

# Essential Mulls ADM

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## General Mull Information

Marvin Essential offers mull options for many of its window and door products. Many assemblies can be built in the factory. Larger assemblies will need to be completed in the field. Factory-mulled assemblies have various levels of certification applied through third-party testing.

### Marvin Essential Mull Options

- Mull kits are available for field assembly. Kits include instructions, mull covers, mull plugs and brackets.
- All Essential mull kits will create a 1/2" space mull.
  - Standard Mull: Units are mulled together with a mull pin between the frames that allows for either factory or field assembly of the mullion.
  - Reinforced Fiberglass Mull (MRF): Units are mulled together with a three-piece kit that allows for either factory or field assembly of the mullion.

*NOTE: Standard and MRF can only be used horizontally, above the door assemblies.*

### Mull Anchoring Methods

- Standard Mull: Anchorage provided in the mull kit is two (2) structural brackets per Rough Opening mull end.
- MRF Anchoring: Anchorage provided in the mull kit is three (3) structural brackets per rough opening mull end.

### Section Details

Cross sections will illustrate the mulling of two units.

### Glossary

**PG: Performance Grade** - The performance of the mull that is tested to a specific size and all sizes that would fit within that rectangle. In the example below, an assembly with Tributary Width of 56 and Span of 95 was physically tested to a PG40 level.

**DP: Design Pressure** - This is a calculated performance value based on the Tested Value, the Tributary Width and the Span.

**Certified:** Third-party tested for air, water, and structural performance. To be certified, must be factory-assembled. Field mulling is not certified.

### Calculating Total Opening for Assemblies

**WIDTH:** Rough Opening = Frame Widths + 1/2" (13) per mull + 1/2" (13), Inside Opening = Frame Widths + 1/2" (13) per mull + 3/8" (10).

**Tolerance** = 1/4" (6) from Frame to Rough Opening at left and right jamb, 3/16" (5) from Frame to Inside Opening at left and right jamb.

**HEIGHT:** Rough Opening = Frame Heights + 1/2" (13) per mull + 1/2" (13), Inside Opening = Frame Heights + 1/2" (13) per mull + 1/4" (6).

**Tolerance** = 1/2" (13) from Frame to Rough Opening at head jamb. 1/4" (6) from Frame to Inside Opening at head jamb.

**General Mull Information**

To determine the performance level of a mullered unit, you will need to know the Tributary Width and Span.

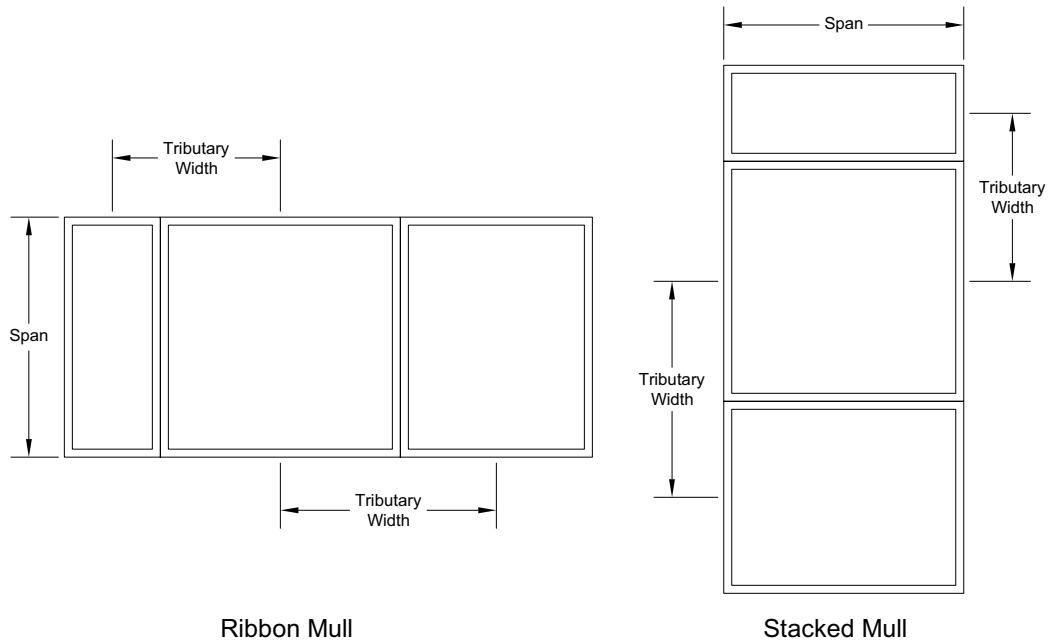
**Explaining Tributary Width and Span**

**Tributary Width** is the area supported by the mullion. In the case of a vertical mull, this is equal to the sum of half of the width of each unit on each side of the mull.

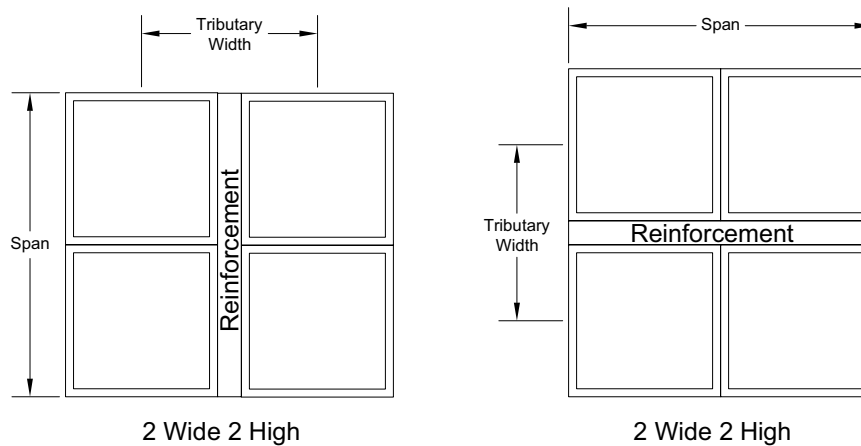
**Span** is the length of the mullion.

**Span (on Multi-High, Multi-Wide assemblies)** is equal to the length of the longest continuous mull.

**Ribbon and Stacked Mulls**



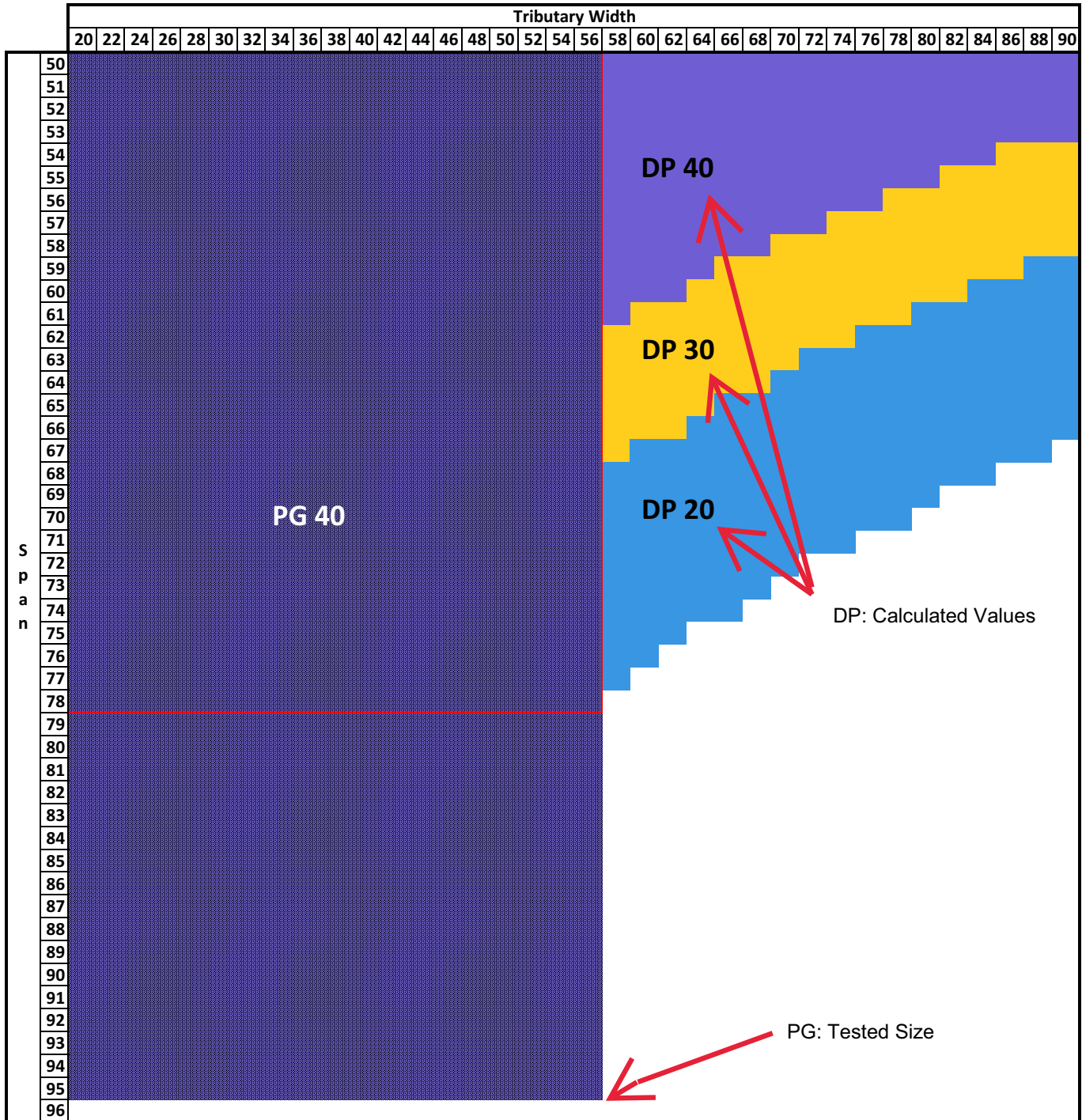
**Multi-High, Multi-Wide Mulls**



**General Mull Information - Mull Performance Charts**

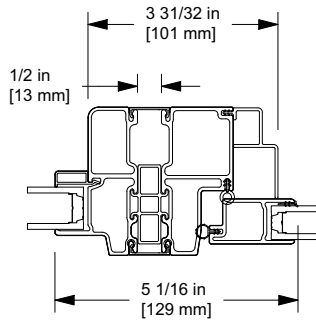
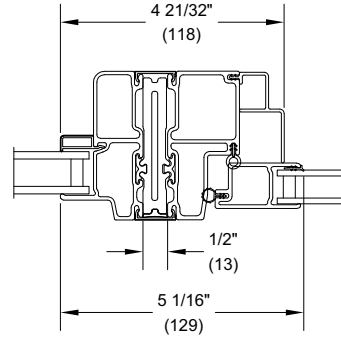
**Mullion Performance Charts**

In accordance with the International Building Code, mullion performance is determined through either **physical testing** or **calculations**. A combination of both methods has been used to develop the performance charts. Calculated mullions limit deflection to L/175 (L=length of mullion) and limit allowable stress to 2/3 of the mull material's allowable stress. Physically tested mullions often outperform calculations and this will show up on the charts as jumps in performances.



**Marvin Essential Mull Types**

Mulls displayed with Essential Casement frames, but other products use the same two mull options.

**Standard Mull****Mull Reinforcement**

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## Essential Casement Mull Types

This section is a compilation of mulling options for the Essential Casement product.

### Mull Types

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

### Products Included

- Essential Casement
- Essential Awning
- Essential Casement Picture

### Certified Mull Installation Methods

- Nailing fin
- Structural brackets
- Through-jamb

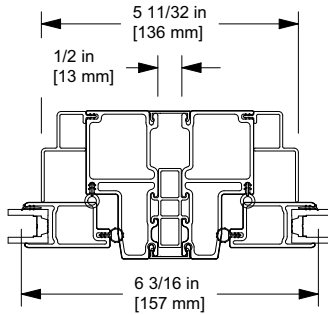
### Tributary and Span

See page 2 for definition and illustration of these terms.

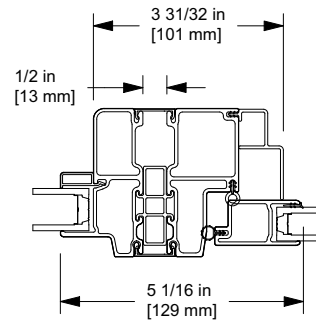
### Packaged Terminal Air Conditioner (PTAC) Mulling

- Factory mulled below a Picture unit.
- Mull options can not affect unit or RO size. Height of PTAC window frame will accommodate all PTAC sizes.
- Standard PTAC height is 19 1/4" (489); standard PTAC width will match the upper unit width.
- MAXIMUM ROUGH OPENING ASSEMBLY UP TO 1W2H: 72" (1289) X 96" (2438)

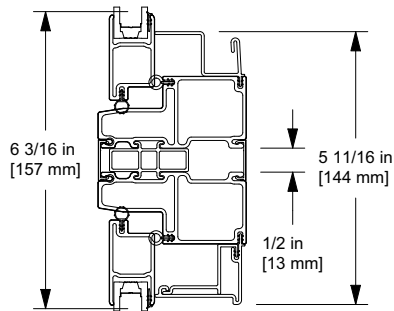
**Section Details: Essential Casement Mulling Types**



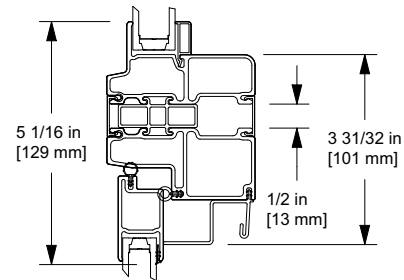
**Vertical Mull**  
Casement/Awning/Picture To  
Casement/Awning/Picture



