

APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)		
	APPLICATION #:	OSP – 0355 – 10
OSHPD Special Seismic Certification Preapproval (OSP)		
Type: New CRenewal		
Manufacturer Information		
Manufacturer: Twin City Fan Companies		
Manufacturer's Technical Representative: Jason Emiliusen		
Mailing Address: 5959 Trenton Lane North		
Telephone: 763-551-7614 Email: jemiliu	sen@tcf.com	
Product Information		
Product Name: Plenum & Housed Fans		
Product Type: <u>E Series &amp; Commercial Duty Plenum Fans and Airfoil &amp;</u>	Backward Inclined Hous	sed Fans
Product Model Number: <u>See Certified Product tables 1 and 2</u> (List all unique product identification numbers and/or part numbers)		
(List all unique product identification numbers and/or part numbers) General Description: Vibration isolated plenum and housed fans, See	certified product tables	1 & 2.
Seismic enhancement made to the test units and modifications require	•	
tests shall be incorporated into the production units.		
Mounting Description: Base mounted with spring isolators and seismic	restraints.	
Applicant Information		
Applicant Company Name: The VMC Group		
Contact Person: John P. Giuliano		
Mailing Address: 113 Main Street, Bloomingdale, NJ 07403		
Telephone: 973-838-1780 Email: John.g	jiuliano@thevmcgroup.c	com
I hereby agree to reimburse the Office of Statewide Health Placcordance with the California Administrative Code, 2016.	lanning and Develop	oment review fees in
Signature of Applicant:	Dat	e: March 25, 2016
Title: President Company Name: The VI	MC Group	
"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"	AL AMAAAA	OSHPD
STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY OSH-FD-759 (REV 10/21/14)	Jull haladdaa	Page 1 of 3



California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)
Company Name: _ The VMC Group
Name: Mr. Ken Tarlow California License Number: SE2851
Mailing Address: _ 980 9th Street, 16th Floor, Sacramento, CA 95814
Telephone:       916-449-9918       Email:       Ken.tarlow@thevmcgroup.com
Supports and Attachments Preapproval
Supports and attachments are preapproved under OPM-
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required) Supports and attachments are not preapproved
Certification Method
⊠ Testing in accordance with: ⊠ ICC-ES AC156
Other (Please Specify):
Testing Laboratory
Company Name:Twin City Fan Companies, Ltd Test Lab
Contact Name: Evan Jones
Mailing Address:5959 Trenton Lane North, Minneapolis, MN 55442-32374

 Telephone:
 763-551-7694
 Email:
 ejones@tcf.com

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**Seismic Parameters** 

# OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Design in accordance with ASCE 7-10 Chapter 13: 🛛 Yes 🗌 No
Design Basis of Equipment or Components ( $F_p/W_p$ ) = <u>4.5 (<math>S_{DS}</math> = 2.0, <math>z/h</math> = 1); 1.88 (<math>S_{DS}</math> = 2.5, <math>z/h</math> = 0); 5.63 (<math>S_{DS}</math> = 2.5, <math>z/h</math> = 1)</u>
$S_{DS}$ (Design spectral response acceleration at short period, g) = See Attached Tables
$a_p$ (In-structure equipment or component amplification factor) = 2.5
R <sub>p</sub> (Equipment or component response modification factor) = _2
$\Omega_0$ (System overstrength factor) = 2.0
$I_p$ (Importance factor) = 1.5
z/h (Height factor ratio) = See Attached Tables
Equipment or Component Natural Frequencies (Hz) = <u>See Attached Tables</u>
Overall dimensions and weight (or range thereof) = See Attached Tables
Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: $\Box$ Yes $\boxtimes$ No Design Basis of Equipment or Components (V/W) =
$S_{DS}$ (Design spectral response acceleration at short period, g) = $S_{D1}$ (Design spectral response acceleration at 1 second period, g) =
R (Response modification coefficient ) =
$\Omega_0$ (System overstrength factor) =
$C_d$ (Deflection amplification factor) =
$I_p$ (Importance factor) = 1.5
Height to Center of Gravity above base =
Equipment or Component Natural Frequencies (Hz) =
Overall dimensions and weight (or range thereof) =
Tank(s) designed in accordance with ASME BPVC, 2010: Yes No
List of Attachments Supporting Special Seismic Certification
<ul> <li>☑ Test Report(s)</li> <li>☑ Drawings</li> <li>☑ Calculations</li> <li>☑ Manufacturer's Catalog</li> <li>☑ Other(s) (Please Specify):</li> </ul>
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022
Signature: Date: _ April 28, 2016
Print Name: _M. R. Karim Title: _SHFR
Special Seismic Certification Valid Up to : S <sub>DS</sub> (g) = See Above z/h = See Above
Condition of Approval (if applicable):

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY OSH-FD-759 (REV 10/21/14)



