



## **Surface Chart Program**

Due to the tremendous amount of calls that we used to make during processing, together with our customers we have developed a surface chart. The calls are aggravating to customers who are bothered during work hours and are awakened during night hours, cause delays in deliveries, and ultimately result in higher costs for everyone.

We have been using this program for all of our customers for several years very, very successfully.

### **The Goal:**

The idea is for our operators to reject or accept surface defects exactly as your customer would if they were standing there at the line. Whatever amount of description you feel is necessary to convey that is perfectly fine. Please do not feel like you are limited only to the amount of space in the boxes provided. If TMW observes a surface problem worse than what you have identified in a category, we will reject and document the problem as part of our standard processing procedure.

### **Customer Directions:**

Indicate exactly what your customer's *worst acceptable* limitations are for each applicable category. Feel free to create as many charts as you feel necessary for us to do an accurate job. For example, your customer may have different specifications for different gage ranges, or they may have an "exposed" and "unexposed" category in which the surface requirements on the latter could likely be more relaxed.

To help get you started we included a page with three different charts showing standard terminology for varying degrees of acceptability followed by six different examples of charts that are actually in use at TMW. Once you have your chart(s) developed, you can simply list the applicable chart on your Purchase Order.

### **Things to Keep in Mind When Creating Your Chart(s):**

Everyone of course wants perfect material, but the reality is that there are often some defects that are acceptable in varying degrees. It is important we know what your customer will actually accept.

TMW operators are trained to be very critical when inspecting your material. Listing "Can't see or feel" as your tolerance will result in TMW rejecting for the existence of that defect in any degree whatsoever.

We will take digital pictures and document the details of any surface defect we reject to aid you in getting a mill claim.

Please feel free to contact your Account Executive if you have any questions about this.



### Surface Chart

Customer Name Cust–Customer Name		Standard Terminology Starting Point	Standard Terminology Starting Point	Standard Terminology Starting Point
All Material Types	Pits	Can't see or feel	<.005" Deep	.005" - .010" Deep
	Black Scale/Pits	Can't see or feel	<.005" Deep	.005" - .010" Deep
	Burr	<5% of material thickness	<5% of material thickness	<8% of material thickness
	Scratches	Can't see or feel	Can't see or feel	Can't see or feel
	Friction Digs	Can't see or feel	See, but can't feel	See and feel light
	Bad Mill Edge	Can't see or feel	See and feel	See and feel
	Edge Damage	Can't see	See OK	See OK
	Mandrel Breaks	Can't see or feel	Feel lightly	Medium
	Coil Breaks	Can't see or feel	See and can't feel	See and feel
	Shadow Breaks	Can't see	See OK	See OK
	Water Stain	Can't see or feel	Up to 25% covered	25 - 50% covered
	Rust	Can't see or feel	Up to 25% covered	25 - 50% covered
	Dents/Dimples	Can't see or feel	See and feel light (< .005")	Feel easily (.005" - .010")
	Chatter	Can't see or feel	Shadows, but can't feel	Feel lightly
	Strain/Stress Marks	Can't see or feel	See and feel (Light)	See and feel (Med-Heavy)
	Laminations	Can't see or feel	Can't see or feel	See and feel
	Roller Marks (Raised)	Can't see or feel	See, but can't feel	< .010"
Pickup Marks (Impressions)	Can't see or feel	See, but can't feel	< .010"	
Oil ( <b>Indicate Desired Amt</b> )	None, Lt, Heavy, Any Amt, Any Amt <b>Except None</b>	None, Lt, Heavy, Any Amt, Any Amt <b>Except None</b>	None, Lt, Heavy, Any Amt, Any Amt <b>Except None</b>	
P&O	Scale	Can't see or feel	< .005" Deep	.005" - .010" Deep
	Scale Flashing	Can't see	See OK	See OK
	Pickling Stain	Can't see or feel	Up to 25% covered	25 - 50% covered
Coated Materials	Saw Tooth Edge	Can't see or feel	1/16" in from edge	1/8" in from edge
	White Rust	Can't see or feel	Up to 25% covered	25 - 50% covered
	Green Stain	Can't see or feel	Up to 25% covered	25 - 50% covered
	Buildup/Dross	Can't see or feel	See and feel light (<.005")	Medium (.005-.010")
	Crease	Can't see	See OK	Texture Diff (not raised)
	Stencil Smudge/Smear	Can't see or feel	Can't see or feel	Exists
	Flaking	Can't see or feel	Up to 10% covered	10 – 20% covered
	Discoloration	Can't see or feel	Up to 25% covered	Up to 50% covered
	Sag Lines	Can't see or feel	See and Feel Light	See and Feel Medium
	Bare Spots in Coating	Can't see or feel	< 1 spec / sq ft	Accept As Is
CR	Annealing Stain	Can't see or feel	Up to 25% covered	25 – 50% covered
	Sticker Breaks	Can't see or feel	See and feel (Light)	See and feel (Medium)
	Flopper	Can't see or feel	See OK	Texture Diff (not raised)
	Pincher	Can't see or feel	See OK	Texture Diff (not raised)
Prepaint	Orange Peel	Can't see or feel	See Slight	See any amount
	Paint Finish	Not dull or no discoloration	Dull and shiny areas	Discoloration
	Chipping	Can't see or feel	Can't see or feel	<5%
	Dirty	Can't see or feel	Can't see or feel	Can't see or feel
	Paint Voids (No paint)	Can't see or feel	Can't see or feel	<5%
Notes				



