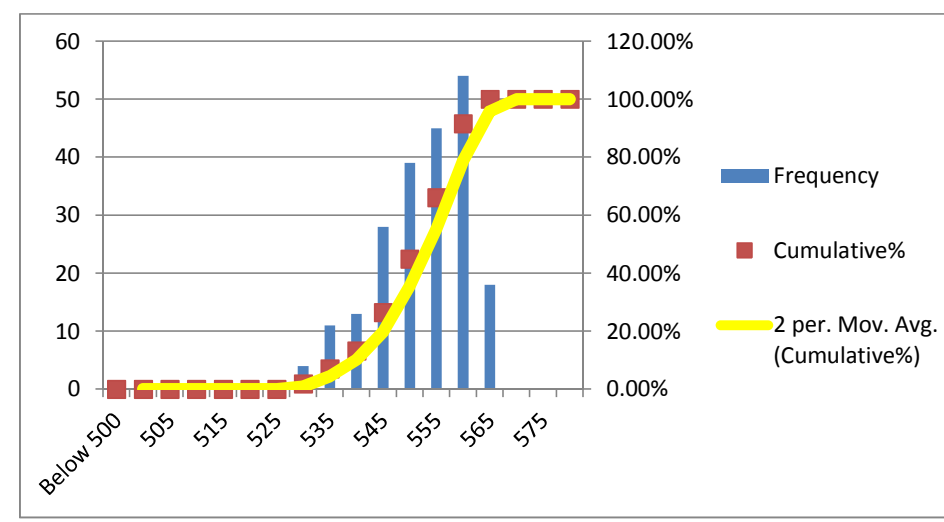


Campaign Length: 16.07.16 to 18.07.16  
 Total Production: 4526.405 MT  
 Billet Rolled: ISP-252, SML-235, JSW-246 & JSC-253  
 Product: Xtreme 500W (25 mm)

YIELD STRENGTH	
Mean	552.453
Median	555
Mode	560
Std. Dev.	8.536
Min	530
Max	565
Count	212

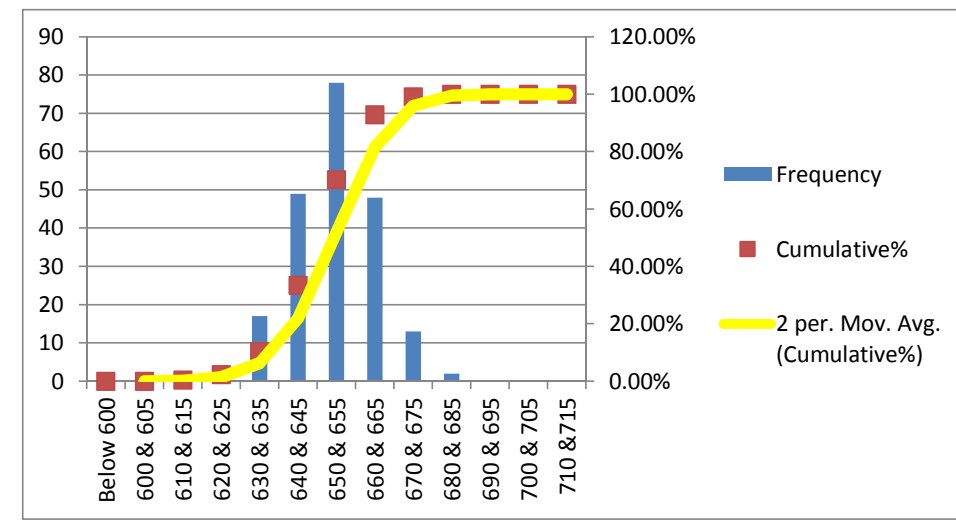
Bin	Frequency	%	Cumulative%
Below 500	0	0.00%	0.00%
500	0	0.00%	0.00%
505	0	0.00%	0.00%
510	0	0.00%	0.00%
515	0	0.00%	0.00%
520	0	0.00%	0.00%
525	0	0.00%	0.00%
530	4	1.89%	1.89%
535	11	5.19%	7.08%
540	13	6.13%	13.21%
545	28	13.21%	26.42%
550	39	18.40%	44.81%
555	45	21.23%	66.04%
560	54	25.47%	91.51%
565	18	8.49%	100.00%
570	0	0.00%	100.00%
575	0	0.00%	100.00%
Above 575	0	0.00%	100.00%
Total	212		



