

Dean Pump® High Temperature Air-Cooled Hot Water & Water/Glycol Pumps

**No Water
Cooling
Required**



RWA4166



RWA2096

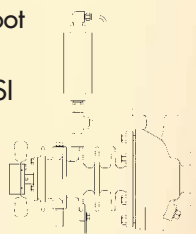


RWA4206

Dean Pump® RWA2096

The smaller, foot mounted, economy version of the air-cooled RWA series pumps.

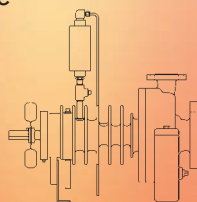
- Available in three sizes
- Thrust bearing is double row sealed design
- Flanges are Class 150 with flat face
- Small size casings are subject to less thermal growth at higher pumpage temperatures allowing economical foot type construction
- Dimensionally interchangeable with small ASME/ANSI B73.1 pumps



Dean Pump® RWA4166

The larger, centerline supported, yoke mounted version of the air cooled RWA series pumps.

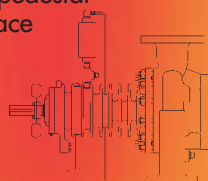
- Available in nine sizes
- Dimensionally interchangeable with R4140 series pumps and baseplates
- Thrust bearings are a pair of angular contact type
- Flanges are Class 300 with raised face
- Centerline mounted casing minimizes thermal growth about the pump centerline without disturbing alignment; rugged yoke mount casing support holds the pump securely in place resisting thermal expansion piping loads
- Pumps can be mounted on ASME/ANSI B73.1 design baseplate



Dean Pump® RWA4206

The largest, centerline supported, pedestal mounted version of the air cooled RWA series pumps.

- Available in one size
- Dimensionally interchangeable with R4184 series pump piping and dimension envelope
- Thrust bearings are a pair of angular contact type
- Flanges are Class 300 with raised face
- Centerline mounted casing minimizes thermal growth about the pump centerline without disturbing alignment; rugged pedestal mounted casing support holds the pump securely in place resisting thermal expansion loads

