

## V<sup>2</sup> Series

CENTRIFUGAL PUMPS



APV Fluid Handling offers an economical solution to an increasing range of pumping applications: the V<sup>2</sup> Series — a simplified, maintenance-friendly and efficient centrifugal pump featuring a four-blade, fully open, non-clog impeller that is the optimum design for sanitary service.

SPX FLOW, Inc. (NYSE:FLOW) is a leading manufacturer of innovative flow technologies, many of which help define the industry standard in the market segments they serve. From its headquarters in Charlotte, North Carolina, it operates a sales and support network, centers of manufacturing excellence, and advanced engineering facilities, throughout the world. Its cutting-edge flow components and process equipment portfolio includes a wide range of pumps, valves, heat exchangers, mixers, homogenizers, separators, filters, UHT, and drying technology that meet many application needs. Its expert engineering capability also makes it a premium supplier of customized solutions and complete, turn-key packages to meet the most exacting of installation demands.

Incorporating many leading brands, SPX FLOW has a long history of serving the food and beverage, power and energy, and industrial market sectors. Its designs and engineered solutions help customers drive efficiency and productivity, increase quality and reliability, and meet the latest regulatory demands. In-depth understanding of applications and processes, state-of-the-art Innovation Centers, and advanced pilot/testing technology further assist in optimizing processes and reducing timescales to reliably meet production targets.

To learn more about SPX FLOW capabilities, its latest technology innovations and complete service offerings, please visit [www.spxflow.com](http://www.spxflow.com).

## Sanitary Centrifugal Pumps - V<sup>2</sup> Series

### FEATURES AND BENEFITS

- Meets all standards: Sanitary models are manufactured from FDA approved materials, meet the requirements of the 3-A Sanitary Standards, carry the BISSC seal of approval and are approved by the USDA Meat and Poultry Division.
- Choice of seal types: the V<sup>2</sup> pumps are available with three different seal types to accommodate various applications and ensure optimum seal performance for the product being pumped. The standard product seal for all models is Type 1, a positive drive, single mechanical design.
- Hydraulically balanced and externally mounted. It suits general purpose applications such as milk products, beverages, fruit juices, organic acids, alcohols, process water and vegetable oils.
- Engineered for in-place cleaning: All V<sup>2</sup> Series Centrifugal Pumps are engineered for modern cleaning and sanitizing techniques. The square impeller drive has grooves that allow circulation of cleaning and sanitizing solutions along the shaft and behind the impeller. The separate impeller and shaft design enhances cleaning and inspection. Pump disassembly is quick and easy for complete manual cleaning and inspection. Parts and assemblies are not difficult to align. No special tools are required.

### MATERIALS

The casing has controlled wall thickness and dimensional accuracy throughout. The back plate is machined from stainless steel plate. A unique clamping assembly uses clamp rings with a self-locking internal angle that resists distortion and provides optimum sealing between the casing and back plate. The clamp rings are investment cast for greater strength than stamped clamp rings common to many sanitary pumps. A replaceable seat is provided in the back plate with optional seal types #2 and #5. This is reversible, providing a new wear surface without part replacement.



# Typical product applications

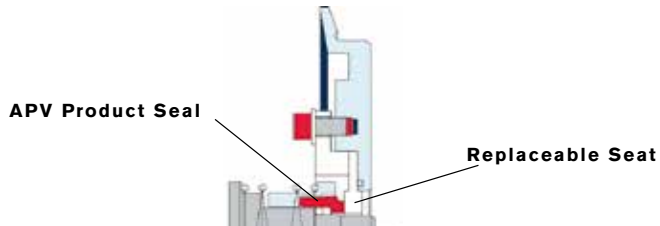
## OPTIONS AND ACCESSORIES

### Connections

- Butt weld, plus five sanitary ferrule options
- 150 lb ANSI flange and male pipe thread for non-sanitary applications

### Seal Options

- Type 2 APV product seal/ replaceable seat
  - Replaceable seat provides a harder, wear-resistant stationary seat for extended life
- Cascade Water Flush
  - For Type 1 and Type 2
  - Recommended for products containing fines or particulates: brines; low vacuums; where caramelization may occur (liquid sugars, HFCS, honey, syrups, molasses); and where flush water can discharge onto floor
- Type 5 contained water flush double seals (APV & John Crane)/ replaceable seat
  - Double inside/outside APV hydraulically balanced inside; John Crane 8B2 hydraulically balanced outside



