200	2759	System 13 - 45	1829	1829
60	3/16	2352	3/8" Eyelet	3457	B650 Bracket	2927	BKC 200	2759	System 13 - 60	1577	1577
30	3/16	2352	1/2" Eyelet	3301	B650 Bracket	2649	BKC 200	2759	System 14 - 30	1794	1794
45	3/16	2352	1/2" Eyelet	3387	B650 Bracket	2934	BKC 200	2759	System 14 - 45	1792	1792
60	3/16	2352	1/2" Eyelet	3427	B650 Bracket	2927	BKC 200	2759	System 14 - 60	1601	1601
30	3/16	2352	B650 Bracket	2649	B650 Bracket	2649	BKC 200	2759	System 15 - 30	2264	2264
45	3/16	2352	B650 Bracket	2934	B650 Bracket	2934	BKC 200	2759	System 15 - 45	2165	2165
60	3/16	2352	B650 Bracket	2927	B650 Bracket	2927	BKC 200	2759	System 15 - 60	2196	2196
30	3/16	2352	3/8" Eyelet	3360	3/8" Eyelet	3360	BKC 200	2759	System 24 - 30	1841	1841
45	3/16	2352	3/8" Eyelet	3242	3/8" Eyelet	3242	BKC 200	2759	System 24 - 45	1829	1829
60	3/16	2352	3/8" Eyelet	3457	3/8" Eyelet	3457	BKC 200	2759	System 24 - 60	1577	1577
30	3/16	2352	1/2" Eyelet	3301	1/2" Eyelet	3301	BKC 200	2759	System 25 - 30	1794	1794
45	3/16	2352	1/2" Eyelet	3387	1/2" Eyelet	3387	BKC 200	2759	System 25 - 45	1792	1792
60	3/16	2352	1/2" Eyelet	3427	1/2" Eyelet	3427	BKC 200	2759	System 25 - 60	1601	1601



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Project:	Break Strength Certified Pre-Stretched B-line Seismic Cable System	Pg. No:	Analysis 9
Address:		Date:	6/23/2020
Client:	EATON / B-Line series	Job No.:	20092

Pre-Stretched B-Line Seismic Cable Test Results

Bracket Testing

Test ID	Type	Dia (in)	Component	Angle (deg)	Max Load (lb)						
					Test 1	Failure Mechanism	Test 2	Failure Mechanism	Test 3	Failure Mechanism	Average
BK 1	Bracket	1/8	3/8" Eyelet	30	1956	Cable Broke under Crimp	1978	Cable Broke under Crimp	2074	Cable Broke under Crimp	2003
				45	1876	Cable Broke under Crimp	2189	Cable Broke under Crimp	1940	Cable Broke under Crimp	2002
				60	2087	Cable Broke under Crimp	2156	Broke Eyelet	2131	Broke Eyelet	2125
BK 2	Bracket	1/8	1/2" Eyelet	30	2049	Broke Eyelet	2099	Cable Broke under Crimp	2017	Broke Eyelet	2055
				45	2048	Broke Eyelet	1795	Cable Broke under Crimp	1849	Cable Broke under Crimp	1897
				60	1945	Cable Broke under Crimp	2000	Cable Broke under Crimp	1872	Cable Broke under Crimp	1939
BK 3	Bracket	3/16	3/8" Eyelet	30	4781	Cable Broke under Crimp	4561	Cable Broke under Crimp	4597	Cable Broke under Crimp	4646
				45	4498	Cable Broke under Crimp	4256	Cable Broke under Crimp	4696	Cable Broke under Crimp	4483
				60	4783	Cable Broke under Crimp	4757	Cable Broke under Crimp	4803	Cable Broke under Crimp	4781
BK 4	Bracket	3/16	1/2" Eyelet	30	4514	Cable Broke under Crimp	4593	Cable Broke under Crimp	4587	Cable Broke under Crimp	4565
				45	4808	Cable Broke under Crimp	4648	Cable Broke under Crimp	4596	Cable Broke under Crimp	4684
				60	4790	Cable Broke under Crimp	4679	Cable Broke under Crimp	4747	Cable Broke under Crimp	4739
BK 5	Bracket	1/8	B154	30	2054	Cable Broke under Crimp	2104	Cable Broke under Crimp	2010	Cable Broke under Crimp	2056
				45	1815	Cable Broke under Crimp	2081	Cable Broke under Crimp	1783	Cable Broke under Crimp	1893
				60	2035	Cable Broke under Crimp	1956	Cable Broke under Crimp	2083	Cable Broke under Crimp	2025
BK 6	Bracket	3/16	B154	30	4510	Cable Broke under Crimp	4648	Cable Broke under Crimp	4528	Cable Broke under Crimp	4562
				45	4271	Cable Broke under Crimp	4290	Cable Broke under Crimp	4440	Cable Broke under Crimp	4334
				60	4471	Cable Broke under Crimp	4707	Cable Broke under Crimp	4468	Cable Broke under Crimp	4549
BK 7	Bracket	1/8	B650	30	2088	Cable Broke under Crimp	2071	Cable Broke under Crimp	2125	Cable Broke under Crimp	2095
				45	1999	Cable Broke under Crimp	1913	Cable Broke under Crimp	2078	Cable Broke under Crimp	1997
				60	1968	Cable Broke under Crimp	2071	Cable Broke under Crimp	1973	Cable Broke under Crimp	2004
BK 8	Bracket	3/16	B650	30	3303	Cable Broke at B650	4028	Cable Broke at B650	3660	Cable Broke at B650	3664
				45	4107	Cable Tore through B650	4114	Cable Tore through B650	3951	Cable Tore through B650	4057
				60	4048	Cable Tore through B650	4069	Cable Tore through B650	4027	Cable Tore through B650	4048
BK 9	Bracket	3/32	3/8" Eyelet	30	1210	Cable Broke under Crimp	1211	Cable Broke under Crimp	1231	Cable Broke under Crimp	1217
				45	1214	Cable Broke under Crimp	1243	Cable Broke under Crimp	1207	Cable Broke under Crimp	1221
				60	1195	Cable Broke at Eyelet	1227	Cable Broke at Eyelet	1251	Cable Broke at Eyelet	1224
BK 10	Bracket	3/32	1/2" Eyelet	30	1213	Cable Broke at Eyelet	1207	Broke Eyelet	1198	Broke Eyelet	1206
				45	1082	Broke Eyelet	1168	Broke Eyelet	1160	Broke Eyelet	1137
				60	1214	Cable Broke at Eyelet	1217	Cable Broke at Eyelet	1219	Cable Broke at Eyelet	1217
BK 11	Bracket	3/32	B154	30	1243	Cable Broke under Crimp	1209	Cable Broke under Crimp	1240	Cable Broke under Crimp	1231
				45	1220	Cable Broke under Crimp	1211	Cable Broke under Crimp	1118	Cable Broke under Crimp	1183
				60	1222	Cable Broke under Crimp	1232	Cable Broke under Crimp	1217	Cable Broke under Crimp	1224
BK 12	Bracket	3/32	B650	30	1156	Cable Broke under Crimp	1172	Cable Broke under Crimp	1223	Cable Broke under Crimp	1184
				45	1226	Cable Broke under Crimp	1146	Cable Broke under Crimp	1195	Cable Broke under Crimp	1189
				60	1226	Cable Broke under Crimp	1222	Cable Broke under Crimp	1196	Cable Broke under Crimp	1215

Note: Values in blue are the minimum values per test

Pre-Stretched B-Line Seismic Cable Test Results (Cont.)

