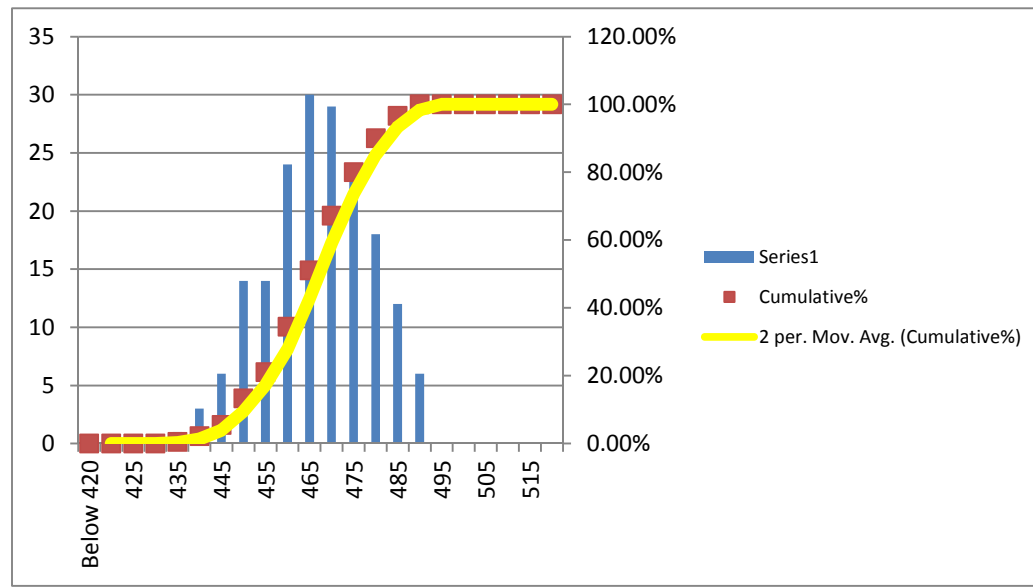


Campaign Length: 03.09.16 to 04.09.16
 Total Production: 938.257 MT
 Billet Rolled: B1S-202
 Product: G 420-DWR (4x10 mm)

YIELD STRENGTH

Mean	466.889
Median	465
Mode	465
Std. Dev.	11.891
Min	435
Max	490
Count	180

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	0.56%	0.56%
440	3	1.67%	2.22%
445	6	3.33%	5.56%
450	14	7.78%	13.33%
455	14	7.78%	21.11%
460	24	13.33%	34.44%
465	30	16.67%	51.11%
470	29	16.11%	67.22%
475	23	12.78%	80.00%
480	18	10.00%	90.00%
485	12	6.67%	96.67%
490	6	3.33%	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	180		