### Table 1 - Certified Plenum Fans - Carbon Steel Construction

	Twin City	Aerovent	arbon Steel		x Dimensions	(in)	Tested	Max	Testing		
Fan Size	Approved Model	Approval Model	Arrangement	Depth	Width	Height	Weight	Weight <sup>1</sup> (lb)	Scope	S <sub>DS</sub> <sup>2</sup>	z/h²
122				22.51	49.97	23.64		418	Extrapolated	2.5	1
150				26.06	54.97	26.00	248		UUT 1P	2.5	1
150 165	-			26.06 27.53	54.97 59.97	26.00 28.36		452 469			
182				30.64	64.96	30.73		828			
200				32.28	72.46	34.27		912			
222 245	-			35.96 41.99	79.96 67.32	37.82 39.17		1105 1190			
243			0	41.99	75.24	43.78		1448			
300			3	49.12	83.16	48.38		1953	Interpolated	2.5	1
330	-			54.01	91.08	52.99		2213			
365 402	-			64.06 71.96	76.81 84.34	57.26 62.87		2859 3452			
445				78.55	93.38	69.61		4331			
490				85.81	102.42	76.34		4649			
542				93.05	114.47	85.33		5127			
600 660				101.12 112.06	114.47 122.75	85.33 91.50	7000	5986 7000	UUT 2P	2.5	1
122				19.01	20.00	36.81		294	Extrapolated	2.5	1
150				22.19	22.00	38.81	170		UUT 3P	2.5	1
150				22.19	22.00	40.38		316			
165 182	-			23.25 25.37	24.00 26.00	40.81 42.88		331 362			
200	EPF	CPLF		27.00	29.00	45.88		382			
222	EPQ	CPLQ		29.88	32.00	55.38		490			
245 270	-		3HA	31.12 33.12	34.00 38.00	57.38 62.88		532 807	Interpolated	2.5	1
300	1			36.81	42.00	66.88		807	morpolateu	2.0	'
330	1			40.51	46.00	75.38		1223			
365	4			43.31	51.00	80.38		1376			
402 445	-			46.94 50.56	56.00 62.00	85.50 93.38		1476 2185			
490				54.44	68.00	99.38		2349			
542				60.69	76.00	107.38	2848	2848	UUT 4P	2.5	1
122				20.00	38.75	19.01		294	Extrapolated	2.5	1
<u>150</u> 150			ЗVA	22.00 22.00	40.75 40.75	22.01 22.01	<u>160</u> 	316	UUT 5P	2.5	1
165				24.00	48.75	23.25		331			
182				26.00	50.75	25.76		362		2.5	
200	-			29.00	53.75	27.69		382			
222 245	1			32.00 34.00	60.31 62.31	30.44 31.69		490 532			
270				38.00	67.81	33.69		807	Interpolated		1
300				42.00	71.81	37.37		896			
330 365				46.00 51.00	80.00 85.00	39.88 43.75		1223 1376			
402	-			56.00	90.00	43.75		1476			
445				62.00	94.00	51.25		2185			
490				68.00	98.00	55.44	2338	2338	UUT 6P	2.5	1
122 150				25.94 27.94	20.00 22.00	20.00 22.00	 128	181	Extrapolated UUT 7P	2.5	1
150				27.94	22.00	22.00		200	00171	2.0	
165				29.19	24.00	24.00		218			
182	-			34.38	26.00	26.00		339			
200 222	1			36.25 42.81	29.00 32.00	29.00 32.00		363 500			
245				44.82	34.00	34.00		536			
270			4	49.32	38.00	38.00		808			
300				56.56	42.00	42.00		1080 1215	Interpolated	2.5	1
330 365				57.32 67.50	46.00 51.00	46.00 51.00		1215			
402	1			70.38	56.00	56.00		1954			
445				80.50	62.00	62.00		2808			
490 542	EPFN EPQN	CPLFN CPLQN		84.00 88.00	68.00 76.00	68.00 76.00		3030 3415			
600		OFLQN		93.62	76.00	76.00		3556			
660				98.26	81.50	81.50	5400	5400	UUT 8P	2.5	1
182	4			26.00	38.00	35.50	188		UUT 9P	2.5	1
182 200	4			26.00 29.00	38.00 41.00	37.38 38.44		319 340			
200	1			32.00	41.00	45.50		472			
245	]			34.00	46.00	47.38		504			
270	4		4V	38.00	50.00	51.63		735	Interpolated	2.5	1
<u>300</u> 330	1			42.00 46.00	54.00 58.00	54.25 60.01		820 1103			
365	1			51.00	63.00	70.56		1837			
402	]			56.00	68.00	73.38		1939			
445				62.00	74.00	77.69		2319		0.5	
<u>490</u> 122				68.00 25.50	80.00 27.84	81.06 20.00	2462	2462 155	UUT 10P Extrapolated	2.5 2.5	1 1
150				29.78	27.84	20.00	116		UUT 11P	2.5	1
150	1			29.78	29.84	22.00		243			
165	4			34.32	31.84	24.00		356			
182 200	4			39.94 41.23	33.84 36.84	26.00 29.00		377 398			
200				41.23	36.84	32.00		398 456			
245	EPLFN EPLQN	CLPLFN CLPLQN	4	45.99	41.84	34.00		554	Interpolated	2.5	1
270		ULI LO(IN		49.37	45.84	38.00		670		2.0	
<u>300</u> 330	1			52.40 57.77	49.84 53.84	42.00 46.00		911 1121			
365	1			60.40	58.84	46.00 51.00		1274			
402	4			65.45	63.84	56.00		1672			
445	-			70.15 73.97	69.84	62.00	2450	1988		2.5	4
490	<u> </u>	1		13.97	75.84	68.00	2400	2450	UUT 12P	2.5	1

 Notes

 (1) Max Weight Includes Unit and Largest Motor Only
 (2) Certification is limited to the lower rating on either the Certified Fan Tables, as listed above, or as listed on the Certified Subcomponents Tables.

 (3) All units are base mounted on spring isolators with integral snubbers.

### Table 2a - Certified Housed Fans - Carbon Steel / Stainless Steel Construction

Fan Size	Twin City	Aerovent	Arrangement	Ma	x Dimensions	; (in)	Tested	Max	Testing	Sds <sup>2</sup>	z/h <sup>2</sup>		
	Approved Model	Approval Model		Depth	Width	Height	Weight	Weight <sup>1</sup> (lb)	Scope	•••	_,		
122				31.49	45.19	29.68		441	Extrapolated	2.0 2.5	1 0		
135				33.75	48.69	32.50	314		1H	2.5	1		
135				33.75	48.69	32.50		582					
150	-			36.57	53.05	35.94		730					
165	-			37.89	57.16	39.40		1034					
182 200	-			41.90 44.96	63.40 67.84	43.12 47.28		1141 1304					
222	-			48.97	68.82	49.76		1649					
245			1	53.23	70.88	53.66		1851		2.0	1		
270			1	58.57	72.38	60.58		2325	Ineterpolated	2.0 2.5	0		
300	_			65.38	74.68	67.11		2749		2.0	Ŭ		
330 365	-			71.12 75.91	86.63 89.06	72.13 74.47		3158 3606					
402	-			83.38	96.92	82.73		4061					
445				92.33	107.39	90.82		4727					
490				99.14	117.32	103.68		5194					
542				103.66	129.34	110.16		6326					
600				105.62	137.13	121.58	7760	7760	2H	2.0 2.5	1 0		
105				22.44	23.87	27.94		180	Extrapolated	2.5	1		
122	_			32.44	26.69	31.25	142		4H	2.5	1		
122	4			32.44	26.69	33.88		198					
135 150	-			27.63 29.19	29.32 32.44	34.13 38.06		264 304					
165	-			34.69	35.56	41.25		406					
182			4	41.26	39.56	45.81		736	la stema clate d	0.5			
200	BC-SWSI			42.44	43.25	49.75		783	Ineterpolated	2.5	1		
222	BAE-SWSI	CB-SWSI CAE-SWSI		44.82	47.94	55.50		837					
245	BAF-SWSI			46.37	52.75	61.00		912					
270	274 6000			50.50	58.25	66.94		1148					
300				52.69 61.56	64.56 71.13	67.81 74.40		1621	5H	2.5	1		
330	=						1862	1862		2.0	1		
122				44.50	64.06	41.75		459	Extrapolated	2.5	0		
135				45.62	<u>64.69</u>	43.38	294		7H	2.5	1		
<u>135</u> 150	-			45.62 49.76	64.69 65.94	43.38 47.38		488 642					
165				51.00	68.51	49.56		691					
182				56.01	76.75	55.56		1180			l		
200						57.37	80.00	58.25		1281			
222				61.25	88.81	64.38		1482		2.0 2.5	1		
245	_		9, 9F	63.00	92.76	67.56		1614	Ineterpolated				
270	-		0, 01	65.00	97.63	70.88		1795			0		
300				69.38	103.88	75.50		2051					
330 365	-			79.88 89.25	114.38 124.38	82.63 90.31		2810 3804					
402	-			94.25	130.19	95.75		4304					
445				99.75	138.38	102.31		4973					
490				103.13	146.75	108.25		5489					
542				107.37	156.81	119.31		6650					
600				114.00	167.19	131.69	6902	6902	11H	2.0 2.5	1 0		
402	-			65.19	93.13	89.06		2249	Extrapolated	2.5	1		
445				71.25	101.69	97.88	1620		13H	2.5	1		
445	4		10	71.25	101.69	97.88		2678	Interpolated	2.5	1		
490				72.19	112.00	107.94		3248	-				
542				86.86	122.82	118.88	3552	3552	<u>14H</u>	2.5	1		
122	-			44.43	32.69	32.25		815	Extrapolated	0.5			
<u>135</u> 135	-			53.19 53.19	<u>37.58</u> 46.17	32.50 32.50	358, 312	 904	16H, 18H	2.5	1		
135	-			56.31	46.17 51.19	32.50		904 1247					
165	1			61.84	56.21	39.32		1531					
182	]			67.84	61.67	43.30		1580					
200				73.38	66.71	47.22		1852					
222	BC-DWSI			81.13	73.76	52.93		2363					
245	BAE-DWSI	CB-DWDI	3	88.00	80.00	58.16		2648	Interpolated	2.0	1		
270	BAF-DWSI	CAE-DWDI	-	96.39	87.63	64.07		2875		2.5	0		
300	-			106.18	96.53	70.83		3329					
330 365	-			114.38 122.86	103.92 113.81	77.86 85.74		3506 3989					
402	4			136.01	123.86	94.96		3989 4579					
445	1			145.73	137.30	104.31		5382					
	1			158.78	149.94	114.59		5693					
490													
490 542				171.30	165.30	119.31	7220	7220	19H	2.0 2.5	1 0		

