

Improve Your Molding Pty Ltd

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Case Studies

Example #1 (Quality Issue)

2 Litre Ice Cream Container (Thin Wall Mold)

Problem: Flashing and shorting at the same time. See figures 1,2 &3,

Wall thickness 0.60mm (0.024 inch)

Length 280mm (11.0)

Width 140mm (5.5)

Height 95mm (3.7)

Material: polypropylene copolymer

Weight 71.4 grams

Single cavity mould

Solution: After checking the mould stripper plate and interlocking fitting dimensions several times, it was found that the machine was at fault.

The fixed side platen had a 0.03mm (0.0011) impression hobbled into it by another mould which was only slightly smaller than the 2 litre container mould in terms of the length and width of the backplate.

The impression allowed the mould to flex into this 0.03mm area under injection pressure causing the flash since there was no support behind the mould.

Shim was placed between the fixed side platen and the mould which eliminated the flash.

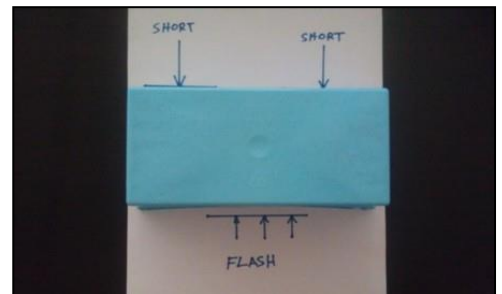


Figure 1

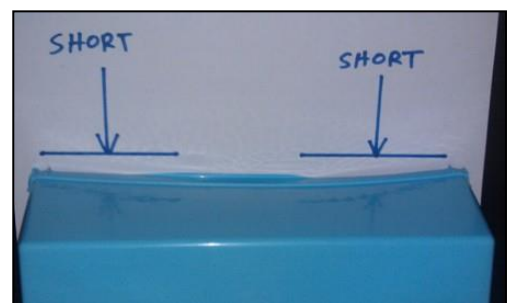


Figure 2

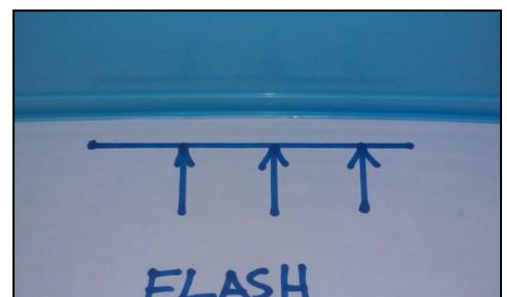


Figure 3

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Example #2 (Quality Issue - incorrect machine selection)

PET Box

Problem: Unmelted pallets in the part.

Wall thickness 2.0mm (0.079 inch)

Length 110mm (4.3)

Width 110mm (4.3)

Height 255mm (10.0)

Material: PET resin

Weight 342 grams

2 cavity mould



Solution: The PET Box was originally installed in a 300T Haitian moulding machine and the injection unit was fitted with a general purpose screw.

The screw was not capable of plasticizing each shot consistently within the required cycle time so the mould was moved to a Husky machine designed to manufacture PET preforms at short cycle times. This machine did not produce any parts with unmelted pallets so the original machine was fitted with a new screw designed to plasticize PET resin.

This was a case of incorrect machine selection.

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Example #3 (Cycle Time Issue)

Rectangular Lid for 32 Litre Container

Problem: slow cycle time currently 21.4 seconds. Target 19.0 seconds.

Wall thickness 1.4mm (0.055 inch)

Length 410mm (16.1)

Width 325mm (12.8)

Height 35mm (1.4)

Material: polypropylene homopolymer

Weight 295 grams

Single cavity mould

Solution: Figure 4 shows the build up of brown residue in the water cooling channels in the core side of the mould. The build up is thick and reduces the cooling effect on the part.

The build up was removed manually by hand which reduced cycle time to 19 seconds.

That's a 10% increase in productivity which translates into tens of thousands of dollars in extra sales per year for just a few hundred dollars investment.