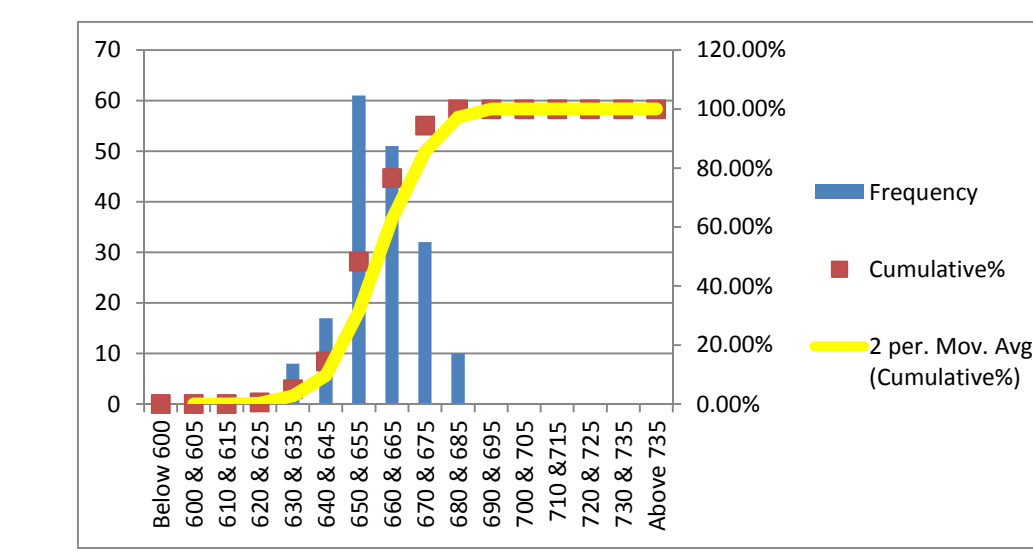


MINIMUM REQUIREMENTS
 As per ISO 6935-2: 420 Mpa
 As per ASTM A-615: 420 Mpa

ULTIMATE STRENGTH

Mean	658.028
Median	660
Mode	650
Std. Dev.	11.67
Min	625
Max	685
Count	180

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	1	0.56%	0.56%
630 & 635	8	4.44%	5.00%
640 & 645	17	9.44%	14.44%
650 & 655	61	33.89%	48.33%
660 & 665	51	28.33%	76.67%
670 & 675	32	17.78%	94.44%
680 & 685	10	5.56%	100.00%
690 & 695	0	0.00%	100.00%
700 & 705	0	0.00%	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	180		

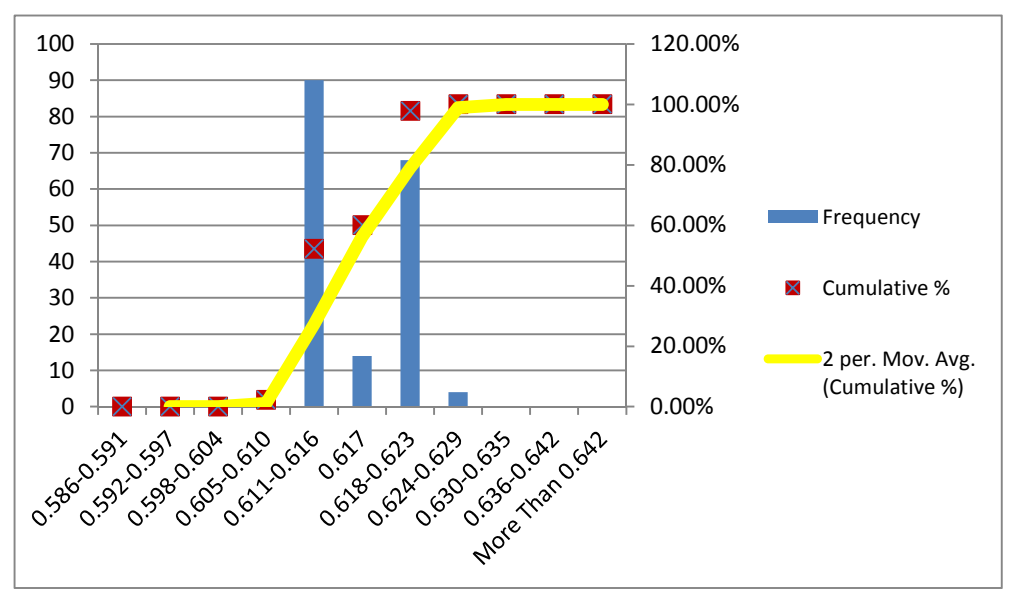


MINIMUM REQUIREMENTS
 As per ISO 6935-2: 525 Mpa
 As per ASTM A-615: 620 Mpa

UNIT WEIGHT

Mean	0.617
Median	0.616
Mode	0.614
Std. Dev.	0.003
Min	0.609
Max	0.628
Count	180

Bin	Frequency	%	Cumulative %
Less Than 0.586	0	0.00%	0.00%
-5% 0.586-0.591	0	0.00%	0.00%
-4% 0.592-0.597	0	0.00%	0.00%
-3% 0.598-0.604	0	0.00%	0.00%
-2% 0.605-0.610	4	2.22%	2.22%
-1% 0.611-0.616	90	50.00%	52.22%
0% 0.617	14	7.78%	60.00%
1% 0.618-0.623	68	37.78%	97.78%
2% 0.624-0.629	4	2.22%	100.00%
3% 0.630-0.635	0	0.00%	100.00%
4% 0.636-0.642	0	0.00%	100.00%
5% More Than 0.642	0	0.00%	100.00%
Total	180		

