

Waste and trim cut improvements December 2019

Describing the changes and enhancements to the trim cut and throwaway chunk cutting on Stuga Sawing

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⚠ ...These changes are applied in version 6.4.29.0

Problem

older versions of software struggled with different offcut lengths, particularly on cill saws where the profile is extra wide (>120mm). Previous attempts to improve the waste disposal involved moving short, waste offcuts to the start of the bar, rather than the end. The waste cutting algorithm then had to cut these large pieces into sizes small enough to fit down the chute.

Different angles and wide profile caused exceptions which caused pieces to get jammed in the chute and in the clamping system

Solution

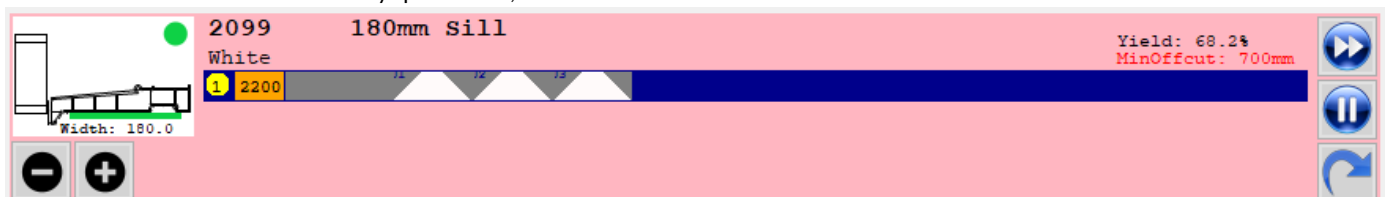
The algorithm has been rewritten to simplify this for any profile width and starting cut angle. The bar view has also been updated to accurately reflect the positions of all of the waste cuts on the bar

📌 ...The bar cut view is displayed from the Service->Bar Data screen by expanding the bar and clicking on Bar Ops

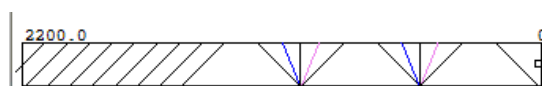
The rules are as follows:

Shift Waste To Start

If the remainder is less than "throwaway" parameter, then shift the remainder to the start of the bar.

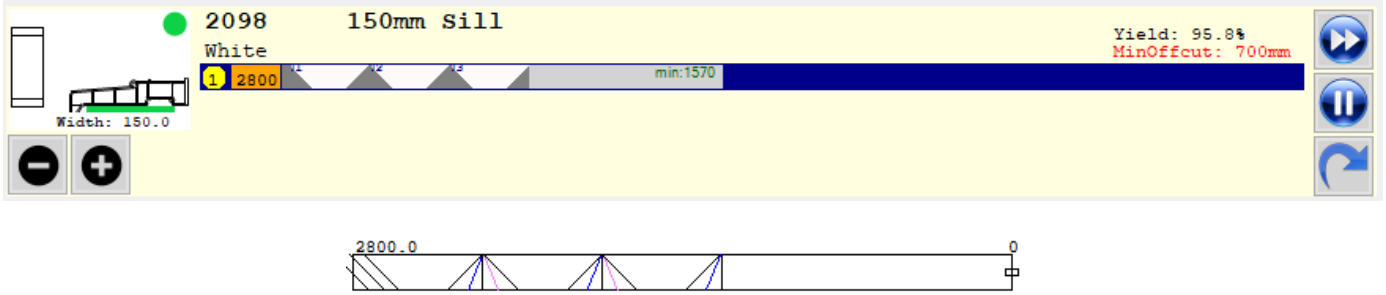


Picture shows a sill with a throwaway set to 500mm. The waste is shifted to the front end of the bar



Picture shows the bar view, with the chunk cuts at the start (throwawayChunkSize set to 100)

If the remainder is greater than "throwaway" parameter, then eject waste onto the outfeed table at the end of the bar - the front end of the bar will still include any trim parameter



Throwaway Chunk Size

This waste will then be disposed of in small chunks to fit down the chute. Size of the chunks is determined by "throwawayChunkSize" parameter

Half and Quarter Triangles

The system also looks at how big the triangular offcut will be between two mitre cuts (or a mitre and square cut). if the piece is going to be bigger than the throwawayChunkSize, then it will cut half and quarter triangles to fit the offcut down the chute. (these can be seen in blue and red on above picture)

Chunk angle

The angle of the trim cuts at the start of the bar now match the first cut on the bar, which makes for a more consistent run. eg, if the first cut is 135 degrees, all the chunk cuts will be at 135 degrees

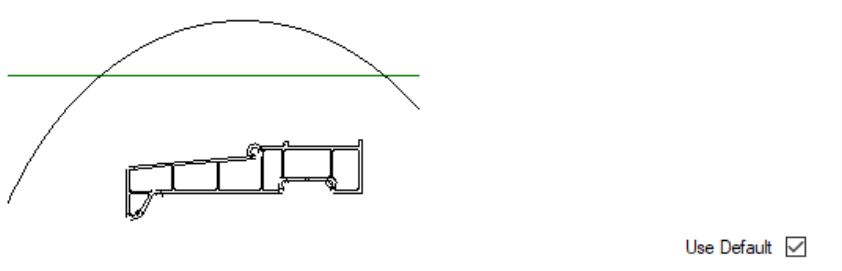
Profile Specific Adjustment

Each parameter (throwaway, throwawayChunkSize and trim) can be adjusted individually per profile from the profile setting screen. This allows fine adjustment to dispose of particularly wide profiles without slowing down the process for smaller profiles. if the box is ticked, it will use the default main parameter. If unticked, the profile specific parameter can be adjusted.

Datum Tests Accuracy Parameters Axes Tooling IO Map Clamps X Holds Alarms Profile Colours Notching Fine Adjustment

ALLPRFS Common Tooling Co ^
 2097 85mm Sill
 2098 150mm Sill
 2099 180mm Sill
 0204 15mm Frame Extens
 0210 25mm Frame Extens v

Saw Cut Height Y&Z Clear Position



Use Default

General Profile Settings
 Std Length 6500
 Opt Tolerance 50
 Width Tolerance +/- 1.0
 Rebate Offset 22.0
 Invert Colour

Special Cut
 Speed Top 25
 Bottom 25
 Reinforcing 25
 EuroGroove 25

Infeed Reverse Time
 Use Default

Profile Feed Speed
 Speed Default
 Accel Default

Mitre Cut Offset
 Change centre cut position on mitre cuts 0.0

Disable Clamp Number
 Use Default

Blade To Fence
 Use Profile Centre

Other
 Reverse Measure on Reverse Loaded
 Skip trim on Trim Cut
 Max Cut Speed
 Square Trim Cut
 VS Tilt
 Skip Grip
 Half Triangl Use PopUp
 Chunk Default 95
 Throwaway Dft 300
 Trim Default
 SmlGrip Default

Gripper Measure Position
 GY Default
 GZ Default

Sawing Parameters
 ClampPos
 Eject Home B4 Push
 Skip Load Clear

Profile Block None v
 Pusher Block None v
 Flip N Z Turret 1

Y Notch Adjustment
 Front 0.0 Rear 0.0 All

On initial setup use this feature to set all the profile settings to an initial value. Update

Copy To Replicates Save

Application Notes - S095

On S095 machine, it was found that the throwaway could catch the outfeed clamps on eject, and it was better dealt with by chopping it up at the beginning. The throwaway for the cill profiles was set at 700, which cured a lot of problems of the end offcut catching on ejecting the throwaway.