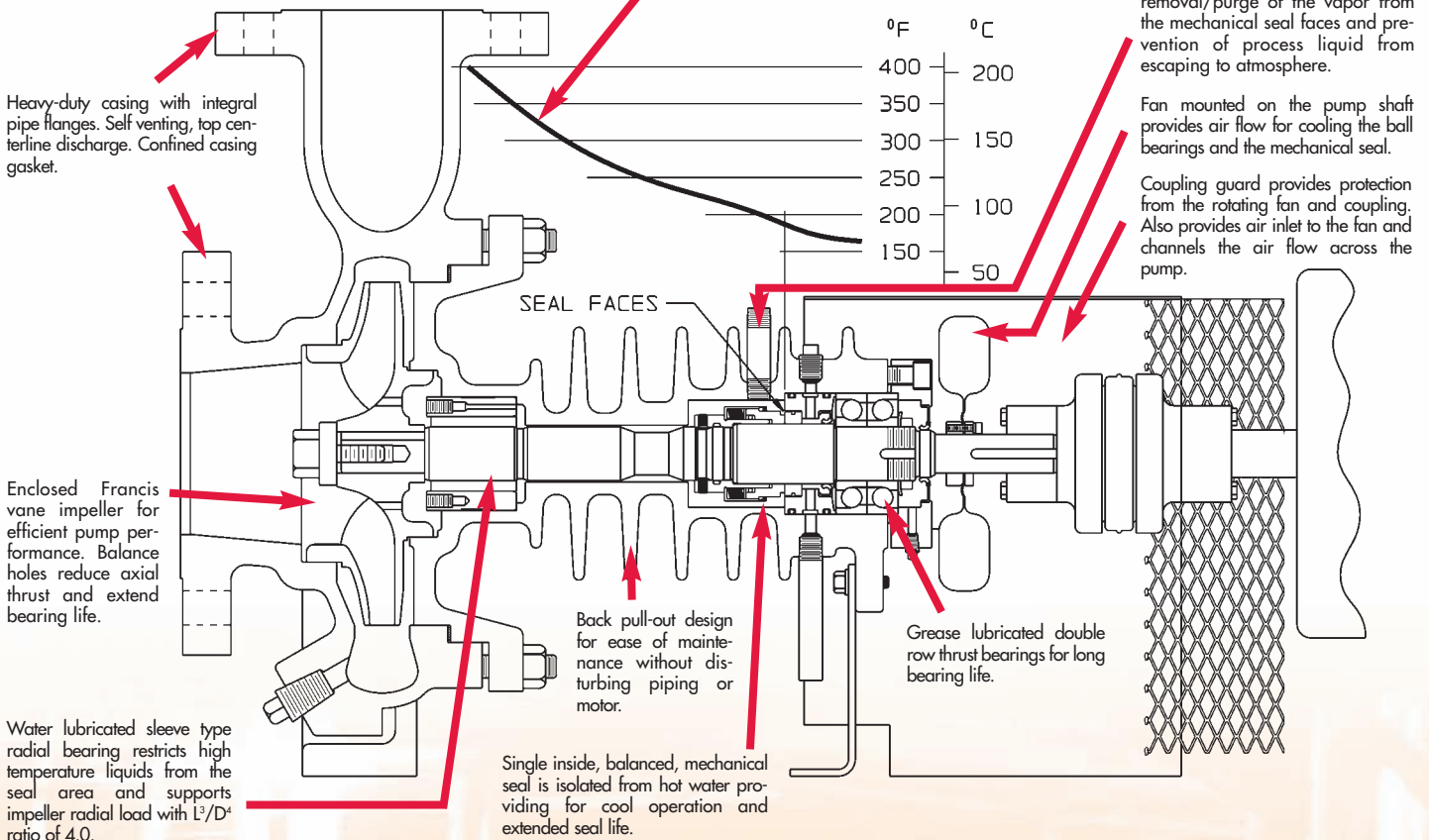


DEAN PUMP® SERIES RWA FAN COOLED "HOT WATER" PUMPS

No Liquid Cooling Required

The air fan cooling design of RWA Series pumps permits temperature drop in the pump from the casing to seal faces. When pumping at 400°F (204°C), the seal face temperature is 190°F (88°C). The efficient gradient breakdown protects the mechanical seal and bearing.

Temperature drop in pump from casing to bearings when pumping at 400°F (204°C).



Experience counts!

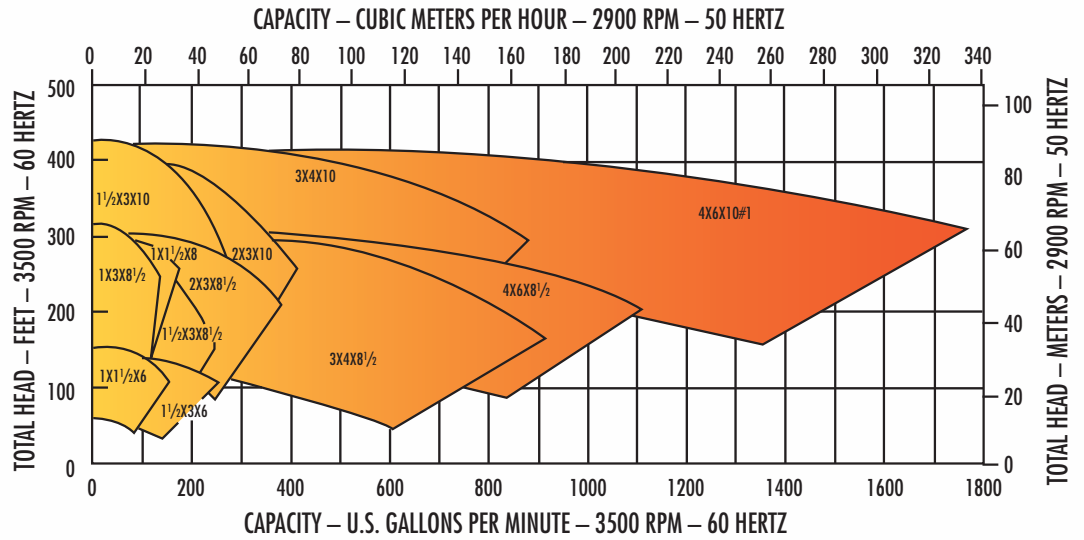
Dean Pump has designed and manufactured high temperature service pumps for well over 100 years. The Series RWA pump continues Dean's tradition of experience in this field, and represents the highest quality and most cost effective hot water pumping equipment currently available in the market.