 Notes

 (1) Max Weight Includes Unit and Largest Motor Only
 (2) Certification is limited to the lower rating on either the Certified Fan Tables, as listed above, or as listed on the Certified Subcomponents Tables.

 (3) All units are base mounted on spring isolators with integral snubbers.

Fan Size	Twin City	Aerovent	Arrangement	Ma	x Dimensions	in)	Tested	Max	Testing	S <sub>Ds</sub> <sup>2</sup>	z/h <sup>2</sup>	
Approved Model	Approval Model	_	Depth	Width	Height	Weight	Weight <sup>1</sup> (lb)	Scope				
122				31.49	45.19	29.68		332				
135				33.75	48.69	32.50		478				
150	-			36.57	53.05	35.94		533				
165				37.89	57.16	39.40		552				
182	-			41.90	63.40	43.12		723				
200 222	-			44.96 48.97	67.84 68.82	47.28 49.76		895 985				
245				53.23	70.88	53.66		1083				
270				58.57	72.38	60.58		1513	Interpolated	2.0	1	
300			1	65.38	74.68	67.11		1891		2.5	0	
330				71.12	86.63	72.13		2727				
365				75.91	89.06	74.47		3187				
402				83.38	96.92	82.73		3455				
445 490	-			92.33 99.14	107.39 117.32	90.82 103.68		3762 4449				
542				103.66	129.34	110.16		5025				
600				105.62	137.13	121.58		5554				
										2.0	1	
660				112.50	155.50	136.88	6910	6910	3H	2.5	0	
105				22.44	23.87	27.94		159				
122	4			25.25	26.69	31.25		171				
135	4			27.63	29.32	34.13		274				
150	-			29.19	32.44	38.06		293				
165	-			34.69	35.56	41.25		400				
182 200	-		4	41.26 42.44	39.56 43.25	45.81 49.75		570 597	Interpolated	2.5	1	
222			4	44.82	47.94	55.50		675				
245	BC-SWSI	CB-SWSI		46.37	52.75	61.00		730				
270	BAE-SWSI	CAE-SWSI		50.50	58.25	66.94		882				
300	BAF-SWSI	ONLE OWON		52.69	64.56	67.81		976				
330				61.56	71.13	74.40		1217				
365				63.38	78.51	83.30	1508	1508	6H	2.5	1	
122				44.50	64.06	41.75		285				
135				45.62	64.69	43.38		432				
150 165	-			49.76 51.00	65.94 68.51	47.38 49.56		453 498				
182				56.01	76.75	49.50 55.56		637				
200	1			57.37	80.00	58.25		835				
222				61.25	88.81	64.38		894				
245				63.00	92.76	67.56		1022			1	
270					65.00	97.63	70.88		1421	Interpolated	2.0 2.5	1 0
300				9, 9F	69.38	103.88	75.50		1587			0
330			1	79.88	114.38	82.63		1722				
365	-			89.25	124.38	90.31		2591				
402				94.25	130.19	95.75		3000				
445 490	-			99.75 103.13	138.38 146.75	102.31 108.25		3331 3589				
542	-			103.13	156.81	119.31		4359				
600	1			114.00	167.19	131.69		4963				
										2.0	1	
660				116.63	178.00	143.94	5208	5208	9H	2.5	0	
402				65.19	93.13	89.06		1387				
445				71.25	101.69	97.88		1552	Internalated	2.5	1	
490			10	72.19	112.00	107.94		1951	Interpolated	2.0	1	
542				86.86	122.82	118.88		2475				
600				91.38	134.88	131.25	2988	2988	15H	2.5	1	
122				44.43	32.69	32.25		430				
135				53.19	37.58	32.50		544				
150	-			56.31	51.19	35.95		602				
165	4			61.84	56.21	39.32		657				
182	4			67.84	61.67	43.30		786				
200 222	4			73.38 81.13	66.71 73.76	47.22 52.93		815 958				
245	BC-DWSI			81.13	80.00	52.93 58.16		1066	Interpolated	2.0	1	
245	BAE-DWSI	CB-DWDI	3	96.39	87.63	64.07		1592		2.5	0	
300	BAF-DWSI	CAE-DWDI	-	106.18	96.53	70.83		2096				
330	]			114.38	103.92	77.86		2279				
365				122.86	113.81	85.74		2566				
402				136.01	123.86	94.96		3291				
445	4			145.73	137.30	104.31		4183				
				158.78	149.94	114.59		4620		1	<u> </u>	
490										2.0	1	

Notes
(1) Max Weight Includes Unit and Largest Motor Only
(2) Certification is limited to the lower rating on either the Certified Fan Tables, as listed above, or as listed on the Certified Subcomponents Tables.
(3) All units are base mounted on spring isolators with integral snubbers.