**MINIMUM REQUIREMENTS**  
 As per ISO 6935-2: 500 Mpa  
 As per ASTM A-615: 420 Mpa

ULTIMATE STRENGTH	
Mean	651.203
Median	650
Mode	650
Std. Dev.	11.36
Min	610
Max	680
Count	212

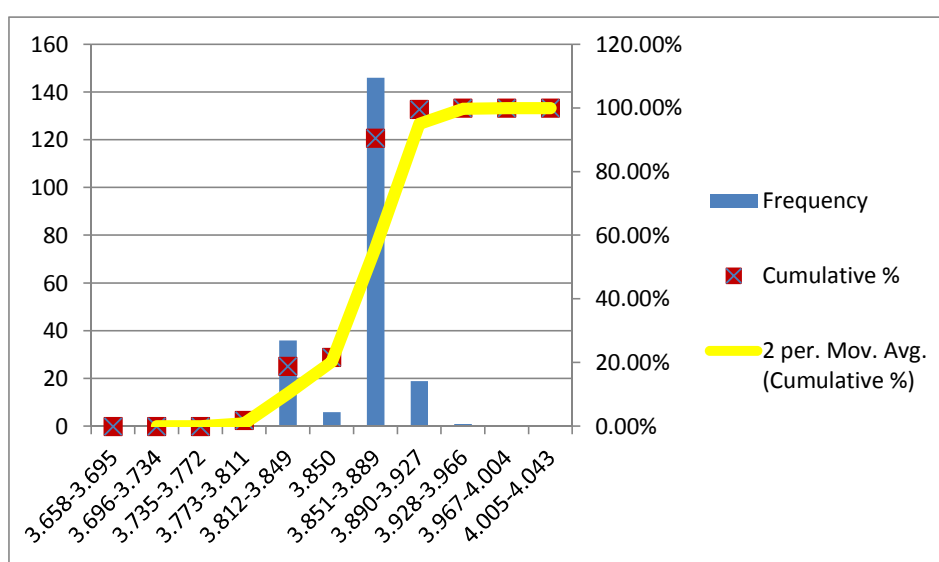
Bin	Frequency	%	Cumulative%
Below 600	0	0.00%	0.00%
600 & 605	0	0.00%	0.00%
610 & 615	1	0.47%	0.47%
620 & 625	4	1.89%	2.36%
630 & 635	17	8.02%	10.38%
640 & 645	49	23.11%	33.49%
650 & 655	78	36.79%	70.28%
660 & 665	48	22.64%	92.92%
670 & 675	13	6.13%	99.06%
680 & 685	2	0.94%	100.00%
690 & 695	0	0.00%	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	212		



**MINIMUM REQUIREMENTS**  
 As per ISO 6935-2: 575 Mpa  
 As per ASTM A-615: 620 Mpa

UNIT WEIGHT	
Mean	3.865
Median	3.867
Mode	3.880
Std. Dev.	0.022
Min	3.776
Max	3.931
Count	212