Connector Testing

Test ID	Type	Dia (in)	Component	Angle (deg)	Max Load (lb)						
					Test 1	Failure Mechanism	Test 2	Failure Mechanism	Test 3	Failure Mechanism	Average
BKC 1	Connector	1/8	BKC 200	90	2053	Cable Broke under Crimp	1899	Cable Broke under Crimp	1933	Cable Broke under Crimp	1962
BKC 2	Connector	1/8	BKC 200	90	2015	Cable Broke under Crimp	2001	Cable Broke under Crimp	2016	Cable Broke under Crimp	2011
BKC 3	Connector	3/16	BKC 200	90	4103	Cable Broke under Crimp	3688	Cable Broke under Crimp	4035	Cable Broke under Crimp	3942
BKC 4	Connector	3/16	BKC 200	90	3905	Cable Broke under Crimp	4119	Cable Broke under Crimp	3846	Cable Broke under Crimp	3957
BKC 5	Connector	3/32	BKC 100	90	1057	Cable Broke under Crimp	1130	Cable Broke under Crimp	1158	Cable Broke under Crimp	1115
BKC 6	Connector	3/32	BKC 100	90	1088	Cable Broke under Crimp	1169	Cable Broke under Crimp	1141	Cable Broke under Crimp	1133

Note: Values in blue are the minimum values per test

Cable Strength

Dia (in)	Type	Break Strength (lb)
3/32	7x7	920
1/8	7x19	2000
3/16	7x19	4200

System Testing

Test ID	Type	Dia (in)	Component	Angle (deg)	Max Load (lb)						
					Test 1	Failure Mechanism	Test 2	Failure Mechanism	Test 3	Failure Mechanism	Average
System 1	System	1/8	3/8" Eyelet & B154	30	1880.1	Cable Broke at B154	1754.6	Cable Broke at B154	1896.9	Cable Broke at B154	1844
				45	2013.2	Cable Broke at B154	1645.2	Cable Broke at B154	1880.5	Cable Broke at B154	1846
				60	1651.2	Cable Broke at B154	1530.8	Cable Broke at B154	1638.6	Cable Broke at B154	1607
System 2	System	1/8	1/2" Eyelet & B154	30	1849.3	Cable Broke at B154	1871.4	Cable Broke at B154	1880.9	Cable Broke at B154	1867
				45	1638.6	Cable Broke at B154	1642.9	Cable Broke at B154	1754	Cable Broke at B154	1679
				60	1755.5	Cable Broke at B154	1754.9	Cable Broke at B154	1530.9	Cable Broke at B154	1680
System 3	System	1/8	B154 Bracket	30	1632.9	Cable Broke under Crimp	1779.3	Cable Broke under Crimp	1760.5	Cable Broke at BKC200	1724
				45	1876.8	Cable Broke at BKC200	1996.2	Cable Broke at BKC200	1915.5	Cable Broke under Crimp	1930
				60	1880.4	Cable Broke at BKC200	1878	Cable Broke at BKC200	1876.7	Cable Broke at BKC200	1878
System 5	System	1/8	3/8" Eyelet & B650	30	1541	Cable Broke at B650	1637.7	Cable Broke at B650	1755.3	Cable Broke at B650	1645
				45	1428.3	Cable Broke at B650	1413.5	Cable Broke at B650	1444.3	Cable Broke at B650	1429
				60	1527.6	Cable Broke at B650	1651.6	Cable Broke at B650	1636.7	Cable Broke at B650	1605
System 6	System	1/8	1/2" Eyelet & B650	30	1877.7	Cable Broke at B650	1407.3	Cable Broke at B650	1732.8	Cable Broke at B650	1673
				45	1528.3	Cable Broke at B650	1428.3	Cable Broke at B650	1656.3	Cable Broke at B650	1538
				60	1424.3	Cable Broke at B650	1335.1	Cable Broke at B650	1529.5	Cable Broke at B650	1430
System 7	System	1/8	B650 Bracket	30	1877.3	Cable Broke at BKC200	2011.9	Cable Broke at BKC200	2014.2	Cable Broke at BKC200	1968
				45	1878.6	Cable Broke at BKC200	1900.8	Cable Broke at BKC200	1879.6	Cable Broke at BKC200	1886
				60	1878.7	Cable Broke at BKC200	2013.7	Cable Broke at BKC200	1884.5	Cable Broke at BKC200	1926
System 9	System	3/16	3/8" Eyelet & B154	30	3722.2	Cable Broke at B154	3477.9	Cable Broke at B154	3709.5	Cable Broke at B154	3637
				45	3029.1	Cable Broke at B154	3243.6	Cable Broke at B154	3001.2	Cable Broke at B154	3091
				60	3251.3	Cable Broke at B154	3026.9	Cable Broke at B154	3037.3	Cable Broke at B154	3105

Note: Values in blue are the minimum values per test

Pre-Stretched B-Line Seismic Cable Test Results (Cont.)

System Testing (Cont.)