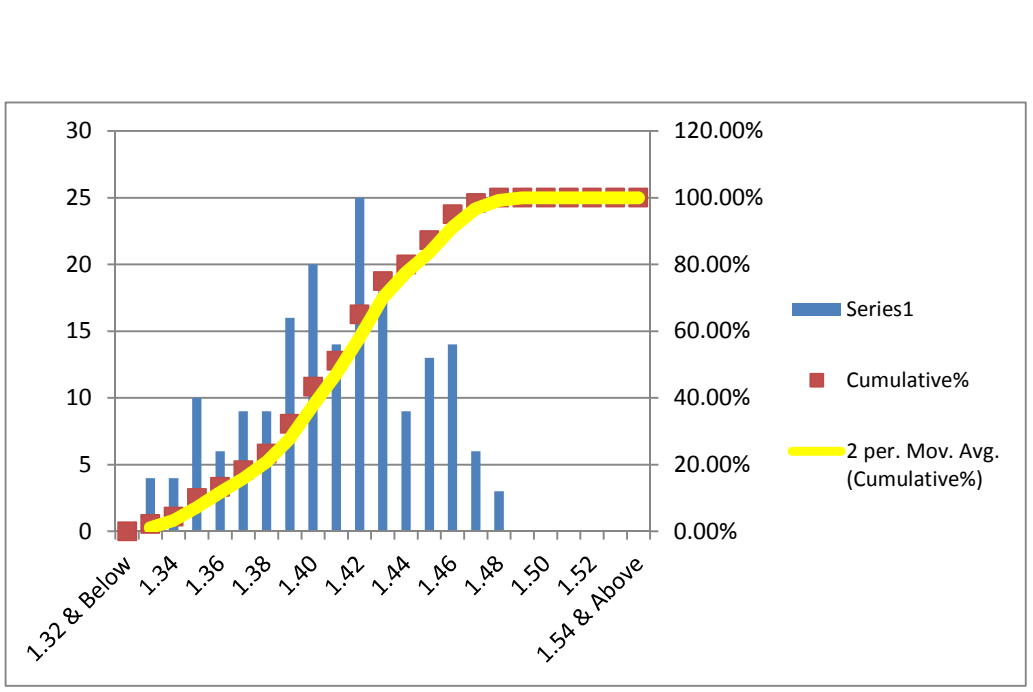


MINIMUM REQUIREMENTS
 As per ISO 6935-2: ± 5%
 As per ASTM A-615: -6%

T/Y RATIO

Mean	1.410
Median	1.41
Mode	1.42
Std. Dev.	0.036
Min	1.33
Max	1.48
Count	180

Bin	Frequency	%	Cumulative%
1.32 & Below	0	0.00%	0.00%
1.33	4	2.22%	2.22%
1.34	4	2.22%	4.44%
1.35	10	5.56%	10.00%
1.36	6	3.33%	13.33%
1.37	9	5.00%	18.33%
1.38	9	5.00%	23.33%
1.39	16	8.89%	32.22%
1.40	20	11.11%	43.33%
1.41	14	7.78%	51.11%
1.42	25	13.89%	65.00%
1.43	18	10.00%	75.00%
1.44	9	5.00%	80.00%
1.45	13	7.22%	87.22%
1.46	14	7.78%	95.00%
1.47	6	3.33%	98.33%
1.48	3	1.67%	100.00%
1.49	0	0.00%	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	180		