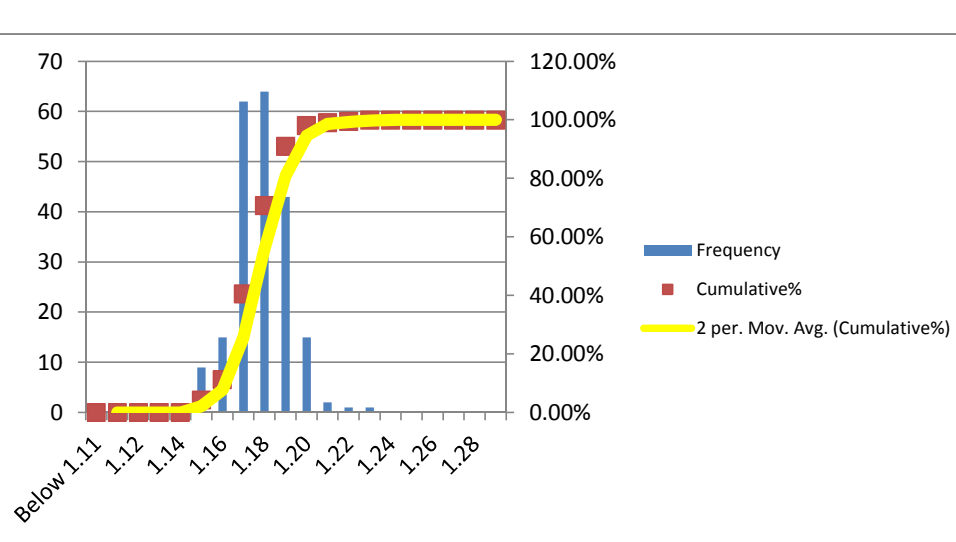
Bin	Frequency	%	Cumulative %
Less Than 3.658	0	0.00%	0.00%
3.658-3.695	0	0.00%	0.00%
3.696-3.734	0	0.00%	0.00%
3.735-3.772	0	0.00%	0.00%
3.773-3.811	4	1.89%	1.89%
3.812-3.849	36	16.98%	18.87%
3.850	6	2.83%	21.70%
3.851-3.889	146	68.87%	90.57%
3.890-3.927	19	8.96%	99.53%
3.928-3.966	1	0.47%	100.00%
3.967-4.004	0	0.00%	100.00%
4.005-4.043	0	0.00%	100.00%
Total	212		



**MINIMUM REQUIREMENTS**  
 As per ISO 6935-2: ± 4%  
 As per ASTM A-615: -6%

T/Y RATIO	
Mean	1.179
Median	1.18
Mode	1.18
Std. Dev.	0.013
Min	1.15
Max	1.23
Count	212

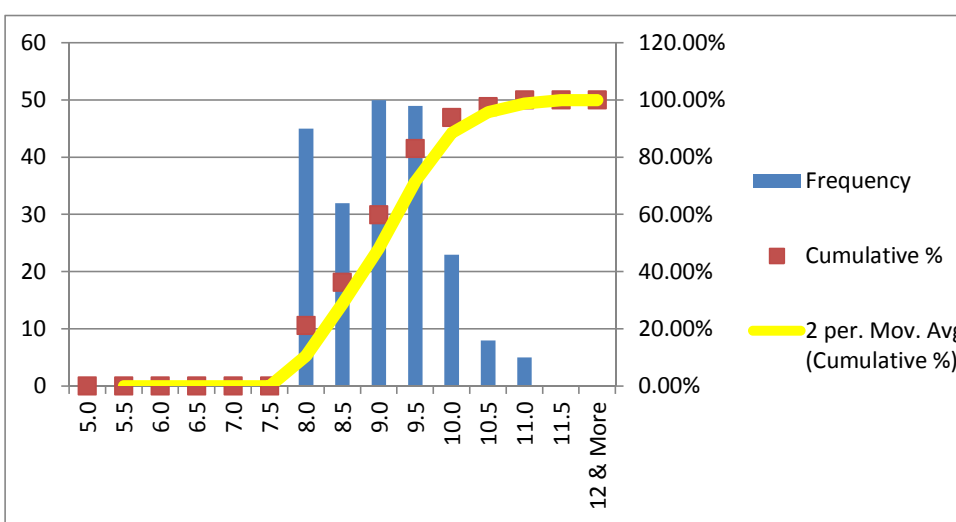
Bin	Frequency	%	Cumulative%
Below 1.11	0	0.00%	0.00%
1.11	0	0.00%	0.00%
1.12	0	0.00%	0.00%
1.13	0	0.00%	0.00%
1.14	0	0.00%	0.00%
1.15	9	4.25%	4.25%
1.16	15	7.08%	11.32%
1.17	62	29.25%	40.57%
1.18	64	30.19%	70.75%
1.19	43	20.28%	91.04%
1.20	15	7.08%	98.11%
1.21	2	0.94%	99.06%
1.22	1	0.47%	99.53%
1.23	1	0.47%	100.00%
1.24	0	0.00%	100.00%
1.25	0	0.00%	100.00%
1.26	0	0.00%	100.00%
1.27	0	0.00%	100.00%
1.28	0	0.00%	100.00%
1.29 & More	0	0.00%	100.00%
Total	212		