Test ID	Type	Dia (in)	Component	Angle (deg)	Max Load (lb)						
					Test 1	Failure Mechanism	Test 2	Failure Mechanism	Test 3	Failure Mechanism	Average
System 10	System	3/16	1/2" Eyelet & B154	30	3734.6	Cable Broke at BKC200/B154	3475.2	Cable Broke at BKC200	3264.4	Cable Broke at BKC200	3491
				45	3466.4	Cable Broke at B154	3479	Cable Broke at B154	3434.9	Cable Broke at B154	3460
				60	3035.8	Cable Broke at B154	3654.8	Cable Broke at B154	3038.6	Cable Broke at B154	3243
System 11	System	3/16	B154 Bracket	30	3472.7	Cable Broke at BKC200	3717.6	Cable Broke at BKC200	3716	Cable Broke at BKC200	3635
				45	3721.7	Cable Broke at BKC200	3718	Cable Broke at BKC200	3498.3	Cable Broke at BKC200	3646
				60	3475.4	Cable Broke at BKC200	3472.4	Cable Broke at BKC200	3452.4	Cable Broke at BKC200	3467
System 13	System	3/16	3/8" Eyelet & B650	30	3040.9	Cable Broke at B650	2820	Cable Broke at B650	2815.8	Cable Broke at B650	2892
				45	2802.9	Cable Broke at B650	2821.7	Cable Broke at B650	2997.2	Cable Broke at B650	2874
				60	2467.8	Cable Broke at B650	2337.5	Cable Broke at B650	2627.6	Cable Broke at B650	2478
System 14	System	3/16	1/2" Eyelet & B650	30	2827.7	Cable Broke at B650	2811.4	Cable Broke at B650	2820.3	Cable Broke at B650	2820
				45	2639.7	Cable Broke at B650	2994.2	Cable Broke at B650	2815.8	Cable Broke at B650	2817
				60	2535.3	Cable Broke at B650	2542.5	Cable Broke at B650	2470.8	Cable Broke at B650	2516
System 15	System	3/16	B650 Bracket	30	3723	Cable Broke at BKC200	3475.9	Cable Broke at BKC200	3476.4	Cable Broke at BKC200	3558
				45	3253	Cable Broke at BKC200	3476.8	Cable Broke at BKC200	3476.5	Cable Broke at BKC200	3402
				60	3480.2	Cable Broke at BKC200	3729.3	Cable Broke at BKC200	3142	Cable Broke at BKC200	3451
System 16	System	3/32	3/8" Eyelet & B154	30	1071.2	Cable Broke at BKC100	1072.6	Cable Broke at BKC100	1070.6	Cable Broke at BKC100	1071
				45	933.4	Cable Broke at BKC100	1147	Cable Broke at BKC100	1070.3	Cable Broke at BKC100	1050
				60	1005	Cable Broke at B154	1006.3	Cable Broke at B154	872.7	Cable Broke at B154	961
System 17	System	3/32	1/2" Eyelet & B154	30	1080.7	Cable Broke at BKC100	1070.7	Cable Broke at BKC100	1074.9	Cable Broke at BKC100	1075
				45	1070.6	Cable Broke at B154	1004.5	Cable Broke at B154	998.5	Cable Broke at B154	1025
				60	999.1	Cable Broke at BKC100	1001.6	Cable Broke at BKC100	1075.8	Cable Broke at BKC100	1026
System 18	System	3/32	B154 Bracket	30	1000.2	Cable Broke at BKC100	1070.4	Cable Broke at BKC100	1000.6	Cable Broke at BKC100	1024
				45	1000.9	Cable Broke at BKC100	1071.4	Cable Broke at BKC100	999.8	Cable Broke at BKC100	1024
				60	1000.2	Cable Broke at BKC100	1070.9	Cable Broke at BKC100	1000.3	Cable Broke at BKC100	1024
System 19	System	3/32	3/8" Eyelet & B650	30	1071.1	Cable Broke at BKC100	999.9	Cable Broke at BKC100	1070.8	Cable Broke at BKC100	1047
				45	1075.4	Cable Broke at B650	1000.6	Cable Broke at B650	933.3	Cable Broke at B650	1003
				60	872.5	Cable Broke at B650	999.1	Cable Broke at B650	1000.2	Cable Broke at B650	957
System 20	System	3/32	1/2" Eyelet & B650	30	1004.4	Cable Broke at BKC100	1073.6	Cable Broke at BKC100	1140.3	Broke Eyelet	1073
				45	933.5	Cable Broke at B650	936.5	Cable Broke at B650	998.5	Cable Broke at B650	956
				60	1028	Cable Broke at BKC100	1003.8	Cable Broke at BKC100	813.1	Cable Broke at BKC100	948
System 21	System	3/32	B650 Bracket	30	1070.7	Cable Broke at BKC100	1000.5	Cable Broke at BKC100	1000.4	Cable Broke at BKC100	1024
				45	994	Cable Broke at BKC100	1071.4	Cable Broke at BKC100	999.8	Cable Broke at BKC100	1022
				60	934.4	Cable Broke at BKC100	998.5	Cable Broke at BKC100	1071.3	Cable Broke at BKC100	1001
System 22	System	1/8	3/8" Eyelet	30	1541	Cable Broke at B650	1637.7	Cable Broke at B650	1755.3	Cable Broke at B650	1645
				45	1428.3	Cable Broke at B650	1413.5	Cable Broke at B650	1444.3	Cable Broke at B650	1429
				60	1527.6	Cable Broke at B650	1530.8	Cable Broke at B650	1636.7	Cable Broke at B650	1565

Note: Values in blue are the minimum values per test

Pre-Stretched B-Line Seismic Cable Test Results (Cont.)

System Testing (Cont.)

Test ID	Type	Dia (in)	Component	Angle (deg)	Max Load (lb)						
					Test 1	Failure Mechanism	Test 2	Failure Mechanism	Test 3	Failure Mechanism	Average
System 23	System	1/8	1/2" Eyelet	30	1849.3	Cable Broke at B154	1407.3	Cable Broke at B154	1732.8	Cable Broke at B154	1663
				45	1528.3	Cable Broke at B154	1428.3	Cable Broke at B154	1656.3	Cable Broke at B154	1538
				60	1424.3	Cable Broke at B154	1335.1	Cable Broke at B154	1529.5	Cable Broke at B154	1430
System 24	System	3/16	3/8" Eyelet	30	3040.9	Cable Broke at B650	2820	Cable Broke at B650	2815.8	Cable Broke at B650	2892
				45	2802.9	Cable Broke at B650	2821.7	Cable Broke at B650	2997.2	Cable Broke at B650	2874
				60	2467.8	Cable Broke at B650	2337.5	Cable Broke at B650	2627.6	Cable Broke at B650	2478
System 25	System	3/16	1/2" Eyelet	30	2827.7	Cable Broke at B650	2811.4	Cable Broke at B650	2820.3	Cable Broke at B650	2820
				45	2639.7	Cable Broke at B650	2994.2	Cable Broke at B650	2815.8	Cable Broke at B650	2817
				60	2535.3	Cable Broke at B650	2542.5	Cable Broke at B650	2470.8	Cable Broke at B650	2516
System 26	System	3/32	3/8" Eyelet	30	1071.1	Cable Broke at BKC100	999.9	Cable Broke at BKC100	1070.6	Cable Broke at BKC100	1047
				45	933.4	Cable Broke at BKC100	1000.6	Cable Broke at B650	933.3	Cable Broke at B650	956
				60	872.5	Cable Broke at B650	999.1	Cable Broke at B650	872.7	Cable Broke at B154	915
System 27	System	3/32	1/2" Eyelet	30	1004.4	Cable Broke at BKC100	1070.7	Cable Broke at BKC100	1074.9	Cable Broke at BKC100	1050
				45	933.5	Cable Broke at B650	936.5	Cable Broke at B650	998.5	Cable Broke at B154	956
				60	999.1	Cable Broke at BKC100	1001.6	Cable Broke at BKC100	813.1	Cable Broke at BKC100	938

Note: Values in blue are the minimum values per test

ASSEMBLY SUMMARY: B154 BRACKET AND 3/8" EYELET

CABLE DIAMETER	CABLE TYPE	EYELET DIAMETER	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	3/8"	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	3/8"	30	800	1120
			45	800	1120
			60	730	1023
3/16"	7X19	3/8"	30	1653	2314
			45	1405	1967
			60	1411	1976