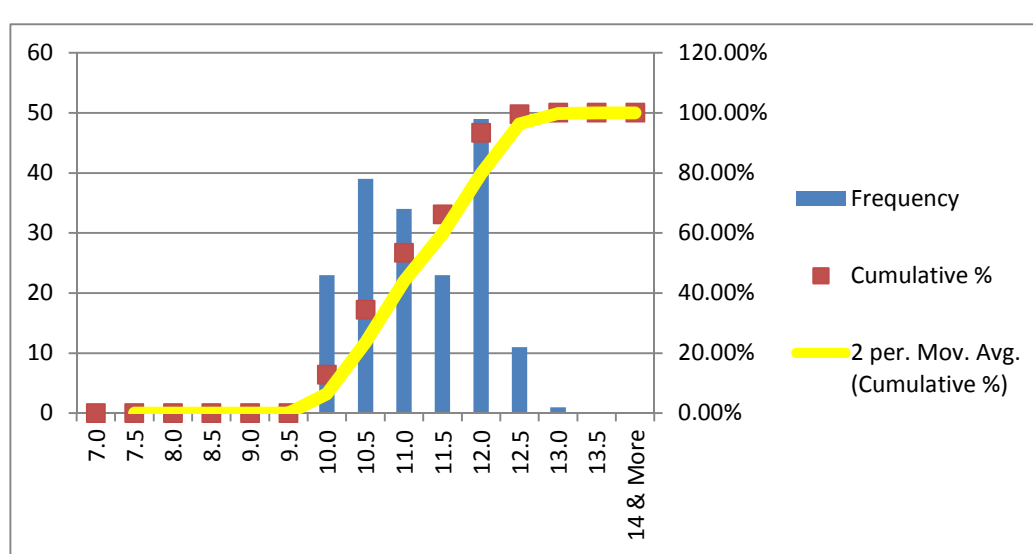


MINIMUM REQUIREMENTS
 As per ISO 6935-2: T/Y: 1.25
 As per ASTM A-615: Not Required

ELN. AT MAX. FORCE (Agt)(GL-200 mm)

Mean	11.203
Median	11.0
Mode	12.0
Std. Dev.	0.780
Min	10.0
Max	13.0
Count	180

Bin	Frequency	%	Cumulative %
7.0	0	0.00%	0.00%
7.5	0	0.00%	0.00%
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	23	12.78%	12.78%
10.5	39	21.67%	34.44%
11.0	34	18.89%	53.33%
11.5	23	12.78%	66.11%
12.0	49	27.22%	93.33%
12.5	11	6.11%	99.44%
13.0	1	0.56%	100.00%
13.5	0	0.00%	100.00%
14 & More	0	0.00%	100.00%
Total	180		

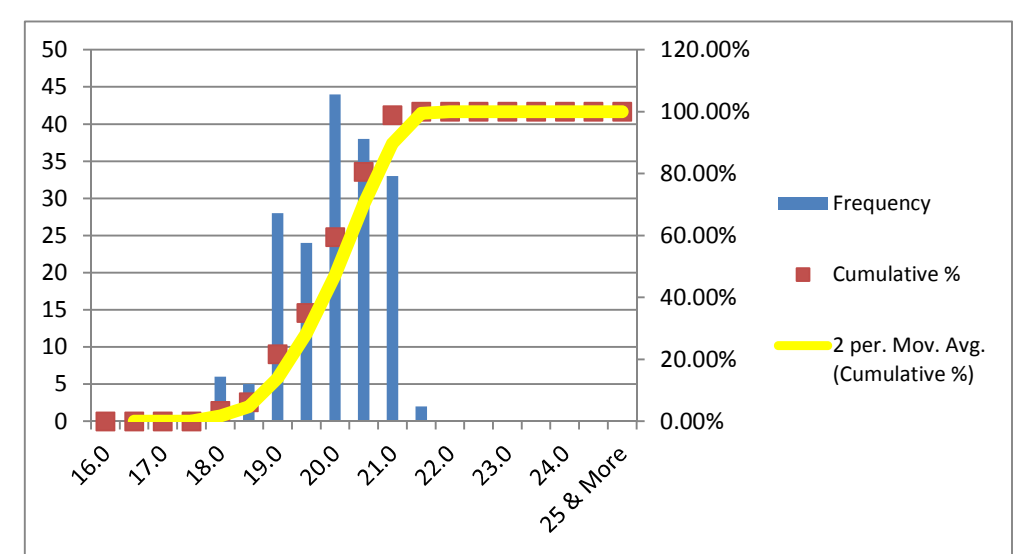


MINIMUM REQUIREMENTS
 As per ISO 6935-2: 8%
 As per ASTM A-615: Not Required

ELN. AFTER FRACTURE (A5)(GL-5D)