**MINIMUM REQUIREMENTS**  
 As per ISO 6935-2: T/Y: 1.15  
 As per ASTM A-615: Not Required

ELN. AT MAX. FORCE (Ag)(GL-200 mm)	
Mean	9.040
Median	9.0
Mode	9.0
Std. Dev.	0.772
Min	8.0
Max	11.0
Count	212

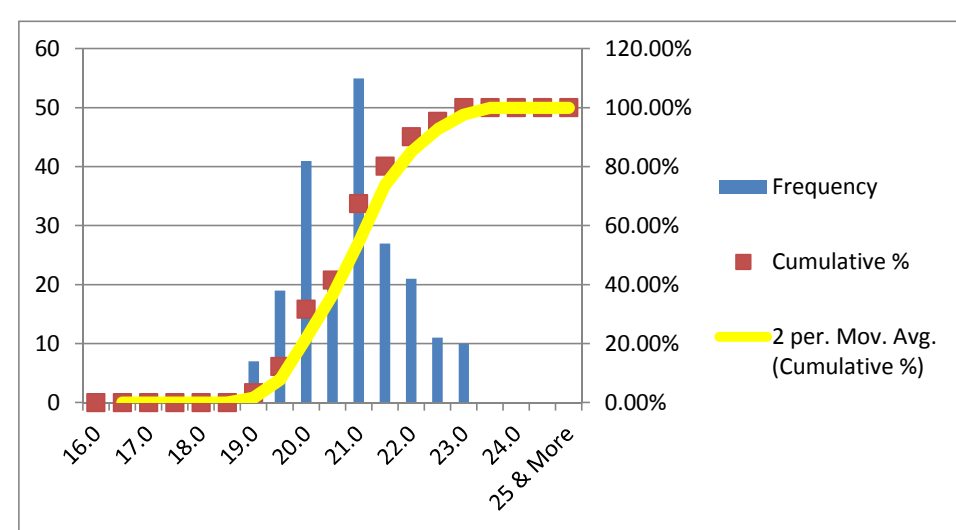
Bin	Frequency	%	Cumulative %
5.0	0	0.00%	0.00%
5.5	0	0.00%	0.00%
6.0	0	0.00%	0.00%
6.5	0	0.00%	0.00%
7.0	0	0.00%	0.00%
7.5	0	0.00%	0.00%
8.0	45	21.23%	21.23%
8.5	32	15.09%	36.32%
9.0	50	23.58%	59.91%
9.5	49	23.11%	83.02%
10.0	23	10.85%	93.87%
10.5	8	3.77%	97.64%
11.0	5	2.36%	100.00%
11.5	0	0.00%	100.00%
12 & More	0	0.00%	100.00%
Total	212		



**MINIMUM REQUIREMENTS**  
 As per ISO 6935-2: 7%  
 As per ASTM A-615: Not Required

ELN. AFTER FRACTURE (AS)(GL-SD)	
Mean	20.892
Median	21.0
Mode	21.0
Std. Dev.	0.990
Min	19.0
Max	23.0
Count	212