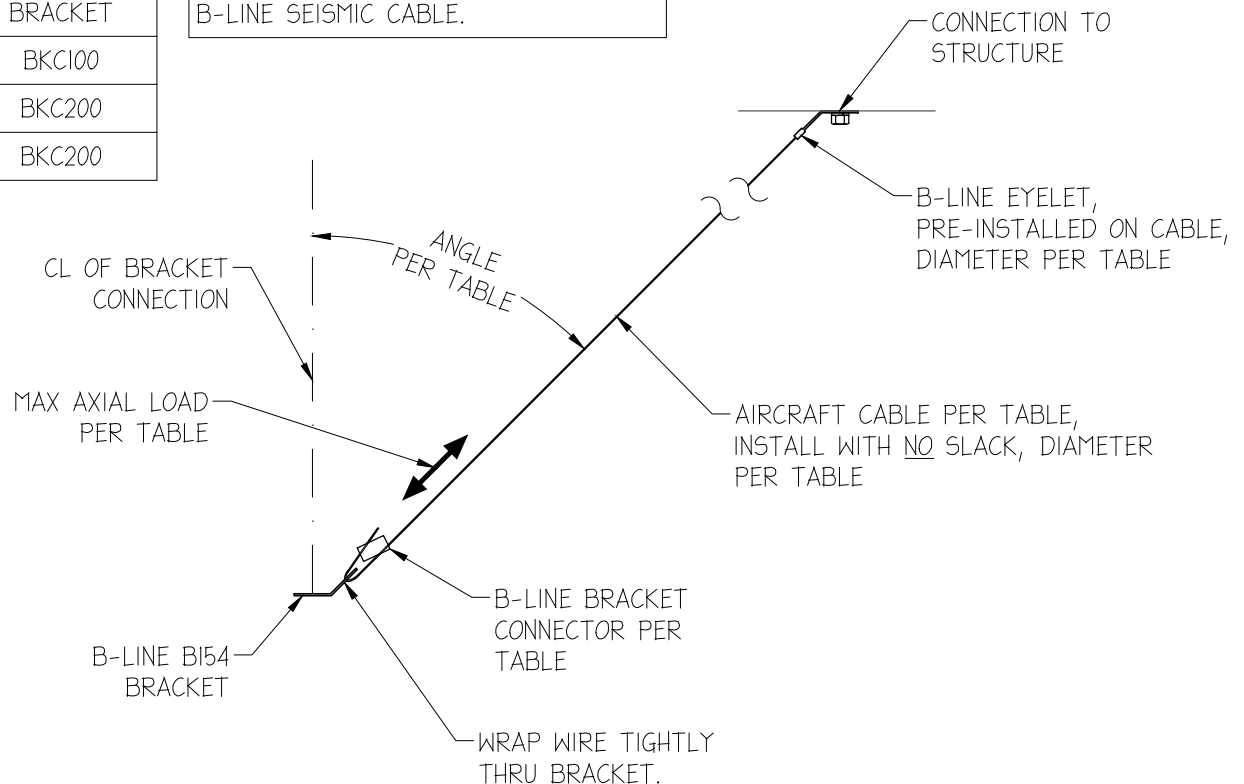


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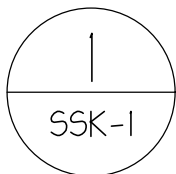
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE B154 AND 3/8" EYELET ASSEMBLY



SCALE: N.T.S.



13228 NE 20TH ST, SUITE 100, BELLEVUE, WA 98005 \ 425 614-0949

PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-I

ADDRESS:

VER: V4

CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: BI54 BRACKET AND 1/2" EYELET

CABLE DIAMETER	CABLE TYPE	EYELET DIAMETER	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	1/2"	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	1/2"	30	800	1120
			45	763	1068
			60	764	1069
3/16"	7X19	1/2"	30	1587	2222
			45	1573	2202
			60	1474	2064

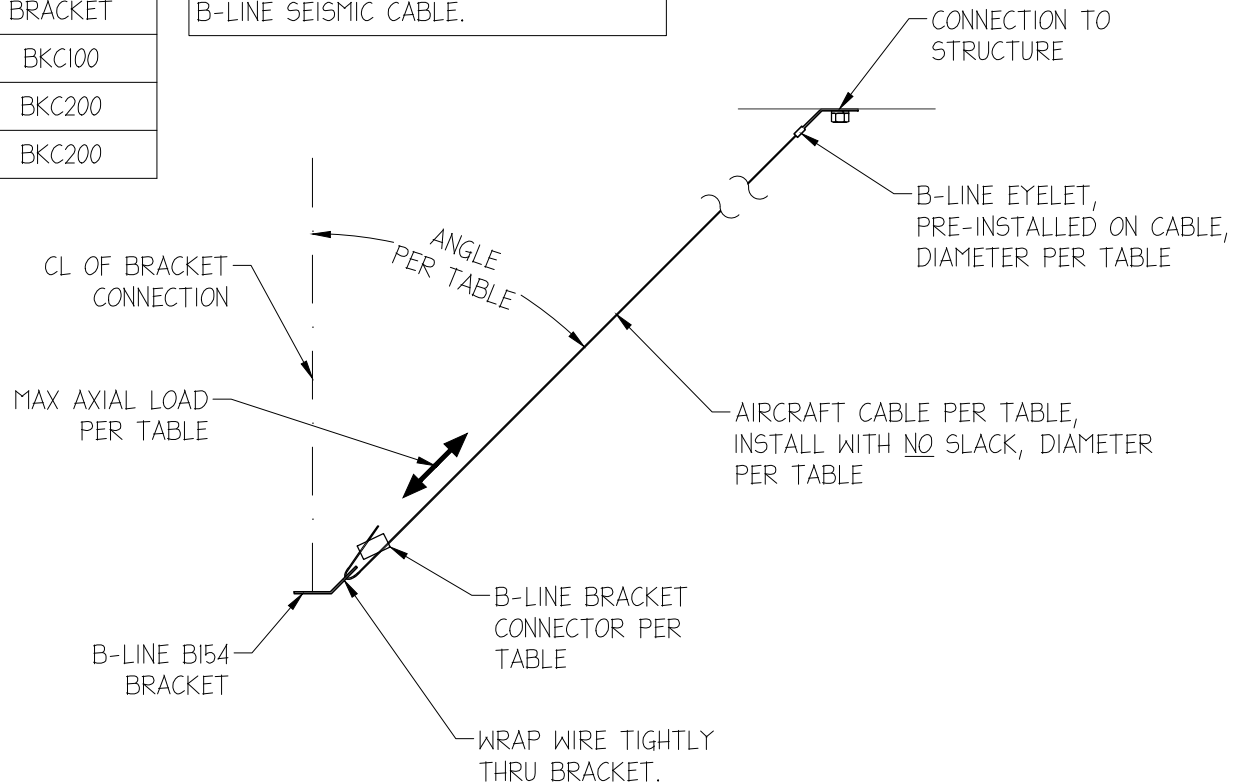


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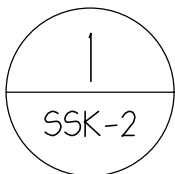
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE BI54 AND 1/2" EYELET ASSEMBLY



SCALE: N.T.S.



13228 NE 20TH ST, SUITE 100, BELLEVUE, WA 98005 \ 425 614-0949

PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-2

ADDRESS:

VER: V4

CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: BI54 BRACKET AND LOOP

CABLE DIAMETER	CABLE TYPE	BRACKET	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	B-LINE BI54	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	B-LINE BI54	30	784	1097
			45	800	1120
			60	800	1120
3/16"	7X19	B-LINE BI54	30	1652	2313
			45	1657	2320
			60	1576	2206

