

SmartMelter[®] Blind Trial At a Float Line

智慧窑炉[®] 浮法线盲试

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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 .

一个浮法玻璃制造商联系到PaneraTech帕尼罗科技，要求使用SmartMelter智慧窑炉® 对他们的一座处于最后一年窑龄期的窑炉进行探测监控。窑炉的池壁及池底需要在停炉前一年内每季度进行一次探测监控。

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.

在窑炉放水停炉之前，SmartMelter智慧窑炉® 的团队进行了最终的调查探测并使用Xsight软件将结果写出详细报告给玻璃制造商客户。在放水后，制造商客户对粘土池底保温层及电熔AZS池壁砖的厚度与探测数据对比成功的进行了验证。

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.

冷修的施工监督人员现场见证了所有的钻孔及对取出的钻芯的实际测量。工厂经理也参与实测验证，所有的SmartMelter智慧窑炉® 探测数据结果与实测比较，池底厚度误差在0-5mm，池壁厚度误差在0-1mm。

INTRODUCTION

FURNACE BOTTOM MEASUREMENT SPOTS 窑炉底部测量点

Measurements were taken on a total of 6 blocks (see Figure 1)
对共计6块砖进行测量探测 (见图1)

Figure 1
Furnace Layout and Measurement Spots.

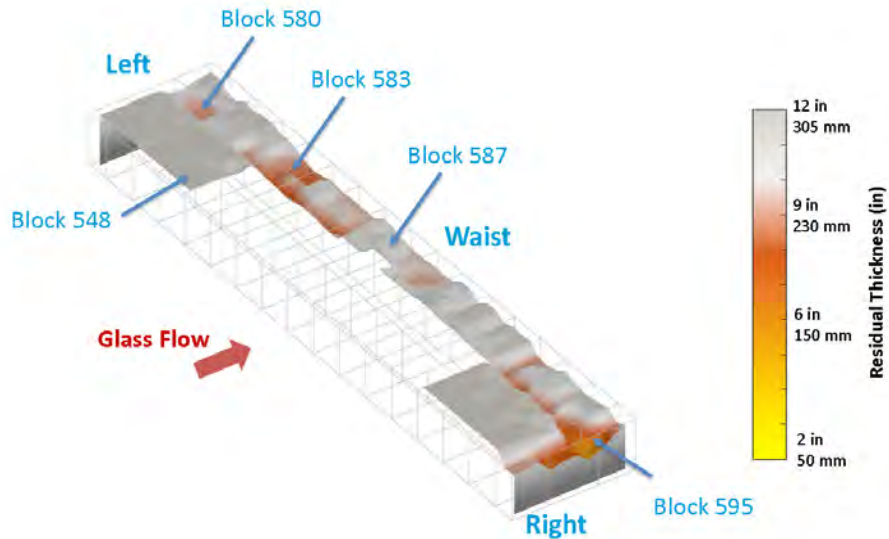


图 1
窑炉底部结构布局及测量点

FURNACE BOTTOM MEASUREMENT RESULTS 窑炉池底测量结果

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

在窑炉放水后，对钻芯的测量来确定砖厚，这些实测结果与SmartMelter® 所探测数据进行对比

Table 1
Comparison of Actual Block Thickness with SmartMelter® Measurements

表 1

SmartMelter智慧窑炉® 探测与实测砖厚结果对比

Bottom Block # 池底砖编号 #	SmartMelter Thickness 智慧窑炉探测砖厚	Physical Thickness 实测砖厚	Difference 误差值
中心 Center 548	305 mm	305 mm	0 mm
左侧中心 L Center 580	289 mm	294 mm	-5 mm
左侧上游 L Upstream 580	224 mm	222 mm	2 mm
左侧下游 L Downstream 583	218 mm	215 mm	3 mm
中心下游 Center Downstream 583	201 mm	203 mm	-2 mm
中心下游 Center Downstream 587	247 mm	244 mm	3 mm
右侧上游 Right Upstream 595	148 mm	146 mm	2mm