# Table 3 - Certified Configurations: Belt Driven Plenum Fans Twin City Fan Model: EPF, EPQ Arrangement: 3 Horizontal

	an Model: ⊢ /ent Model: (						e Type: I	3 Horizoi Belt	intai														
Plenum Fan	HP Motor Wt	<b>1</b> 29	<b>1.5</b> 32	<b>2</b> 48	<b>3</b> 110	5 115	7.5 165	<b>10</b> 180	15 280	<b>20</b> 315	25 380	<b>30</b> 415	<b>40</b> 490	<b>50</b> 560	60 800	75 840	<b>100</b> 1120	<b>125</b> 1160	<b>150</b> 1540	200 1730	UUT	SDS <sup>1</sup>	z/h <sup>1</sup>
Size Weight	122 79	x	х	х	Х	Х	Х	Х													Extrapolated		
Size Weight	150 101	х	х	х	х	х	х	х													1P		
Size Weight	165 116	x	х	х	х	х	х	х															
Size Weight	182 164	x	х	х	х	х	х	х	х	х	х												
Size Weight	200 186	x	х	х	х	х	х	х	х	х	х	х											
Size Weight	222 238	-	х	х	х	х	х	х	х	х	х	х	х										
Size Weight	245 277	-	х	х	х	х	х	х	х	х	х	х	х										
Size Weight	270 429	-	х	х	х	х	х	х	х	х	х	х	х	х									
Size Weight	300 524	-	х	х	х	х	х	х	х	х	х	х	х	х	х							2.5	1
Size Weight	330 654	-		х	х	х	х	х	х	х	х	х	х	х	х	х					Interpolated		
Size Weight	365 811	-		х	х	х	х	х	х	х	х	х	х	х	х	х	х						
Size Weight	402 986	-			х	х	х	х	х	х	х	х	х	х	х	х	х	х					
Size Weight	445 1431	-			х	х	х	х	х	х	х	х	х	х	х	х	х	х	х				
Size Weight	490 1633					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			ĺ
Size Weight	542 1987					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			1
Size Weight	600 2231	-					х	х	х	х	х	х	х	х	х	х	х	х	х	х			1
Size Weight	660 2810						х	х	х	х	х	х	х	х	х	х	х	х	х	х	2P		

Arrangement	Fan Class	Fan Sizes	UUT
	I	122 - 660	1P
3	III	122 - 660	
	III	182 - 660	2P

-			
Wheel Materia	l Fan	Sizes UUT	
Aluminum (std	122	- 245 1P	
Aluminum (option	al) 270	- 660	
Steel (std)	270	- 660 2P	

Fan Base Material	UUT	
A36 Steel	1P, 2P	
Housing Material	UUT	
A36 Steel	1P, 2P	
Wheel	UUT	
9-bladed	1P	

2P

12-bladed

Motor Position	UUT
W	1P
Х	2P
Y	
Z	

Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables.

### Table 4 - Certified Configurations: Belt Driven Plenum Fans

Twin City Fa	an Model: ⊟ ent Model: (						ement: : e Type: l		izontal 8	a 3VA Ve	ertical								
Plenum Fan	HP	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	UUT	SDS <sup>1</sup>	z/h <sup>1</sup>
	Motor Wt	29	32	48	110	115	165	180	280	315	380	415	490	560	800	840	001	SDS	z/n
Size	122	х	х	х	х	х	х	х									Extrapolated		
Weight	79	^	^	^	~	~	^	~									Extrapolated		
Size	150	х	х	х	х	х	х	х									3P, 5P		
Weight	101	~	~	~	~	~	~	~									01,01		
Size	165	х	х	х	х	х	х	х											
Weight	116	~	~	~	~	~	~	~											
Size	182	х	х	х	х	х	х	х											
Weight	164																		
Size	200	х	х	х	х	х	х	х											
Weight	186																		
Size	222	-	Х	Х	Х	Х	Х	х	х	х									
Weight	238																		
Size	245	-	х	х	Х	х	х	х	х	х									
Weight	277																		
Size	270	-	Х	Х	Х	х	Х	Х	Х	Х	Х	Х					Interpolated	2.5	1
Weight Size	429																		
	300 524	-	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х							
Weight Size	330																		
Weight	654	-		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х					
Size	365								<u> </u>	<u> </u>		<u> </u>		<u> </u>			1		
Weight	811			х	Х	х	х	х	х	Х	х	Х	х	х					
Size	402																1		
Weight	986				Х	х	Х	х	х	х	х	х	х	х					
Size	445																1		
Weight	1431				Х	Х	Х	х	х	Х	х	Х	х	х	х	Х			
Size	490																		
Weight	1633					х	Х	х	х	х	х	х	х	х	Х	х	6P		
Size	542						L	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>					
Weight	1987					х	Х	х	х	х	х	х	х	х	х	X	4P		

Arrangement	Fan Class	Fan Sizes	UUT
3HA	I	122 - 542	3P
ЗПА	Ш	122 - 542	4P
3VA	I	122 - 542	5P
3VA	=	122 - 542	6P

Seismic Gusset Thick.	Material	Arr.	Fan Sizes	UUT
N/A			122 - 150	3P
12-Gauge	A36 Steel	3HA	165 - 200	
10-Gauge	A30 Steel	ЗПА	222 - 330	
7-Gauge			365 - 542	4P

Wheel Material	Fan Sizes	UUT
Aluminum (std)	122 - 245	3P, 5P
Aluminum (optional)	270 - 542	
Steel (std)	270 - 542	4P, 6P

### Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables.