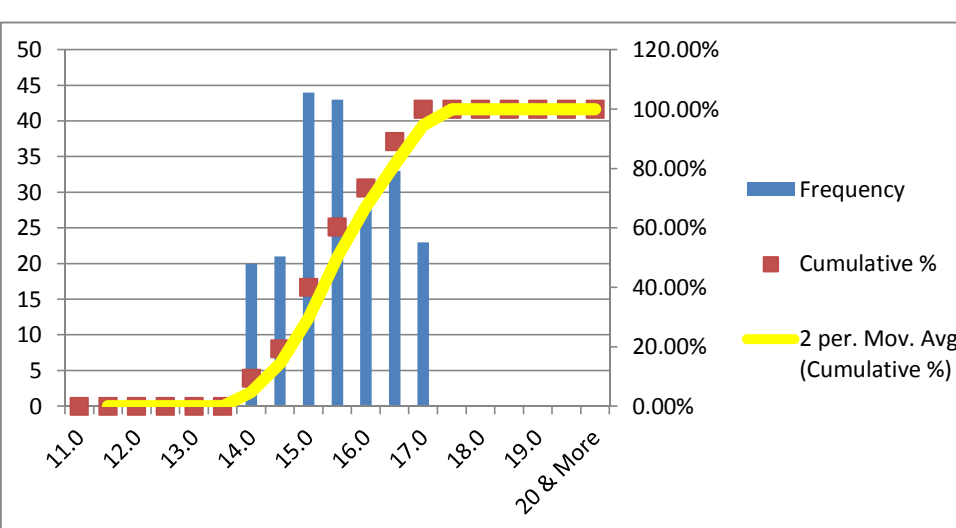
Bin	Frequency	%	Cumulative %
16.0	0	0.00%	0.00%
16.5	0	0.00%	0.00%
17.0	0	0.00%	0.00%
17.5	0	0.00%	0.00%
18.0	0	0.00%	0.00%
18.5	0	0.00%	0.00%
19.0	7	3.30%	3.30%
19.5	19	8.96%	12.26%
20.0	41	19.34%	31.60%
20.5	21	9.91%	41.51%
21.0	55	25.94%	67.45%
21.5	27	12.74%	80.19%
22.0	21	9.91%	90.09%
22.5	11	5.19%	95.28%
23.0	10	4.72%	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	212		



**MINIMUM REQUIREMENTS**  
 As per ISO 6935-2: 14%

ELN. AFTER FRACTURE (A)(GL-203.2 mm)	
Mean	15.540
Median	15.5
Mode	15.0
Std. Dev.	0.893
Min	14.0
Max	17.0
Count	212

Bin	Frequency	%	Cumulative %
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	20	9.43%	9.43%
14.5	21	9.91%	19.34%
15.0	44	20.75%	40.09%
15.5	43	20.28%	60.38%
16.0	28	13.21%	73.58%
16.5	33	15.57%	89.15%
17.0	23	10.85%	100.00%
17.5	0	0.00%	100.00%
18.0	0	0.00%	100.00%
18.5	0	0.00%	100.00%
19.0	0	0.00%	100.00%
19.5	0	0.00%	100.00%
20 & More	0	0.00%	100.00%
Total	212		