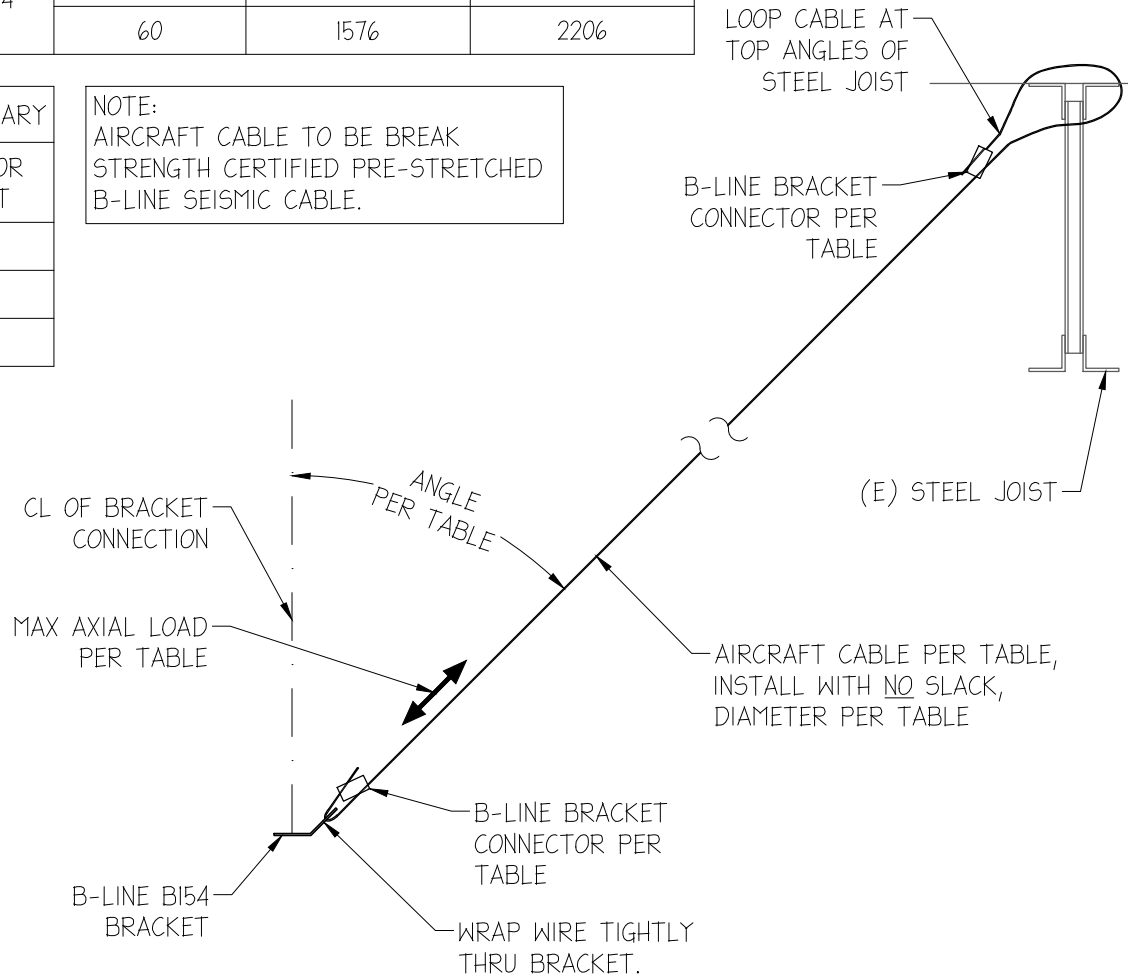


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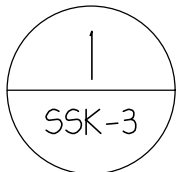
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE BI54 BRACKET ASSEMBLY



SCALE: N.T.S.



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PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-3

ADDRESS:

VER: V4

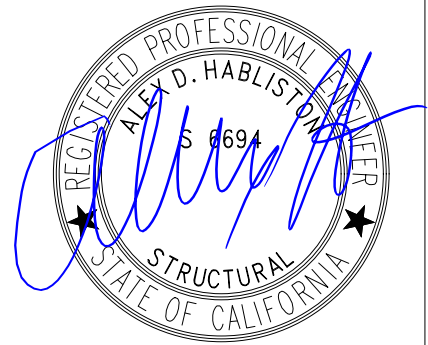
CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: B650 BRACKET AND 3/8" EYELET

CABLE DIAMETER	CABLE TYPE	EYELET DIAMETER	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	3/8"	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	3/8"	30	748	1047
			45	649	909
			60	730	1022
3/16"	7X19	3/8"	30	1315	1841
			45	1306	1829
			60	1126	1577

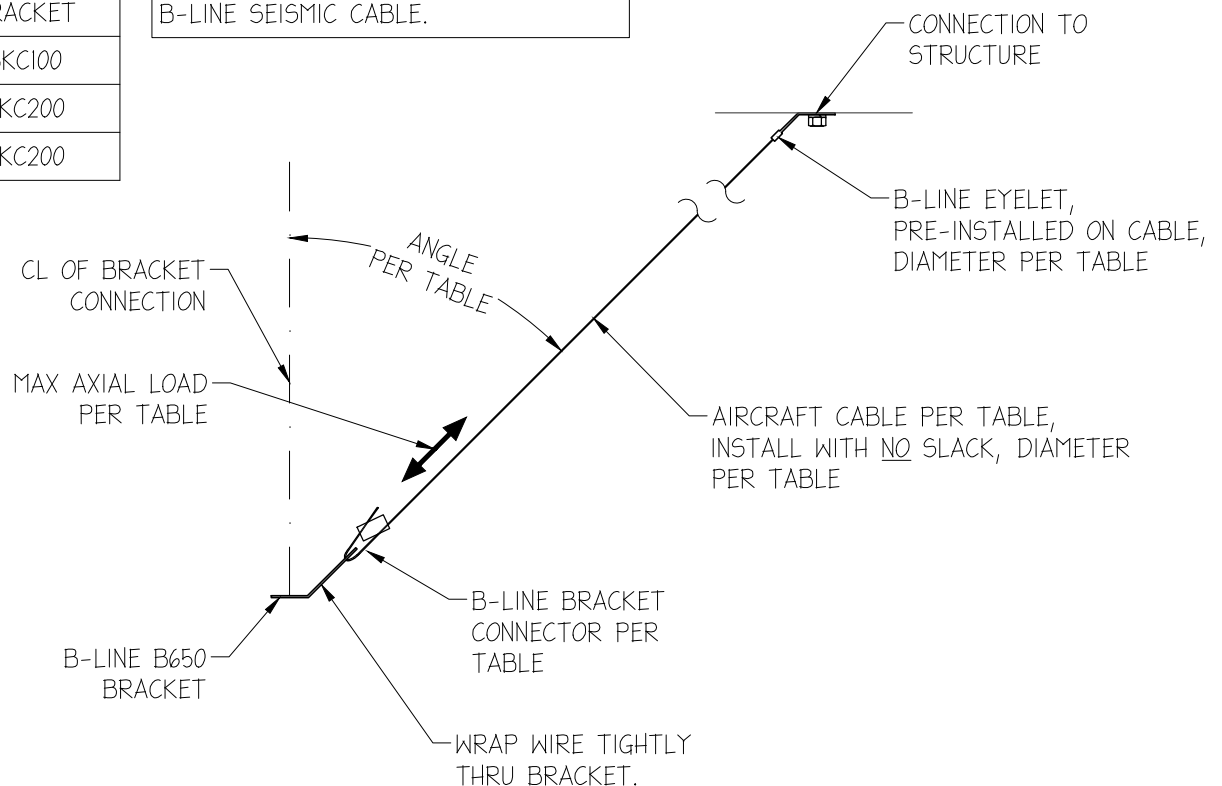


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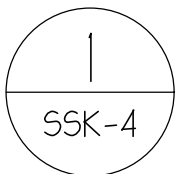
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE B650 AND 3/8" EYELET ASSEMBLY



SCALE: N.T.S.



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PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-4

ADDRESS:

VER: V4

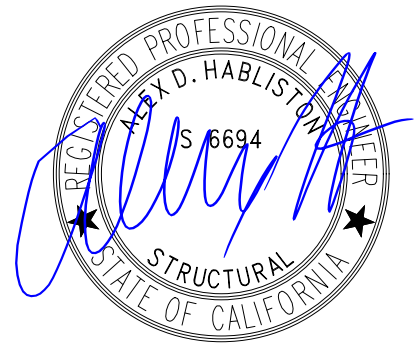
CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: B650 BRACKET AND 1/2" EYELET

CABLE DIAMETER	CABLE TYPE	EYELET DIAMETER	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	1/2"	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	1/2"	30	760	1064
			45	699	978
			60	650	910
3/16"	7X19	1/2"	30	1282	1794
			45	1280	1792
			60	1144	1601