Fan Base Material	UUT
A36 Steel	3P,4P 5P,6P

Housing Material	UUT
A36 Steel	3P,4P 5P,6P

Wheel	UUT
9-bladed	3P, 5P
12-bladed	4P, 6P

Motor Position	UUT
W	N/A
Х	N/A
Y	N/A
Z	N/A

### Table 5 - Certified Configurations: Direct Driven Plenum Fans

	Fan Model: E /ent Model: (					Arrang Drive	ement: 4 e Type: I		ntal & 4	Vertical													
Plenum Fan	HP	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150	200	UUT	Sps <sup>1</sup>	z/h <sup>1</sup>
	Motor Wt	29	32	48	110	115	165	180	280	315	380	415	490	560	800	840	1120	1160	1540	1730	001	305	2/11
Size	122	х	х	х	х	х															Extrapolated		
Weight	79	~	~	~	~	~															Entrapolatoa		
Size	150	Х	х	х	х	х															7P		
Weight	101																						
Size Weight	165 116	Х	Х	Х	Х	Х															Interpolated		
Size	182																						
Weight	164	Х	Х	Х	Х	Х	х	х													9P		
Size	200																						
Weight	186	х	х	Х	Х	х	х	х															
Size	222	х	х	х	х	х	х	х	х	х													
Weight	238	^	^	^	^	^	^	^	^	^													
Size	245	х	х	х	х	х	х	х	х	х												2.5	
Weight	277	~	~	~	~	~	~	~	~	~													
Size	270		х	х	х	х	х	х	х	х	х	х											1
Weight Size	429 300																						
Weight	524		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х							Interpolated		
Size	330																						
Weight	654		Х	Х	Х	Х	х	х	х	Х	Х	Х	Х	Х									
Size	365			v		v	Ň		Ň	~	v	N/	v		v	X	v	v					
Weight	811			х	Х	х	х	х	х	х	х	х	х	х	х	х	х	х					
Size	402				х	х	х	х	х	х	х	х	х	х	х	х	х	х					
Weight	986					^	^	^	^	^	^	^	^	^	^	^	^	^					
Size	445				х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			
Weight	1431																						
Size	490					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	10P		
Weight	1633																						
Size	542					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			
Weight	1987																				Interpolated		
Size Weight	600 2231						х	х	х	х	х	х	х	х	х	х	х	х	х	х			
Size	660																						
Weight	2810						х	х	х	х	х	х	х	Х	х	х	х	х	х	Х	8P		
weight	2010																						1

Arrangement	Fan Class	Fan Sizes	UUT
	I	122 - 660	7P
4	Ш	122 - 660	
	====	182 - 660	8P
4V	I	182 - 490	9P
4V	=	182 - 490	10P

Arr.

4V

Housing Material	UUT	Fan Base Ma
A36 Steel	7P,8P	A 26 Stor
A30 Steel	9P,10P	A36 Stee

n Base Material	UUT
ADC Obs al	7P,8P
A36 Steel	9P,10P

Wheel	UUT
9-bladed	7P,9P
12-bladed	8P,10P

Special Wheel Width/Diameter Construction	Description	UUT
Special Width (EQ 1059/)	50% Width	7P
Special Width (50 - 105%)	105% Width	9P
Special Diameter (07, 1019())	97% Diameter	8P
Special Diameter (97 - 101%)	101% Diameter	10P

Motor Position	UUT
W	N/A
Х	N/A
Y	N/A
Z	N/A

### Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables.

Fan Sizes

122 - 660

Fan Sizes

122 - 165

182 - 330

365 - 490

UUT

9P

10P

UUT

7P-10P

Seismic Gusset Thick.

N/A

7-Gauge

0.25 Inch

Material

A36 Steel

Wheel Material

Aluminum (std)

# Table 6 - Certified Configurations: Direct Driven Plenum Fans Twin City Fan Model: EPLEN. EPLON

	Fan Model: ⊟ vent Model: (			N			ement: 4 e Type: I		ntal												
Aero			,	2 2		5		10	15	20	25	30	40	50	60	75	100	405			
Plenum Fan	Motor Wt	29	1.5 32	<b>2</b> 48	<b>3</b> 110	<b>5</b> 115	7.5 165	10	280	315	380	30 415	40 490	50 560	800	75 840	1120	125 1160	UUT	SDS <sup>1</sup>	z/h <sup>1</sup>
Size	122	X	X	X	X	х													Extrapolated		
Weight	67	^	^	^	^	^													Extrapolated		
Size	150	х	х	х	х	х	х	х											11P		
Weight	83	^	~	~	^	^	~	~													
Size	165	х	х	х	х	х	х	х	х	х											
Weight	116																				
Size	182	х	х	х	х	х	х	х	х	х											
Weight	140																				
Size Weight	200 165	х	х	х	х	х	х	х	х	Х											
Size	222																				
Weight	233	х	Х	х	Х	Х	Х	Х	Х	Х											
Size	245																				
Weight	283				х	х	х	х	х	х	х	х								0.5	
Size	270						v	V	v	v	V	v							laters alst al	2.5	1
Weight	344						х	х	х	х	х	х							Interpolated		
Size	300						х	х	х	х	х	х	х	х							
Weight	430						^	^	^	^	^	^	^	^							
Size	330								x	х	х	х	х	х	х	х					
Weight	518								~	~	~	~	~	~	~	~					
Size	365	-							x	х	х	х	х	х	х	х					
Weight	685																				
Size	402								х	х	х	х	х	х	х	х	х	х			
Weight	910 445																				
Size	445 1200								Х	Х	х	Х	х	Х	Х	Х	Х	Х			
Weight Size	490																				
Weight	1427								х	Х	х	Х	х	х	Х	х	х	Х	12P		
weight	1427																				

Arrangement	Fan Class	Fan Sizes	UUT
4	Ш	122 -490	11P 12P

Wheel Material	Fan Sizes	UUT
Aluminum (std)	122 - 490	11P 12P

Housing Material	UUT
	11P
A36 Steel	12P

Motor Position	UUT
W, Z	N/A
X, Y	N/A

Fan Base Material	UUT
A36 Steel	11P
A36 Steel	12P

Wheel	UUT
9-bladed	11P
12-bladed	12P

Motor Position	UUT
W	N/A
Х	N/A
Y	N/A
Z	N/A

### Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables.

# Table 7 - Certified Subcomponents: miscellaneous Components

Description	Availability	Material / Model / TCF Drawing #	Manufacturer	Test Unit
Round Inlet Collar	EPF, EPQ, EPFN, EPQN	A36 Steel	TCF	5P,6P
Extended Life Bearings	EPF, EPQ	Unified SAF Bearings / Imperial	Dodge	2P
Belt Guard - OSHA Type	EPF, EPQ	A36 Steel	TCF	1P
Belt Guard - Quick Access	EPF, EPQ	A36 Steel	TCF	3P
Extended Lube Lines	EPF, EPQ	1/4" OD Copper Tubing / 1/4" Black Nylaflo LM	TCF	4P
Aero Acoustic Diffuser	EPF, EPQ, EPFN, EPQN	Galvanized Steel	TCF	7P
Piezometer Ring	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	1/4" OD Copper Tubing / 1/4" Black Nylon Tubing	TCF	8P
Pressure Transducer/Transmitter	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	Series DH Digihelic	Dwyer	8P
Shaft Grounding Ring	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	SGR Rings	Aegis	10P
Inlet Screen	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	Steel Wire	TCF	10P,12P
Protective Enclosure	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	Steel Wire	TCF	11P
Stainless Steel Nameplate	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	Stainless Steel	TCF	9P
Thrust Restraint Brackets	EPF, EPQ, EPFN, EPQN, EPLFN, EPLQN	Galvanized Steel	TCF	11P