**Vertical Mull**  
Direct Glaze To  
Casement/Awning/Picture



**Horizontal Mull**  
Casement/Awning/Picture To  
Casement/Awning/Picture



**Horizontal Mull**  
Direct Glaze To  
Casement/Awning/Picture

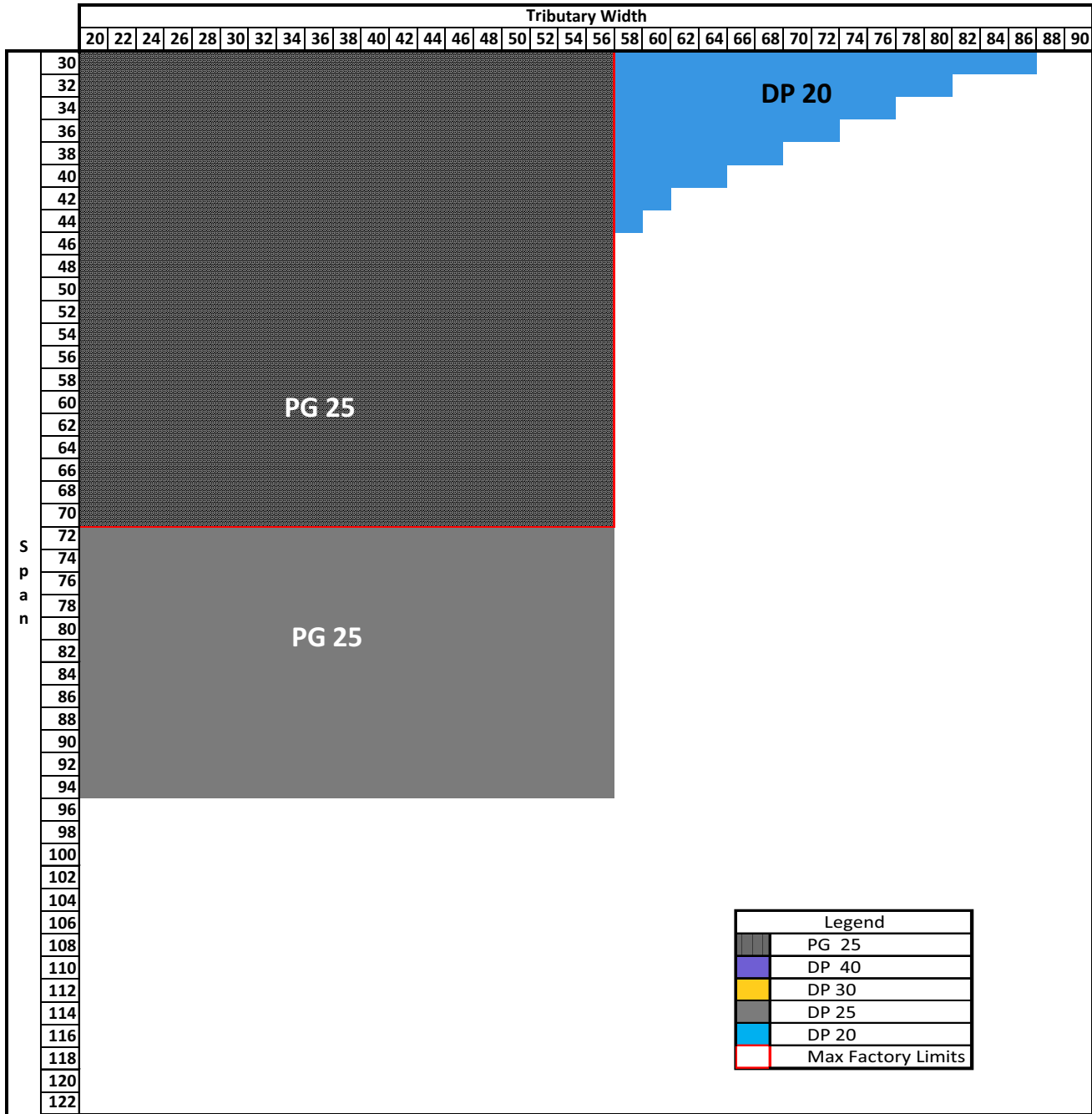
*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.*



**Essential Casement/Awning Mulling - Standard Mull (Ribbon)**

Max Factory Mull is RO 114" x 72" for up to 6W x 1H assemblies (vertical mull)

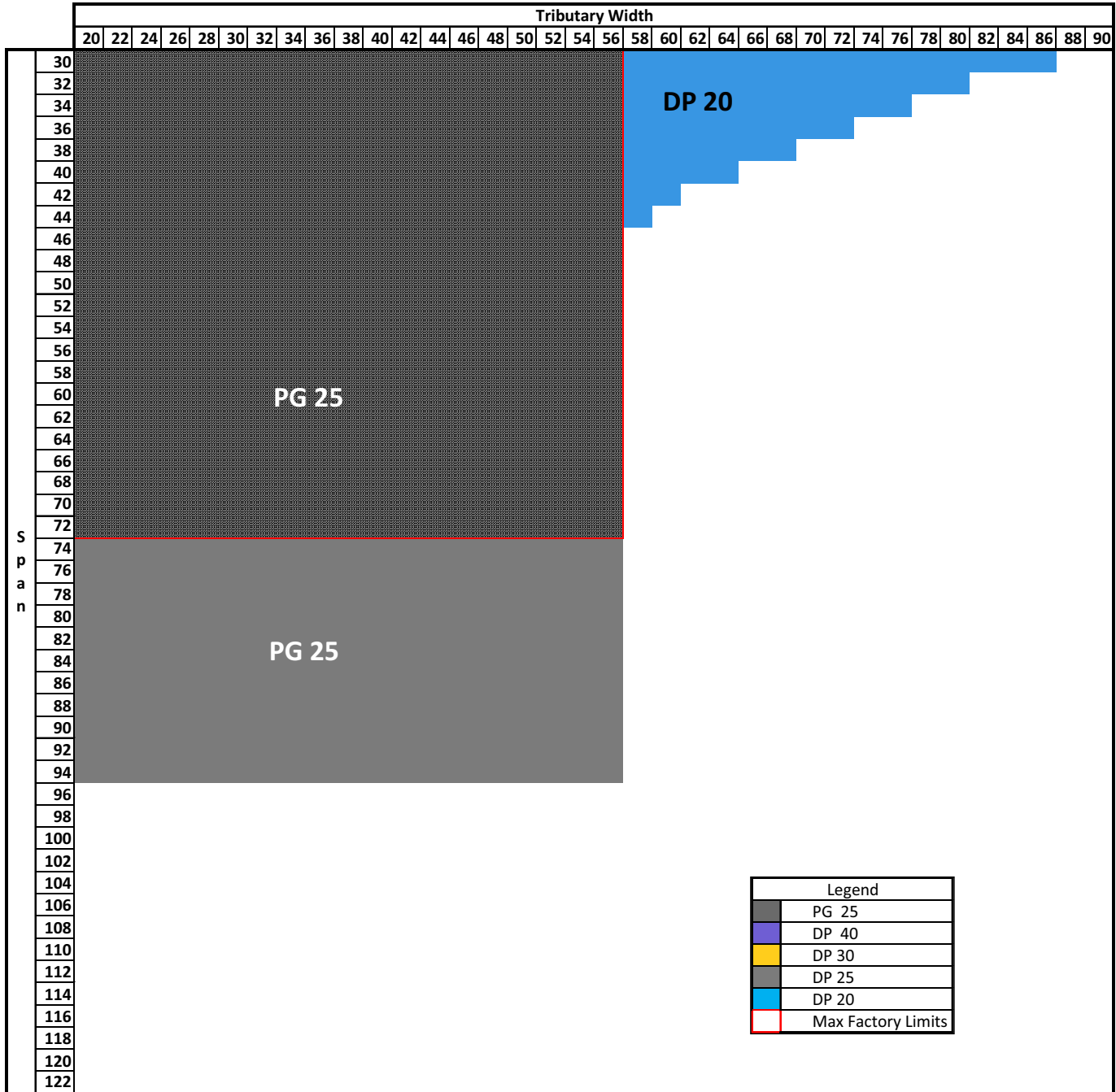
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



**Essential Casement/Awning Mulling - Standard Mull (Stacked)**

Max Factory Mull is RO 72" x 114" for up to 1Wx5H assemblies (horizontal mull).

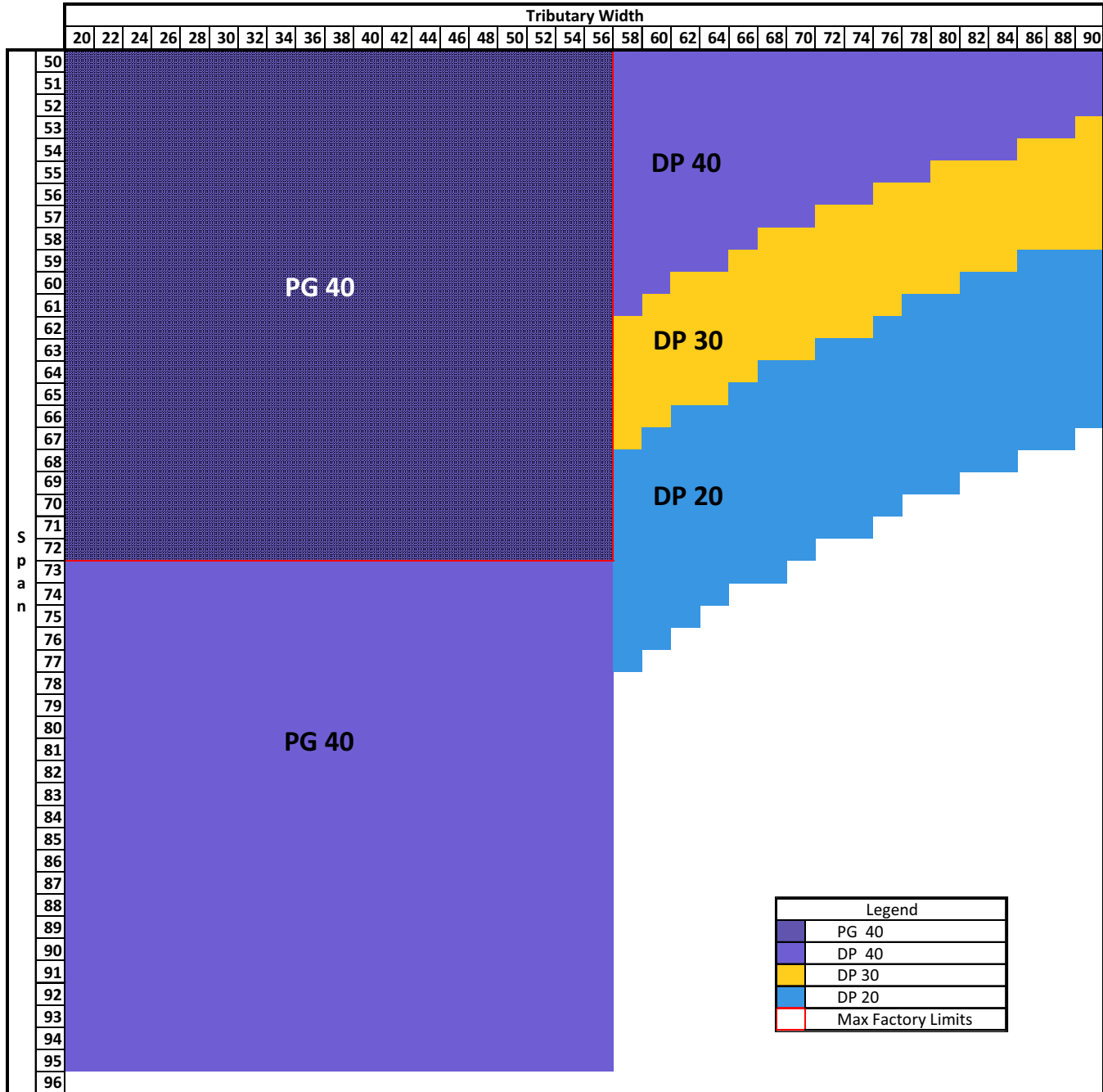
Max Certified Tributary Width x Span (frame size): 57" x 95 1/2"



**Essential Casement/Awning Mulling - Mulls with Reinforcement (Ribbon Assembly)**

Max Factory Mull is RO 114" x 72" for up to 6W x 1H assemblies (vertical mull).

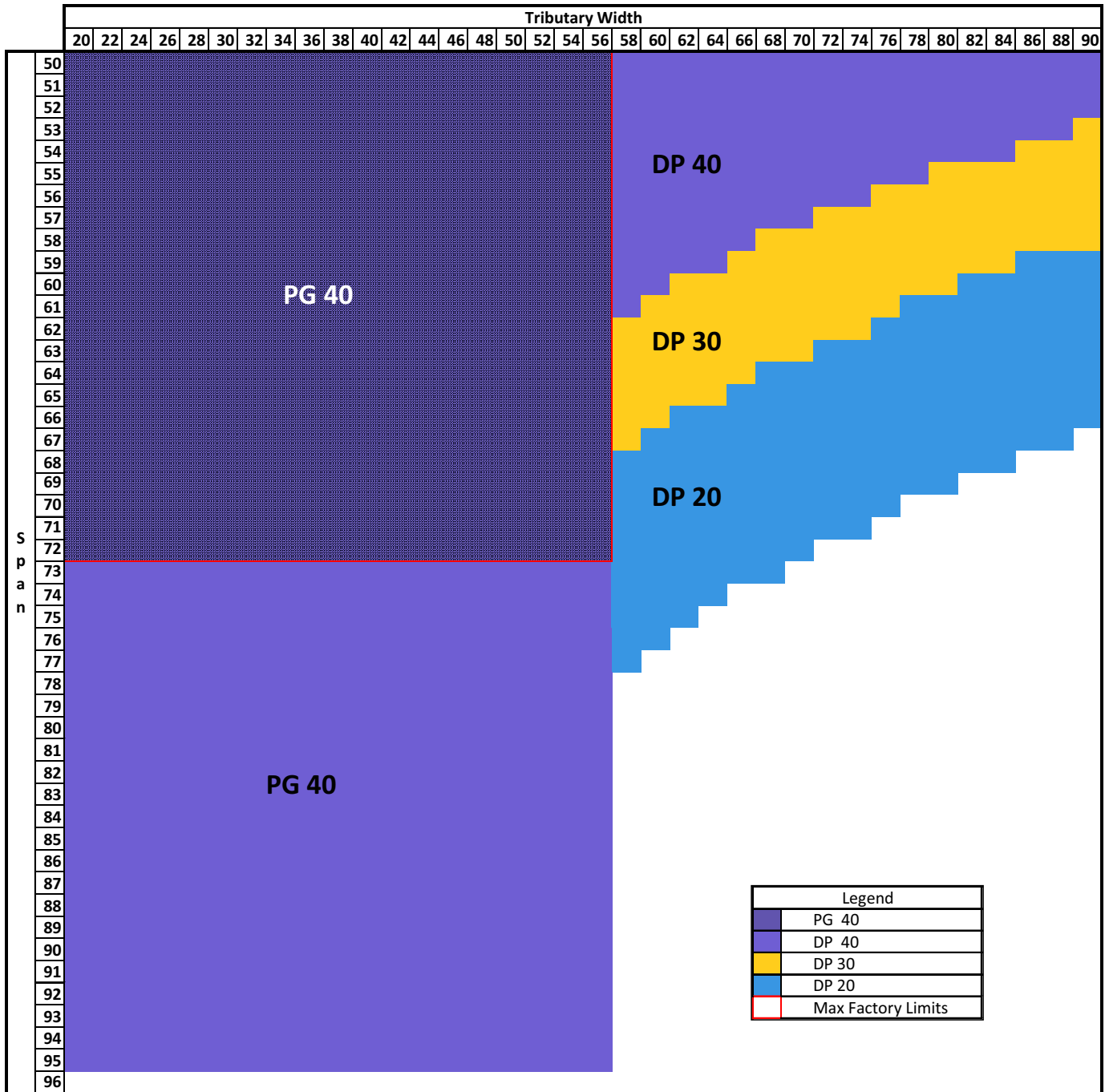
Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



**Essential Casement Mulling - Mull with Reinforcement (Stacked Assembly)**

Max Factory Mull is RO 72" x 114" for up to 1W x 5H assemblies (horizontal mull).

Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



## **Essential Double Hung Mull Types**

This document is a compilation of mulling options for the Essential Double Hung product.

### **Mull Types**

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

### **Products Included**

- Essential Single Hung
- Essential Double Hung
- Essential Double Hung Picture

### **Certified Mull Installation Methods**

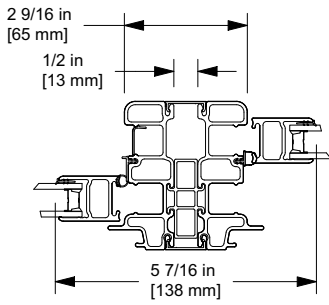
- Nailing fin
- Structural brackets
- Through-jamb.

### **Tributary and Span**

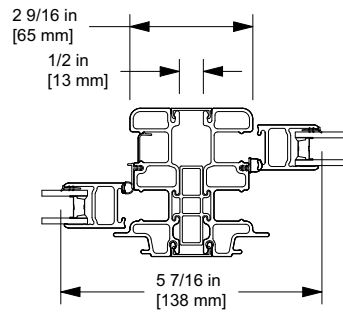
See page 2 for definition and illustration of these terms.

*NOTE: Double Hung Operators cannot be mulled above other units.*

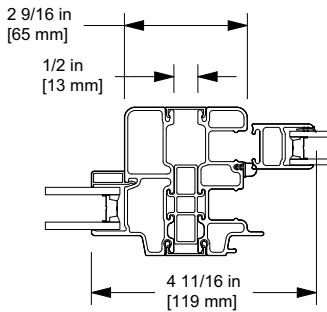
**Section Details: Essential Double Hung Mulling Types**



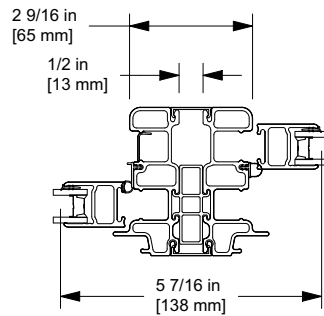
**Vertical Mull  
Double Hung To Single Hung**



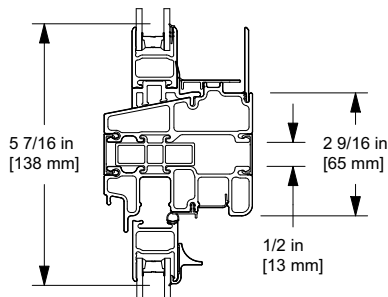
**Vertical Mull  
Picture/Transom To Double Hung**



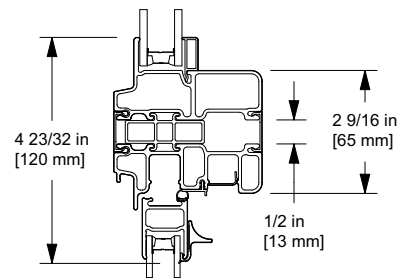
**Vertical Mull  
Direct Glaze To Double Hung**



**Vertical Mull  
Double Hung To Double Hung**



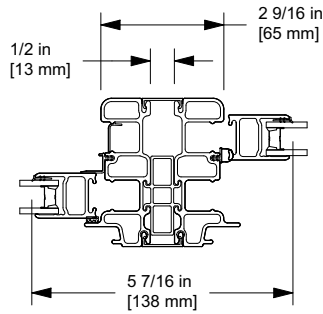
**Horizontal Mull  
Picture/Transom To Double Hung**



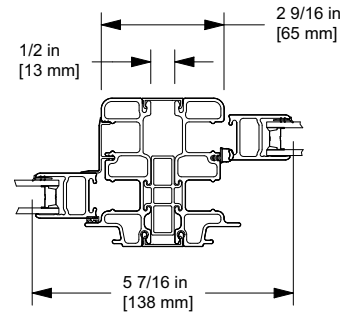
**Horizontal Mull  
Direct Glaze To Double Hung**

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.*

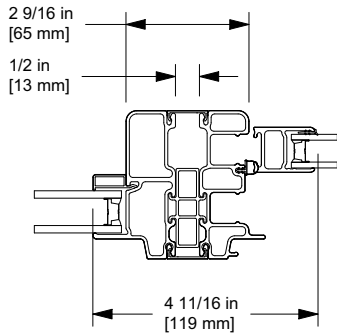
**Section Details: Essential Single Hung Mulling Types**



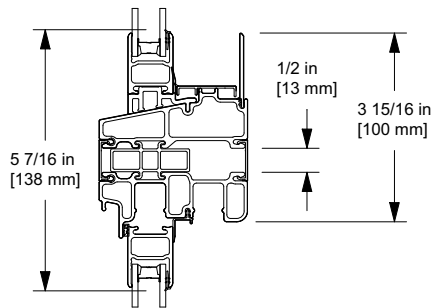
**Vertical Mull  
Single Hung to Single Hung**



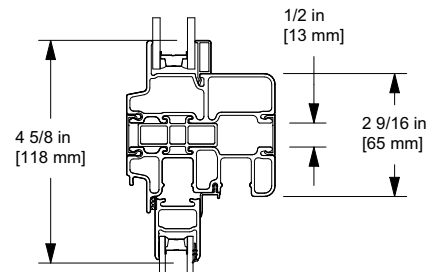
**Vertical Mull  
Picture/Transom to Single Hung**



**Vertical Mull  
Direct Glaze To Single Hung**



**Horizontal Mull  
Picture/Transom To Single Hung**



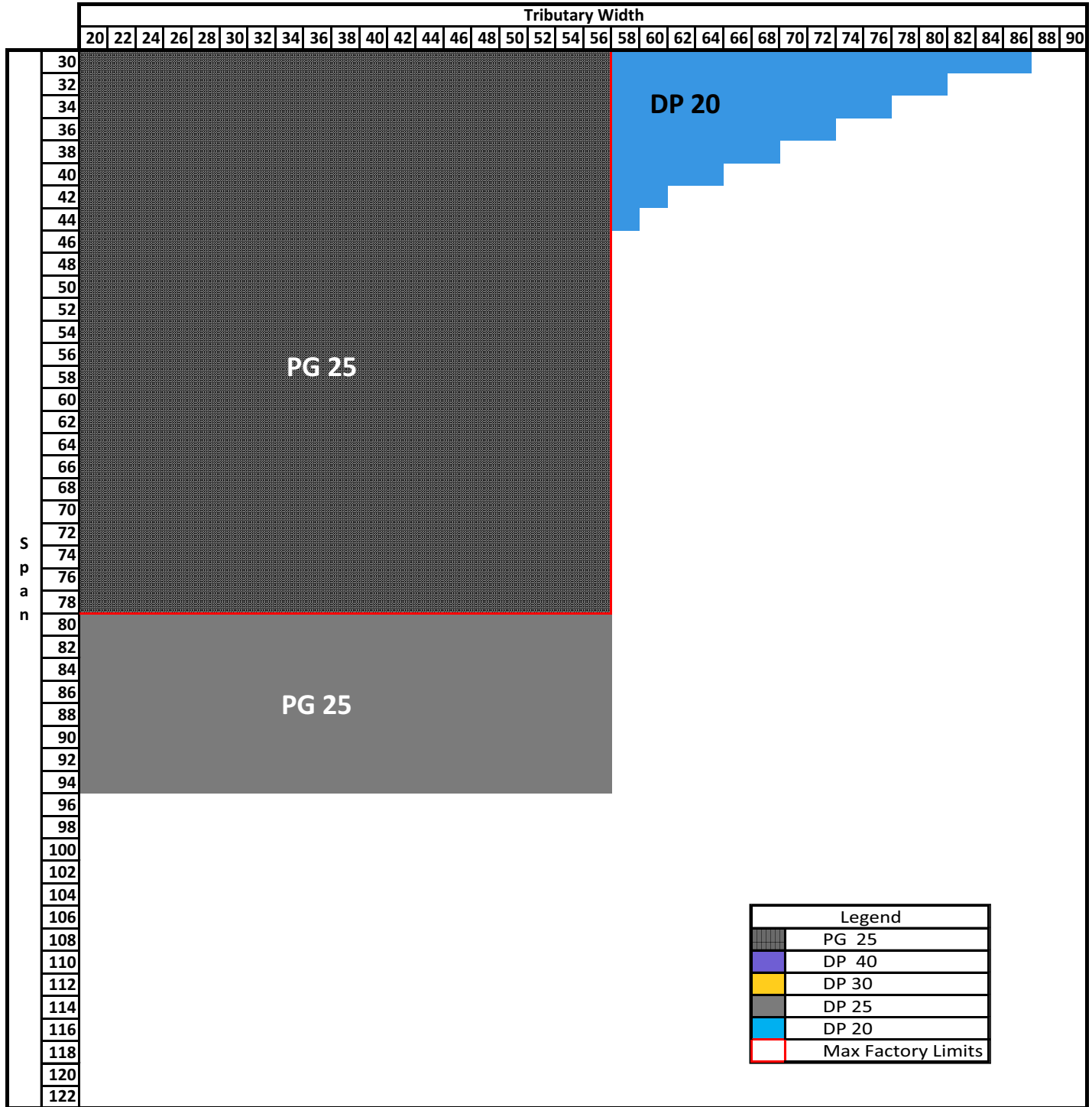
**Horizontal Mull  
Direct Glaze To Single Hung**

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.  
Single Hung Operators cannot be mullled above other units.*

**Essential Double Hung Mulling - Standard Mull (Ribbon)**

Max Factory Mull is RO 114" x 78" for up to 6W x 1H assemblies (vertical mull).

Max Tributary Width x Span (frame size): 57" x 95 1/2"

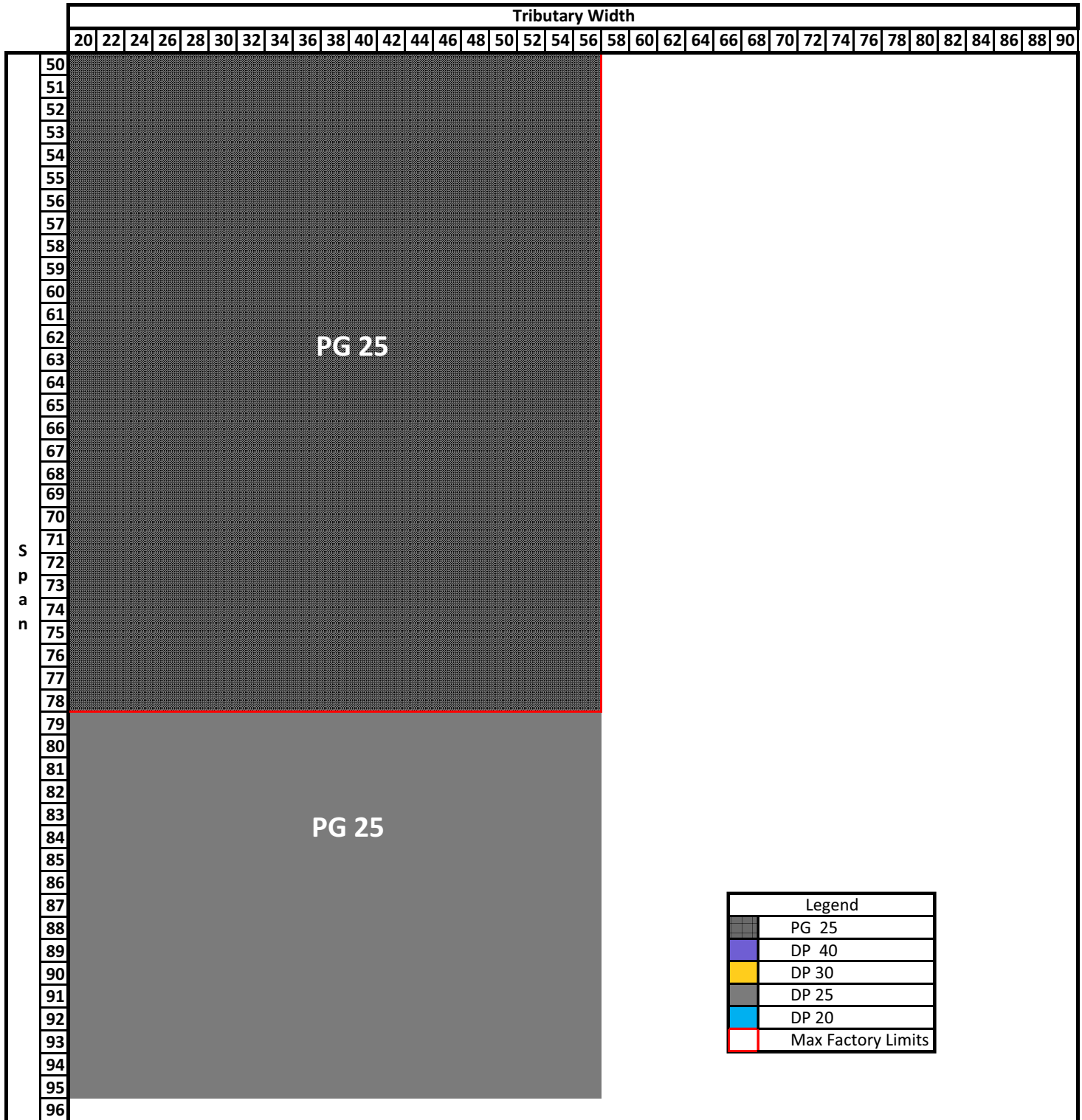




**Essential Double Hung Mulling - Standard Mull (Stacked)**

Max Factory Mull is RO 78" x 114" for up to 1W x 5H assemblies (horizontal mull).

