SPXFLOW

Waukesha Cherry-Burrell®

WILLIAMS WC CARVER CO.

Tube Selection Guide

VOTATOR® SCRAPED SURFACE HEAT EXCHANGERS

Tube material selection is predicated on the product and CIP chemistry required by a particular process. Thermal conductivity and wall thickness are also key design considerations in selecting heat transfer tubes. Tube wall thickness is precisely engineered to minimize heat transfer resistance while maximizing structural stability. Pure nickel tubes provide high thermal conductivity, but require a hard chrome plating to avoid damage during normal scraping action of the blades. The inner tube surfaces are prepared by honing and polishing various configurations to precise specifications before a hard chrome layer is applied. This mirror-like hard finish will resist wear from scraper blades and abrasive products. Chrome-plated carbon steel tubes provide high thermal conductivity at reduced cost. Certain stainless steel tubes specially designed for enhanced heat transfer are offered for acidic products and provide flexibility in the use of cleaning chemicals.

MATERIAL	$	HEAT TRANSFER	CORROSION RESISTANCE	PRODUCT APPLICATIONS	COMMENTS
Nickel Chrome-Plated	$$$$	🌡🌡🌡🌡	💧	Peanut butter, shortening, margarine, cookie cream, MDM	-Highest thermal conductivity -Compatible with metal and plastic blades
Carbon Steel Chrome-Plated	$	🌡🌡🌡	💧	Peanut butter, shortening, margarine	-High thermal conductivity at reduced cost when water is not present
Stainless Steel	$	🌡	💧💧	Fruit and vegetable purees, condiments	-Enhanced heat transfer -Offers flexibility in cleaning chemicals
Stainless Steel Chrome-Plated	$$$	🌡	💧💧	Icings, frostings, slush freezing abrasive applications	-Standard and enhanced heat transfer options for use with metal blades
Stainless Steel Duplex	$$	🌡🌡	💧💧💧💧	Pet food, tomato-based products, corrosive applications	-Efficient, thin-walled tubes, greater thermal and mechanical performance (vs. 316 SS) using plastic blades
Stainless Steel Duplex – Chrome-Plated	$$	🌡🌡	💧💧💧💧	Fruit and tomato-based products with corrosive / abrasive properties	-Efficient, thin-walled tubes, greater thermal and mechanical performance (vs. 316 SS) using metal blades
AL6XN	$$	🌡🌡	💧💧💧💧	Condiments and tomato-based products, corrosive applications	-Super efficient, ultra thin-wall tubes for greater thermal performance using plastic blades

		TUBE MATERIALS AVAILABLE							SURFACE AREA	
		NICKEL	CARBON STEEL CHROMED	STAINLESS STEEL	STAINLESS CHROMED	STAINLESS DUPLEX	STAINLESS DUPLEX CHROMED	AL6XN	ft²	m²
VOTATOR® II	6x24	✓	✓	✓	✓	✓	✓		3.0	0.28
	6x36	✓	✓	✓	✓	✓	✓		4.2	0.39
	6x48	✓	✓	✓	✓	✓	✓		6.0	0.56
	6x72	✓	✓	✓	✓	✓	✓		9.0	0.84
	6x84	✓	✓	✓	✓	✓	✓		11.0	1.02
VOTATOR® LD	5x20			✓		✓			2.1	0.20
	5x40			✓		✓			4.3	0.40
	5x80			✓		✓			8.6	0.80
4X	4x60			✓				✓	4.5	0.42
	4x120			✓				✓	9.0	0.84

- Tubes are wear parts, and must be refurbished or replaced when inspections reveal wear limits are exceeded
- Tubes should be examined for wear anytime the shaft is removed or at least once every 3 months
- Chrome-plated tubes should be inspected for chrome wear / missing chrome
- Tubes should be removed every 12 to 18 months for cleaning debris from the media side
  - » Jacket-side o-rings should be replaced when the tubes are reinstalled
- Re-conditioning the tube is the only way to restore thermal and mechanical performance, outside of replacement

NOTE: The suggested time-frames for service and maintenance, and the types of service and maintenance listed in the preceding section are impacted by the conditions of use, the customer's particular application, and other project specific factors. Please note, this section above is meant to be a quick reference guide only, and is not a substitute for a full and thorough review of any applicable product manuals and appropriate personnel training regarding all aspects of the equipment, including service and maintenance requirements.

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GENUINE SPXFLOW PARTS

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