

## BUTTONHEAD MECHANICAL ANCHORAGE 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 %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
5T3060	5A	Black	<b>No. 5</b>	0.31	34,010	109,710	<b>183%</b>	<b>15M</b>	200	151.3	756	<b>189%</b>
	5B		<b>No. 5</b>	0.31	34,500	111,290	<b>185%</b>	<b>15M</b>	200	153.5	767	<b>192%</b>
5T4573	5A	Black	<b>No. 5</b>	0.31	33,830	109,129	<b>182%</b>	<b>15M</b>	200	150.5	752	<b>188%</b>
	5B		<b>No. 5</b>	0.31	34,380	110,903	<b>185%</b>	<b>15M</b>	200	152.9	765	<b>191%</b>
5T5994	5A	Black	<b>No. 5</b>	0.31	34,010	109,710	<b>183%</b>	<b>15M</b>	200	151.3	756	<b>189%</b>
	5B		<b>No. 5</b>	0.31	34,500	111,290	<b>185%</b>	<b>15M</b>	200	153.5	767	<b>192%</b>
5T6151 <b>A706</b>	5A	Black	<b>No. 5</b>	0.31	33,830	109,129	<b>182%</b>	<b>15M</b>	200	150.5	752	<b>188%</b>
	5B		<b>No. 5</b>	0.31	34,380	110,903	<b>185%</b>	<b>15M</b>	200	152.9	765	<b>191%</b>
6T1836	6A	Black	<b>No. 6</b>	0.44	44,830	101,886	<b>170%</b>	<b>20M</b>	300	199.4	665	<b>166%</b>
	6B		<b>No. 6</b>	0.44	46,150	104,886	<b>175%</b>	<b>20M</b>	300	205.3	684	<b>171%</b>
6T2694	6A	Black	<b>No. 6</b>	0.44	45,322	103,005	<b>172%</b>	<b>20M</b>	300	201.6	672	<b>168%</b>
	6B		<b>No. 6</b>	0.44	45,217	102,766	<b>171%</b>	<b>20M</b>	300	201.1	670	<b>168%</b>
	6C		<b>No. 6</b>	0.44	45,315	102,989	<b>172%</b>	<b>20M</b>	300	201.6	672	<b>168%</b>
6T4744	6A	Black	<b>No. 6</b>	0.44	48,260	109,682	<b>183%</b>	<b>20M</b>	300	214.7	716	<b>179%</b>
	6B		<b>No. 6</b>	0.44	48,210	109,568	<b>183%</b>	<b>20M</b>	300	214.4	715	<b>179%</b>
6T4873 <b>A706</b>	6A	Black	<b>No. 6</b>	0.44	42,090	95,659	<b>159%</b>	<b>20M</b>	300	187.2	624	<b>156%</b>
	6B		<b>No. 6</b>	0.44	43,250	98,295	<b>164%</b>	<b>20M</b>	300	192.4	641	<b>160%</b>

### NOTES

Test results are from routine testing of each heat lot of arriving ButtonHead material, per Barsplice Products, Inc. ISO Quality System.

Reinforcing Bars, per ASTM A 615 (or \*A706) Grade 60, have a specified yield, fy = 60,000 psi (420 N/mm<sup>2</sup>).

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

Load rates per ASTM A 370.

ASTM = American Society for Testing and Materials

CSA = Canadian Standards Association

The ButtonHead, BNX, with a gross bearing area of 10 times the bar area, complies with CAN/CSA A23.3 Section 7.1.4 when installed in accordance with Barsplice Swaging Instructions (SM35) and Barsplice Terms and Conditions of Sale.