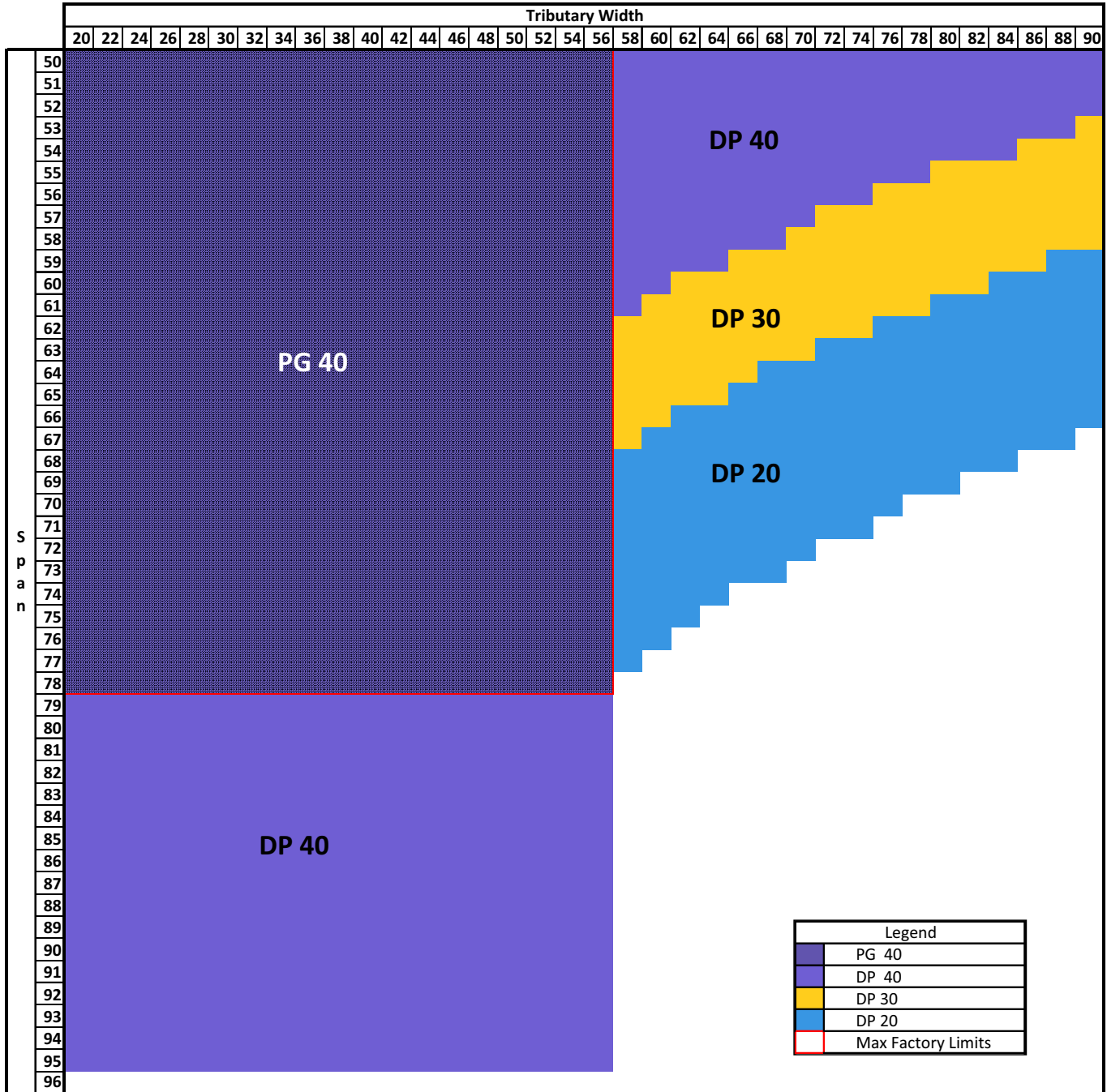
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



**Essential Double Hung Mulling - Mulls with Reinforcement (Ribbon Assembly)**

Max Factory Mull is RO 114" x 78" for up to 6W x 1H assemblies (vertical mull).

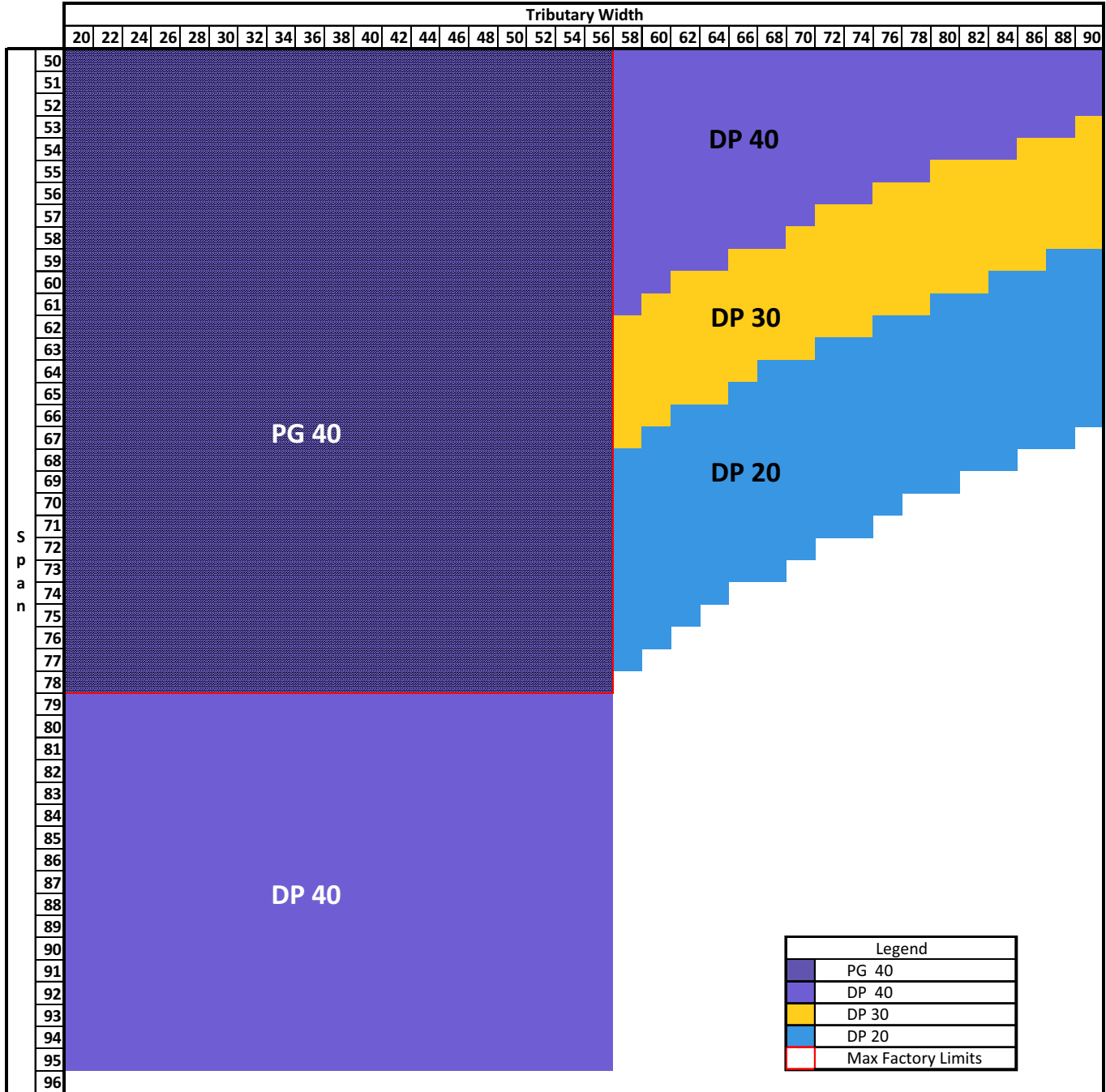
Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



**Essential Double Hung Mulling - Mull with Reinforcement (Stacked Assembly)**

Max Factory Mull is RO 78" x 114" for up to 1W x 5H assemblies (horizontal mull).

Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



## **Essential Glider Mull Types**

This document is a compilation of mulling options for the Essential Glider product.

### **Mull Types**

- Standard Mull: Two units mull together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mull together with a three-piece reinforcement that allows for either factory or field assembly.

### **Products Included**

- Essential Glider
- Essential Glider Triple Sash

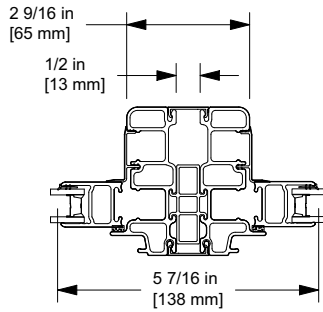
### **Certified Mull Installation Methods**

- Nailing fin
- Structural brackets
- Through-jamb.

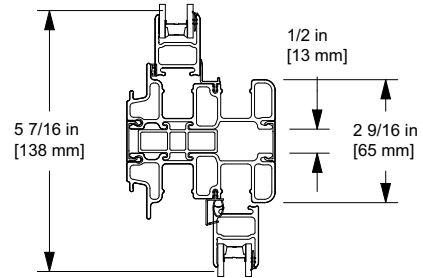
### **Tributary and Span:**

See page 2 for definition and illustration of these terms.

Section Details: Essential Glider Mulling Types



Vertical Mull  
Glider to Glider



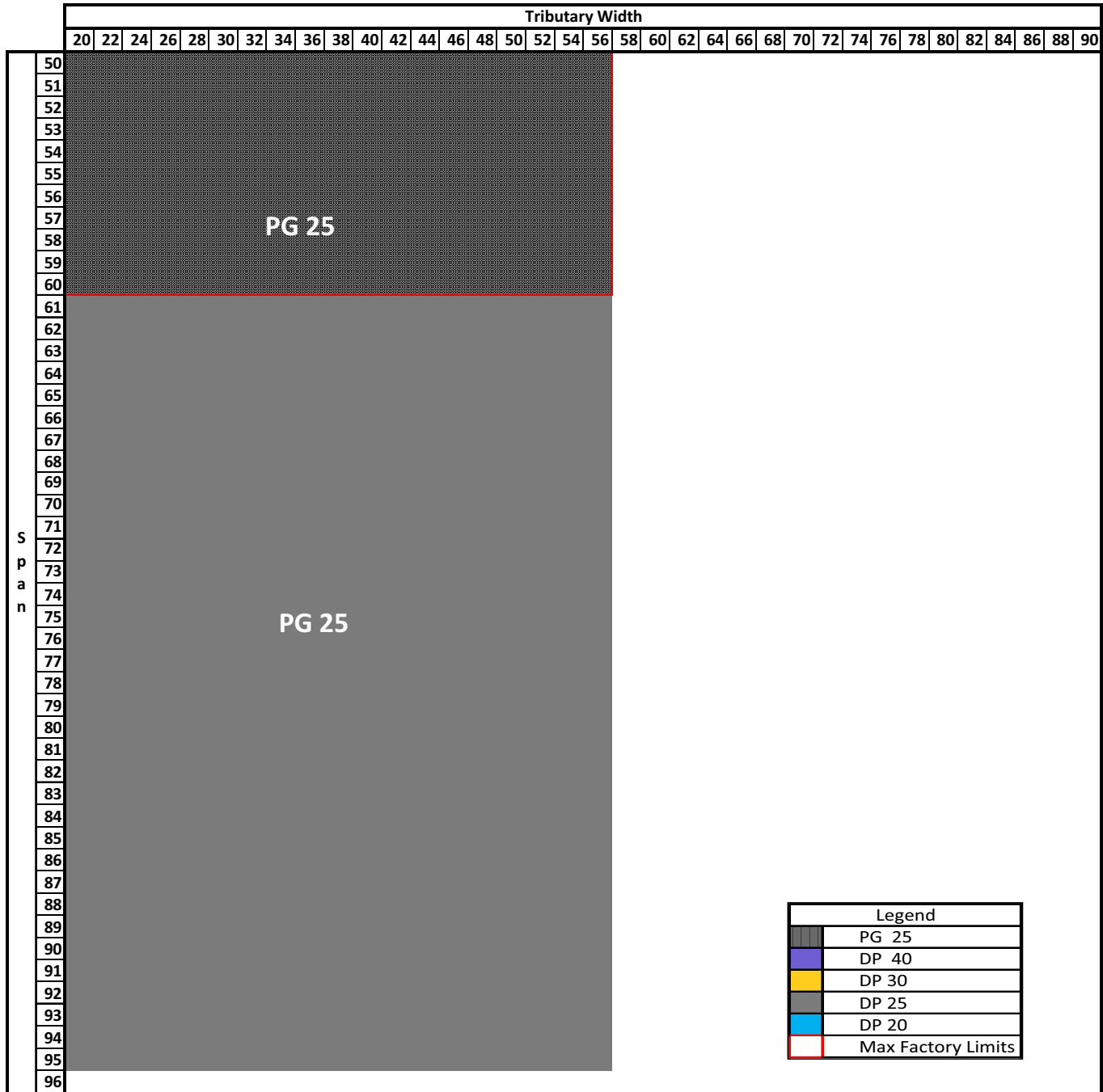
Horizontal Mull  
Glider to Glider

NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.

**Essential Glider Mulling - Standard Mull (Ribbon)**

Max Factory Mull is RO 114" x 60" for up to 3W x 1H assemblies (vertical mull).

