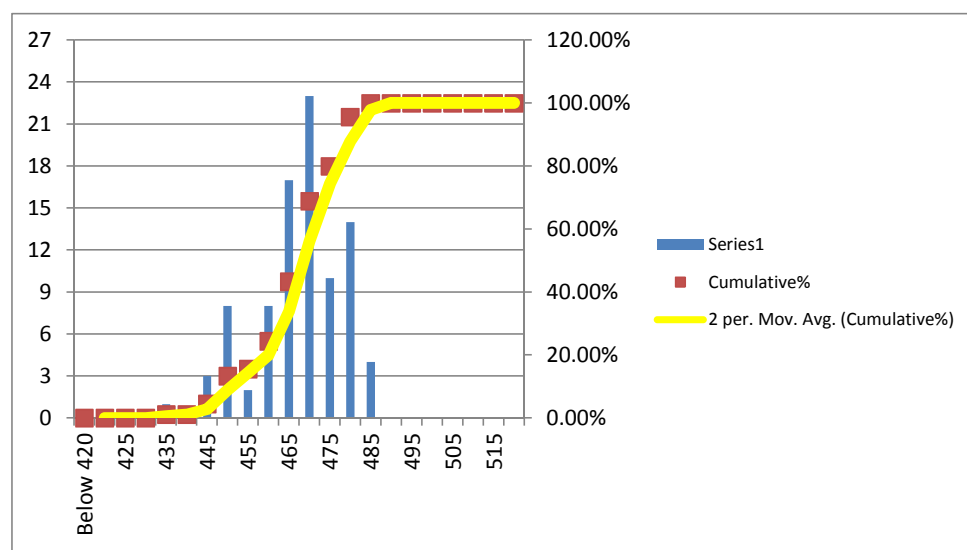


Campaign Length: 22.05.16 to 22.05.16
 Total Production: 1009.26 MT
 Billet Rolled: BIS-202
 Product: G 420-DWR (2x20 mm)

YIELD STRENGTH	
Mean	467.611
Median	470
Mode	470
Std. Dev.	10.606
Min	435
Max	485
Count	90

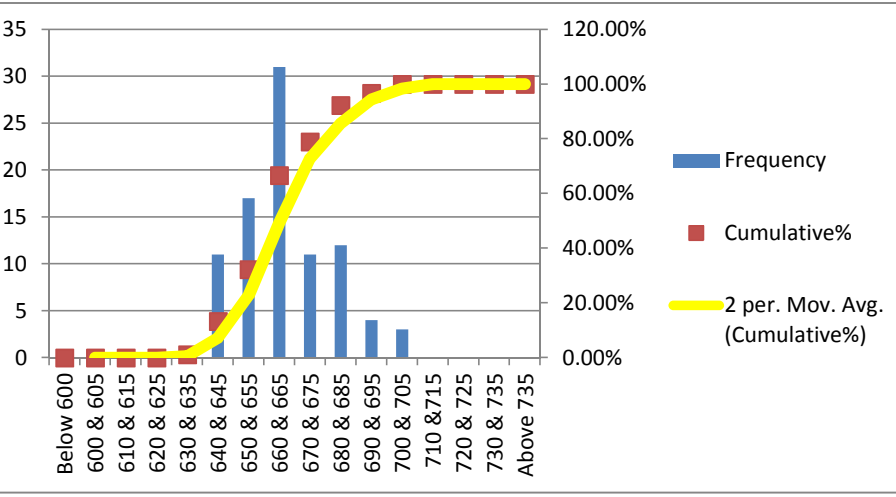
Bin	Frequency	%	Cumulative%
Below 420	0	0.00%	0.00%
420	0	0.00%	0.00%
425	0	0.00%	0.00%
430	0	0.00%	0.00%
435	1	1.11%	1.11%
440	0	0.00%	1.11%
445	3	3.33%	4.44%
450	8	8.89%	13.33%
455	2	2.22%	15.56%
460	8	8.89%	24.44%
465	17	18.89%	43.33%
470	23	25.56%	68.89%
475	10	11.11%	80.00%
480	14	15.56%	95.56%
485	4	4.44%	100.00%
490	0	0.00%	100.00%
495	0	0.00%	100.00%
500	0	0.00%	100.00%
505	0	0.00%	100.00%
510	0	0.00%	100.00%
515	0	0.00%	100.00%
520 & Above	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ISO 6935-2: 420 Mpa
 As per ASTM A-615: 420 Mpa

