

# SmartMelter<sup>®</sup> Blind Trial At a Float Line

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**CONTENT**

Introduction . . . . . 1

Furnace Sidewall Measurement Spots . . . . . 2

Furnace Bottom Measurement Results . . . . . 2

Furnace Sidewall Measurement Spots . . . . . 4

Furnace Sidewall Measurement Results . . . . . 4

Conclusion . . . . . 4

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## INTRODUCTION

A Float Glass Manufacturer approached PaneraTech to perform SmartMelter® Monitoring on a furnace that was in the last year of its campaign. The furnace sidewalls and bottom were inspected on a quarterly basis for one year up to the planned shutdown.

Before the furnace was drained, the SmartMelter® Team performed a final survey and reported the results to the manufacturer in XSight software and in a written report. After the drain, the manufacturer successfully validated the thickness results on both the clay flux bottom and the fuse-cast AZS from the sidewall.

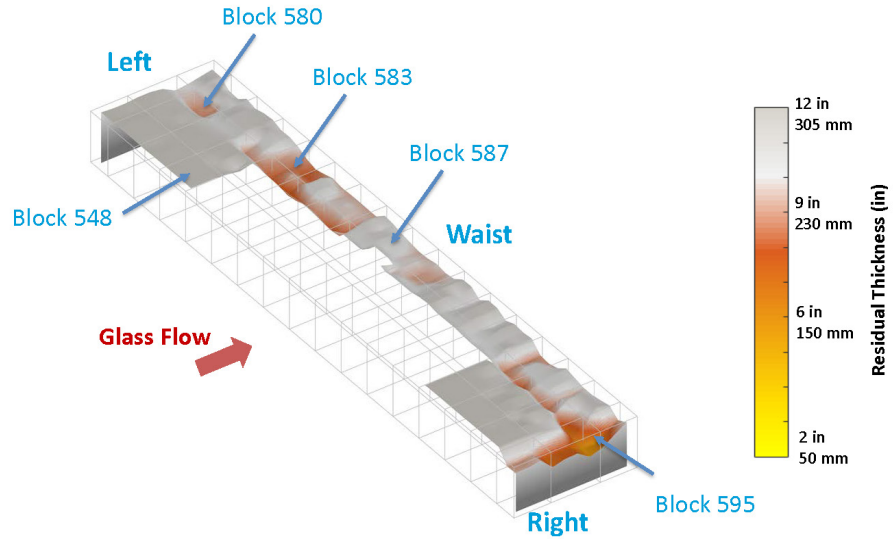
The mason supervisor drilled all holes and witnessed the physical measurements of extracted cores. The plant manager was present to witness the validation. The overall results demonstrated that SmartMelter® Sensors had measured bottom thickness within 0-5 mm and sidewall refractory thickness within 0-1 mm of the actual block thickness.



## FURNACE BOTTOM MEASUREMENT SPOTS

Measurements were taken on a total of 6 blocks (see Figure 1).

**Figure 1**  
Furnace Layout and Measurement Spots.

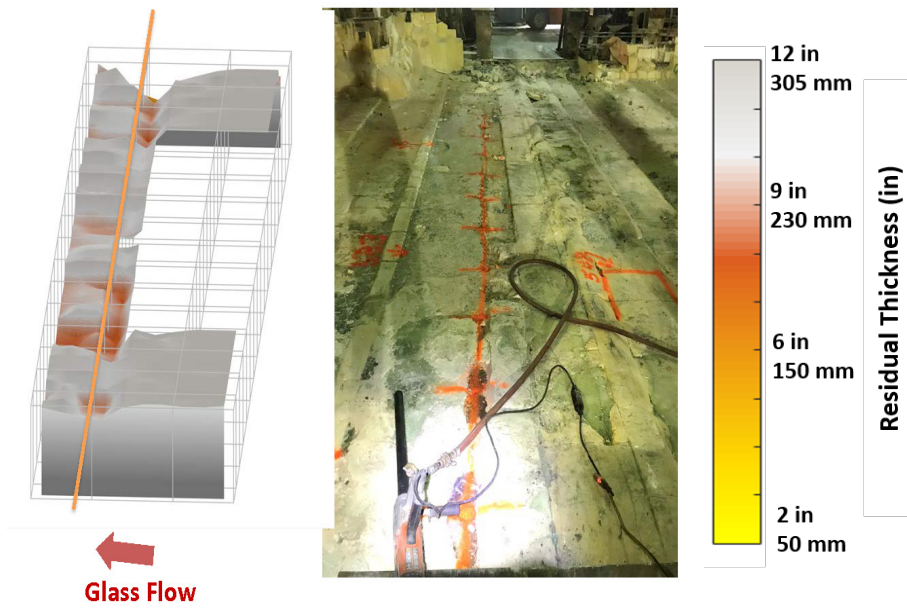


## FURNACE BOTTOM MEASUREMENT RESULTS

After the drain, physical thickness was obtained by core drilling. These measurements were compared with SmartMelter® data.

