

### ZAP SCREWLOK® TYPE 2 SYSTEM TEST DATA CONVERSION - 15M AND 20M (GRADE 400)

Lab Report & Reference No.		Bar Type	ASTM Bar Size Designation	ASTM Bar Area (in <sup>2</sup> )	Max Load (lb)	Max Stress (psi)	Developed Stress % <i>f<sub>y</sub></i> ASTM Gr 60 (metric Gr 420)	Equivalent CSA Designation	CSA Bar Area (mm <sup>2</sup> )	Max Load (kN)	Equivalent Max Stress CSA Gr 400 (N/mm <sup>2</sup> )	Equivalent Developed Stress % <i>f<sub>y</sub></i> CSA Gr 400
5T4568	5A	BLACK	<b>No. 5</b>	0.31	34,090	109,968	<b>183%</b>	<b>15M</b>	200	151.6	758	<b>190%</b>
	5B		<b>No. 5</b>	0.31	34,590	111,581	<b>186%</b>	<b>15M</b>	200	153.9	769	<b>192%</b>
5T7929	5A	BLACK	<b>No. 5</b>	0.31	32,880	106,065	<b>177%</b>	<b>15M</b>	200	146.3	731	<b>183%</b>
	5B		<b>No. 5</b>	0.31	32,770	105,710	<b>176%</b>	<b>15M</b>	200	145.8	729	<b>182%</b>
5T8742	5A	BLACK	<b>No. 5</b>	0.31	31,370	101,194	<b>169%</b>	<b>15M</b>	200	139.5	698	<b>174%</b>
	5B		<b>No. 5</b>	0.31	32,040	103,355	<b>172%</b>	<b>15M</b>	200	142.5	713	<b>178%</b>
5T7770	5A	EPOXY	<b>No. 5</b>	0.31	32,210	103,903	<b>173%</b>	<b>15M</b>	200	143.3	716	<b>179%</b>
	5B		<b>No. 5</b>	0.31	32,870	106,032	<b>177%</b>	<b>15M</b>	200	146.2	731	<b>183%</b>
5T7927 <i>*A706</i>	5A	EPOXY	<b>No. 5</b>	0.31	31,810	102,613	<b>171%</b>	<b>15M</b>	200	141.5	707	<b>177%</b>
	5B		<b>No. 5</b>	0.31	31,850	102,742	<b>171%</b>	<b>15M</b>	200	141.7	708	<b>177%</b>
6T3578	6A	BLACK	<b>No. 6</b>	0.44	50,060	113,773	<b>190%</b>	<b>20M</b>	300	222.7	742	<b>186%</b>
	6B		<b>No. 6</b>	0.44	51,390	116,795	<b>195%</b>	<b>20M</b>	300	228.6	762	<b>190%</b>
6T5452	6A	BLACK	<b>No. 6</b>	0.44	46,240	105,091	<b>175%</b>	<b>20M</b>	300	205.7	686	<b>171%</b>
	6B		<b>No. 6</b>	0.44	45,960	104,455	<b>174%</b>	<b>20M</b>	300	204.4	681	<b>170%</b>
6T5555	6A	BLACK	<b>No. 6</b>	0.44	47,300	107,500	<b>179%</b>	<b>20M</b>	300	210.4	701	<b>175%</b>
	6B		<b>No. 6</b>	0.44	48,990	111,341	<b>186%</b>	<b>20M</b>	300	217.9	726	<b>182%</b>
6T5451	6A	EPOXY	<b>No. 6</b>	0.44	45,870	104,250	<b>174%</b>	<b>20M</b>	300	204.0	680	<b>170%</b>
	6B		<b>No. 6</b>	0.44	45,470	103,341	<b>172%</b>	<b>20M</b>	300	202.3	674	<b>169%</b>
6T5754	6A	EPOXY	<b>No. 6</b>	0.44	45,310	102,977	<b>172%</b>	<b>20M</b>	300	201.5	672	<b>168%</b>
	6B		<b>No. 6</b>	0.44	45,690	103,841	<b>173%</b>	<b>20M</b>	300	203.2	677	<b>169%</b>