Engineered for maximum parts interchangeability, the RWA pumps are designed specifically for use on hot water, ethylene glycol, propylene glycol, and triethylene glycol systems. The key feature of this pump line – **NO EXTERNAL WATER COOLING REQUIRED FOR THE BEARINGS AND THE MECHANICAL SEAL** – provides significant savings by eliminating additional, secondary utility and operating costs.

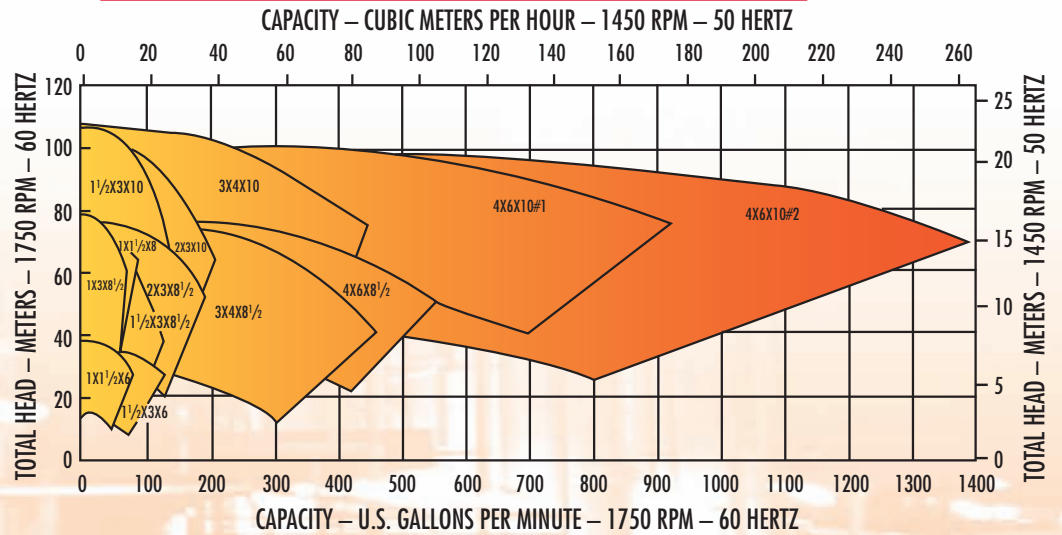
Given the appropriate consideration, the pumping of hot water does not have to be a problem. Almost any centrifugal pump can handle water in the 200°F (93°C) to 250°F (121°C). Beyond that range, however, there are many issues that must be evaluated in order to obtain the proper pump for a particular application or system. The main issues include the mechanical design of the pump, working pressure limits of the pump, and mechanical seal selection. With maximum allowable pumping temperatures of 320°F (160°C) for the RWA2096 pumps, and 400°F (204°C) for the RWA4166 and RWA4206 pumps, the Series RWA is uniquely designed to withstand the above-referenced issues, and is an ideal choice for applications that include, but are not limited to, boiler feed, steam condensate return, HVAC, and heat transfer.