### Other Pump Options

- Non-polished stainless steel surface (industrial applications)
- Case drain connections
- Stainless steel and painted carbon steel assemblies
- Stainless steel leg kit

### Food and Beverage

- Fruit Juices
- Water
- Beer
- Organic Acids
- Alcohols
- Beverage Syrups
- Tallow



### Dairy

- Milk
- Cream
- Ice Cream Mix



### Emulsions

- Sauces
- Ketchup
- Vinegar
- Brine
- Edible Oils
- Yeast Slurry



**12. Safety Guard**

- Perforated stainless steel meets OSHA requirements
- Protects the shaft/seal area

**17. Adapter Plate — Only on larger motor frames**

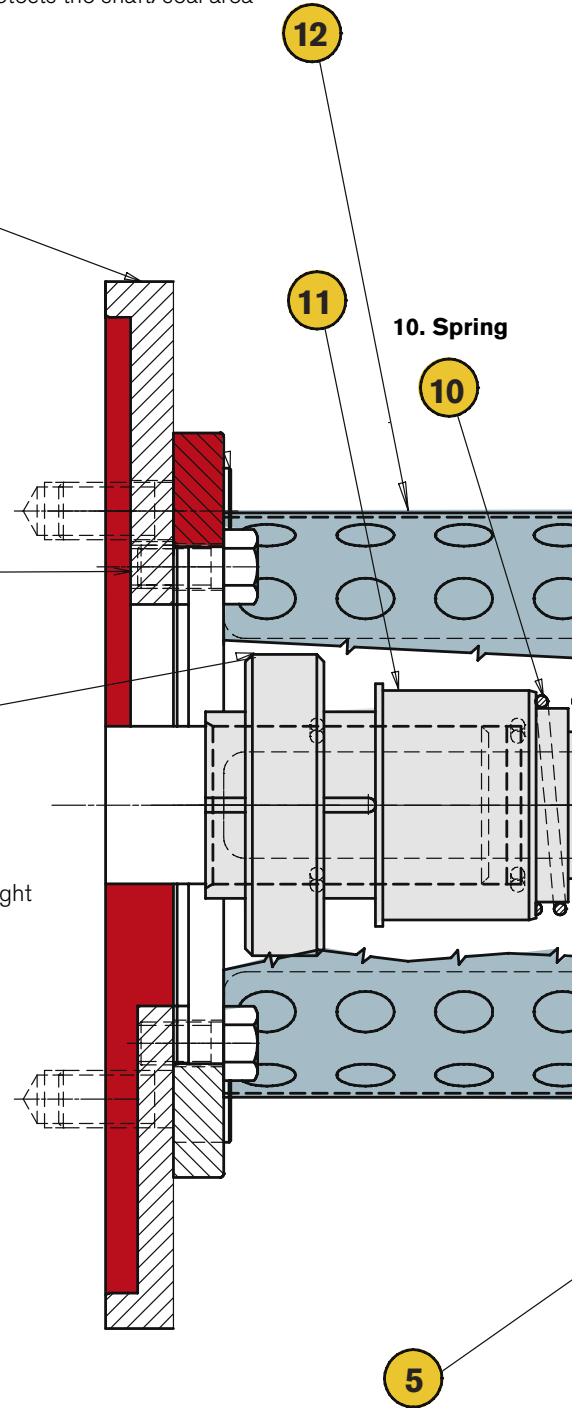
**14. Screw for Adapter**

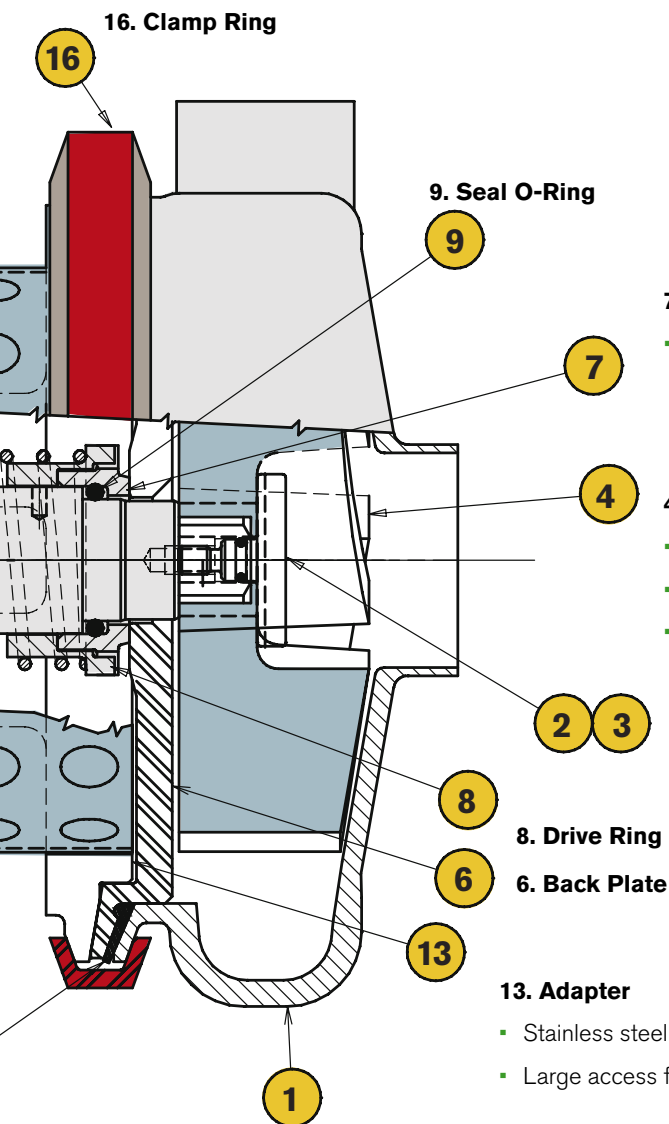
**15. Shaft Collar**

- Investment cast for strength with proprietary tapered clamp design to improve sealing and hold casing and back plate tight against adapter
- Fast disassembly without special tools

**5. Casing Gasket**

- Fully retained with roll bead on the gasket back which seals in the back plate groove for trouble-free positioning and sealing





**7. Shaft Seal**

- Standard Type 1 seal is a single mechanical, externally mounted APV design with rotating carbon seat and stationary 316 stainless steel back plate. All seals are hydraulically balanced and positive driven

**4. Impeller**

- One piece design with 4-blade, reverse curve configuration
- Open impeller eye area improves pumping efficiency and lowers NPSHR
- Square shaft and hub design promotes easy assembly/disassembly and provides maximum driving contact surface

**2 & 3. Impeller Pin and O-Ring**

- Stainless steel, attaches directly to the end of the shaft

**8. Drive Ring**

**6. Back Plate**

**13. Adapter**

- Stainless steel construction for strength and rigidity
- Large access for shaft positioning

**1. Casing**

- Heavy, single piece investment casting with uniform wall thickness
- Volute design provides good efficiency over a wide range of operating conditions
- Discharge can be rotated through 360°
- Interior of casing is free of sharp corners for easy, complete cleaning