**NOTES**

All splices meet Type 2 requirement of ACI 318 Section 18 (100% *f<sub>u</sub>*) Grade 60 bar, and CSA A23.3 Clause 12.14.3.4 requirement (120% *f<sub>y</sub>*) Grade 400 bar. Results shown are from routine testing of various heat lots of completed coupler assemblies, per Barsplice Products, Inc. ISO 9001 Quality System. Conducted on reinforcing bars per ASTM A615 (or \*A706) Grade 60, with a specified yield, *f<sub>y</sub>* = 60,000 psi (420 N/mm<sup>2</sup>). Tests performed in accordance with ASTM A1034, Section 10.3, Monotonic Tension Tests, using load rates per ASTM A370. See Lab reports for stress versus displacement curves (stress versus cross-head position). ASTM = American Society for Testing and Materials, CSA = Canadian Standards Association

## ZAP SCREWLOK® TYPE 2 SYSTEM TEST DATA CONVERSION - 25M AND 30M (GRADE 400)

Lab Report & Reference No.		Bar Type	ASTM Bar Size Designation	ASTM Bar Area (in <sup>2</sup> )	Max Load (lb)	Max Stress (psi)	Developed Stress % <i>f<sub>y</sub></i> ASTM Gr 60 (metric Gr 420)	Equivalent CSA Designation	CSA Bar Area (mm <sup>2</sup> )	Max Load (kN)	Equivalent Max Stress CSA Gr 400 (N/mm <sup>2</sup> )	Equivalent Developed Stress % <i>f<sub>y</sub></i> CSA Gr 400
8T3613	8A	BLACK	No. 8	0.79	87,411	110,647	184%	25M	500	388.8	778	194%
	8B		No. 8	0.79	87,846	111,197	185%	25M	500	390.7	781	195%
8T3709	8A	BLACK	No. 8	0.79	89,490	113,278	189%	25M	500	398.0	796	199%
	8B		No. 8	0.79	84,581	107,064	178%	25M	500	376.2	752	188%
8T3719	8A	BLACK	No. 8	0.79	86,003	108,865	181%	25M	500	382.5	765	191%
	8B		No. 8	0.79	86,894	109,992	183%	25M	500	386.5	773	193%
8T2651	8A	EPOXY	No. 8	0.79	82,640	104,608	174%	25M	500	367.6	735	184%
	8B		No. 8	0.79	84,280	106,684	178%	25M	500	374.9	750	187%
8T3500	8A	EPOXY	No. 8	0.79	80,273	101,612	169%	25M	500	357.1	714	179%
	8B		No. 8	0.79	78,810	99,760	166%	25M	500	350.5	701	175%
9T2019 <i>*A706</i>	9A	BLACK	No. 9	1.00	101,970	101,970	170%	30M	700	453.6	648	162%
	9B		No. 9	1.00	101,320	101,320	169%	30M	700	450.7	644	161%
9T2363	9A	BLACK	No. 9	1.00	109,836	109,836	183%	30M	700	488.6	698	174%
	9B		No. 9	1.00	108,621	108,621	181%	30M	700	483.1	690	173%
9T2394	9A	BLACK	No. 9	1.00	111,787	111,787	186%	30M	700	497.2	710	178%
	9B		No. 9	1.00	116,548	116,548	194%	30M	700	518.4	741	185%
9T2169	9A	EPOXY	No. 9	1.00	106,640	106,640	178%	30M	700	474.3	678	169%
	9B		No. 9	1.00	105,420	105,420	176%	30M	700	468.9	670	167%
9T2289	9A	EPOXY	No. 9	1.00	117,776	117,776	196%	30M	700	523.9	748	187%
	9B		No. 9	1.00	117,063	117,063	195%	30M	700	520.7	744	186%

### NOTES

All splices meet Type 2 requirement of ACI 318 Section 18 (100% *f<sub>u</sub>*) Grade 60 bar, and CSA A23.3 Clause 12.14.3.4 requirement (120% *f<sub>y</sub>*) Grade 400 bar. Results shown are from routine testing of various heat lots of completed coupler assemblies, per Barsplice Products, Inc. ISO 9001 Quality System.