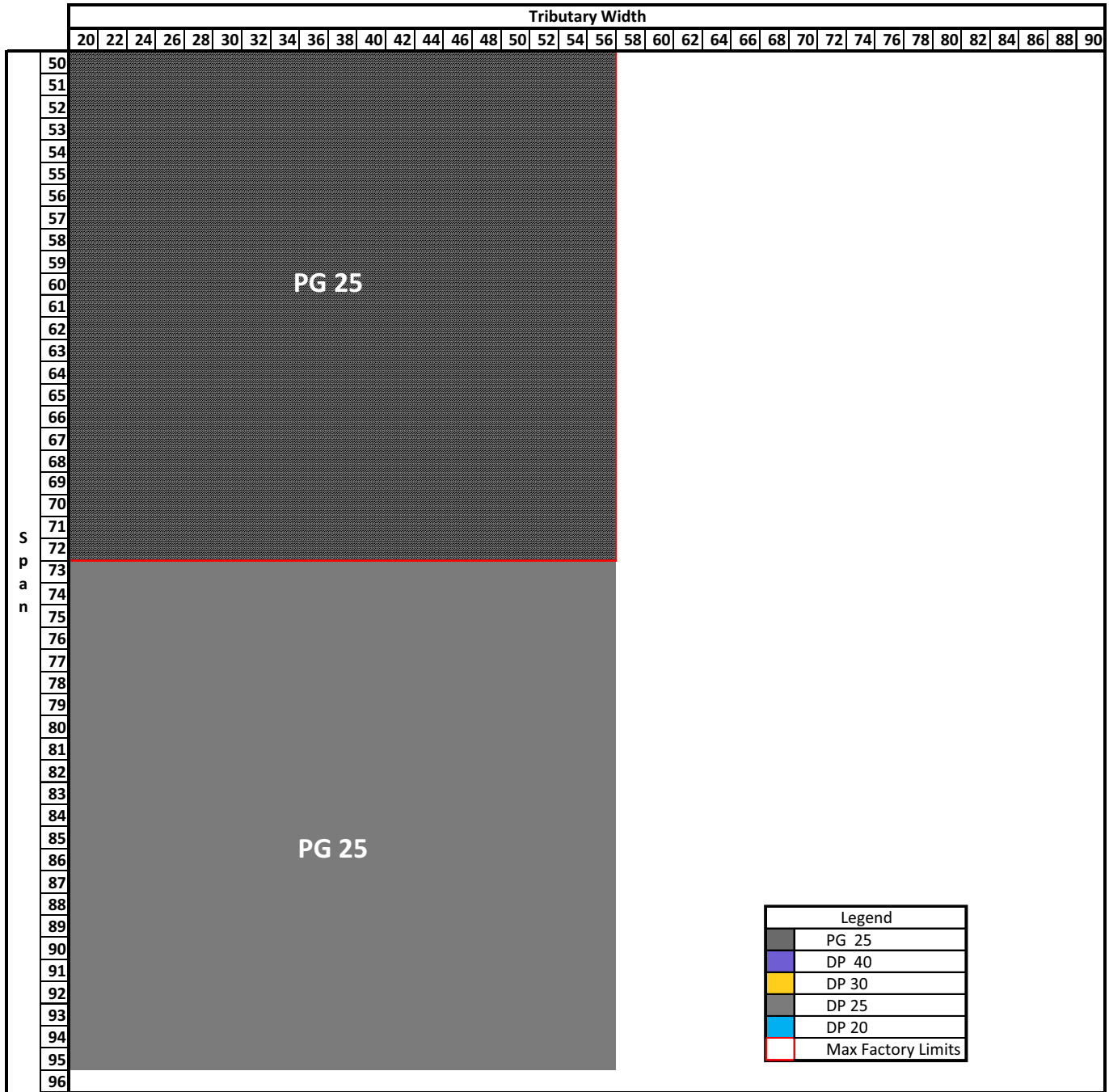
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



**Essential Glider Mulling - Standard Mull (Stacked)**

Max Factory Mull is RO 72" x 114" for up to 1W x 2H assemblies (horizontal mull).

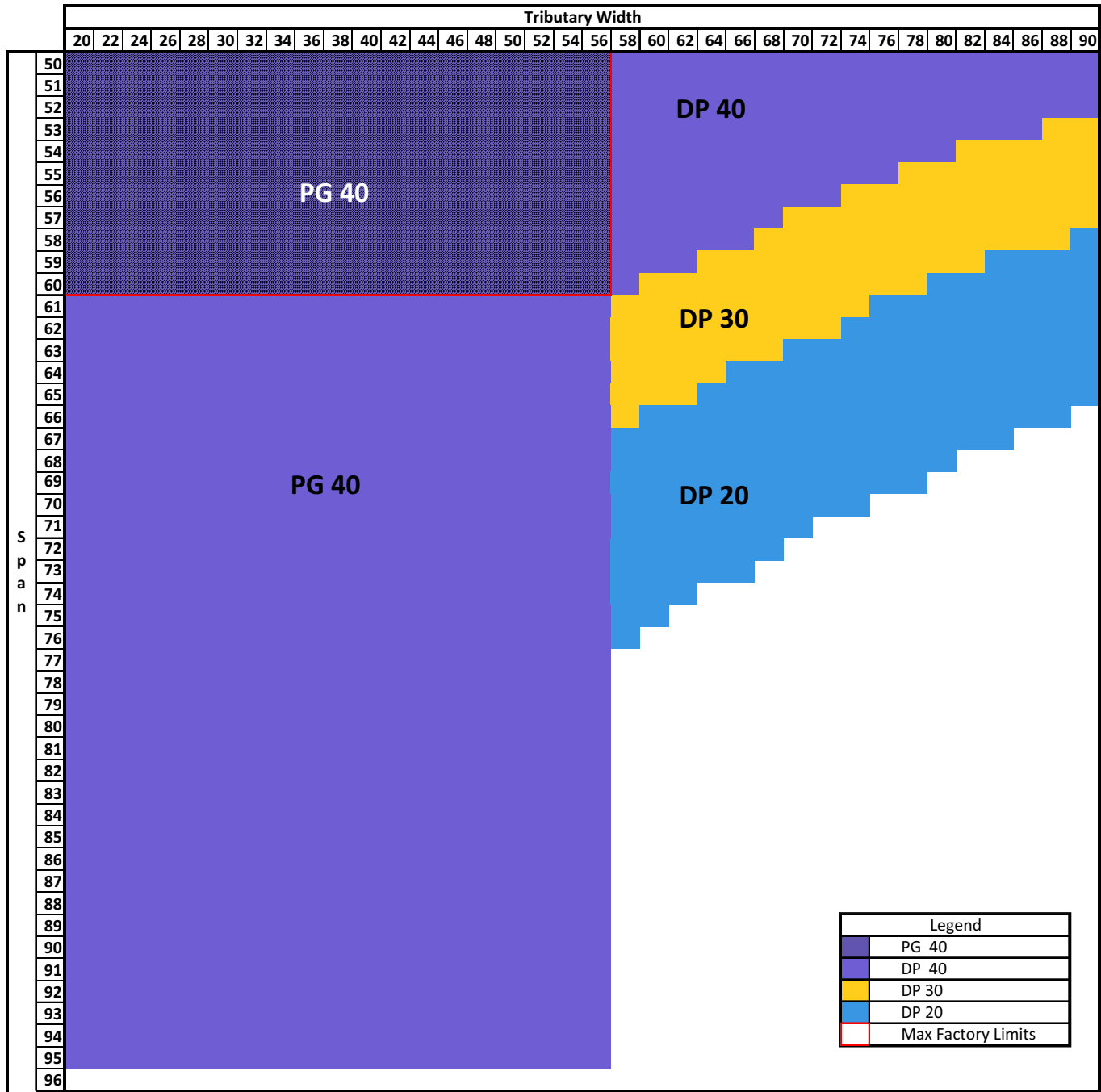
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



**Essential Glider Mulling - Mulls with Reinforcement (Ribbon Assembly)**

Max Factory Mull is RO 114" x 60" for up to 3W x 1H assemblies (vertical mull).

Max certified Tributary Width x Span (frame size): 57" x 95 1/2"

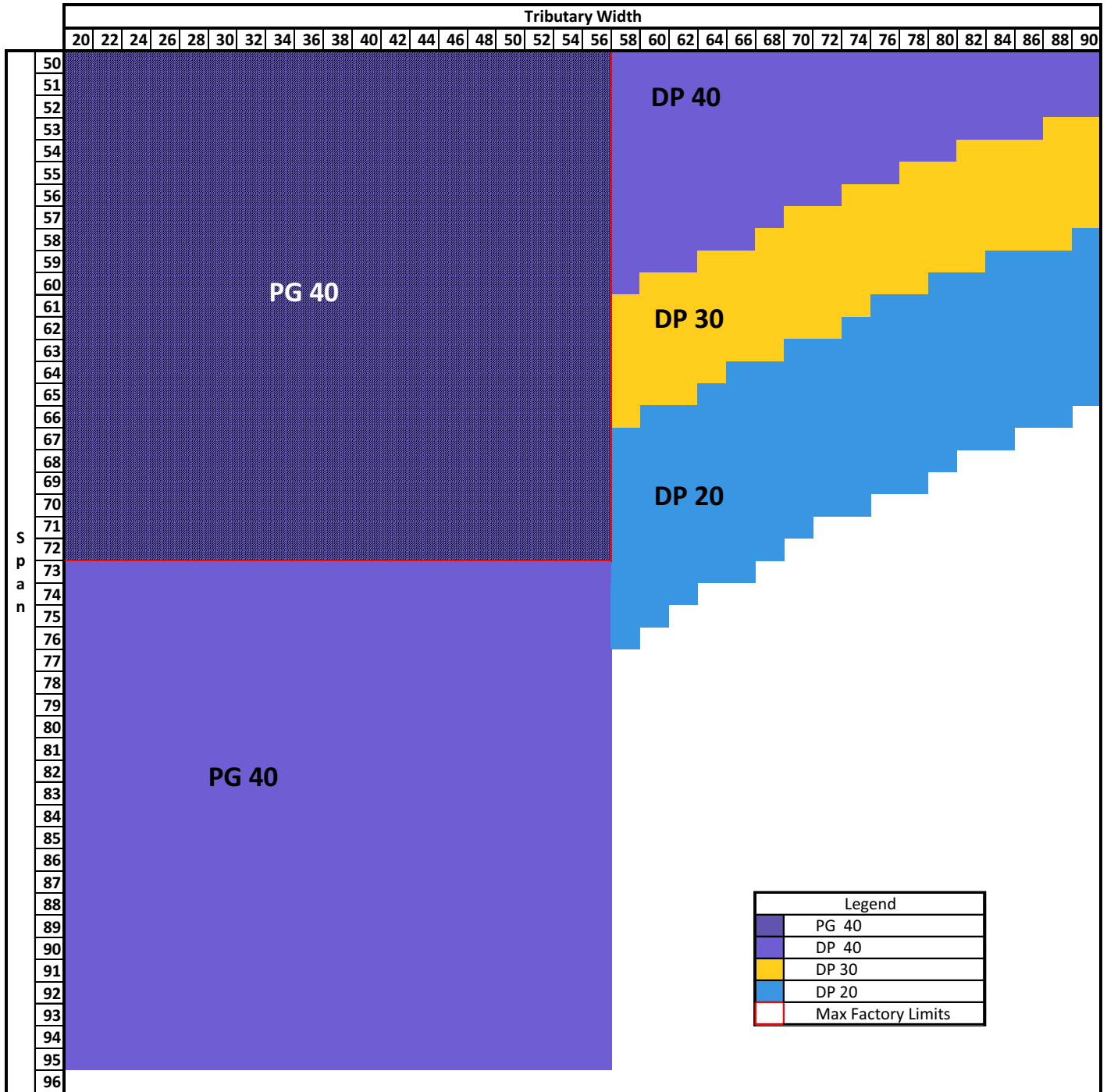









**Essential Glider Mulling - Mulls with Reinforcement (Stacked Assembly)**

Max Factory Mull is RO 72" x 114" for up to 1W x 2H assemblies (horizontal mull).

Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



Legend	
	PG 40
	DP 40
	DP 30
	DP 20
	Max Factory Limits

## **Essential Direct Glaze Mull Types**

This section is a compilation of mulling options for the Essential Direct Glaze product.

### **Mull Types**

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

### **Products Included**

- Essential Direct Glaze
- Essential Direct Glaze Round Tops

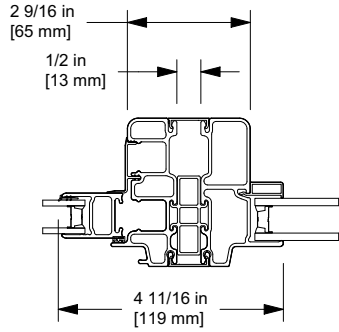
### **Certified Mull Installation Methods**

- Nailing fin
- Structural brackets
- Through-jamb.

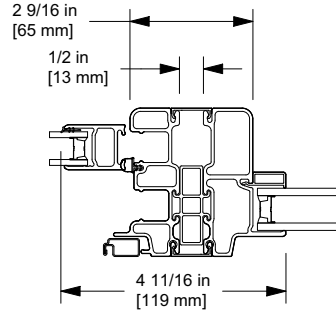
### **Tributary and Span:**

See page 2 for definition and illustration of these terms.