Mean	19.975
Median	20.0
Mode	20.0
Std. Dev.	0.805
Min	18.0
Max	21.5
Count	180

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	6	3.33%	3.33%
18.5	5	2.78%	6.11%
19.0	28	15.56%	21.67%
19.5	24	13.33%	35.00%
20.0	44	24.44%	59.44%
20.5	38	21.11%	80.56%
21.0	33	18.33%	98.89%
21.5	2	1.11%	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	180		

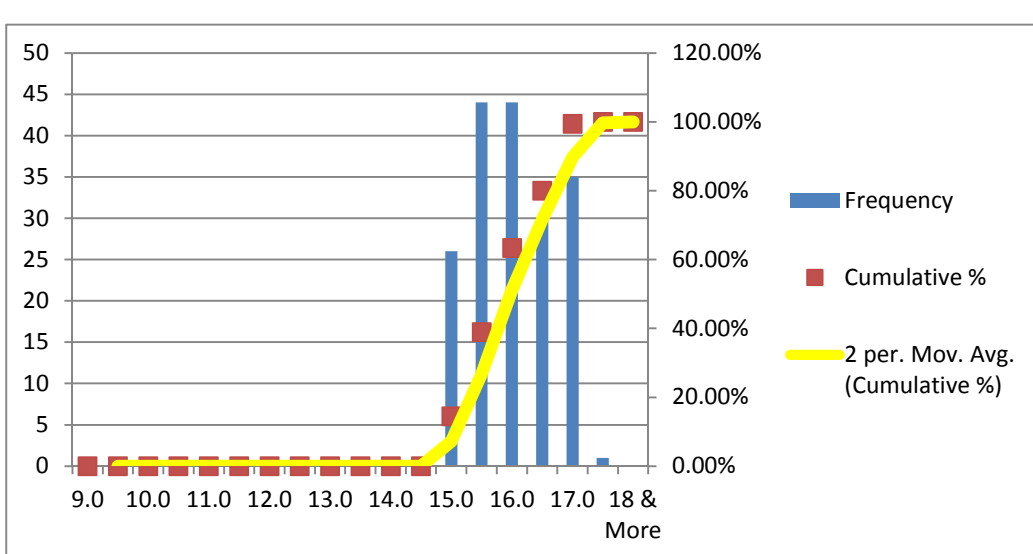


MINIMUM REQUIREMENTS
 As per ISO 6935-2: 16%

ELN. AFTER FRACTURE (A)(GL-203.2 mm)

Mean	16.019
Median	16.0
Mode	15.5
Std. Dev.	0.676
Min	15.0
Max	17.5
Count	180

Bin	Frequency	%	Cumulative %
9.0	0	0.00%	0.00%
9.5	0	0.00%	0.00%
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	0	0.00%	0.00%
15.0	26	14.44%	14.44%
15.5	44	24.44%	38.89%
16.0	44	24.44%	63.33%
16.5	30	16.67%	80.00%
17.0	35	19.44%	99.44%
17.5	1	0.56%	100.00%
18 & More	0	0.00%	100.00%
Total	180		