**MINIMUM REQUIREMENTS**  
 As per ASTM A-615: 8%

**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 <sub>eh</sub>	Ultimate Tensile Strength R <sub>m</sub>	T/Y Ratio	% Total Elongation at Maximum Force A <sub>gt</sub>	% 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
25	3.931	555	665	1.20	9.0	16.0	19.5	2.30	0.70
25	3.902	565	680	1.20	8.5	17.0	20.0		
25	3.850	560	670	1.20	10.0	16.5	20.0		
25	3.887	560	665	1.19	10.0	15.5	19.5		
25	3.850	550	660	1.20	8.5	16.0	20.0		
25	3.856	545	650	1.19	9.5	17.0	21.0		
25	3.860	550	655	1.19	8.0	15.5	19.5		
25	3.874	545	645	1.18	10.0	16.5	20.0		
25	3.877	545	650	1.19	10.0	15.0	21.5		
25	3.880	550	650	1.18	9.0	17.0	19.0		
25	3.888	560	660	1.18	8.5	17.0	20.0		
25	3.817	550	660	1.20	10.5	15.5	21.0		
25	3.830	545	655	1.20	8.0	16.5	20.0		
25	3.834	555	660	1.19	9.0	15.0	21.0		
25	3.842	555	655	1.18	10.5	16.5	20.0		
25	3.849	560	665	1.19	10.0	17.0	20.0		
25	3.851	560	670	1.20	8.0	17.0	21.0		
25	3.857	555	665	1.20	9.5	15.0	20.0		
25	3.862	560	650	1.16	9.5	16.5	20.0		
25	3.866	560	670	1.20	8.5	15.5	21.0		
25	3.899	560	670	1.20	8.0	16.0	20.0		
25	3.861	550	645	1.17	9.0	17.0	19.5		
25	3.870	550	645	1.17	10.0	16.5	21.0		
25	3.880	555	650	1.17	10.0	17.0	20.0		
25	3.865	550	650	1.18	10.5	16.5	21.0		
25	3.869	560	660	1.18	8.0	17.0	21.0		
25	3.888	555	660	1.19	8.5	15.0	21.0		
25	3.884	560	655	1.17	8.0	14.5	20.5		
25	3.894	565	665	1.18	8.0	14.0	20.0		
25	3.886	560	660	1.18	8.5	15.0	21.0		
25	3.896	560	660	1.18	9.0	14.5	20.5		
25	3.859	560	655	1.17	9.0	15.0	21.0		
25	3.834	555	650	1.17	9.5	16.0	21.5		
25	3.898	545	650	1.19	10.0	16.5	22.5		
25	3.879	535	630	1.18	9.5	15.5	22.0		
25	3.857	550	645	1.17	10.5	17.0	23.0		
25	3.871	545	640	1.17	11.0	17.0	23.0		
25	3.920	540	645	1.19	10.0	16.5	22.5		
25	3.870	560	655	1.17	8.5	14.0	21.0		
25	3.892	550	650	1.18	9.0	14.5	21.5		
25	3.868	555	655	1.18	9.5	15.5	22.0		
25	3.895	560	655	1.17	8.5	14.0	21.0		
25	3.899	545	660	1.21	10.0	16.0	22.5		
25	3.882	565	665	1.18	8.5	14.0	20.5		
25	3.886	565	675	1.19	8.0	14.5	20.0		
25	3.891	565	670	1.19	8.5	14.5	21.0		
25	3.865	555	660	1.19	9.0	15.0	21.5		
25	3.868	555	660	1.19	9.0	15.5	21.5		
25	3.859	565	670	1.19	8.5	15.0	21.0		
25	3.862	555	655	1.18	8.0	14.0	20.5		
25	3.866	535	640	1.20	9.0	15.5	21.5		
25	3.868	535	655	1.22	10.5	17.0	23.0		
25	3.871	530	625	1.18	8.5	14.5	21.0		
25	3.874	545	650	1.19	10.5	16.5	23.0		
25	3.877	535	645	1.21	8.0	14.0	20.0		
25	3.880	545	640	1.17	10.0	16.0	22.5		
25	3.883	545	655	1.20	11.0	16.5	23.0		
25	3.885	565	680	1.20	9.0	14.5	21.0		
25	3.890	560	665	1.19	9.5	15.5	22.0		
25	3.867	560	665	1.19	9.0	15.0	21.0		
25	3.873	560	660	1.18	8.5	14.5	20.5		
25	3.881	555	655	1.18	9.5	15.5	21.5		
25	3.853	550	650	1.18	9.0	15.5	22.0		
25	3.856	540	635	1.18	8.5	14.5	21.0		
25	3.867	535	635	1.19	8.0	14.0	21.0		
25	3.884	535	635	1.19	8.0	14.0	21.0		
25	3.874	540	635	1.18	9.0	15.0	21.5		
25	3.885	550	655	1.19	9.5	15.5	22.0		
25	3.881	550	635	1.15	9.0	15.0	21.5		
25	3.880	545	645	1.18	8.0	14.0	21.0		
25	3.839	555	650	1.17	9.5	16.0	22.0		
25	3.825	555	650	1.17	8.5	16.0	22.0		