HEAD/CAPACITY RANGE CHARTS

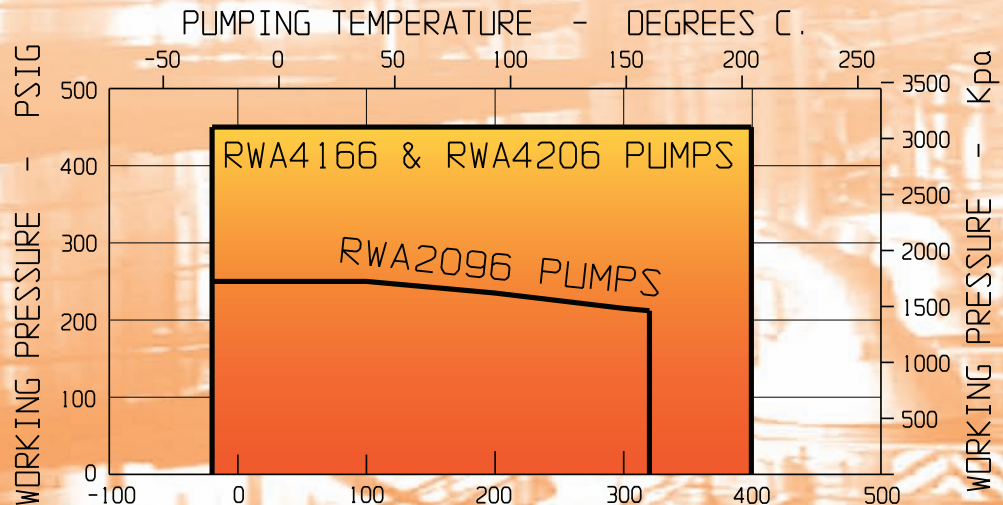
Two Pole Motor

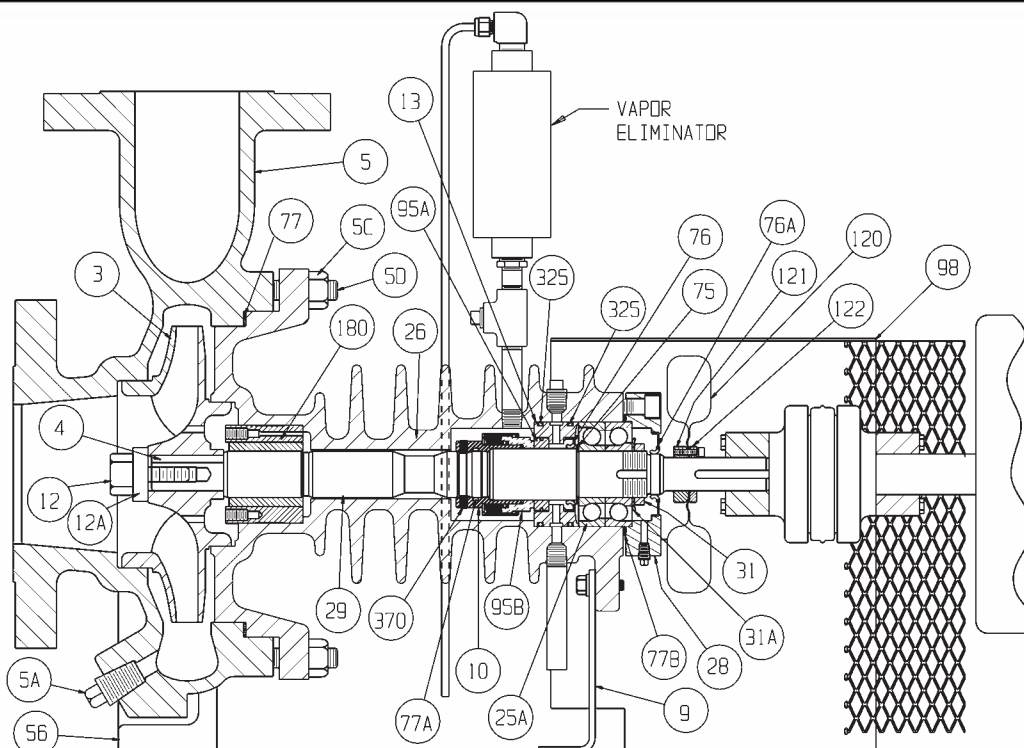


Four Pole Motor



WORKING PRESSURE VS. PUMPING TEMPERATURE





MECHANICAL DESIGN SPECIFICATIONS

PUMP TYPE	RWA 2096	RWA 4166	RWA 4206
Direction of Rotation (Viewed from Coupling End)	CW	CCW	CCW
Casing Thickness, Minimum	5/16"	5/16"	5/16"
Corrosion Allowance	1/8"	1/8"	1/8"
Impeller Balance – Standard Optional Extra	Single Plane Dynamic	Single Plane Dynamic	Single Plane Dynamic
Flanges ANSI Class Facing Finish	150 Flat Face 125 Ra	300 Raised Face 125 Ra	300 Raised Face 125 Ra
Suction Pressure, Maximum	100 PSIG	260 PSIG	260 PSIG
Horsepower Rating, Maximum @3500 RPM @1750 RPM @1150 RPM	35 15 10	100 40 25	250 125 75
Bearings: Thrust Bearing, Ball Type, Grease Lubricated	5306 2RS Double Row	7308 BG Angular Contact Pair	7311 BG Angular Contact Pair
Radial Bearing, Sleeve Type, Pumpage Lubricated			