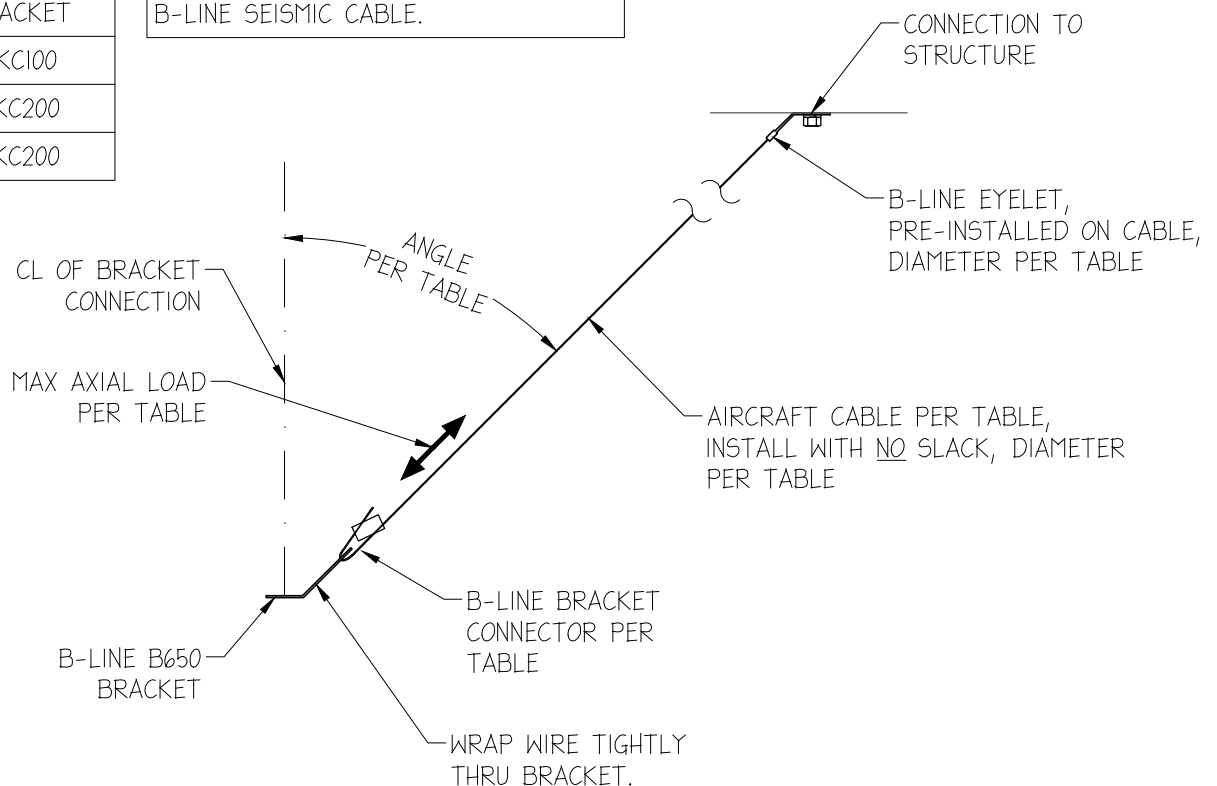


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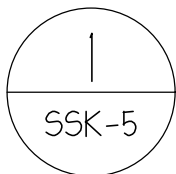
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE B650 AND 1/2" EYELET ASSEMBLY



SCALE: N.T.S.



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PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-5

ADDRESS:

VER: V4

CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: B650 BRACKET AND LOOP

CABLE DIAMETER	CABLE TYPE	BRACKET	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	B-LINE B650	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	B-LINE B650	30	800	1120
			45	800	1120
			60	800	1120
3/16"	7X19	B-LINE B650	30	1617	2264
			45	1546	2165
			60	1568	2196

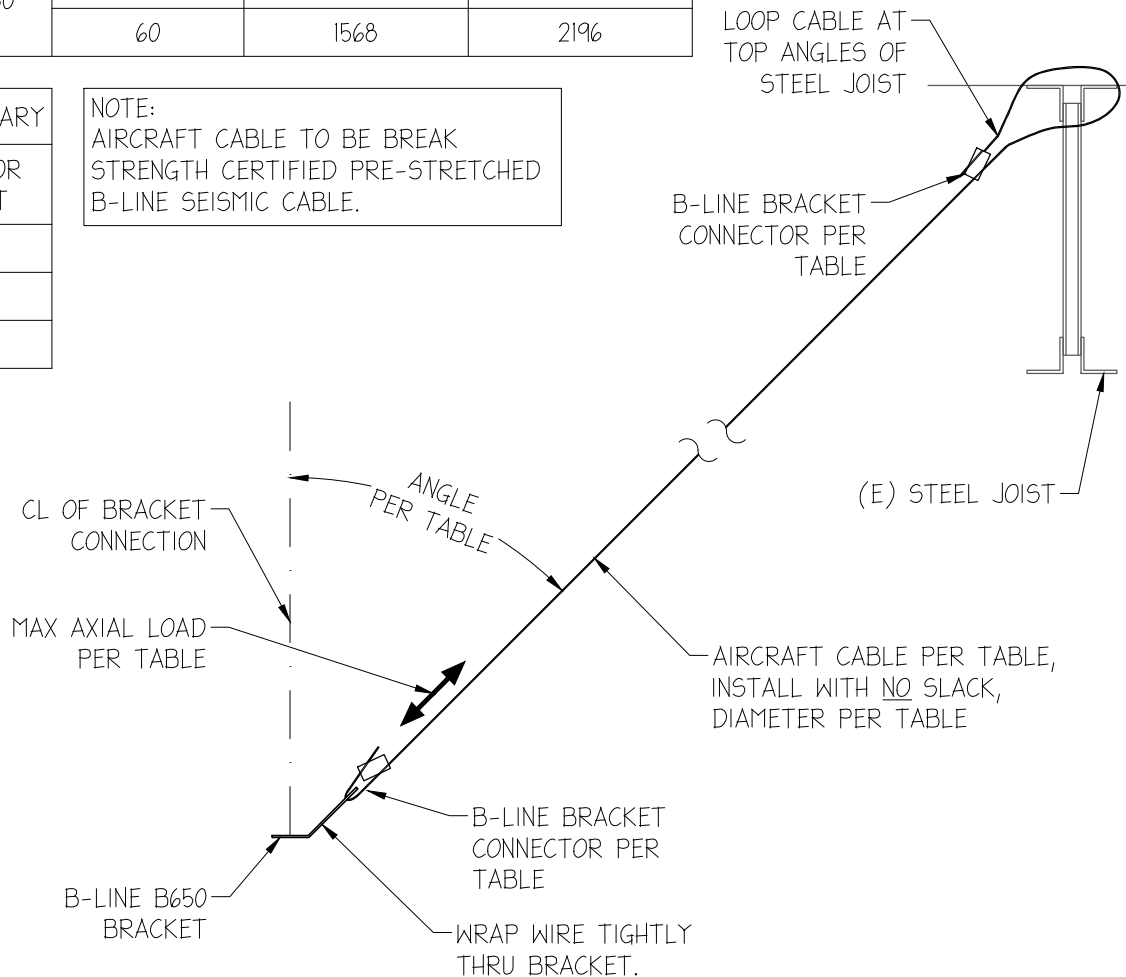


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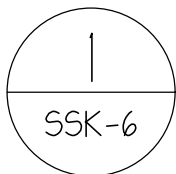
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE B650 BRACKET ASSEMBLY



SCALE: N.T.S.