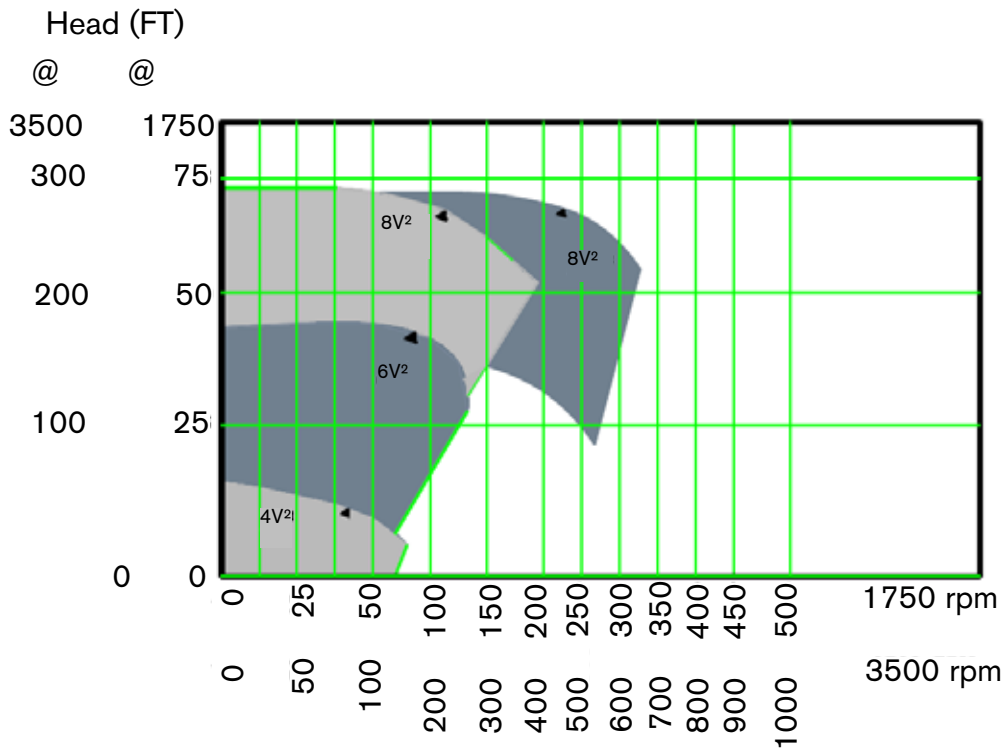
## SPECIFICATIONS

Data summary listed are inlet, outlet and impeller sizes, along with the Best Efficiency Point and shut-off head for each model. Capacity (Q) shown in U.S. gpm. Impeller diameter shown is maximum. Certified dimensional drawings are available on request.

PUMP MODELS	UNIT	PUMP CASING		MAXIMUM IMPELLER SIZE	PERFORMANCE AT B.E.P.			
		INLET X OUTLET	1750 RPM		3500 RPM			
			- Q - GPM M <sup>3</sup> /HR		- HEAD - FT METERS	- Q - GPM M <sup>3</sup> /HR	- HEAD - FT METERS	
4V <sup>2</sup>	in	1.5 X 1.5	3.8	37	13	74	45	
	mm	38 X 38	97	8.4	5	16.8	13.7	
4V <sup>2</sup>	in	2 X 1.5	3.8	42	13	84	52	
	mm	51 X 38	97	9.5	4	19.1	15.8	
6V <sup>2</sup>	in	2 X 1.5	5.8	85	33	158	143	
	mm	51 X 38	148	19.3	10	35.9	43.6	
6V <sup>2</sup>	in	2.5 X 1.5	5.8	80	36	160	144	
	mm	63 X 38	148	18.2	11	36.3	43.9	
8V <sup>2</sup>	in	2 X 1.5	7.8	117	37	234	266	
	mm	51 X 38	200	26.6	20.4	53.2	81.7	
8V <sup>2</sup>	in	3 X 2	7.8	137	63	274	252	
	mm	76 X 51	200	31.1	19.2	62.2	76.8	
8VS <sup>2</sup>	in	3 X 2	7.8	231	63	462	252	
	mm	76 X 51	200	52.5	19.2	104.9	76.8	

## ADDITIONAL TECHNICAL DATA

### FLOW, HEAD (BEST EFFICIENCY POINT) @ RPM



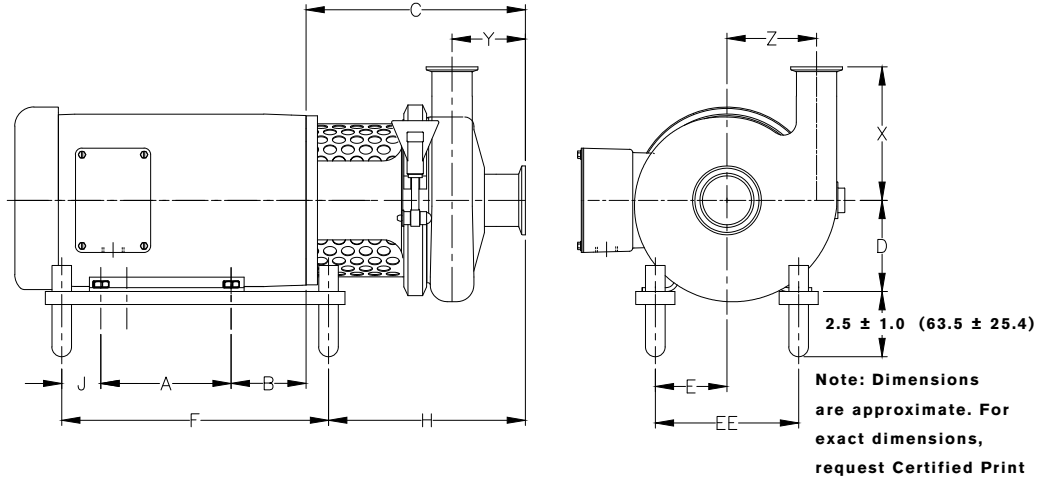
Composite Performance Curves for the V<sup>2</sup> Series

The arrows indicate the Best Efficiency Point (B.E.P.) for various pump models.