Our injection molding consulting service can achieve the same result for you too.

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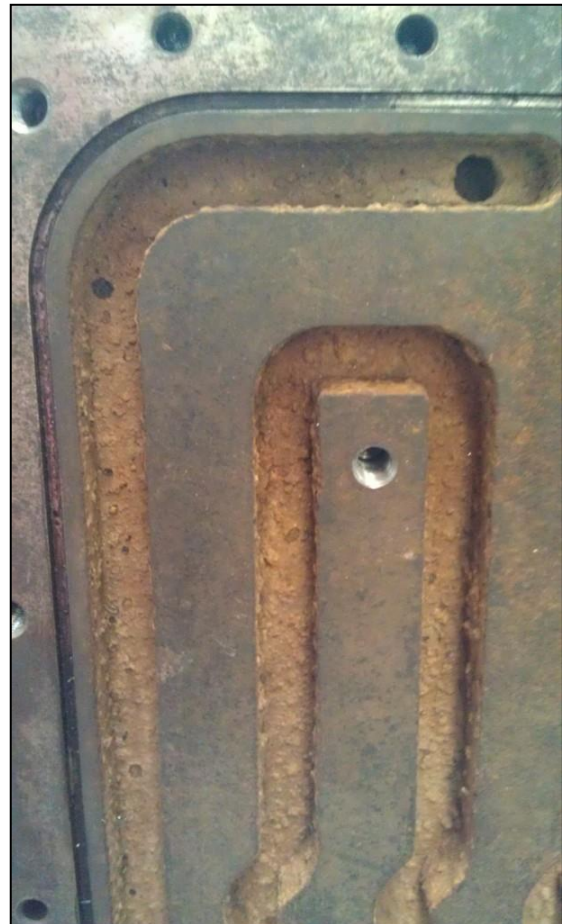


Figure 4

Example #4 (Mould Quality Issue)

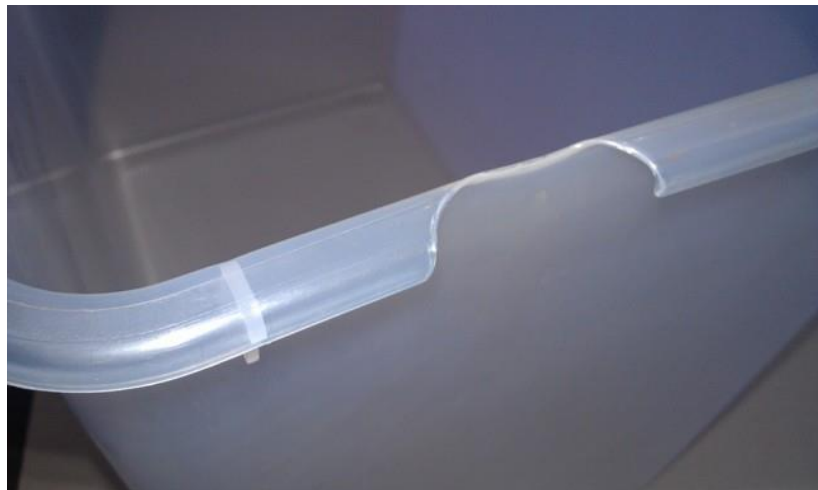
Rectangular 35 Litre Storage Container

Problem: Uneven fill causing short shot on one side

Wall thickness 2.0mm (0.078 inch)

Single cavity mould.

Solution: The worn interlocking surfaces between fixed & moving sides allowed misalignment between the core & cavity which caused the filling pattern in the cavity to change: the thicker sides filled first and the thinnest side required higher than normal hold pressure in order to make a complete container.



Extra clamp tonnage was also required to stop flash which increased the rate of mould wear.

The variation in wall thickness gradually become worse over time resulting in an increasing rate of short shots.

The issue was fixed by adding shim behind the removable wear plates of the interlocking surfaces which centralised the core & cavity ensuring even wall thickness on all 4 sides of the storage container.

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