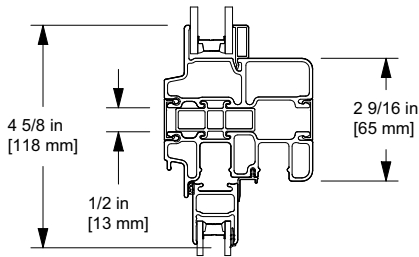
**Section Details: Essential Direct Glaze Polygons Mulling Types**



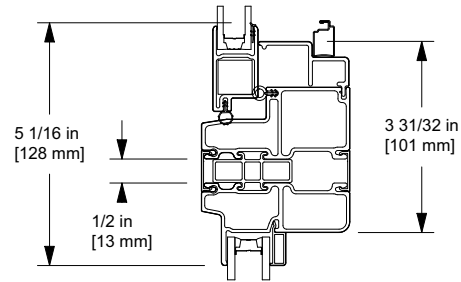
**Vertical Mull**  
Picture/Transom To Direct Glaze



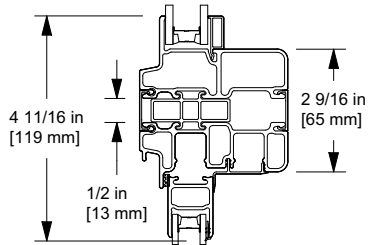
**Vertical Mull**  
Single Hung To Direct Glaze



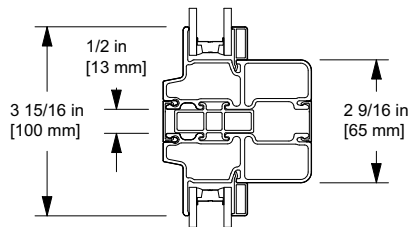
**Horizontal Mull**  
Direct Glaze To Single Hung



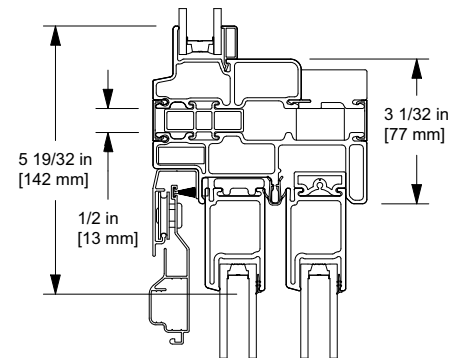
**Horizontal Mull**  
Casement/Awning/Picture/Transom To Direct Glaze



**Horizontal Mull**  
Direct Glaze To  
Casement Transom/Picture



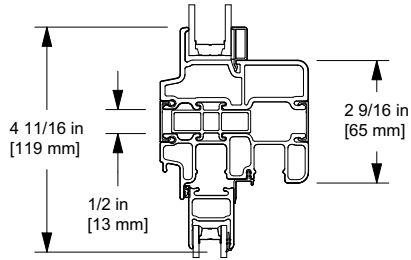
**Horizontal Mull**  
Direct Glaze To Direct Glaze



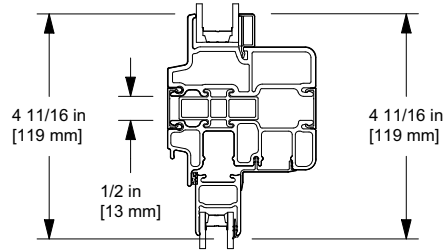
**Horizontal Mull**  
Sliding Patio Door To  
Direct Glaze

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.*

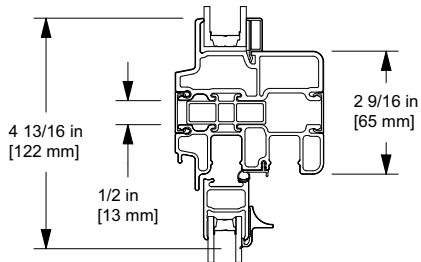
**Section Details: Essential Direct Glaze Round Tops Mulling Types**



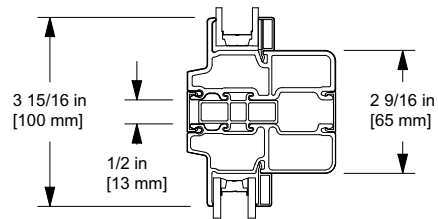
**Horizontal Mull**  
Direct Glaze Round Top To Single Hung



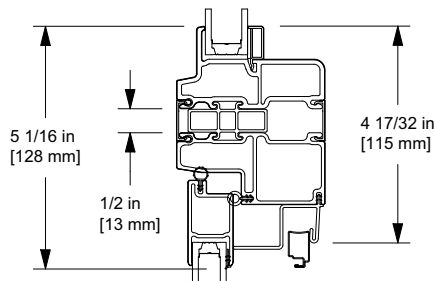
**Horizontal Mull**  
Direct Glaze Round Top To Double Hung Picture



**Horizontal Mull**  
Direct Glaze Round Top To Double Hung



**Horizontal Mull**  
Direct Glaze Round Top To Direct Glaze



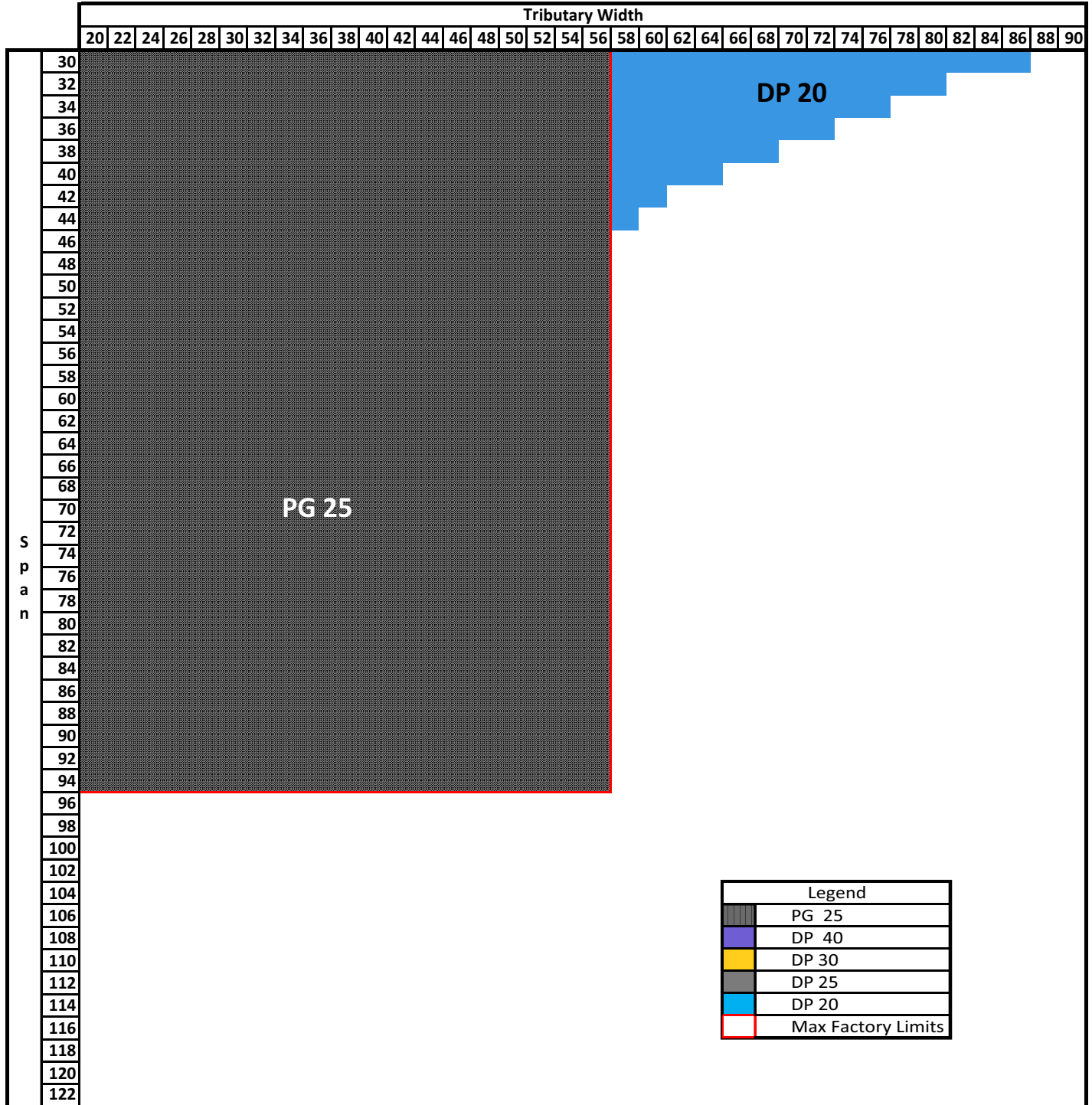
**Horizontal Mull**  
Direct Glaze Round Top To Casement/Awning/Picture

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.*

**Essential Direct Glaze Polygon Mulling - Standard Mull (Ribbon)**

Max Factory Mull is RO 114 x 96" for up to 6W x 1H assemblies (vertical mull).

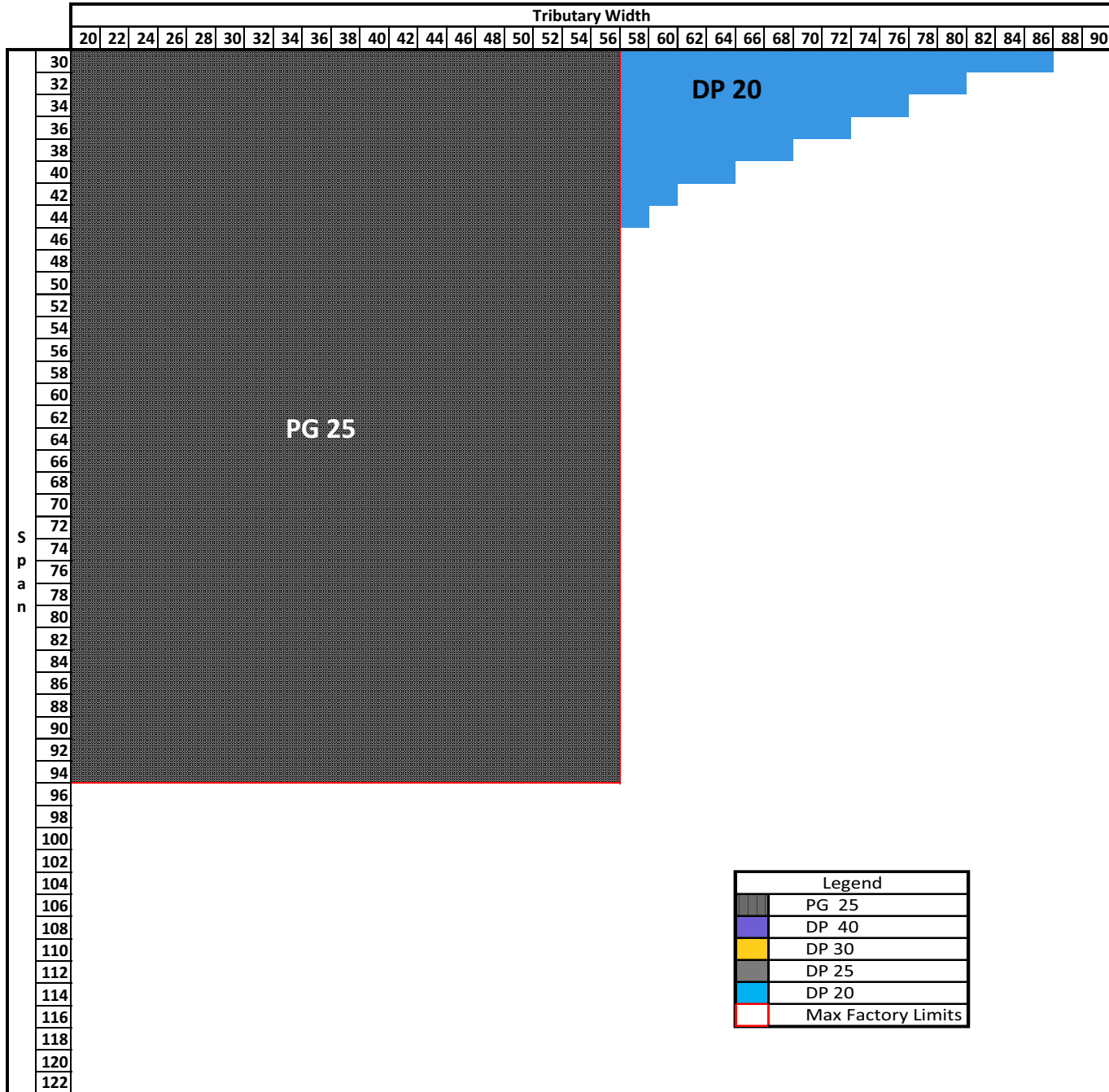
Max certified Tributary Width x Span (frame size): 57" x 95 1/2".



**Essential Direct Glaze Polygon and Round Top Mulling - Standard Mull (Stacked)**

Max Factory Mull is RO 96" x 114" for up to 1W x 5H assemblies for polygons and 1W x 2H for round tops (horizontal mull).

Max certified Tributary Width x Span (frame size): 57" x 95 1/2".

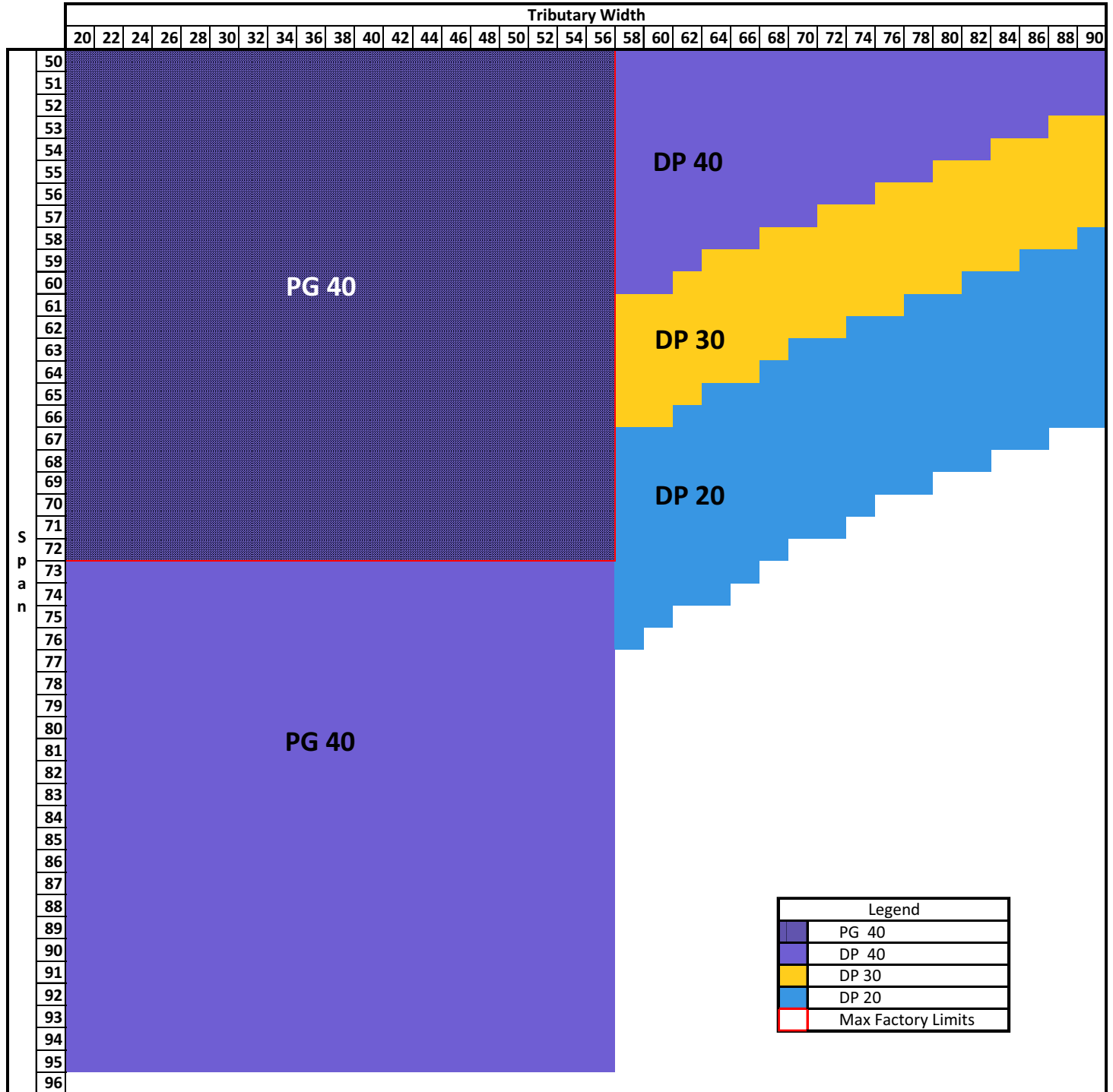


NOTE: RT1 Open Hub defaults to 6.25" radius unless specified, with a 4.5" minimum radius. When ordered as a factory mull, the RT1 Open Hub will align with the lite pattern of the lower unit.