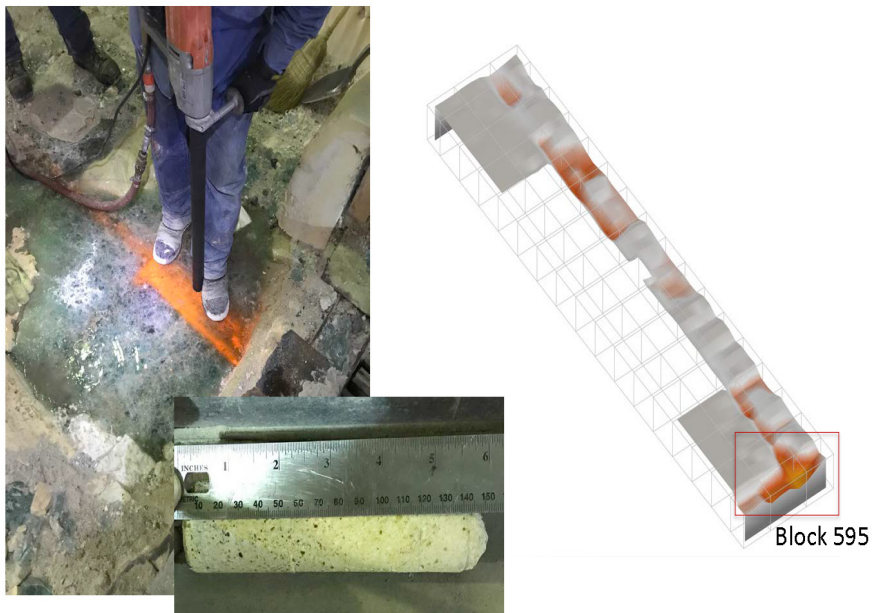
**Table 1**  
Comparison of Actual Block Thickness with SmartMelter® Measurements

Bottom Block #	SmartMelter Thickness	Physical Thickness	Difference
548 Center	305 mm	305 mm	0 mm
580 L Center	289 mm	294 mm	-5 mm
580 L Upstream	224 mm	222 mm	2 mm
583 L Downstream	218 mm	215 mm	3 mm
583 Center Downstream	201 mm	203 mm	-2 mm
587 Center Downstream	247 mm	244 mm	3 mm
595 Right Upstream	148 mm	146 mm	2mm



**Figure 2**  
The orange line is the same location as the orange paint. Cold glass did not drain out of the eroded areas.

**Figure 3**  
Drilling Block 595. Note the significant amount of glass filling the eroded hole.



**Figure 4**  
Core from Block 587.



## FURNACE SIDEWALL MEASUREMENT SPOTS

Measurements were taken on a total of 2 blocks (see Figure 5).

**Figure 5**

The Image on the Left is Block 143. The Image on the Right Shows the Placement of Blocks 148 and 143..



## FURNACE SIDEWALL MEASUREMENT RESULTS

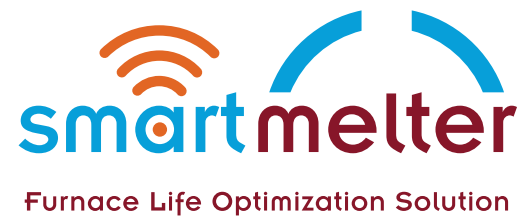
The block thickness was obtained by removing the overcoat and taking physical measurements. Measurements were taken on the right side of the refiner sidewall on fused cast AZS overcoat blocks. These measurements were compared with SmartMelter® data.

**Table 2**  
Comparison of Actual Block Thickness with SmartMelter® Measurements

Sidewall Block Number	SmartMelter Thickness	Physical Thickness	Difference
143	47 mm	47 mm	0 mm
148	30 mm	29 mm	1 mm

## CONCLUSION

This blind trial clearly demonstrated the accuracy of the SmartMelter® Sensors for measuring both clay flux bottom and fused-cast AZS thickness on operational float line glass furnaces.



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