ULTIMATE STRENGTH	
Mean	664.444
Median	665
Mode	665
Std. Dev.	14.64
Min	635
Max	705
Count	90

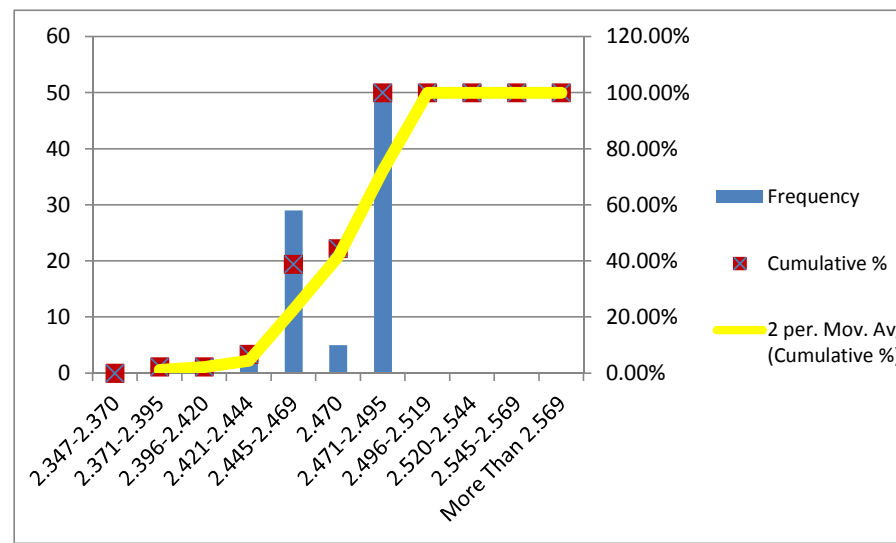
Bin	Frequency	%	Cumulative%
Below 600	0	0.00%	0.00%
600 & 605	0	0.00%	0.00%
610 & 615	0	0.00%	0.00%
620 & 625	0	0.00%	0.00%
630 & 635	1	1.11%	1.11%
640 & 645	11	12.22%	13.33%
650 & 655	17	18.89%	32.22%
660 & 665	31	34.44%	66.67%
670 & 675	11	12.22%	78.89%
680 & 685	12	13.33%	92.22%
690 & 695	4	4.44%	96.67%
700 & 705	3	3.33%	100.00%
710 & 715	0	0.00%	100.00%
720 & 725	0	0.00%	100.00%
730 & 735	0	0.00%	100.00%
Above 735	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ISO 6935-2: 525 Mpa
 As per ASTM A-615: 620 Mpa

UNIT WEIGHT	
Mean	2.469
Median	2.472
Mode	2.466
Std. Dev.	0.017
Min	2.390
Max	2.495
Count	90