Individual performance curves are available upon request.

## DIMENSIONS

\* These dimensions are based on smallest size inlet and outlet with S-Line connections and standard TEFC motor. Refer to factory supplied drawings for detailed dimensions showing other connection sizes and types



PUMP SIZE	MOTOR FRAME	A	B	C	D	E	F	H	J	X	Y	Z
		IN (mm)										
4V <sup>2</sup> (1.5X1.5)	56C	3.00 (76.20)	2.75 (69.85)	7.26 (184.40)	3.50 (88.9)	2.44 (61.98)	8.50 (215.90)	6.01 (152.65)	1.50 (38.10)	4.23 (107.44)	2.64 (67.06)	2.44 (61.98)
	143TC	4.00 (101.60)	2.25 (57.15)	7.26 (184.40)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	5.76 (146.30)	2.50 (63.50)	4.23 (107.44)	2.64 (67.06)	2.44 (61.98)
	145TC	5.00 (127.00)	2.25 (57.15)	7.26 (184.40)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	5.76 (146.30)	1.50 (38.10)	4.23 (107.44)	2.64 (67.06)	2.44 (61.98)
	182TC	4.50 (114.30)	2.75 (69.85)	7.85 (199.39)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	6.23 (158.24)	2.50 (63.50)	4.23 (107.44)	2.64 (67.06)	2.44 (61.98)
	184TC	5.50 (139.70)	2.75 (69.85)	7.85 (199.39)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	6.23 (158.24)	1.50 (38.10)	4.23 (107.44)	2.64 (67.06)	2.44 (61.98)
6V <sup>2</sup> (2x1.5)	56C	3.00 (76.20)	2.75 (69.85)	8.32 (211.33)	3.50 (88.9)	2.44 (61.98)	8.50 (215.90)	7.19 (182.63)	1.50 (38.10)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	143TC	4.00 (101.60)	2.25 (57.15)	8.32 (211.33)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	6.82 (173.23)	2.50 (63.50)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	145TC	5.00 (127.00)	2.25 (57.15)	8.32 (211.33)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	6.82 (173.23)	1.50 (38.10)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	182TC	4.50 (114.30)	2.75 (69.85)	8.91 (226.31)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	7.29 (185.17)	2.50 (63.50)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	184TC	5.50 (139.70)	2.75 (69.85)	8.91 (226.31)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	7.29 (185.17)	1.50 (38.10)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	213TC	5.50 (139.70)	3.50 (88.90)	8.91 (226.31)	5.25 (133.35)	4.25 (107.95)	13.88 (352.55)	7.03 (178.56)	3.00 (76.20)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	215TC	7.00 (177.80)	3.50 (88.90)	8.91 (226.31)	5.25 (133.35)	4.25 (107.95)	13.88 (352.55)	7.03 (178.56)	1.50 (38.10)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
8V <sup>2</sup> (2x1.5)	254TC	8.25 (209.55)	4.25 (107.95)	9.66 (245.36)	6.25 (152.40)	5.00 (127)	18.00 (457.20)	7.41 (188.21)	3.25 (82.55)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	256TC	10.00 (254.00)	4.25 (107.95)	9.66 (245.36)	6.25 (152.40)	5.00 (127)	18.00 (457.20)	7.41 (188.21)	1.50 (38.10)	5.13 (130.30)	2.81 (71.37)	3.44 (87.38)
	143TC	4.00 (101.60)	2.25 (57.15)	9.32 (236.73)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	7.82 (198.63)	2.50 (63.50)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	145TC	5.00 (127.00)	2.25 (57.15)	9.32 (236.73)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	7.82 (198.63)	1.50 (38.10)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	182TC	4.50 (114.30)	2.75 (69.85)	9.91 (251.71)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	8.29 (210.57)	2.50 (63.50)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	184TC	5.50 (139.70)	2.75 (69.85)	9.91 (251.71)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	8.29 (210.57)	1.50 (38.10)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	213TC	5.50 (139.70)	