Seal Chamber Dimensions Length (Depth) Inside Diameter (Bore Dia.) Shaft Diameter	1 5/8" 2 1/16" 1 1/8"	2 13/16" 3 1/8" 2"	3 7/8" 4 5/16" 2 1/2"
Pump Shaft Dimensions Span Between Bearings Span Between Radial Bearing Centerline and Impeller Centerline Diameter at Coupling Diameter Between Bearings Diameter at Impeller	8 11/16" 1 5/8" 7/8" 1 5/16" 3/4"	11 7/16" 2 5/16" 1 1/8" 1 9/16" 1 1/8"	14 5/8" 3 1/4" 1 5/8" 1 7/8" 1 1/2"
L ³ /D ⁴	4.3	2.1	2.8
Material Class	22 (Ductile Iron)	22 (Ductile Iron)	22 (Ductile Iron)
Maximum Working Pressure	250 PSIG @100°F	450 PSIG	450 PSIG
Pumping Temperature Minimum Maximum	-20°F @ 250 PSIG 320°F @ 210 PSIG	-20°F	-20°F
Maximum Ambient Temperature (temp. within 12" of the pump)	118°F	118°F	118°F
Hydrostatic Test Pressure	430 PSIG	700 PSIG	700 PSIG

Seal chamber pressure equals pump suction pressure plus .06 x developed head.

**THESE PUMPS ARE DESIGNED SPECIFICALLY FOR USE ON
HOT WATER, ETHYLENE GLYCOL, PROPYLENE GLYCOL,
AND TRIETHYLENE GLYCOL SYSTEMS.**