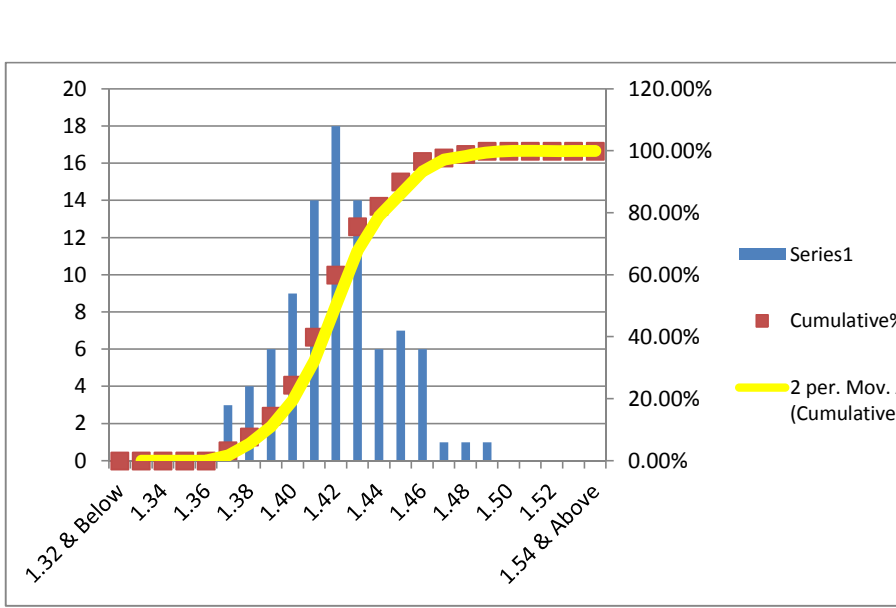
Bin	Frequency	%	Cumulative %
Less Than 2.347	0	0.00%	0.00%
2.347-2.370	0	0.00%	0.00%
2.371-2.395	2	2.22%	2.22%
2.396-2.420	0	0.00%	2.22%
2.421-2.444	4	4.44%	6.67%
2.445-2.469	29	32.22%	38.89%
2.470	5	5.56%	44.44%
2.471-2.495	50	55.56%	100.00%
2.496-2.519	0	0.00%	100.00%
2.520-2.544	0	0.00%	100.00%
2.545-2.569	0	0.00%	100.00%
More Than 2.569	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ISO 6935-2: ± 5%
 As per ASTM A-615: -6%

T/Y RATIO	
Mean	1.421
Median	1.42
Mode	1.41
Std. Dev.	0.025
Min	1.37
Max	1.49
Count	90

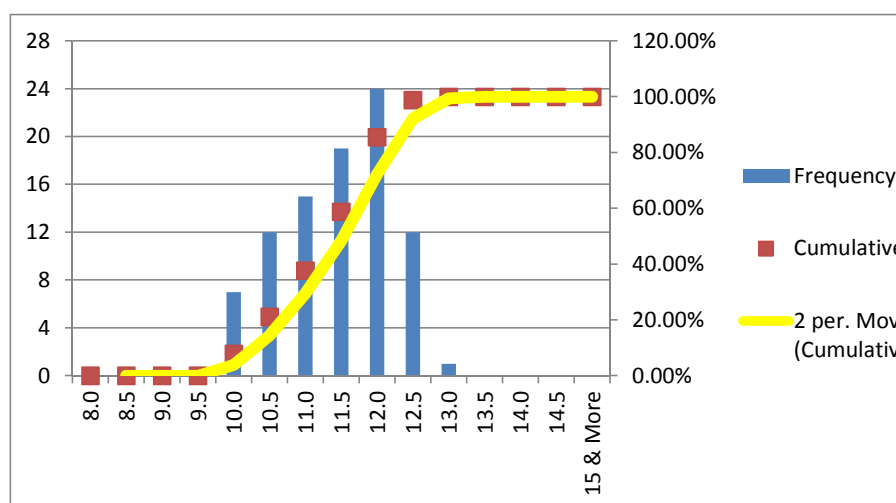
Bin	Frequency	%	Cumulative%
1.32 & Below	0	0.00%	0.00%
1.33	0	0.00%	0.00%
1.34	0	0.00%	0.00%
1.35	0	0.00%	0.00%
1.36	0	0.00%	0.00%
1.37	3	3.33%	3.33%
1.38	4	4.44%	7.78%
1.39	6	6.67%	14.44%
1.40	9	10.00%	24.44%
1.41	14	15.56%	40.00%
1.42	18	20.00%	60.00%
1.43	14	15.56%	75.56%
1.44	6	6.67%	82.22%
1.45	7	7.78%	90.00%
1.46	6	6.67%	96.67%
1.47	1	1.11%	97.78%
1.48	1	1.11%	98.89%
1.49	1	1.11%	100.00%
1.50	0	0.00%	100.00%
1.51	0	0.00%	100.00%
1.52	0	0.00%	100.00%
1.53	0	0.00%	100.00%
1.54 & Above	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ISO 6935-2: T/Y: 1.25
 As per ASTM A-615: Not Required