25	3.853	550	645	1.17	9.0	15.0	21.5	2.00	0.85
25	3.877	560	650	1.16	9.5	16.0	22.0		
25	3.891	550	650	1.18	9.0	15.5	22.0		
25	3.919	555	640	1.15	9.0	14.5	21.0		
25	3.873	560	660	1.18	9.0	15.0	21.5		
25	3.880	555	660	1.19	8.5	14.0	21.0		
25	3.853	560	660	1.18	9.0	15.5	22.0		
25	3.869	565	675	1.19	8.5	14.0	20.5		
25	3.874	555	660	1.19	9.0	14.5	21.0		
25	3.879	555	650	1.17	9.0	15.0	22.0		
25	3.885	560	665	1.19	9.5	15.5	21.5		
25	3.853	565	670	1.19	8.5	14.5	21.0		
25	3.875	560	665	1.19	9.5	15.5	21.0		
25	3.805	560	650	1.16	9.5	15.5	21.5		
25	3.847	565	675	1.19	8.5	14.5	20.5		
25	3.839	545	670	1.23	9.0	15.0	21.0		
25	3.845	550	650	1.18	9.0	15.0	21.0		
25	3.871	560	655	1.17	9.5	16.0	22.0		
25	3.856	545	635	1.17	9.0	15.0	21.0		
25	3.869	555	655	1.18	9.5	16.0	22.5		
25	3.880	545	645	1.18	9.5	16.0	22.0		
25	3.819	550	655	1.19	9.5	16.0	22.0		
25	3.794	560	655	1.17	9.0	15.5	21.5		
25	3.820	555	650	1.17	9.0	15.0	21.0		
25	3.840	560	660	1.18	9.5	16.0	22.0		
25	3.856	560	660	1.18	9.0	15.5	21.5		
25	3.862	560	660	1.18	9.5	15.5	21.5		
25	3.853	560	650	1.16	9.0	16.0	20.0		
25	3.860	555	650	1.17	8.5	16.5	21.0		
25	3.857	555	655	1.18	9.0	14.0	19.0		
25	3.860	550	650	1.18	8.5	15.0	21.0		
25	3.848	545	640	1.17	10.0	15.5	20.0		
25	3.896	550	645	1.17	8.0	15.0	21.0		
25	3.869	535	630	1.18	9.5	16.0	19.0		
25	3.867	540	635	1.18	8.0	15.5	20.0		
25	3.890	560	660	1.18	9.5	15.5	19.5		
25	3.894	545	640	1.17	10.0	15.0	19.0		
25	3.845	540	640	1.19	8.0	16.5	19.5		
25	3.865	560	650	1.16	9.5	15.0	20.0		
25	3.865	545	640	1.17	8.0	16.5	21.0		
25	3.869	555	645	1.16	9.5	15.5	20.0		
25	3.879	540	640	1.19	8.0	15.0	19.5		
25	3.882	550	650	1.18	9.5	16.5	20.5		
25	3.886	550	640	1.16	8.0	16.5	20.5		
25	3.871	555	660	1.19	9.5	16.0	19.5		
25	3.872	560	645	1.15	8.0	15.5	20.0		
25	3.877	560	660	1.18	10.0	15.0	20.5		
25	3.882	555	650	1.17	8.0	16.0	19.5		
25	3.886	550	650	1.18	9.5	15.5	20.0		
25	3.882	540	635	1.18	8.0	15.5	21.0		
25	3.885	560	655	1.17	9.5	15.5	21.0		
25	3.889	550	645	1.17	8.0	16.5	21.5		
25	3.892	555	650	1.17	10.0	15.0	20.5		
25	3.860	555	645	1.16	8.0	16.5	21.5		
25	3.866	550	650	1.18	9.5	15.0	20.0		
25	3.867	560	645	1.15	8.0	16.5	19.5		
25	3.870	530	620	1.17	10.0	15.5	21.0		
25	3.880	560	645	1.15	8.0	15.5	20.5		
25	3.885	550	650	1.18	9.5	16.5	20.0		
25	3.855	550	650	1.18	8.0	15.5	22.0		
25	3.860	560	650	1.16	9.0	15.5	21.5		
25	3.861	560	660	1.18	8.0	16.0	20.0		
25	3.866	535	630	1.18	9.0	15.0	19.0		
25	3.867	560	660	1.18	8.0	16.0	20.0		
25	3.872	545	640	1.17	9.0	15.0	19.5		
25	3.879	535	625	1.17	10.0	16.0	20.0		
25	3.883	545	640	1.17	10.5	17.0	23.0		
25	3.887	550	645	1.17	10.0	16.5	22.5		
25	3.889	565	675	1.19	9.0	14.5	21.0		
25	3.858	540	630	1.17	9.5	15.5	22.0		
25	3.867	565	655	1.16	8.5	14.0	21.0		
25	3.869	560	655	1.17	9.0	15.0	21.5		
25	3.874	560	655	1.17	8.5	14.0	20.5		
25	3.877	565	660	1.17	9.0	14.5	21.0		
25	3.879	555	650	1.17	9.5	15.5	21.5		
25	3.882	535	640	1.20	10.0	16.0	22.5		