### Surface Chart

**Actual Example 1  
Transformer  
Manufacturer**

**Actual Example 2  
Appliance Manufacturer**

**Actual Example 3  
Automotive Manufacturer  
Chassis part**

		Actual Example 1 Transformer Manufacturer	Actual Example 2 Appliance Manufacturer	Actual Example 3 Automotive Manufacturer Chassis part
All Material Types	Pits	< .005" Deep	Can't see or feel	<.005" Deep (scattered OK)
	Black Scale/Pits	< .005" Deep	Can't see or feel	<.005" Deep (scattered OK / not clustered)
	Burr	<8% of material thickness	Can't see or feel	<5% of material thickness
	Scratches	See but Can't Feel	<5% of material thickness	Can't see or feel
	Friction Digs	See and Feel Light	Can't see or feel	Can't see or feel
	Bad Mill Edge	See and Feel	Can't see or feel	Can't see or feel
	Edge Damage	See	Can't see or feel	Can't see or feel
	Mandrel Breaks	Medium OK	Can't see	Can't see or feel
	Coil Breaks	<b>* (See Below)</b>	Can't see or feel	Can't see or feel
	Shadow Breaks	See	Can't see or feel	Can't see or feel
	Water Stain	25 – 50% covered	Can't see or feel	Can't see or feel
	Rust	25 – 50% covered	Can't see or feel	Can't see or feel
	Dents/Dimples	Feel easily (.005" - .010")	Can't see or feel	Can't see or feel
	Chatter	Feel lightly	Can't see or feel	Can't see or feel
	Strain/Stress Marks	See but can't feel	Can't see or feel	Can't see or feel
	Laminations	Can't see or feel	Can't see or feel	Can't see or feel
	Roller Marks (Raised)	See and feel light	Can't see or feel	See, but can't feel
	Pickup Marks (Impressions)	See and feel light	Can't see or feel	See, but can't feel
	Oil ( <b>Indicate Desired Amt</b> )	None	None	Medium
P&O	Scale			<.005" Deep
	Scale Flashing			See OK
	Pickling Stain			Light stain is OK
Coated Materials	Saw Tooth Edge			
	White Rust			
	Green Stain			
	Buildup/Dross			
	Crease			
	Stencil Smudge/Smear			
	Flaking			
	Discoloration			
	Sag Lines			
	Bare Spots in Coating			
CR	Annealing Stain			
	Sticker Breaks			
	Flopper			
	Pincher			
Prepaint	Orange Peel		Can't see or feel	
	Paint Finish		Not dull or no discoloration	
	Chipping		Can't see or feel	
	Dirty		Can't see or feel	
	Paint Voids (No paint)		Can't see or feel	
Notes		* Feel when using a shop towel to enhance feel OK – feel with bare hand not acceptable	Pressure Mottling – an uneven pattern, often seen as glossy spots usually caused by pressure within a painted coil - OK (After application of heat, condition will disappear)	