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PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-6

ADDRESS:

VER: V4

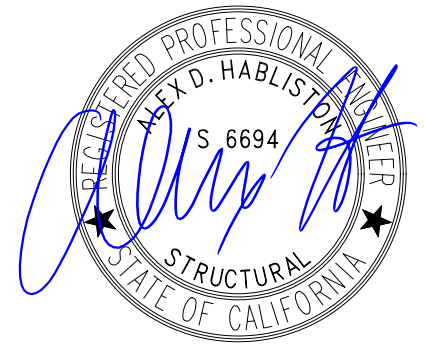
CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: 3/8" EYELET AND LOOP

CABLE DIAMETER	CABLE TYPE	EYELET DIAMETER	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	3/8"	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	3/8"	30	748	1047
			45	649	909
			60	711	996
3/16"	7X19	3/8"	30	1315	1841
			45	1306	1829
			60	1126	1577

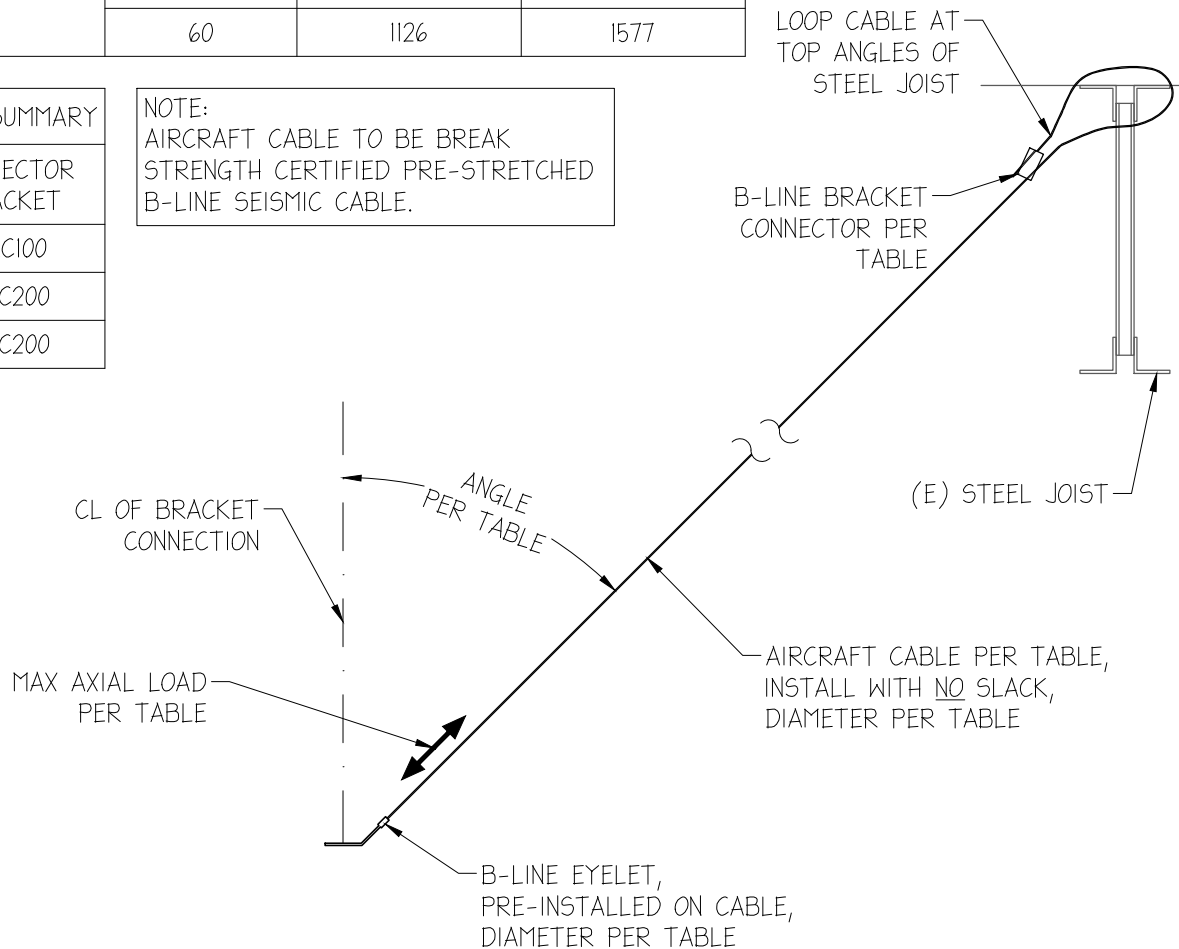


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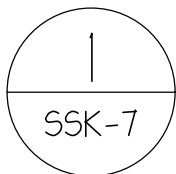
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE 3/8" EYELET ASSEMBLY



SCALE: N.T.S.



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PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-7

ADDRESS:

VER: V4

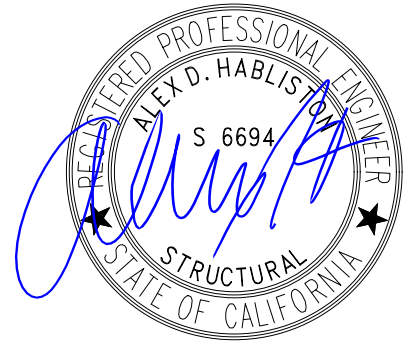
CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

ASSEMBLY SUMMARY: 1/2" EYELET AND LOOP

CABLE DIAMETER	CABLE TYPE	EYELET DIAMETER	BRACE ANGLE (DEGREES)	MAX AXIAL LOAD (ASD) (LB)	MAX AXIAL LOAD (LRFD) (LB)
3/32"	7X7	1/2"	30	368	515
			45	368	515
			60	368	515
1/8"	7X19	1/2"	30	756	1058
			45	699	978
			60	650	910
3/16"	7X19	1/2"	30	1282	1794
			45	1280	1792
			60	1144	1601