STANDARD MATERIALS OF CONSTRUCTION

Part No.	Part Name	RWA 2096 Class 22	RWA 4166 Class 22	RWA 4206 Class 22
3	Impeller	C.I. (1)	C.I. (1)	C.I. (1)
4	Impeller Key	Steel (2)	Steel (2)	Steel (2)
5	Casing	D.I. (10)	D.I. (10)	D.I. (10)
5A	Casing Drain Plug	Steel (2)	Steel (2)	Steel (2)
5C	Casing Stud Nut	N.A.	Steel (5)	Steel (5)
5D	Casing Stud/Cap Screw	Steel (3) Screw	Steel (4) Stud	Steel (4) Stud
6A	Casing Ring (only some sizes)	N.A.	Iron (7)	Iron (7)
9	Bearing Housing Foot	Steel (2)	Steel (2)	Steel (2)
*10	Shaft Sleeve	N.A.	316 S/S	316 S/S
*12	Impeller Bolt/Nut	Steel (2) Nut	Steel (2) Bolt	Steel (2) Bolt
*12A	Impeller Washer	Steel (2)	Steel (2)	Steel (2)
*13	Mechanical Seal Gland	Steel (2)	Steel (2)	Steel (2)
*25A	Shaft Bearing – Thrust – Ball	Double Row	Angular Contact Pair	Angular Contact Pair
26	Bearing Housing	D.I. (10)	D.I. (10)	D.I. (10)
*28	Bearing End Cover	C.I. (1)	Steel (2)	D.I. (9)
*29	Pump Shaft	11-13 S/S (12)	11-13 S/S (12)	11-13/316 S/S (8)
*31	Thrust Bearing Lock Nut	N.A.	Steel (2)	Steel (2)
*31A	Thrust Bearing Lock Washer	N.A.	Steel (2)	Steel (2)
56	Casing Foot	N.A.	C.I. (1)	C.I. (1)
*75	Snap Ring	N.A.	Steel (2)	N.A.
*75A	Snap Ring	Steel (2)	N.A.	N.A.
*76	Grease Seal – Front	Viton (13)	Viton (13)	Viton (13)
*76A	Grease Seal – Rear	N.A.	Buna (14)	Buna (14)
77	Casing Gasket	Teflon (11)	Teflon (11)	Teflon (11)
*77A	Sleeve Gasket	N.A.	Aflas	Aflas
*77B	Bearing End Cover Gasket	N.A.	Buna (14)	Buna (14)
*95A	Mechanical Seal Stationary	Silicon Carbide & Aflas	Silicon Carbide & Aflas	Silicon Carbide & Aflas
*95B	Mechanical Seal Rotary	S/S, Carbon, & Aflas	S/S, Carbon, & Aflas	S/S, Carbon, & Aflas
98	Coupling Guard	Steel (2)	Steel (2)	Steel (2)
*120	Fan	Aluminum	Aluminum	Aluminum
*121	Fan Collar	N.A.	Steel (2)	Steel (2)
*122	Fan Clamp Ring	Steel (2)	Steel (2)	Steel (2)
*180	Radial Bearing Cartridge	Carbon & Steel	Carbon & Steel	Carbon & 416 S/S
*325	Seal Gland Gasket	Aflas (13)	Aflas (13)	Aflas (13)
*370	Sleeve Set Screw	N.A.	18-8 S/S	18-8 S/S
*375	Anti-Rotation Pin	N.A.	N.A.	316 S/S

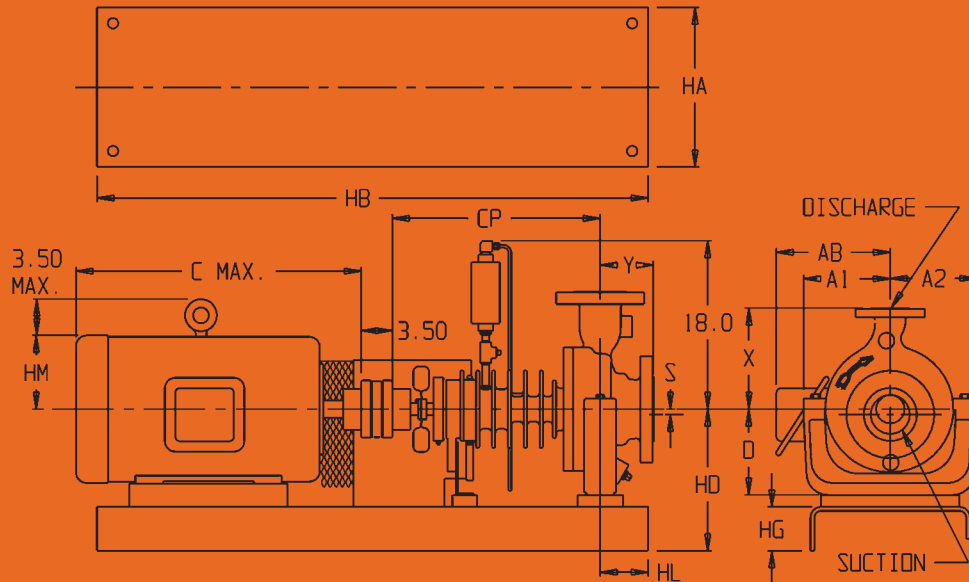
* Denotes parts interchangeable in all pump sizes of a given series.