### Table 8 - Certified Subcomponents: Plenum Fan Wheels

Model	Drive	Arrangement	Reference Tables	Size	Shaft Diameter	Material	UUT
				122	1.00" - 1.19"	Aluminum	Extrapolate 1P, 3P, 5P
				150	1.00" - 1.19"	Aluminum	1P, 3P, 5P
				165	1.00" - 1.19"	Aluminum	
				182	1.19" - 1.69"	Aluminum	
				200	1.19" - 1.69"	Aluminum	
				222	1.44" - 1.94"	Aluminum	
				238	1.44" - 1.94"	Aluminum	
				270	1.44" - 2.19"	Carbon Steel	
				-		Aluminum	
		3 Horizontal		300	1.94 - 2.19"	Carbon Steel	latera elet
			124			Aluminum	Interpolate
		3HA Horizontal	1,3,4	330	1.69" - 2.44"	Carbon Steel	
EPF	Belt	3VA Vertical				Aluminum Carbon Steel	
EPQ	Deit			365	1.94" - 2.44"	Aluminum	
						Carbon Steel	
				402	1.94" - 2.69"	Aluminum	
				-		Carbon Steel	
				445	2.19" - 2.94"	Aluminum	
						Carbon Steel	6P
				490	2.19" - 2.94"	Aluminum	Interpolate
						Carbon Steel	4P
				542	2.44" - 3.44"	Aluminum	
						Carbon Steel	Interpolate
				600	2.69" - 3.94"	Aluminum	interpolate
		3 Horizontal	1,3			Carbon Steel	2P
				660	2.94" - 3.94"	Aluminum	Extrapolat
				122	0.625" - 1.125"	Aluminum	Extrapolat
				150	0.625" - 1.375"	Aluminum	2541 dp044
				165	0.625" - 1.625"	Aluminum	Interpolate
				182	0.625" - 1.625"	Aluminum	9P
				200	0.625" - 1.625"	Aluminum	
				222	0.625" - 1.625"	Aluminum	
				245	0.625" - 1.875"	Aluminum	
EDEN				270	0.875" - 1.875"	Aluminum	
EPFN	Direct	4 Horizontal	1,5	300	0.875" - 2.125"	Aluminum	Interpolat
EPQN		4 Vertical		330	0.875" - 2.375"	Aluminum	
				365	0.875" - 2.875"	Aluminum	
				402	1.125" - 2.875"	Aluminum	
				445	1.125" - 3.375"	Aluminum	
				490	1.125" - 3.375"	Aluminum	10P
				542	1.125" - 3.375"	Aluminum	
				600	1.375" - 3.375"	Aluminum	Interpolat
				660	1.375" - 3.375"	Aluminum	8P
				122	0.625" - 1.125"	Aluminum	11P
				150	0.625" - 1.375"	Aluminum	
				165	0.625" - 1.625"	Aluminum	
				182	0.625" - 1.625"	Aluminum	
				200	0.625" - 1.625"	Aluminum	
				200	0.625" - 1.625"	Aluminum	
EPLFN				245			
	Direct	4 Horizontal	1,6		0.625" - 1.875"	Aluminum	Interpolat
EPLQN				270	0.875" - 1.875"	Aluminum	
				300	0.875" - 2.125"	Aluminum	
				330	0.875" - 2.375"	Aluminum	
				365	0.875" - 2.875"	Aluminum	
				402	1.125" - 2.875"	Aluminum	
				445	1.125" - 3.375"	Aluminum	

### Table 9 - Certified Configurations: Belt Driven Housed Fans

win City Far Aerove	Models: B ent Model: C				BAF-SW	/SI					gement ve Type																
Backward Inclined Fan	HP Motor Wt	<b>1/4</b> 19	<b>1/3</b> 19	1/2 27	<b>3/4</b> 27	<b>1</b> 29	<b>1-1/2</b> 32	<b>2</b> 48	<b>3</b> 110	<b>5</b> 115	<b>7-1/2</b> 165	<b>10</b> 180	<b>15</b> 280	<b>20</b> 315	25 380	<b>30</b> 415	<b>40</b> 490	<b>50</b> 560	<b>60</b> 800	<b>75</b> 840	<b>100</b> 1120	<b>125</b> 1160	<b>150</b> 1540	<b>200</b> 1730	υυτ	SDS <sup>1</sup>	z/ł
Size Weight	122 139	X	X	X	X	29 X	32 X	40 X	X	X	X	X	200	315	360	415	490	500	800	840	1120	1100	1540	1730	Extrapolated	2.0 2.5	1
Size	135	х	х	х	х	х	х	х	х	х	х	х	х	x											1H	2.5	
Weight Size	159 150	x	x	х	х	x	х	х	х	х	x	х	х	x													-
Weight Size	198 165	х	x	х	х	x	х	х	х	х	x	х	х	x													
Weight Size	224 182	x	x	х	х	x	x	х	х	х	x	х	x	x	х	х											
Weight Size	293 200	x	x	x	X	x	x	X	x	x	x	x	x	x	X	x	x	x									
Weight Size	343 222	~	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
Weight Size	442 245		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x									
Weight Size	620 270			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	х	х							
Weight Size	740 300			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					Interpolated		
Weight Size	950 330			~	x	x	x	x	x	X	x	x	x	x	x	x	x	x	x	x						2.0	1
Weight Size	1157 365				x	x	x	x	x	X	x	x	x	x	x	X	x	x	x	x	x	x	х			2.5	C
Weight Size	1387 402					x	x	×	×	×	x	x	x	x	x	x	x	x	x	×	x	x	x	x			
Weight Size	1719 445					x	×	×	×	x	x	x	x	x	x	×	x	x	×	x	×	x	x	×			
Weight Size	2112 490					~	x	x	x	x	x	x	x	x	x	X	x	x	x	x	x	x	x	x			
Weight Size	2478 542																										
Weight Size	3509 600						X	X	X	Х	X	X	Х	X	X	Х	X	X	X	Х	X	X	Х	X			
Weight Size	4429 660					ļ		х	х	х	х	х	х	х	х	х	х	х	Х	Х	Х	х	×	х	2H		
Weight	5283								Х	Х	х	х	х	х	Х	х	Х	х	Х	Х	Х	х	х	х	ЗН		
Size Weight	730 6365								х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	Extrapolated		
UUT 1H	UUT 2H	U	JT 3H												Fan I	Base Ma	terial	U	JT		Arrang	ement	Fan	Class	Fan Sizes	-	JUT
	$\land$			1	~						-	_	-		1	A36 Stee		1H	-3H			1			122-730		1H
	(to)	$\sqrt{(}$	~ ]	6	<u> </u>	>	~ <b>~</b> ~	18	an)	L,	<u>b</u> )	$\langle \cdot \rangle$	<u>a</u> )			sing Mat		U									H,3H
V = V	VY	' V	CΥ.		CV	$\langle \langle \rangle$	(ざ)	Υ	ΞV	- Y	Y	$\sim$	Y			arbon Ste ainless St			H H			<mark>eel Mate</mark> arbon Ste		F	an Sizes		JUT 1H
Clockwise	Clockwise Top Angular U		lockwise Horizontal		Clockwise Angular Dow	Cou	terclockwis	e Count	erclockwise	Count	erclockwise Horizontal	Counte	rclockwise			Aluminun			iH		Sta	ainless St Aluminum	teel		122-730	2	2H 3H
Upblast CW 360	Top Angular U CW45	ip fop	CW90	lop /	CW135	'n	Upblast CCW360		Angular Up CCW45	i op	CCW90	CC CC	gular Down W135		Mo	tor Posit	tion	U	JT				1	1			