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### Surface Chart

**Actual Example 4  
HVAC Supplier**

**Actual Example 5  
Construction Equipment  
Manufacturer**

**Actual Example 6  
Commercial Refrigeration  
Manufacturer**

		Actual Example 4 HVAC Supplier	Actual Example 5 Construction Equipment Manufacturer	Actual Example 6 Commercial Refrigeration Manufacturer
<b>All Material Types</b>	Pits	See or feel (Light)	<.005" Deep	<.005" Deep
	Black Scale/Pits	See or feel (Light)	See but can't feel	<.005" Deep
	Burr	<5% of material thickness	<5% of material thickness	<5% of material thickness
	Scratches	See or feel (Light)	None	Can't see or feel
	Friction Digs	See or feel (Light)	See, but can't feel	See, but can't feel
	Bad Mill Edge	See or feel (Light)	Accept as is	Can't see or feel
	Edge Damage	See or feel (Light)	Can't see or feel	Can't see
	Mandrel Breaks	See or feel (Light)	See but can't feel	Can't see or feel
	Coil Breaks	See or feel (Light)	See but can't feel	See and feel lightly
	Shadow Breaks	See or feel (Light)	See but can't feel	Can't see or feel
	Water Stain	See or feel (Light)	Slight OK	Can't see or feel
	Rust	None	None	Can't see or feel
	Dents/Dimples	See or feel (Light)	None	Can't see or feel
	Chatter	See or feel (Light)	Shadows, but can't feel	Can't see or feel
	Strain/Stress Marks	See or feel (Light)	None	Can't see or feel
	Laminations	See or feel (Light)	Can't see or feel	Can't see or feel
	Roller Marks (Raised)	See or feel (Light)	See, but can't feel	Can't see or feel
	Pickup Marks (Impressions)	See or feel (Light)	See, but can't feel	Can't see or feel
	Oil ( <b>Indicate Desired Amt</b> )	None	None	Light
<b>P&amp;O</b>	Scale			
	Scale Flashing			
	Pickling Stain			
<b>Coated Materials</b>	Saw Tooth Edge	See or feel (Light)		Can't see or feel
	White Rust	None		Can't see or feel
	Green Stain	None		Can't see or feel
	Buildup/Dross	See or feel (Light)		Medium (.005-.010)
	Crease	See or feel (Light)		Can't see or feel
	Stencil Smudge/Smear	Minor		Can't see or feel
	Flaking	None		Can't see or feel
	Discoloration	None		See, but can't feel
	Sag Lines	See or feel (Light)		See, but can't feel
	Bare Spots in Coating	Small, Scattered Specs OK		Can't see or feel
<b>CR</b>	Annealing Stain			
	Sticker Breaks			
	Flopper			
	Pincher			
<b>Prepaint</b>	Orange Peel			
	Paint Finish			
	Chipping			
	Dirty			
	Paint Voids (No paint)			
<b>Notes</b>				



### Surface Chart

001

002

003

Customer Name  
Cust-Cust Name

<b>All Material Types</b>	Pits			
	Black Scale/Pits			
	Burr			
	Scratches			
	Friction Digs			
	Bad Mill Edge			
	Edge Damage			
	Mandrel Breaks			
	Coil Breaks			
	Shadow Breaks			
	Water Stain			
	Rust			
	Dents/Dimples			
	Chatter			
	Strain/Stress Marks			
	Laminations			
	Roller Marks (Raised)			
	Pickup Marks (Impressions)			
	Oil ( <b>Indicate Desired Amt</b> )			
<b>P&amp;O</b>	Scale			
	Scale Flashing			
	Pickling Stain			
<b>Coated Materials</b>	Saw Tooth Edge			
	White Rust			
	Green Stain			
	Buildup/Dross			
	Crease			
	Stencil Smudge/Smear			
	Flaking			
	Discoloration			
	Sag Lines			
	Bare Spots in Coating			
<b>CR</b>	Annealing Stain			
	Sticker Breaks			
	Flopper			
	Pincher			
<b>Prepaint</b>	Orange Peel			
	Paint Finish			
	Chipping			
	Dirty			
	Paint Voids (No paint)			
<b>Notes</b>				