ELN. AT MAX. FORCE (Agt)(GL-200 mm)	
Mean	11.450
Median	11.5
Mode	12.0
Std. Dev.	0.761
Min	10.0
Max	13.0
Count	90

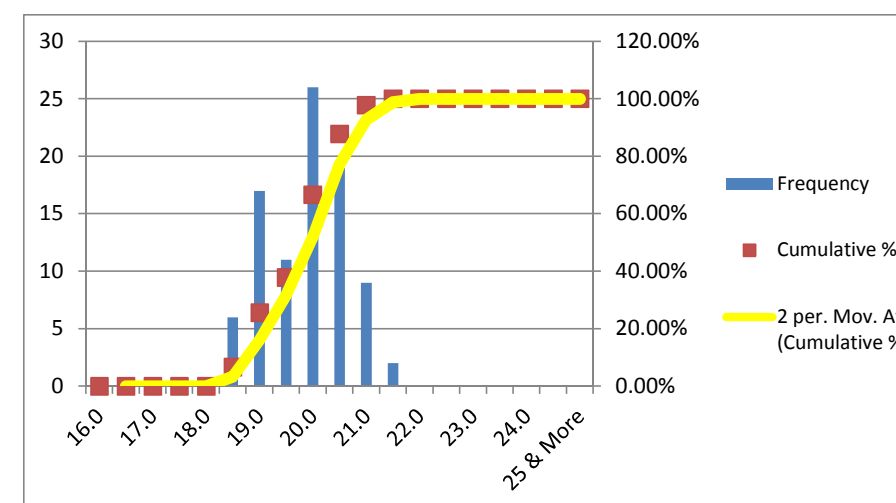
Bin	Frequency	%	Cumulative %
8.0	0	0.00%	0.00%
8.5	0	0.00%	0.00%
9.0	0	0.00%	0.00%
9.5	0	0.00%	0.00%
10.0	7	7.78%	7.78%
10.5	12	13.33%	21.11%
11.0	15	16.67%	37.78%
11.5	19	21.11%	58.89%
12.0	24	26.67%	85.56%
12.5	12	13.33%	98.89%
13.0	1	1.11%	100.00%
13.5	0	0.00%	100.00%
14.0	0	0.00%	100.00%
14.5	0	0.00%	100.00%
15 & More	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ISO 6935-2: 8%
 As per ASTM A-615: Not Required

ELN. AFTER FRACTURE (A5)(GL-5D)	
Mean	19.889
Median	20.0
Mode	20.0
Std. Dev.	0.752
Min	18.5
Max	21.5
Count	90