Counterclockwise Bottom Angular Down CCW225 Counterclockwise Bottom Horizontal CCW270 Counterclockwise Bottom Angular Up CCW315

Motor Position	UUT
W	1H
Х	3H
Y	
7	211

Arrangement	Fan Class	Fan Sizes	UUT
	-		1H
1	II	122-730	
	====		2H,3H

Wheel Material	Fan Sizes	UUT
Carbon Steel		1H
Stainless Steel	122-730	2H
Aluminum		3H

Fan Type	UUT
Backward Inclined	1H,3H
Airfoil	2H

Wheel	UUT
9-bladed	1H-3H

Motor Position	UUT
W or Z	1H,2H
X or Y	3H

Note:

Clockwise Downblast CW 180

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables. (2) Housed Fans are certified for all discharge configurations.

Counterclockw Downblast CCW180

Clockwise Bottom Angular Up CW315

Clockwise Bottom Angular Down CW225

Clockwise Bottom Horizontal CW270

### Table 10 - Certified Configurations: Direct Driven Housed Fans

win City Fan Aerove	nt Models: E				SAF-SW	/31				Arrang Driv	e Type										
Backward	HP Motor Wt	<b>1/4</b>	1/3	1/2	3/4	1	<b>1-1/2</b>	2	3	5	7-1/2	10	15	<b>20</b> 315	25 380	30	<b>40</b> 490	50 560	UUT	SDS <sup>1</sup>	z/h <sup>1</sup>
Inclined Fan Size	105	19	19	27	27	29	32	48	110	115	165	180	280	315	380	415	490	560			
Weight	100	×	Х	Х	Х	Х	х	Х											Extrapolated		
Size	122				х	Х	х	Х											4H		
Weight	117				~	~	~	~													
Size Weight	135 134	-			х	х	х	х	х	х											
Size	154																				
Weight	164				X	Х	х	Х	х	х											
Size	165				х	Х	х	Х	х	х	х	х									
Weight	192				~	~	~	~	~	~	~	~									
Size Weight	182 248	-			х	х	х	х	х	х	х	х	х	х							
Size	248																				
Weight	291						Х	Х	Х	Х	Х	Х	Х	Х					Interpolated	2.5	1
Size	222						х	х	х	х	х	х	х	х							
Weight	376							~	L ^	^	Â	~	~	^							
Size	245	-							х	х	х	х	х	х							
Weight Size	464 270																				
Weight	548	-							х	х	х	х	х	х	х	х					
Size	300								х	х	х	х	х	х	х	х					
Weight	659								^	^	^	^	^	^	^	^					
Size	330	_									х	х	х	х	х	х	х	х	5H		
Weight Size	812 365																				
Weight	1026	-										х	х	х	х	х	х	х	6H		
															A		Fand	Class	Fan Sizes		UT
				0	UT 4H		UT 5H	0	UT 6H							ement	Fan				H
_	$\wedge$	_			$\sim$		_		$\wedge$			_	-		4	4			105-365		,6H
	1823	$\sim C$	-1-		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			1 8	~ ~ ~		5)	/~	>								
$(\gamma \gamma)$	NA.	) (5	ዲተ		ര	∕ (	$\int \Delta f$	] ()	ey)	1	ヘリ	1	$^{\circ}V$			eel Mate		I	Fan Sizes	U	
$\sqrt{-\gamma}$	- Y- Y	Y Y	1	1	<u>~~</u> ~		$\simeq \gamma$	' ž	$\geq Y$	Ľ	Y	T	_1			arbon Ste ainless S			105-365		H
Clockwise	Clockwise	c	lockwise		Clockwise	Cou	nterclockwis	e Coun	terclockwise	Coun	terclockwise	Counte	rclockwise			Aluminur		-	105-305		H H
Upblast CW 360	Top Angular CW45	op iop	Horizontal CW90	TOP	Angular Dow CW135	~	Upblast CCW360	гор	Angular Up CCW45	rop	Horizontal CCW90	CO An	gular Down CW135					·			
$\frown$	$\frown$		$\sim$		$\sim$		$\frown$	/		/			$\sim$					Fan	Base Material	U	UT
$\left( \widehat{a} \right)$	( a	Υſ	$(\alpha)$	$\sim$	്റി	(	6	(	കി	i ((	տ հ	(	പ്	$\mathbf{\mathbf{b}}$					A36 Steel	4H	-6H
Y_1	$\lambda \neq$		(X)	$' \setminus$	ドス	/	TX		Jz ¥		K•7	- V	ーン								
<u></u>	~ ~ Y	ц Ц	Y		<u>۲. ۲</u>		<u>- 1</u>			L	<u></u>	1	<u>}</u>				J	Ноч	sing Material	U	UT
Clockwise Downblast	Clockwise Bottom Angular I	Down Bot	Clockwise tom Horizon	tal Bot	Clockwise	Cou	nterclockwis Downblast	e Cou	nterclockwis n Angular Do	e Cour	nterclockwis om Horizonta	e Coun al Botto	terclockwis n Angular U	e Ip					arbon Steel		H
Downblast CW 180	Bottom Angular I CW225		tom Horizon CW270		tom Angula CW315	- 10	Downblast CCW180	201101	n Angular Do CCW225	2511	om Horizonta CCW270	Lono	n Angular U CCW315	-					ainless Steel		iΗ
																			Aluminum	6	БH
								17	1	Мо	otor Posit	ion	U	JT				Fan Type	)	U	UT
pecial Wheel	width/Diamei	er Const	ruction		Descriptio		U				W			/A				kward Inc			iΗ
Sneci	al Width (50 -	105%)			50% Widt			1			Х			/A				Airfoil		4H	,6H
opeci	a main (50 -	100 /0)			05% Wid			6			Y			/A							
0	Diameter (97	- 101%)		97	7% Diame	eter	6	6			Z		N	/A				Wheel		U	UT
Special					1% Diam			1										9-bladed			-6H

Note: (1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables. (2) Housed Fans are certified for all discharge configurations.