MATERIAL SPECIFICATIONS (REFER TO NUMBERS IN PARENTHESES)

- | | |
|---|-------------------------------|
| (1) Cast Iron | (9) Ductile Iron – ASTM A536 |
| (2) AISI 1020 | (10) Ductile Iron – ASTM A395 |
| (3) SAE Grade 5 or ASTM A449 Type 1 Steel | (11) Teflon® Elastomer |
| (4) AISI 4140, ASTM A193-B7 Steel | (12) ANSI 420 S/S |
| (5) ASTM A194 Grade 2 Steel | (13) Viton® Elastomer |
| (7) Hardened Iron | (14) Buna N Rubber |
| (8) ANSI 316 S/S with ANSI 416 S/S
at the sleeve bearing | |

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Teflon® is a registered Trademark of E. I. DuPont Co.

Dimensions



Dimensions Determined by Pump

Series	Pump Size	Suction			Discharge			A1	A2	D	S	X	Y	CP	HL
		Size	Class	Face	Size	Class	Face								
RWA2096	1x1-1/2x6	1.5	150	FF	1	150	FF	5.5	5.5	5.25	0	6.5	4	13.5	4.5
	1-1/2x3x6	3			1.5			5.5	5.5	5.25	0	6.5	4	13.5	4.5
	1x1-1/2x8	1.5			1			5.5	5.5	5.25	0	6.5	4	13.5	4.5
RWA4166	1x3x8-1/2	3	300	RF	1	300	RF	8.13	8.13	8.25	0	7.5	4	19.5	4.5
	1-1/2x3x8-1/2	3			1.5			8.13	8.13	8.25	0	8.5	4	19.5	4.5
	2x3x8-1/2	3			2			8.13	8.13	8.25	0	9.5	5	19.5	4.5
	3x4x8-1/2	4			3			9.0	8.13	10.0	0	11.0	5	19.5	4.5
	4x6x8-1/2	6			4			10.25	8.13	10.0	0.63	11.5	6	19.5	4.5
	1-1/2x3x10	3			1.5			9.0	8.75	10.0	0	9.0	4	19.5	4.5
	2x3x10	3			2			9.0	8.75	10.0	0	9.5	5	19.5	4.5
	3x4x10	4			3			10.38	8.75	10.0	0	11.0	5	19.5	4.5
	4x6x10 #2	6			4			11.75	10	11.5	0.13	12.5	6	19.5	4.5
RWA4206	4x6x10 #1	6	300	RF	4	300	RF	12.25	10.50	12.0	0.25	12.0	6	26.0	9.0

Dimensions Determined by Electric Motor Manufacturer

Frame Size	C (Max)	AB	HM	RWA2096				RWA4166			RWA4206		
				HA	HB	HD	HG	HA	HB	HG	HA	HB	HG
140T	13.75	6.5	4	12	39	8.5	3.25	12	45	3.75	--	--	--
182T	14.63	7.5	5.25	12	39	8.5	3.25	12	45	3.75	--	--	--
184T	15.63	7.5	5.25	12	39	8.5	3.25	12	45	3.75	--	--	--
210T	19.63	9.5	6.0	12	39	8.5	3.25	12	45	3.75	--	--	--
250T	24.88	10.75	7.0	15	52	10.38	4.13	15	52	4.13	26	68	6
280T	28.38	12.63	7.75	15	52	11.13	4.13	15	52	4.13	26	68	6
320T	31.38	14.75	8.75	--	--	--	--	18	58	4.75	26	72	6
360T	34.13	15.63	9.88	--	--	--	--	18	58	4.75	26	72	6
400T	38	17.5	10.75	--	--	--	--	--	--	--	26	78	6
440T	40.50	18.5	12.25	--	--	--	--	--	--	--	26	82	6

All dimensions are in inches.



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