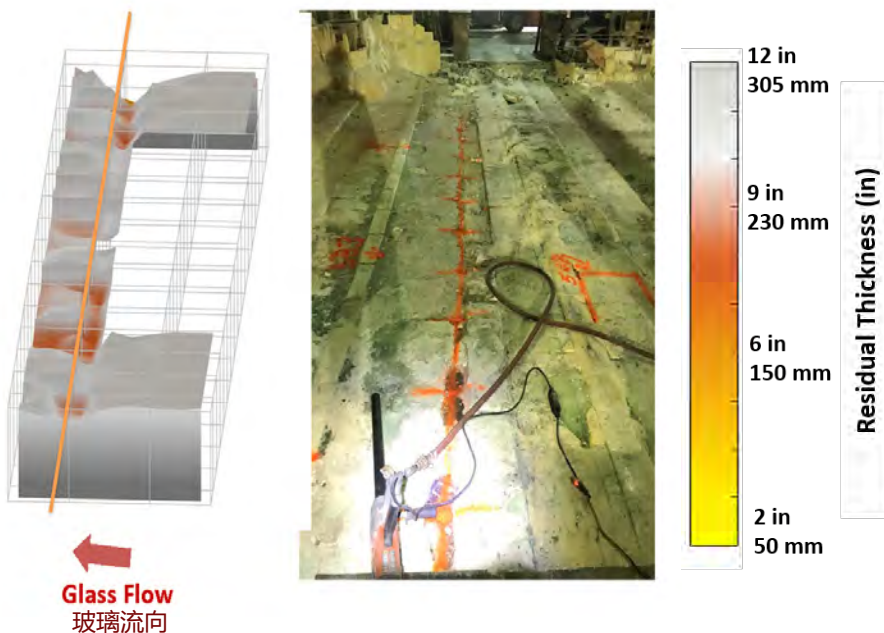


Figure 2

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

图 2

橙色线是对应橙色油漆的实地划线同一处，玻璃在被侵蚀区域没有被放空。

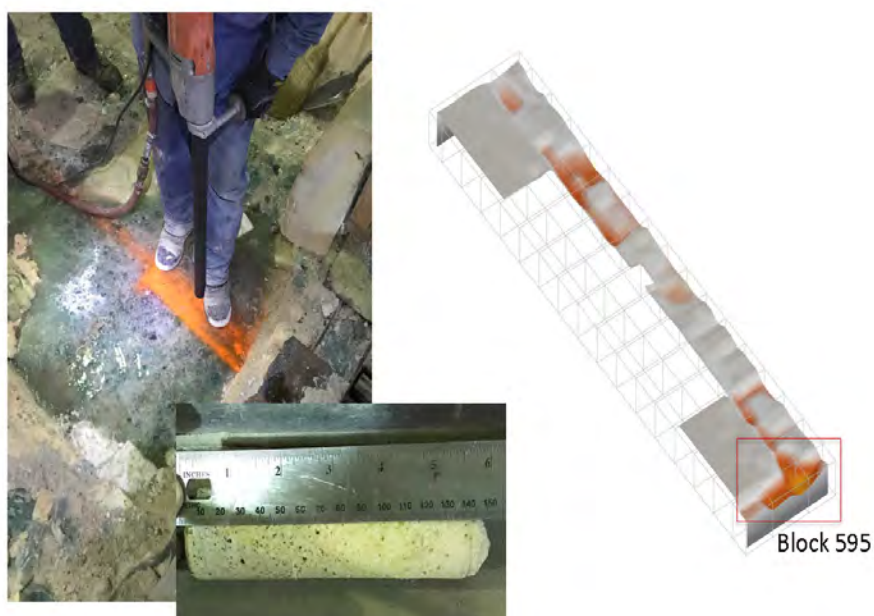


Figure 3

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

图 3

对595#底砖钻孔，有大量的玻璃已经穿透到侵蚀的孔中。



Figure 4

Core from Block 587.

图 4

从587#底砖得到的钻芯

FURNACE SIDEWALL MEASUREMENT SPOTS 窑炉池壁测量点

Measurements were taken on a total of 2 blocks (see Figure 5)
对总计两处的池壁砖进行了测量 (见图5)

Figure 5

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

图 5

左侧图片是143#砖，右边的图片是148#及143#砖的放置



FURNACE SIDEWALL MEASUREMENT RESULTS 窑炉池壁测量结果

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.

砖厚的测量是将贴砖取下后用尺子实测的，测量在澄清区右侧池壁的一块电熔AZS贴砖上进行,这个数据用于和SmartMelter智慧窑炉® 探测的结果进行对比。

Table 2
Comparison of Actual Block Thickness with SmartMelter® Measurements

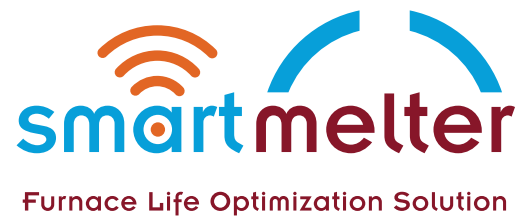
Sidewall Block Number 池壁砖砖号	SmartMelter Thickness 智慧窑炉探测结果	Physical Thickness 实测砖厚	Difference 误差值
143	47 mm	47 mm	0 mm
148	30 mm	29 mm	1 mm

表 2
实测砖厚数据与SmartMelter® 探测结果对比

CONCLUSION 结 论

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

本次盲试实验清楚地描述了SmartMelter智慧窑炉® 探测传感器在浮法玻璃窑炉上对测量池底粘土保温层砖和电熔AZS池壁砖的精确度。



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