25	3.885	555	650	1.17	9.0	14.5	21.5	2.30	1.15
25	3.810	565	660	1.17	8.5	14.0	21.0		
25	3.825	545	640	1.17	11.0	16.5	23.0		
25	3.838	540	630	1.17	10.0	16.0	22.5		
25	3.847	555	650	1.17	9.0	15.0	21.5		
25	3.855	530	620	1.17	8.5	14.0	20.5		
25	3.846	565	665	1.18	9.0	14.5	21.0		
25	3.904	560	665	1.19	9.0	14.0	21.0		
25	3.858	550	650	1.18	9.5	15.0	22.0		
25	3.867	565	660	1.17	9.5	15.0	21.5		
25	3.829	550	655	1.19	11.0	17.0	23.0		
25	3.859	540	640	1.19	10.0	16.5	22.5		
25	3.776	545	645	1.18	10.5	17.0	23.0		
25	3.819	555	645	1.16	11.0	16.5	23.0		
25	3.823	530	610	1.15	8.5	14.5	21.0		
25	3.830	550	645	1.17	9.5	15.5	22.0		
25	3.842	545	645	1.18	10.0	16.0	22.5		
25	3.850	565	660	1.17	9.0	14.5	21.0		
25	3.853	565	665	1.18	8.5	14.0	20.5		
25	3.858	560	660	1.18	9.0	14.5	21.0		
25	3.861	555	660	1.19	9.5	15.0	21.5		
25	3.867	555	655	1.18	10.0	16.0	22.5		
25	3.875	560	655	1.17	9.5	15.5	22.0		
25	3.874	550	640	1.16	9.5	15.0	21.5		
25	3.880	555	660	1.19	9.0	14.5	21.0		
25	3.884	560	670	1.20	8.5	14.0	20.5		
25	3.877	560	660	1.18	8.0	14.0	20.0		
25	3.854	560	645	1.15	8.0	15.0	20.0		
25	3.861	545	635	1.17	9.5	15.5	20.0		
25	3.874	560	655	1.17	8.0	16.5	19.5		
25	3.838	545	645	1.18	9.0	17.0	19.0		
25	3.840	560	660	1.18	8.5	15.0	20.0		
25	3.844	550	650	1.18	9.5	17.0	20.5		
25	3.846	555	660	1.19	8.0	15.0	20.0		
25	3.850	555	645	1.16	9.5	16.5	21.0		
25	3.851	550	650	1.18	8.0	15.0	21.0		
25	3.857	550	650	1.18	9.5	16.5	19.5		
25	3.860	555	640	1.15	8.0	15.0	20.0		
25	3.870	555	655	1.18	9.5	17.0	21.0		
25	3.877	555	650	1.17	8.0	15.5	19.5		
25	3.880	550	645	1.17	9.0	17.0	20.0		
25	3.881	555	650	1.17	8.0	15.5	20.0		
25	3.893	540	635	1.18	8.0	16.0	20.0		
25	3.881	535	630	1.18	9.5	16.0	20.5		
25	3.847	540	640	1.19	8.0	15.0	21.0		
25	3.850	560	655	1.17	9.5	15.5	20.0		
25	3.856	560	655	1.17	8.0	16.5	19.5		
25	3.857	555	650	1.17	9.0	17.0	21.0		
25	3.866	545	650	1.19	8.5	17.0	20.0		
25	3.869	555	660	1.19	9.5	15.0	19.5		
25	3.850	540	635	1.18	8.5	16.5	19.5		
25	3.856	545	640	1.17	9.0	15.5	20.0		
25	3.861	550	640	1.16	8.0	15.0	19.0		
25	3.814	550	640	1.16	8.0	17.0	19.5		
25	3.833	555	650	1.17	9.0	15.0	20.5		
25	3.836	550	650	1.18	8.0	16.5	19.5		
25	3.840	555	640	1.15	9.0	15.5	22.0		
25	3.844	560	655	1.17	9.0	16.0	20.5		
25	3.849	560	655	1.17	9.5	16.5	20.0		
25	3.857	555	650	1.17	8.0	15.0	21.0		
25	3.861	550	655	1.19	8.5	15.5	20.5		
25	3.867	545	650	1.19	9.5	16.5	21.0		
25	3.869	550	645	1.17	8.0	17.0	21.5		
25	3.854	545	645	1.18	9.5	16.5	20.0		

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