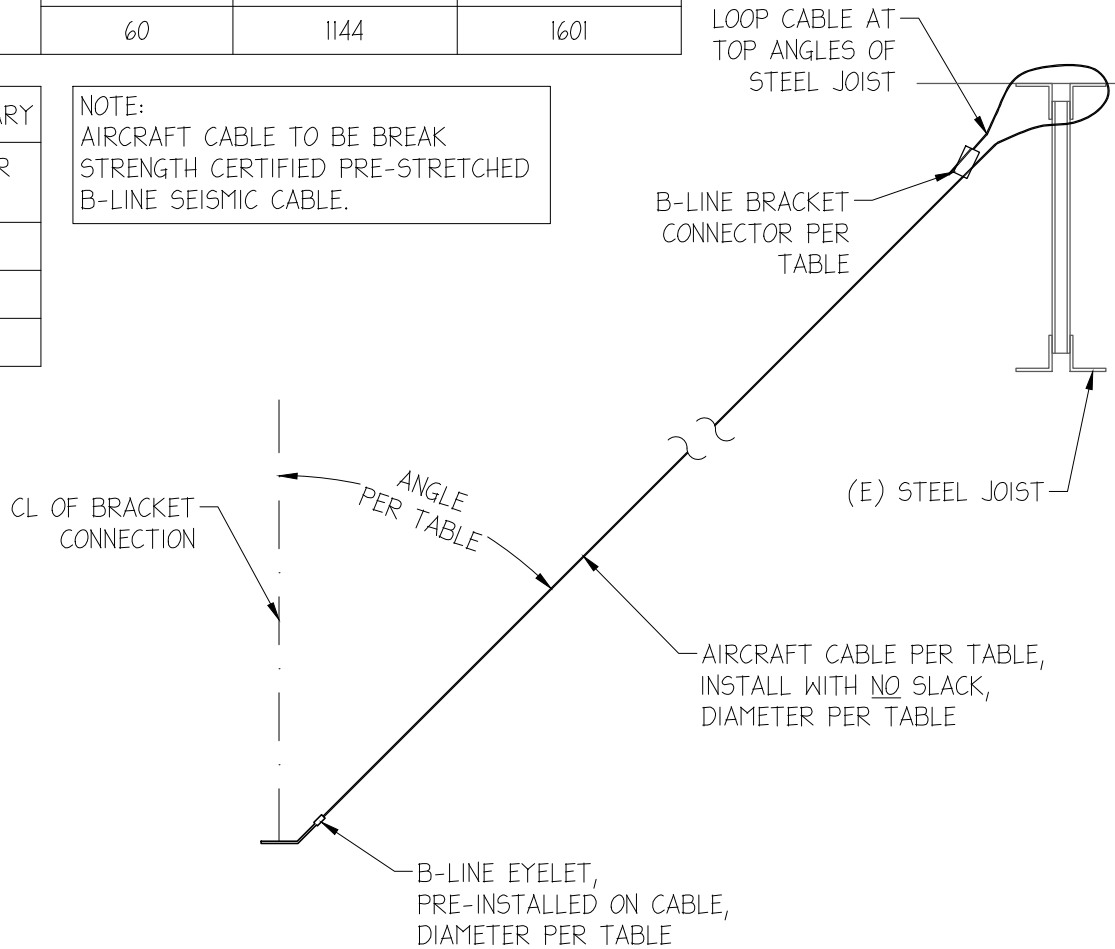


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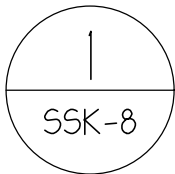
CONNECTOR BRACKET SUMMARY

CABLE DIAMETER	CONNECTOR BRACKET
3/32"	BKCI00
1/8"	BKC200
3/16"	BKC200

NOTE:
AIRCRAFT CABLE TO BE BREAK
STRENGTH CERTIFIED PRE-STRETCHED
B-LINE SEISMIC CABLE.



CABLE BRACE 1/2" EYELET ASSEMBLY



SCALE: N.T.S.



13228 NE 20TH ST, SUITE 100, BELLEVUE, WA 98005 \ 425 614-0949

PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-8

ADDRESS:

VER: V4

CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092

COMBINED TRANSVERSE AND LONGITUDINAL BRACE SUMMARY		
BRACE OFFSET ANGLE (DEGREES)	CONVERSION FACTOR FOR TRANSVERSE LOAD	CONVERSION FACTOR FOR LONGITUDINAL LOAD
30	1.732	0.866
45	1.414	0.707
60	1.000	0.500



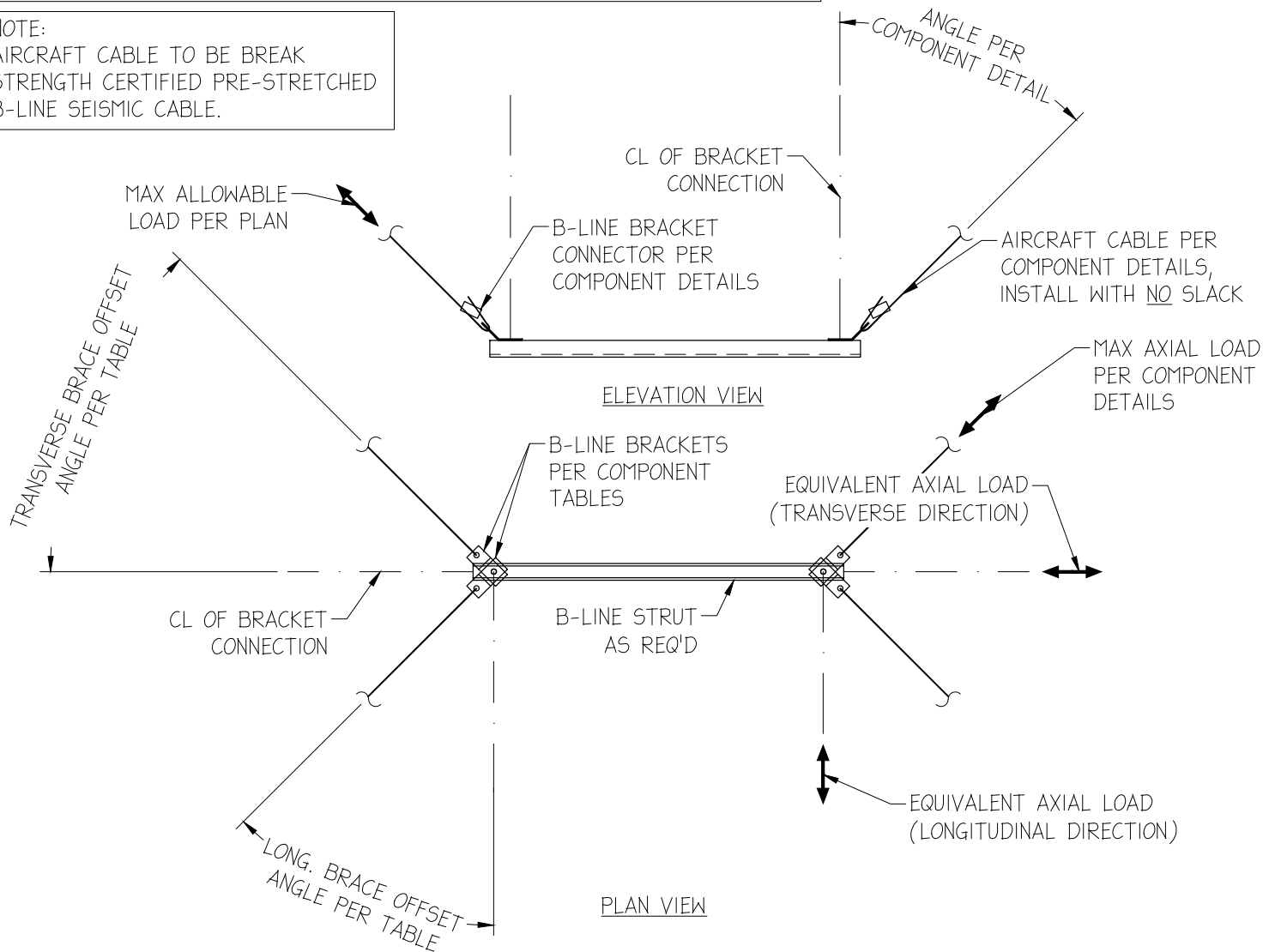
07/06/2020

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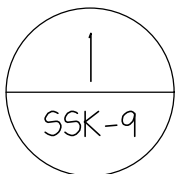
- TRANSVERSE LOAD CONVERSION ACCOUNTS FOR TWO BRACES
- LONGITUDINAL LOAD CONVERSION APPLIES TO A SINGLE LONGITUDINAL BRACE
- MAX ALLOWABLE TRANSVERSE AND LONGITUDINAL IS DETERMINED BY THE FOLLOWING: ALLOWABLE LOAD = AXIAL LOAD * CONVERSION FACTOR

NOTE:

AIRCRAFT CABLE TO BE BREAK STRENGTH CERTIFIED PRE-STRETCHED B-LINE SEISMIC CABLE.



OPTIONAL COMBINED TRANSVERSE AND LONGITUDINAL BRACE



SCALE: N.T.S.



13228 NE 20TH ST, SUITE 100, BELLEVUE, WA 98005 \ 425 614-0949

PROJECT: B-LINE SEISMIC CABLE SYSTEMS

ENG: EL

PG: SSK-9

ADDRESS:

VER: V4

CLIENT: EATON / B-LINE SERIES

DATE: 2020-06-23

JOB NO: 20092