**Essential Direct Glaze Polygon Mulling - Mulls with Reinforcement (Ribbon Assembly)**

Max Factory Mull is RO 114" x 96" for up to 6W x 1H assemblies (vertical mull).

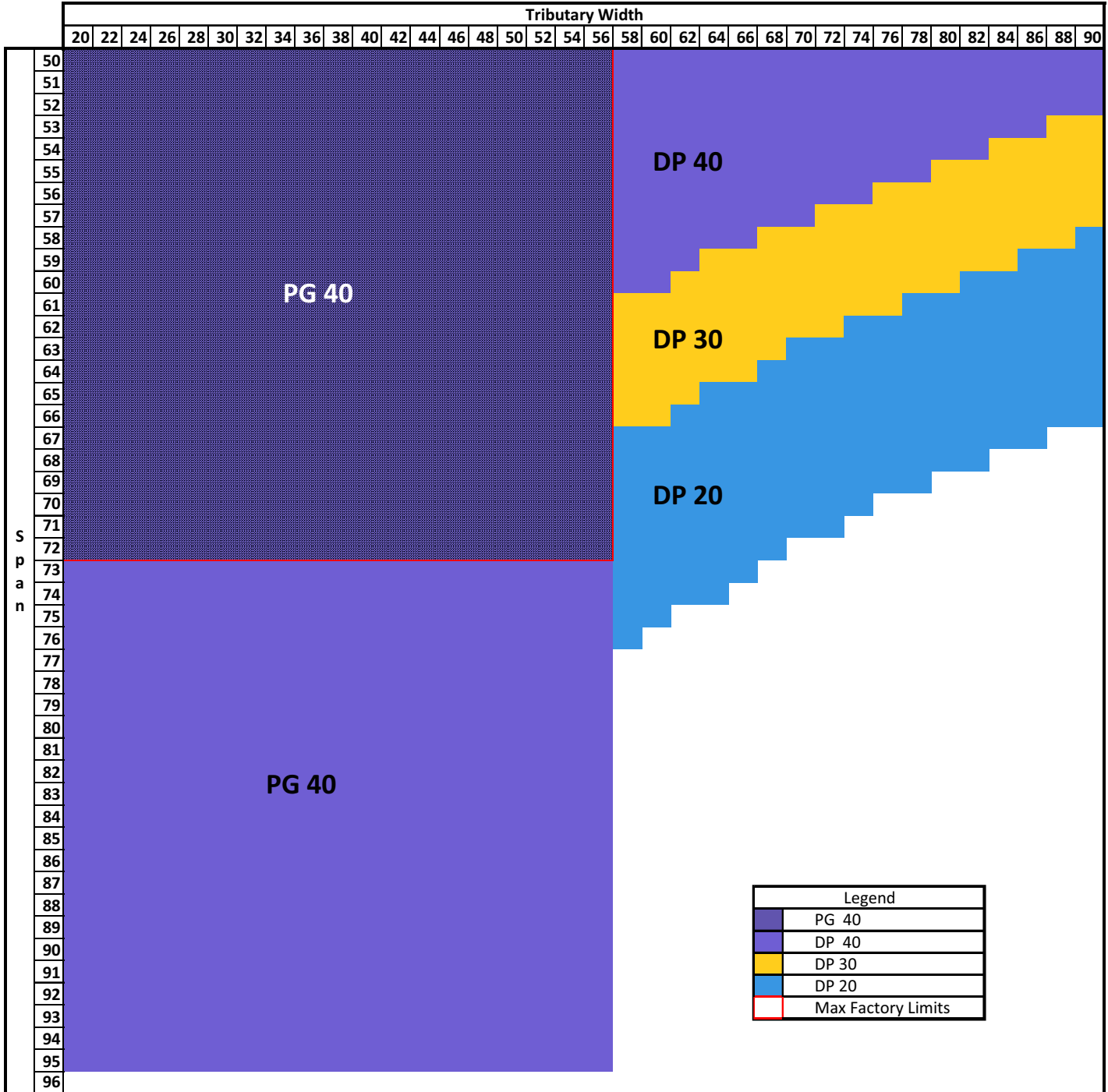
Max certified Tributary Width x Span (frame size): 57" x 95 1/2"




**Essential Direct Glaze Polygon and RT Mulling - Mulls with Reinforcement (Stacked Assembly)**

Max Factory Mull is RO 96" x 114" for up to 1W x 5H assemblies for polygons and 1W x 2H for round tops (horizontal mull).

Max certified Tributary Width x Span (frame size): 57" x 95 1/2"



Legend	
	PG 40
	DP 40
	DP 30
	DP 20
	Max Factory Limits



## **Essential Sliding Patio Door Mull Types**

This section is a compilation of mulling options for the Essential Sliding Patio Door product.

### **Mull Types**

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

### **Products Included**

- Essential Sliding Patio Door

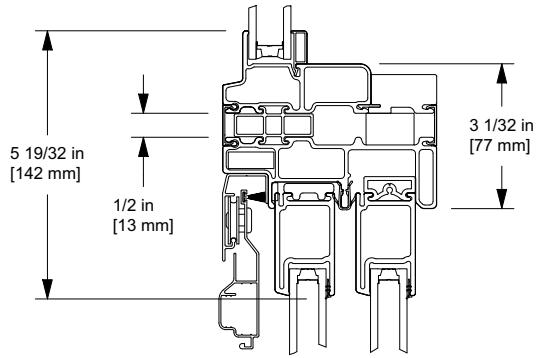
### **Certified Mull Installation Methods**

- Nailing fin
- Structural brackets
- Through-jamb.

### **Tributary and Span:**

See page 2 for definition and illustration of these terms.

**Section Details: Essential Sliding Patio Door Mulling Types**

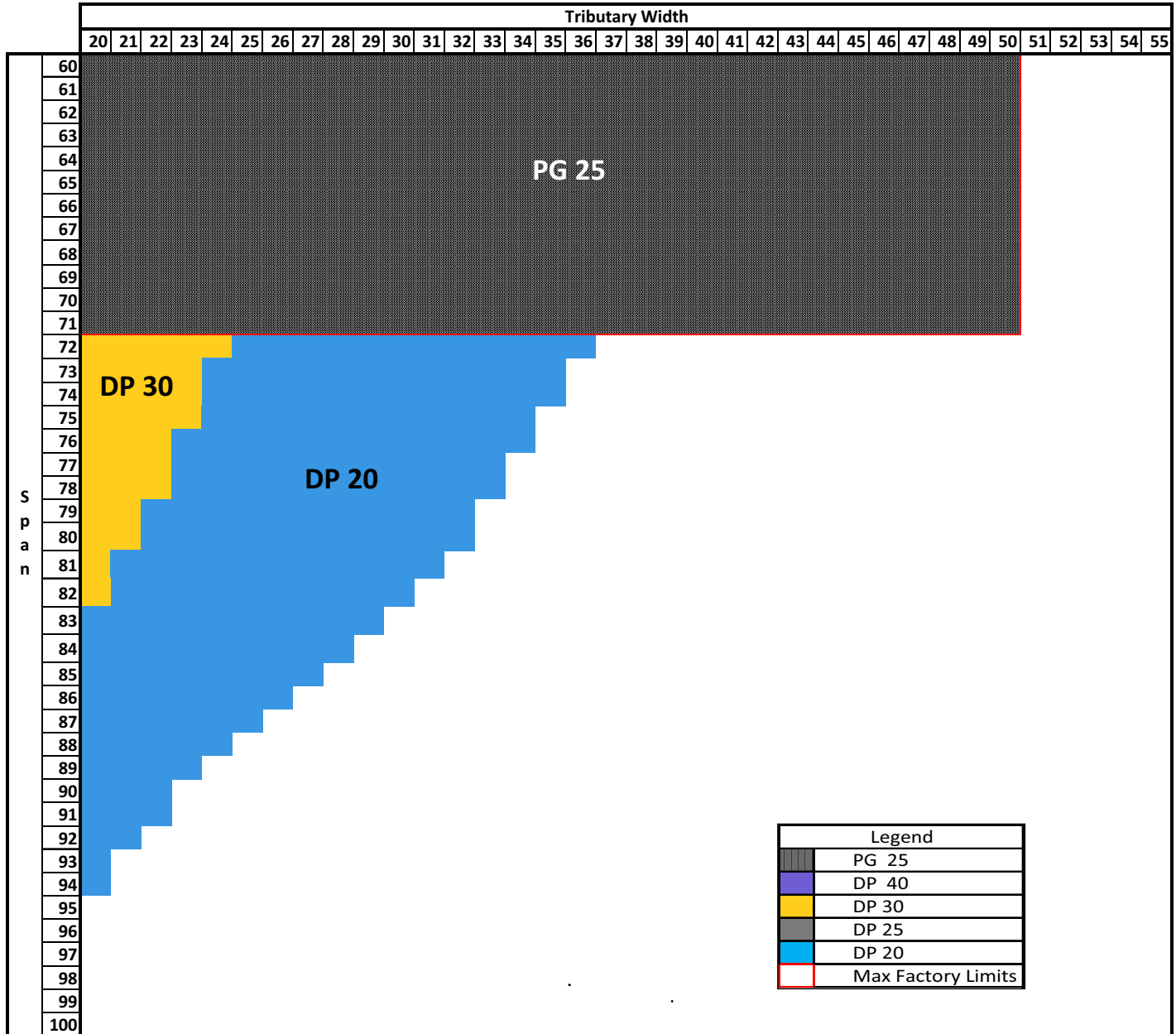


**Horizontal Mull  
Direct Glaze To Sliding Patio Door**

*NOTE: Standard and MRF mull pins are available. Dimensions are the same. Standard mulls shown.*

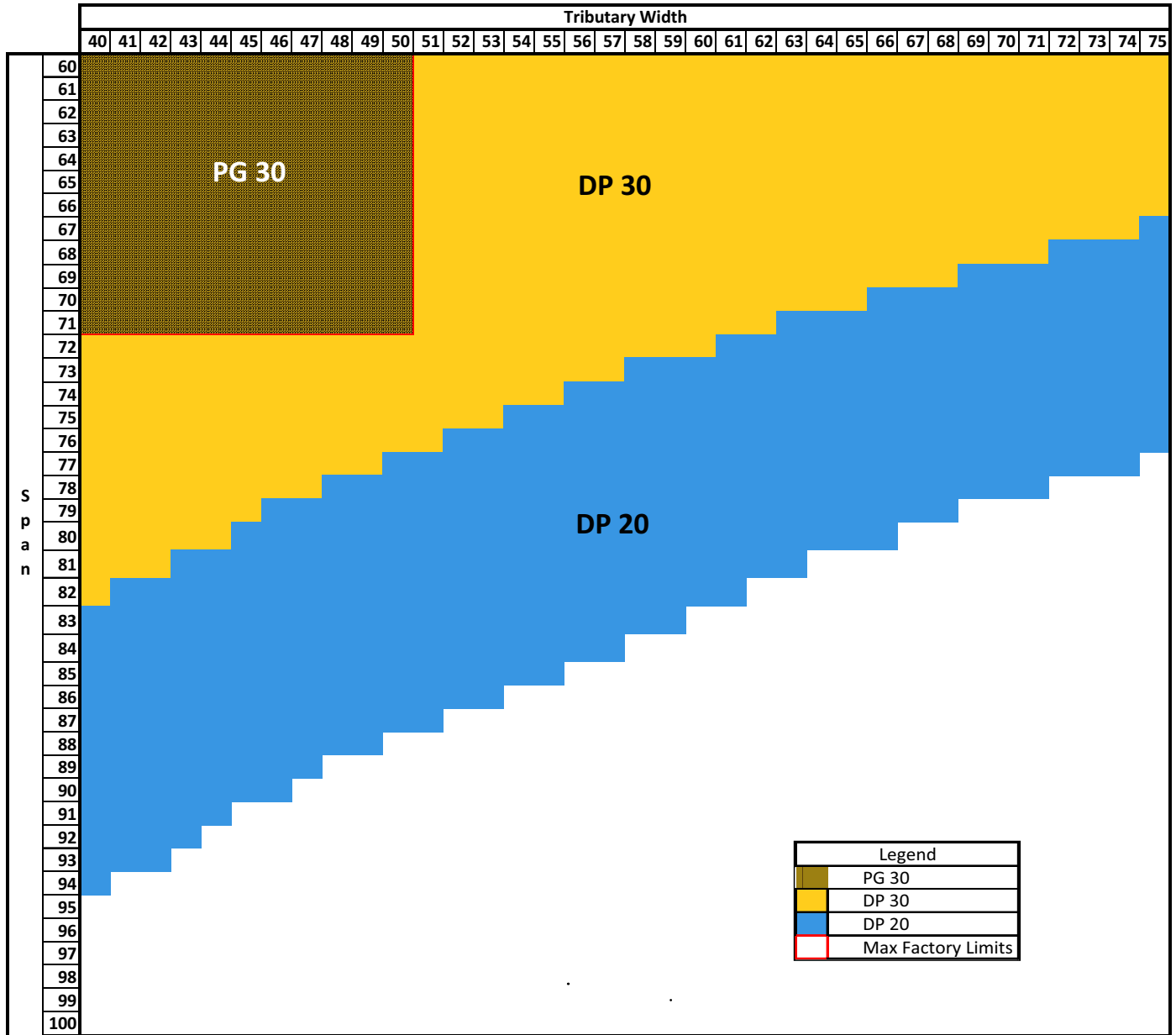
**Essential Sliding Patio Door Mulling - Standard Mull (Ribbon)**

Max Factory Mull is RO 72" x 100 for up to 1W x 2H assemblies (horizontal mull)  
 Max certified Tributary Width x Span (frame size): 50" x 71 1/2"  
 Field mulling beyond 110" x 112" not recommended.