3.50 (88.90)	9.91 (251.71)	5.25 (133.35)	4.25 (107.95)	13.88 (352.55)	8.03 (203.96)	3.00 (76.20)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	215TC	7.00 (177.80)	3.50 (88.90)	9.91 (251.71)	5.25 (133.35)	4.25 (107.95)	13.88 (352.55)	8.03 (203.96)	1.50 (38.10)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	254TC	8.25 (209.55)	4.25 (107.95)	9.91 (251.71)	6.25 (152.40)	5.00 (127)	18.00 (457.20)	7.66 (194.56)	3.25 (82.55)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	256TC	10.00 (254.00)	4.25 (107.95)	9.91 (251.71)	6.25 (152.40)	5.00 (127)	18.00 (457.20)	7.66 (194.56)	1.50 (38.10)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
	284TSC	9.50 (241.30)	4.75 (120.65)	10.28 (261.11)	7.00 (177.8)	5.50 (139.7)	19.00 (482.60)	8.53 (216.66)	3.00 (76.20)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)
286TSC	11.00 (279.40)	4.75 (120.65)	10.28 (261.11)	7.00 (177.8)	5.50 (139.7)	19.00 (482.60)	8.53 (216.66)	1.50 (38.10)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)	
324TSC	10.50 (266.70)	5.25 (133.35)	10.47 (265.94)	8.00 (203.2)	6.25 (152.40)	20.50 (520.70)	8.72 (221.49)	3.00 (76.20)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)	
326TSC	12.00 (304.80)	5.25 (133.35)	10.47 (265.94)	8.00 (203.2)	6.25 (152.40)	20.50 (520.70)	8.72 (221.49)	1.50 (38.10)	7.13 (181.10)	3.00 (76.20)	4.44 (112.78)	
8VS <sup>2</sup> (3x2)	143TC	4.00 (101.60)	2.25 (57.15)	9.75 (247.65)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	8.25 (209.55)	2.50 (63.50)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	145TC	5.00 (127.00)	2.25 (57.15)	9.75 (247.65)	3.50 (88.9)	2.75 (69.85)	10.25 (260.35)	8.25 (209.55)	1.50 (38.10)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	182TC	4.50 (114.30)	2.75 (69.85)	10.34 (262.64)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	8.72 (221.49)	2.50 (63.50)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	184TC	5.50 (139.70)	2.75 (69.85)	10.34 (262.64)	4.50 (114.3)	3.75 (95.25)	11.37 (288.80)	8.72 (221.49)	1.50 (38.10)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	213TC	5.50 (139.70)	3.50 (88.90)	10.34 (262.64)	5.25 (133.35)	4.25 (107.95)	13.88 (352.55)	8.46 (214.88)	3.00 (76.20)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	215TC	7.00 (177.80)	3.50 (88.90)	10.34 (262.64)	5.25 (133.35)	4.25 (107.95)	13.88 (352.55)	8.46 (214.88)	1.50 (38.10)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	254TC	8.25 (209.55)	4.25 (107.95)	10.34 (262.64)	6.25 (152.40)	5.00 (127)	18.00 (457.20)	8.09 (205.49)	3.25 (82.55)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	256TC	10.00 (254.00)	4.25 (107.95)	10.34 (262.64)	6.25 (152.40)	5.00 (127)	18.00 (457.20)	8.09 (205.49)	1.50 (38.10)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	284TSC	9.50 (241.30)	4.75 (120.65)	10.72 (272.29)	7.00 (177.8)	5.50 (139.7)	19.00 (482.60)	8.97 (227.84)	3.00 (76.20)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	286TSC	11.00 (279.40)	4.75 (120.65)	10.72 (272.29)	7.00 (177.8)	5.50 (139.7)	19.00 (482.60)	8.97 (227.84)	1.50 (38.10)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
	324TSC	10.50 (266.70)	5.25 (133.35)	10.91 (277.11)	8.00 (203.2)	6.25 (152.40)	20.50 (520.70)	9.16 (232.66)	3.00 (76.20)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)
326TSC	12.00 (304.80)	5.25 (133.35)	10.91 (277.11)	8.00 (203.2)	6.25 (152.40)	20.50 (520.70)	9.16 (232.66)	1.50 (38.10)	7.13 (181.10)	3.25 (82.55)	4.63 (117.60)	

\*\*Shipping weight approximate and does not include motor.



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