MINIMUM REQUIREMENTS
 As per ASTM A-615: 9%

BEND TEST:
 ALL THE SAMPLES IN THIS CAMPAIGN PASSED THE BEND TEST MAINTAINING MANDREL DIA 3D

MINIMUM REQUIREMENTS
 As per ISO 6935-2: 3D
 As per ASTM A-615: 3.5D

REBEND TEST:
 ALL THE SAMPLES IN THIS CAMPAIGN PASSED THE REBEND TEST MAINTAINING MANDREL DIA 4D

MINIMUM REQUIREMENTS
 As per ISO 6935-2: 5D
 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
(mm)	(Kg/m)	(MPa)	(MPa)		GL:200mm	GL: 203.2 mm	GL: 5D	mm	mm
10	0.617	475	665	1.40	10.5	15.5	20.0	0.91	0.55
10	0.613	470	660	1.40	12.0	16.5	21.0		
10	0.614	470	655	1.39	11.0	16.0	21.0		
10	0.616	470	660	1.40	10.5	15.5	20.5		
10	0.619	460	655	1.42	11.5	15.0	21.0		
10	0.616	465	665	1.43	11.0	17.0	21.0		
10	0.616	470	660	1.40	12.0	15.5	20.5		
10	0.617	465	660	1.42	10.5	16.0	20.0		
10	0.615	470	665	1.41	12.0	16.5	20.5		
10	0.617	465	655	1.41	10.5	15.5	19.5		
10	0.613	475	660	1.39	10.5	15.0	19.0		
10	0.614	470	655	1.39	10.5	15.0	19.0		
10	0.616	460	655	1.42	10.0	16.0	19.5		
10	0.615	475	660	1.39	10.5	16.5	20.0		
10	0.614	465	660	1.42	10.0	17.0	20.5		
10	0.613	480	665	1.39	12.0	16.0	20.5		
10	0.618	460	645	1.40	11.5	15.5	20.0		
10	0.616	485	675	1.39	11.0	17.0	21.0		
10	0.615	480	670	1.40	10.5	16.5	20.5		
10	0.614	475	675	1.42	12.0	16.0	20.5		
10	0.609	470	655	1.39	12.5	16.5	21.0		
10	0.619	485	670	1.38	12.0	16.0	20.5		
10	0.615	485	665	1.37	11.5	17.0	21.0		
10	0.614	460	650	1.41	10.0	15.5	20.0		
10	0.610	455	645	1.42	10.5	16.5	21.0		
10	0.615	470	675	1.44	10.0	16.0	20.5		
10	0.611	450	660	1.47	10.0	15.0	19.5		
10	0.614	480	675	1.41	10.5	15.0	19.0		
10	0.612	475	680	1.43	11.0	15.5	19.0		
10	0.617	455	670	1.47	10.0	16.0	19.5		
10	0.612	450	660	1.47	12.0	17.0	20.0		
10	0.615	480	680	1.42	10.0	15.5	19.5		
10	0.615	465	670	1.44	10.5	15.0	19.0		
10	0.618	475	670	1.41	11.0	15.0	19.5		
10	0.614	460	655	1.42	10.5	15.5	19.5		
10	0.617	475	655	1.38	12.0	16.5	20.0		
10	0.616	465	645	1.39	10.0	15.0	19.5		
10	0.620	460	635	1.38	12.5	17.0	21.0		
10	0.615	455	645	1.42	10.5	16.5	20.5		
10	0.618	435	635	1.46	10.0	15.5	19.5		
10	0.618	470	670	1.43	10.0	15.0	19.0		
10	0.621	445	650	1.46	10.5	15.5	19.0		
10	0.617	450	665	1.48	12.5	17.0	21.0		
10	0.618	460	670	1.46	12.0	16.5	20.5		
10	0.619	485	675	1.39	11.5	16.0	20.0		
10	0.623	475	680	1.43	10.0	15.0	19.5		
10	0.619	475	665	1.40	10.5	15.5	20.0		
10	0.620	465	650	1.40	10.0	16.0	20.5		
10	0.610	470	670	1.43	10.0	15.5	19.5		
10	0.617	470	675	1.44	10.5	15.0	19.5		
10	0.613	455	660	1.45	12.0	17.0	20.5		
10	0.615	450	650	1.44	12.5	17.5	21.0		
10	0.612	475	675	1.42	10.0	16.5	20.5		
10	0.617	465	660	1.42	10.0	16.0	20.0		
10	0.614	465	665	1.43	12.0	17.0	21.0		
10	0.616	470	665	1.41	10.0	16.0	20.0		
10	0.613	455	660	1.45	10.0	15.0	19.5		
10	0.618	460	660	1.43	11.0	15.5	20.0		
10	0.616	460	670	1.46	11.5	16.0	20.5		
10	0.618	465	665	1.43	12.0	16.0	20.0		
10	0.616	470	670	1.43	10.0	15.0	19.0		
10	0.620	485	675	1.39	10.5	15.5	19.5		
10	0.616	475	680	1.43	11.0	16.0	20.0		
10	0.619	480	670	1.40	10.0	15.0	19.0		
10	0.617	455	650	1.43	11.0	15.0	19.0		
10	0.621	440	650	1.48	12.0	15.0	20.0		
10	0.617	445	650	1.46	12.5	16.0	18.5		
10	0.620	450	655	1.46	11.0	15.0	18.0		
10	0.619	455	635	1.40	11.5	16.0	19.0		
10	0.621	445	640	1.44	12.0	15.0	18.0		
10	0.618	450	655	1.46	12.0	15.5	19.0		