**Essential Sliding Patio Door Mulling - Mulls with Reinforcement**

Max Factory Mull is RO 72" x 100" for up to 1W x 2H assemblies (horizontal mull).  
 Max certified TW x Span (frame size): 50" x 71 1/2"  
 Field mulling beyond 110" x 112" not recommended.



**Essential Products with Multi-Wide, Multi-High Mulling**

This section is a compilation of mulling options for the Essential window and door products.

**Mull Types**

- Standard Mull: Two units mulled together with a 1/2" space mull pin which allows for either factory or field assembly.
- 1/2" Mull Reinforcement (MRF): Two units mulled together with a three-piece reinforcement that allows for either factory or field assembly.

**Products Included**

- All Essential products

**Certified Mull Installation Methods**

- Nailing fin
- Structural brackets
- Through-jamb.

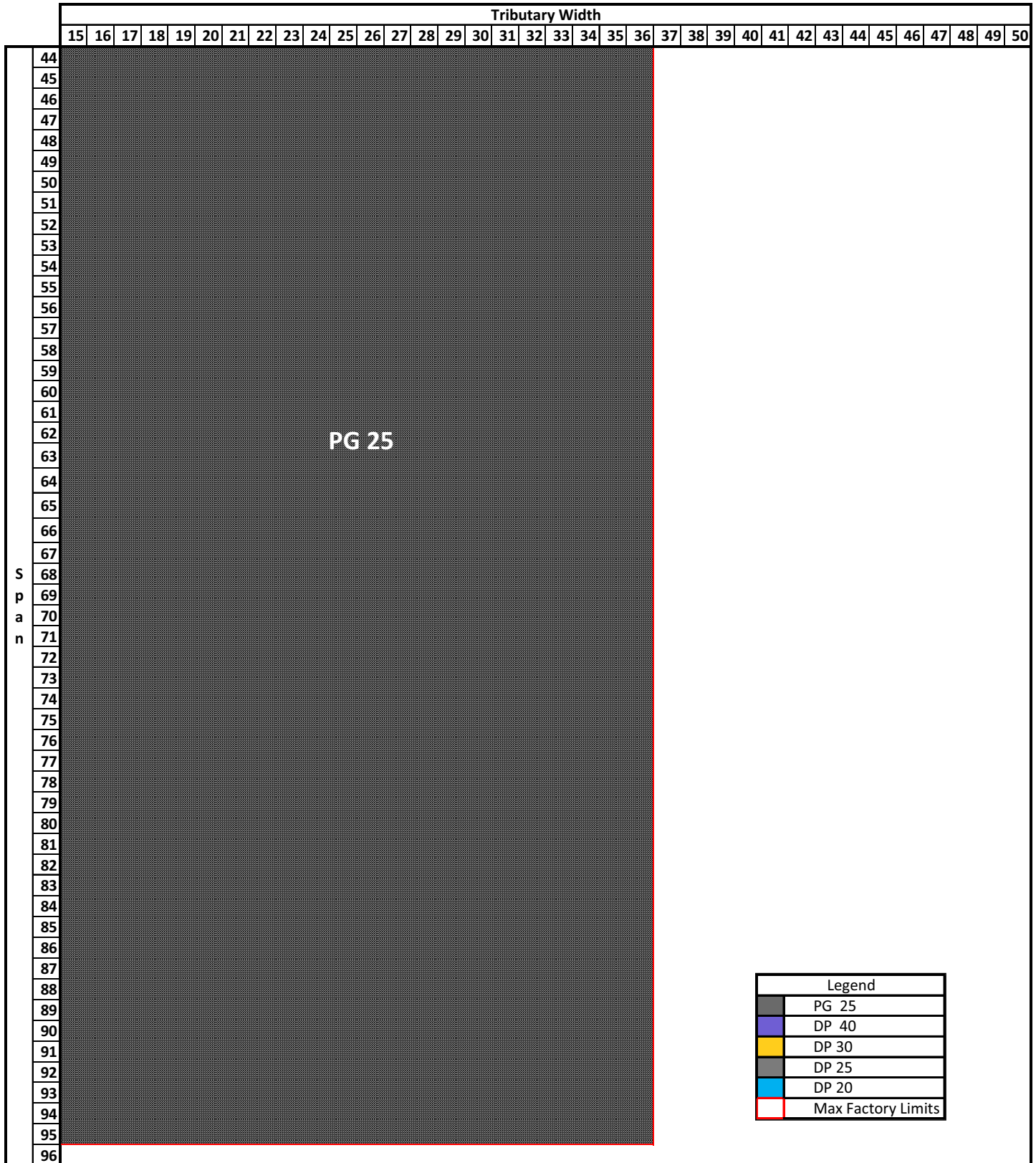
**Tributary and Span:**

See page 2 for definition and illustration of these terms.

**Essential Multi-High, Multi-Wide Mulling - Standard Mull**

Max Factory Mull is RO 72" x 96" for most frame types.

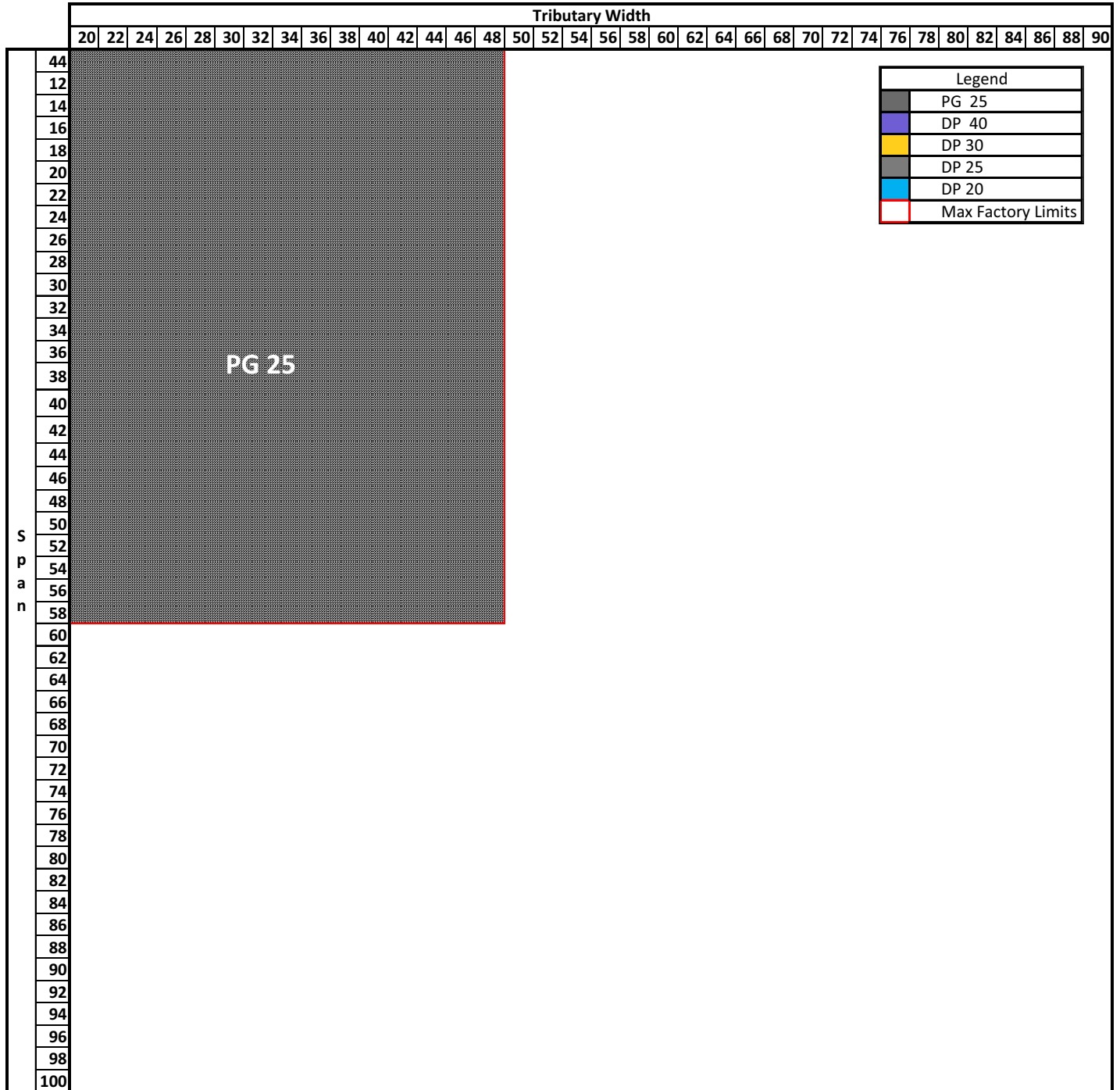
Max certified Tributary Width x Span (frame size): 36" x 95 1/2"



**Essential Multi-High, Multi-Wide Mulling - Standard Mull (ESDH Transom over Any Product)**

Assumes ESDH TR height of CN20. Any larger is not valid for this table.

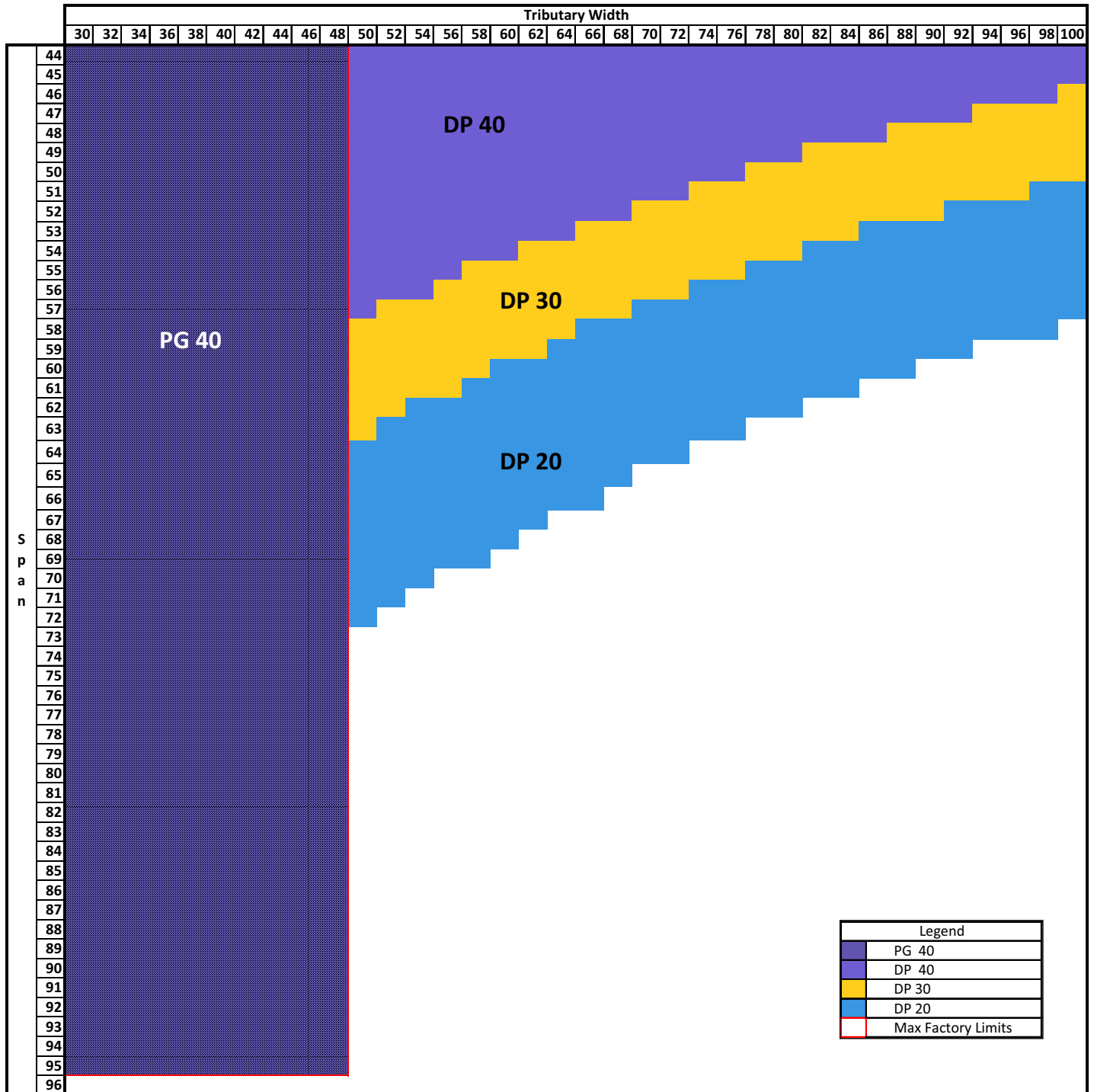
Max certified Tributary Width x Span (frame size): 48" x 59 1/2"



**Essential Multi-High, Multi-Wide Mulling - Mull with Reinforcement**

Max Factory Mull is RO 96" x 96" when selected frame types allow.

Max certified Tributary Width x Span (frame size): 48" x 95 1/2"





**Essential Multi-High, Multi-Wide Mulling - MRF (ESDH Transom over Any product)**

Continuous Horizontal MRF, Non-continuous Vertical MRF

Assumes ESDHTR height of CN20. Any larger is not valid for this table.

Max certified Tributary Width x Span (frame size): 48" x 59 1/2"