## BUTTONHEAD MECHANICAL ANCHORAGE 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 %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
8T1709	8A	Black	<b>No. 8</b>	0.79	82,740	104,734	<b>175%</b>	<b>25M</b>	500	368.0	736	<b>184%</b>
	8B		<b>No. 8</b>	0.79	81,450	103,101	<b>172%</b>	<b>25M</b>	500	362.3	725	<b>181%</b>
8T2107	8A	Black	<b>No. 8</b>	0.79	84,350	106,772	<b>178%</b>	<b>25M</b>	500	375.2	750	<b>188%</b>
	8B		<b>No. 8</b>	0.79	84,770	107,304	<b>179%</b>	<b>25M</b>	500	377.1	754	<b>189%</b>
8T2762	8A	Black	<b>No. 8</b>	0.79	85,560	108,304	<b>181%</b>	<b>25M</b>	500	380.6	761	<b>190%</b>
	8B		<b>No. 8</b>	0.79	84,550	107,025	<b>178%</b>	<b>25M</b>	500	376.1	752	<b>188%</b>
8T3518 <b>A706</b>	8A	Black	<b>No. 8</b>	0.79	77,530	98,139	<b>164%</b>	<b>25M</b>	500	344.9	690	<b>172%</b>
	8B		<b>No. 8</b>	0.79	78,920	99,899	<b>166%</b>	<b>25M</b>	500	351.0	702	<b>176%</b>
9T1298	9A	Black	<b>No. 9</b>	1.00	101,780	101,780	<b>170%</b>	<b>30M</b>	700	452.7	647	<b>162%</b>
	9B		<b>No. 9</b>	1.00	101,500	101,500	<b>169%</b>	<b>30M</b>	700	451.5	645	<b>161%</b>
9T1710	9A	Black	<b>No. 9</b>	1.00	108,460	108,460	<b>181%</b>	<b>30M</b>	700	482.4	689	<b>172%</b>
	9B		<b>No. 9</b>	1.00	115,490	115,490	<b>192%</b>	<b>30M</b>	700	513.7	734	<b>183%</b>
9T1812	9A	Black	<b>No. 9</b>	1.00	106,780	106,780	<b>178%</b>	<b>30M</b>	700	475.0	679	<b>170%</b>
	9B		<b>No. 9</b>	1.00	108,720	108,720	<b>181%</b>	<b>30M</b>	700	483.6	691	<b>173%</b>
9T1932 <b>A706</b>	9A	Black	<b>No. 9</b>	1.00	95,430	95,430	<b>159%</b>	<b>30M</b>	700	424.5	606	<b>152%</b>
	9B		<b>No. 9</b>	1.00	96,650	96,650	<b>161%</b>	<b>30M</b>	700	429.9	614	<b>154%</b>

### NOTES

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

Load rates per ASTM A 370.

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## BUTTONHEAD MECHANICAL ANCHORAGE 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 %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
11T2213	11A	Black	No. 11	1.56	165,131	105,853	176%	35M	1000	734.5	735	184%
	11B		No. 11	1.56	165,560	106,128	177%	35M	1000	736.4	736	184%
11T2639	11A	Black	No. 11	1.56	167,620	107,449	179%	35M	1000	745.6	746	186%
	11B		No. 11	1.56	169,371	108,571	181%	35M	1000	753.4	753	188%
11T3323	11A	Black	No. 11	1.56	173,840	111,436	186%	35M	1000	773.2	773	193%
	11B		No. 11	1.56	172,659	110,679	184%	35M	1000	768.0	768	192%
11T3455	11A	Black	No. 11	1.56	178,101	114,167	190%	35M	1000	792.2	792	198%
	11B		No. 11	1.56	163,929	105,083	175%	35M	1000	729.2	729	182%
11T3939 A706	11A	Black	No. 11	1.56	153,410	98,340	164%	35M	1000	682.4	682	171%
	11B		No. 11	1.56	149,070	95,558	159%	35M	1000	663.1	663	166%
14T658	14A	Black	No. 14	2.25	226,670	100,742	168%	45M	1500	1008.2	672	168%
14T757	14A	Black	No. 14	2.25	250,839	111,484	186%	45M	1500	1115.7	744	186%
	14B		No. 14	2.25	253,370	112,609	188%	45M	1500	1127.0	751	188%
14T770	14A	Black	No. 14	2.25	249,921	111,076	185%	45M	1500	1111.6	741	185%
	14B		No. 14	2.25	245,810	109,249	182%	45M	1500	1093.4	729	182%
14T1412 A706	14A	Black	No. 14	2.25	239,049	106,244	177%	45M	1500	1063.3	709	177%
	14B		No. 14	2.25	235,629	104,724	175%	45M	1500	1048.1	699	175%

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