0

10	0.622	455	660	1.45	13.0	16.0	19.5	0.91	0.80
10	0.614	445	650	1.46	11.5	15.5	18.5		
10	0.621	450	655	1.46	12.0	16.0	18.5		
10	0.615	440	650	1.48	12.0	16.5	18.0		
10	0.614	450	660	1.47	11.0	15.0	18.5		
10	0.611	460	665	1.45	11.5	16.5	19.0		
10	0.624	440	645	1.47	12.5	16.0	18.0		
10	0.614	450	655	1.46	12.0	15.0	19.0		
10	0.614	445	650	1.46	11.5	15.5	18.0		
10	0.620	485	670	1.38	11.5	16.0	19.0		
10	0.614	480	680	1.42	12.0	15.0	20.0		
10	0.615	465	660	1.42	12.5	16.5	20.0		
10	0.613	475	660	1.39	11.0	16.0	18.5		
10	0.621	470	645	1.37	12.5	15.0	19.0		
10	0.614	480	670	1.40	11.5	15.5	20.0		
10	0.613	475	650	1.37	12.0	16.0	19.0		
10	0.614	480	670	1.40	12.0	15.5	18.0		
10	0.622	475	650	1.37	12.5	16.5	21.5		
10	0.620	455	650	1.43	11.0	15.5	21.0		
10	0.612	455	650	1.43	10.5	16.0	20.5		
10	0.611	465	670	1.44	12.0	16.0	19.5		
10	0.615	460	665	1.45	12.5	16.5	19.0		
10	0.612	455	650	1.43	11.0	15.0	21.0		
10	0.615	455	660	1.45	10.5	16.5	20.5		
10	0.611	460	665	1.45	12.0	17.0	20.5		
10	0.613	465	660	1.42	11.0	17.0	21.0		
10	0.614	465	675	1.45	11.0	15.5	20.5		
10	0.622	470	660	1.40	10.5	16.0	21.0		
10	0.615	470	665	1.41	10.5	15.5	20.5		
10	0.613	465	660	1.42	10.0	16.5	20.0		
10	0.622	470	655	1.39	10.0	16.0	20.5		
10	0.618	460	655	1.42	12.0	16.0	21.0		
10	0.621	465	655	1.41	12.5	16.5	21.5		
10	0.619	455	650	1.43	11.5	17.0	20.5		
10	0.617	450	660	1.47	10.0	17.0	21.0		
10	0.618	450	650	1.44	10.5	16.5	20.5		
10	0.622	450	655	1.46	12.0	16.0	20.0		
10	0.624	455	660	1.45	10.5	15.0	19.5		
10	0.615	460	655	1.42	11.5	15.5	20.5		
10	0.621	445	650	1.46	11.0	16.0	19.0		
10	0.618	450	650	1.44	12.0	15.5	20.0		
10	0.619	460	655	1.42	10.5	16.5	21.0		
10	0.619	470	660	1.40	10.0	16.0	19.5		
10	0.623	460	650	1.41	12.0	16.0	20.5		
10	0.620	465	650	1.40	10.5	15.0	19.0		
10	0.620	460	645	1.40	11.5	15.0	21.0		
10	0.613	465	655	1.41	11.0	17.0	20.5		
10	0.621	450	645	1.43	11.0	15.5	20.0		
10	0.614	460	655	1.42	10.5	16.5	20.5		
10	0.610	470	670	1.43	11.0	15.5	20.0		
10	0.616	485	685	1.41	11.5	16.0	20.0		
10	0.616	465	670	1.44	12.0	16.5	19.5		
10	0.612	465	675	1.45	11.0	15.5	20.0		
10	0.612	460	625	1.36	11.5	16.0	21.0		
10	0.614	485	650	1.34	12.0	15.5	21.0		
10	0.616	490	650	1.33	12.0	16.5	20.5		
10	0.619	480	660	1.38	11.5	17.0	20.0		
10	0.612	465	660	1.42	11.0	17.0	20.0		
10	0.612	470	660	1.40	10.5	15.5	19.0		
10	0.620	465	660	1.42	11.0	16.5	20.0		
10	0.615	475	660	1.39	12.0	17.0	20.5		
10	0.617	480	655	1.36	11.0	15.5	19.0		
10	0.613	465	650	1.40	11.0	16.5	21.0		
10	0.612	480	680	1.42	12.0	17.0	20.0		
10	0.613	490	680	1.39	11.0	15.5	19.5		
10	0.628	485	650	1.34	11.5	17.0	19.0		
10	0.619	485	660	1.36	12.0	17.0	20.0		
10	0.612	480	670	1.40	12.0	16.0	20.5		
10	0.613	470	645	1.37	10.5	16.0	19.0		
10	0.624	490	670	1.37	11.0	15.5	19.0		
10	0.614	460	630	1.37	10.5	16.5	20.0		
10	0.615	465	630	1.35	12.0	17.0	21.0		
10	0.616	470	650	1.38	10.5	15.5	21.0		
10	0.619	475	640	1.35	10.5	16.0	21.0		
10	0.613	480	650	1.35	11.0	16.0	20.5		
10	0.614	480	655	1.36	12.0	17.0	20.5		