Conducted on reinforcing bars per ASTM A615 (or \*A706) Grade 60, with a specified yield, *f<sub>y</sub>* = 60,000 psi (420 N/mm<sup>2</sup>).

Tests performed in accordance with ASTM A1034, Section 10.3, Monotonic Tension Tests, using load rates per ASTM A370

See Lab reports for stress versus displacement curves (stress versus cross-head position).

ASTM = American Society for Testing and Materials, CSA = Canadian Standards Association

## ZAP SCREWLOK® TYPE 2 SYSTEM TEST DATA CONVERSION - 35M AND 45M (GRADE 400)

Lab Report & Reference No.		Bar Type	ASTM Bar Size Designation	ASTM Bar Area (in <sup>2</sup> )	Max Load (lb)	Max Stress (psi)	Developed Stress % <i>f<sub>y</sub></i> ASTM Gr 60 (metric Gr 420)	Equivalent CSA Designation	CSA Bar Area (mm <sup>2</sup> )	Max Load (kN)	Equivalent Max Stress CSA Gr 400 (N/mm <sup>2</sup> )	Equivalent Developed Stress % <i>f<sub>y</sub></i> CSA Gr 400
11T3620 *A706	11A	BLACK	No. 11	1.56	150,660	96,577	161%	35M	1000	670.1	670	168%
	11B		No. 11	1.56	150,810	96,673	161%	35M	1000	670.8	671	168%
11T4022	11A	BLACK	No. 11	1.56	172,703	110,707	185%	35M	1000	768.2	768	192%
	11B		No. 11	1.56	171,499	109,935	183%	35M	1000	762.8	763	191%
11T4207	11A	BLACK	No. 11	1.56	173,318	111,101	185%	35M	1000	770.9	771	193%
	11B		No. 11	1.56	176,706	113,273	189%	35M	1000	786.0	786	196%
11T3894	11A	EPOXY	No. 11	1.56	163,820	105,013	175%	35M	1000	728.7	729	182%
	11B		No. 11	1.56	159,320	102,128	170%	35M	1000	708.7	709	177%
11T4211	11A	EPOXY	No. 11	1.56	173,307	111,094	185%	35M	1000	770.9	771	193%
	11B		No. 11	1.56	170,982	109,604	183%	35M	1000	760.5	761	190%
14T1197 *A706	14A	BLACK	No. 14	2.25	219,051	97,356	162%	45M	1500	974.3	650	162%
	14B		No. 14	2.25	225,041	100,018	167%	45M	1500	1001.0	667	167%
14T1352	14A	BLACK	No. 14	2.25	229,696	102,087	170%	45M	1500	1021.7	681	170%
	14B		No. 14	2.25	228,429	101,524	169%	45M	1500	1016.1	677	169%
14T1384	14A	BLACK	No. 14	2.25	233,440	103,751	173%	45M	1500	1038.3	692	173%
	14B		No. 14	2.25	228,159	101,404	169%	45M	1500	1014.9	677	169%
14T1087	14A	EPOXY	No. 14	2.25	217,717	96,763	161%	45M	1500	968.4	646	161%
	14B		No. 14	2.25	221,002	98,223	164%	45M	1500	983.0	655	164%
14T1205	14A	EPOXY	No. 14	2.25	231,764	103,006	172%	45M	1500	1030.9	687	172%
	14B		No. 14	2.25	234,124	104,055	173%	45M	1500	1041.4	694	174%

### NOTES

All splices meet Type 2 requirement of ACI 318 Section 18 (100% *f<sub>u</sub>*) Grade 60 bar, and CSA A23.3 Clause 12.14.3.4 requirement (120% *f<sub>y</sub>*) Grade 400 bar. Results shown are from routine testing of various heat lots of completed coupler assemblies, per Barsplice Products, Inc. ISO 9001 Quality System.