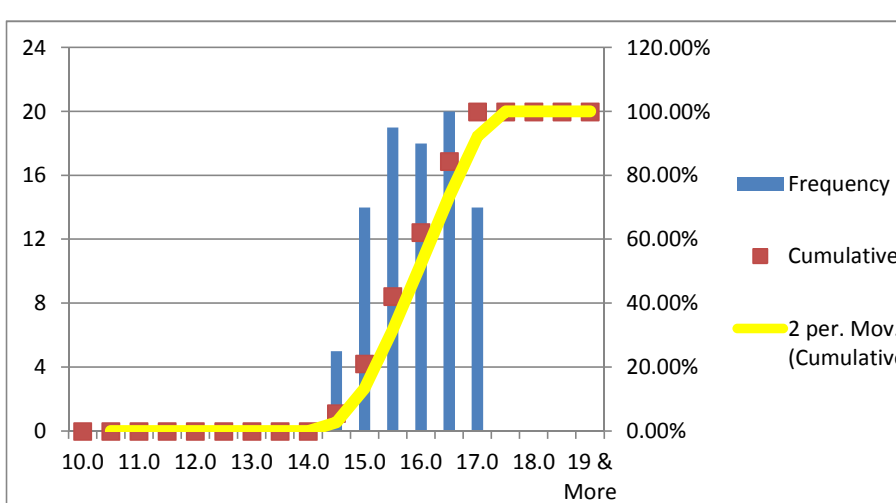
Bin	Frequency	%	Cumulative %
16.0	0	0.00%	0.00%
16.5	0	0.00%	0.00%
17.0	0	0.00%	0.00%
17.5	0	0.00%	0.00%
18.0	0	0.00%	0.00%
18.5	6	6.67%	6.67%
19.0	17	18.89%	25.56%
19.5	11	12.22%	37.78%
20.0	26	28.89%	66.67%
20.5	19	21.11%	87.78%
21.0	9	10.00%	97.78%
21.5	2	2.22%	100.00%
22.0	0	0.00%	100.00%
22.5	0	0.00%	100.00%
23.0	0	0.00%	100.00%
23.5	0	0.00%	100.00%
24.0	0	0.00%	100.00%
24.5	0	0.00%	100.00%
25 & More	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ISO 6935-2: 16%

ELN. AFTER FRACTURE (A)(GL-203.2 mm)	
Mean	15.922
Median	16.0
Mode	16.5
Std. Dev.	0.738
Min	14.5
Max	17.0
Count	90

Bin	Frequency	%	Cumulative %
10.0	0	0.00%	0.00%
10.5	0	0.00%	0.00%
11.0	0	0.00%	0.00%
11.5	0	0.00%	0.00%
12.0	0	0.00%	0.00%
12.5	0	0.00%	0.00%
13.0	0	0.00%	0.00%
13.5	0	0.00%	0.00%
14.0	0	0.00%	0.00%
14.5	5	5.56%	5.56%
15.0	14	15.56%	21.11%
15.5	19	21.11%	42.22%
16.0	18	20.00%	62.22%
16.5	20	22.22%	84.44%
17.0	14	15.56%	100.00%
17.5	0	0.00%	100.00%
18.0	0	0.00%	100.00%
18.5	0	0.00%	100.00%
19 & More	0	0.00%	100.00%
Total	90		



MINIMUM REQUIREMENTS
 As per ASTM A-615: 9%

BEND TEST:
 ALL THE SAMPLES IN THIS CAMPAIGN PASSED THE BEND TEST MAINTAINING MANDREL DIA 5D

MINIMUM REQUIREMENTS
 As per ISO 6935-2: 6D
 As per ASTM A-615: 5D

REBEND TEST:
 ALL THE SAMPLES IN THIS CAMPAIGN PASSED THE REBEND TEST MAINTAINING MANDREL DIA 7D

MINIMUM REQUIREMENTS
 As per ISO 6935-2: 8D
 As per ASTM A-615: Not Required

Nominal Diameter D	Unit Weight	Yield or Proof Strength R_{eH}	Ultimate Tensile Strength R_m	T/Y Ratio	% Total Elongation at Maximum Force A_{gt}	% Elongation after Fracture A	% Elongation after Fracture A	Height of Transverse Rib	Height of Longitudinal Rib
20	2.495	475	705	1.48	11.5	16.5	20.0	1.30	1.21
20	2.495	470	700	1.49	12.0	17.0	21.5		