10	0.618	485	650	1.34	12.0	17.0	20.0		
10	0.620	490	660	1.35	10.5	15.5	20.0		
10	0.613	475	640	1.35	12.0	16.0	21.0		
10	0.615	465	640	1.38	10.5	15.5	19.0		
10	0.619	475	635	1.34	11.0	16.0	20.0		
10	0.622	480	650	1.35	11.0	15.5	21.0		
10	0.619	470	635	1.35	12.0	17.0	20.0		
10	0.620	465	630	1.35	12.0	16.0	20.0		
10	0.620	475	645	1.36	11.0	17.0	20.5		
10	0.622	470	650	1.38	12.0	15.5	20.0	0.91	0.75
10	0.614	470	655	1.39	11.5	16.5	21.0		
10	0.613	465	680	1.46	10.5	17.0	19.0		
10	0.618	470	650	1.38	12.0	17.0	21.0		
10	0.617	470	645	1.37	10.5	16.5	19.5		
10	0.616	480	665	1.39	12.0	17.0	20.0		
10	0.613	480	650	1.35	10.5	15.5	20.5		
10	0.619	475	650	1.37	12.0	16.0	20.0		
10	0.615	475	670	1.41	11.5	17.0	20.0		
10	0.613	490	650	1.33	12.0	16.5	20.5		
10	0.619	490	650	1.33	11.5	15.5	19.5		
10	0.618	460	660	1.43	11.0	17.0	20.5		
10	0.617	485	645	1.33	11.0	17.0	20.0		
10	0.611	465	675	1.45	12.0	15.5	20.5		
10	0.616	465	660	1.42	12.0	16.5	21.0		
10	0.619	460	665	1.45	10.5	15.5	20.0		
10	0.620	470	680	1.45	10.5	17.0	19.5		
10	0.621	475	670	1.41	11.0	17.0	19.0		
10	0.620	460	650	1.41	12.0	16.0	21.0		
10	0.619	460	655	1.42	11.5	15.5	20.0		
10	0.622	465	660	1.42	12.0	17.0	21.0		
10	0.621	470	660	1.40	11.5	15.5	20.5		
10	0.620	475	645	1.36	11.0	16.0	20.0		
10	0.620	480	650	1.35	10.5	17.0	19.5		