Conducted on reinforcing bars per ASTM A615 (or \*A706) Grade 60, with a specified yield, *f<sub>y</sub>* = 60,000 psi (420 N/mm<sup>2</sup>).

Tests performed in accordance with ASTM A1034, Section 10.3, Monotonic Tension Tests, using load rates per ASTM A370

See Lab reports for stress versus displacement curves (stress versus cross-head position).

ASTM = American Society for Testing and Materials, CSA = Canadian Standards Association

## ZAP SCREWLOK® TYPE 2 SYSTEM TEST DATA CONVERSION - 55M (GRADE 400)

Lab Report & Reference No.		Bar Type	ASTM Bar Size Designation	ASTM Bar Area (in <sup>2</sup> )	Max Load (lb)	Max Stress (psi)	Developed Stress %fy ASTM Gr 60 (metric Gr 420)	Equivalent CSA Designation	CSA Bar Area (mm <sup>2</sup> )	Max Load (kN)	Equivalent Max Stress CSA Gr 400 (N/mm <sup>2</sup> )	Equivalent Developed Stress %fy CSA Gr 400
18T498	18A	BLACK	<b>No. 18</b>	4.00	417,512	104,378	<b>174%</b>	<b>55M</b>	2500	1857.1	743	<b>186%</b>
	18B		<b>No. 18</b>	4.00	406,180	101,545	<b>169%</b>	<b>55M</b>	2500	1806.7	723	<b>181%</b>
18T915	18A	BLACK	<b>No. 18</b>	4.00	412,376	103,094	<b>172%</b>	<b>55M</b>	2500	1834.2	734	<b>183%</b>
	18B		<b>No. 18</b>	4.00	409,764	102,441	<b>171%</b>	<b>55M</b>	2500	1822.6	729	<b>182%</b>
18T917	18A	BLACK	<b>No. 18</b>	4.00	413,336	103,334	<b>172%</b>	<b>55M</b>	2500	1838.5	735	<b>184%</b>
	18B		<b>No. 18</b>	4.00	410,300	102,575	<b>171%</b>	<b>55M</b>	2500	1825.0	730	<b>183%</b>
18T499	18A	EPOXY	<b>No. 18</b>	4.00	422,780	105,695	<b>176%</b>	<b>55M</b>	2500	1880.5	752	<b>188%</b>
18T846	18A	EPOXY	<b>No. 18</b>	4.00	395,296	98,824	<b>165%</b>	<b>55M</b>	2500	1758.3	703	<b>176%</b>
18T846	18A	EPOXY	<b>No. 18</b>	4.00	382,920	95,730	<b>160%</b>	<b>55M</b>	2500	1703.2	681	<b>170%</b>
	18B		<b>No. 18</b>	4.00	395,296	98,824	<b>165%</b>	<b>55M</b>	2500	1758.3	703	<b>176%</b>
18T866	18A	EPOXY	<b>No. 18</b>	4.00	405,620	101,405	<b>169%</b>	<b>55M</b>	2500	1804.2	722	<b>180%</b>
	18B		<b>No. 18</b>	4.00	403,808	100,952	<b>168%</b>	<b>55M</b>	2500	1796.1	718	<b>180%</b>

### NOTES

All splices meet Type 2 requirement of ACI 318 Section 18 (100% fu) Grade 60 bar, and CSA A23.3 Clause 12.14.3.4 requirement (120% fy) Grade 400 bar. Results shown are from routine testing of various heat lots of completed coupler assemblies, per Barsplice Products, Inc. ISO 9001 Quality System. Conducted on reinforcing bars per ASTM A615 (or \*A706) Grade 60, with a specified yield, fy = 60,000 psi (420 N/mm<sup>2</sup>). Tests performed in accordance with ASTM A1034, Section 10.3, Monotonic Tension Tests, using load rates per ASTM A370. See Lab reports for stress versus displacement curves (stress versus cross-head position). ASTM = American Society for Testing and Materials, CSA = Canadian Standards Association