# Table 11 - Certified Configurations: Belt Driven Housed Fans

win City Fan Aerove	n Models: B ent Model: C				BAF-SW	/SI					jement: e Type:																
Backward	HP	1/4	1/3	1/2	3/4	1	1-1/2	2	3	5	7-1/2	10	15	20	25	30	40	50	60	75	100	125	150	200	UUT	SDS <sup>1</sup>	z/
nclined Fan Size	Motor Wt 122	19	19	27	27	29	32	48	110	115	165	180	280	315	380	415	490	560	800	840	1120	1160	1540	1730		2.0	
Weight	139	х	Х	Х	Х	Х	Х	Х	х	х	Х	Х													Extrapolated	2.0	
Size	135	х	Х	х	х	х	х	х	х	х	Х	х	х	Х											7H	2.5	1
Weight Size	159 150																										+
Weight	198	X	Х	х	Х	х	Х	х	Х	Х	Х	Х	Х	Х													
Size Weight	165 224	х	х	х	х	х	х	х	х	х	х	х	х	х													
Size	182	x	х	х	х	х	х	х	х	х	х	х	х	х	х	х											
Weight	293	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^											
Size Weight	200 343	Х	Х	х	х	Х	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х									
Size	222		х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х									
Weight Size	442 245		-																								
Weight	620		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х	Х	Х	Х	Х	Х									
Size	270	-		х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х							
Weight Size	740 300			~	~	~	~	Ň	Ň	Ň	v	v	Ň	v	v	X	Ň	~	~						Interpolated		
Weight	950			Х	х	Х	Х	Х	х	Х	Х	Х	х	Х	Х	Х	Х	Х	Х	х							
Size Weight	330 1157	-			х	х	Х	Х	х	х	Х	Х	х	Х	Х	Х	х	х	х	х						2.0 2.5	1
Size	365				х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			2.0	
Weight	1387 402				^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^				
Size Weight	402	-				Х	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	х	х	Х	Х	х	х			
Size	445					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			
Weight Size	2112 490																										
Weight	2478	-					Х	Х	х	х	Х	Х	х	Х	Х	Х	Х	Х	Х	х	Х	Х	Х	Х			
Size	542 3509	-					х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х			
Weight Size	3509 600																										
Weight	4429							Х	х	Х	Х	Х	х	Х	Х	Х	Х	х	Х	Х	Х	Х	Х	Х	11H		
Size Weight	<u>660</u> 5283	-							х	х	Х	Х	х	Х	х	х	х	х	х	х	Х	х	х	х	9H		
Size	730									х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	Extrapolated		
Weight	6365										~	~	~	~	~	~	~	~	~	~	~	~	~	~	Entrapolatoa		_
										UL	IT 7H				Fan	Base Ma	terial	U	UT		Arrang	gement	11	Class	Fan Sizes		UT
	$\wedge$								$\wedge$		_		~			A36 Stee	1	7H,9I	H,11H			9		 	122-730		7H
	102	$\sim C$	( <sup>1</sup>		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\setminus$ /		1 8	~i)		5)	/~	$\sum$									0	-		122 700	9H	,11H
17.1		יע	<u>የ</u> እ	. /	/ <sup>®</sup> }~	/ (	135)	I V	-1/	V	$\mathcal{V}$	$\searrow$	Ϋ́			sing Mat		U									
	Clockwise		Clockwise		Clockwise	Cou	<u></u> Y	e Court	<u>- </u>	Count	erclockwise	Counte	rclockwise			arbon Ste ainless St			'H 1H			arbon St		F	an Sizes		<b>UT</b> 7Н
Clockwise Upblast CW 360	Top Angular CW45	Up То	p Horizontal CW90	Тор	Angular Dov CW135	/n	nterclockwis Upblast CCW360	Тор	Angular Up CCW45	Top	erclockwise Horizontal CCW90	Top And CO	rclockwise gular Down W135			Aluminun			H H			ainless S			122-730		1H
$\langle - \rangle$			$\sim$		$\sim$			/	$\sim$			· /	$\sim$									Aluminur					9H
(2)	(A)	) /	$\langle \mathcal{A} \rangle$	) <	[" <sub>A</sub>	) (	(a)	(	(A)	- ( (	ዲካ	- (.,	$\mathcal{A}_{\mathbf{x}}$	>	Мо	tor Posit	tion	U	UT					Fan Type	9	U	UT
<u> <u> </u></u>	I <u>X</u> ∛	/ L	$L^{\circ}V$		1-1	′ <u> </u> L	FX		<u> * X</u>	Υ	$\sim 1$	- Y	$\leq V$			W		N	/A					kward Inc		<u>7</u> ⊦	H,9H
Clockwise	Clockwise	_	Clockwise		Clockwise	Cou	nterclockwis	e Cour	terclockwise	e Coun	terclockwise	Count	terclockwise	,		X Y			I/A I/A					Airfoil		1	1H
Downblast CW 180	Bottom Angular I CW225	Down Bo	CW270	ntal Bo	ttom Angula CW315	r Up I	CCW180	Bottom	Angular Do CCW225	wn Botto	m Horizonta CW270	Botton	n Angular Up CW315	Þ		Z			I/A					Wheel		U	UT
UUT 9H					UT 11H															•				9-bladed		7H.9	

### Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables.

(2) Housed Fans are certified for all discharge configurations.

### Table 12 - Certified Configurations: Belt Driven Housed Fans

n City Fan Aerove	n Models: Bo ent Model: Cl				SAF-SVV	51					ngemer /e Type:												
ackward lined Fan	HP Motor Wt	<mark>1/4</mark> 19	1/3 19	1/2 27	3/4 27	1 29	1-1/2 32	<b>2</b> 48	<b>3</b> 110	5 115	7-1/2 165	<b>10</b> 180	<b>15</b> 280	<b>20</b> 315	25 380	<b>30</b> 415	<b>40</b> 490	<b>50</b> 560	60 800	75 840	UUT	SDS <sup>1</sup>	z/
Size	402					X	X	х	X	x	X	X	X	Х	X	х					Extrapolated		
Weight Size	1403 445																						
Weight	1678					х	Х	х	х	х	х	х	х	х	х	х					13H		
Size	490						х	х	х	х	х	х	х	х	х	х	х	х			Interpolated		
Weight	2101						^	^	^	^	^	^	^	^	^	^	^	^			Interpolated	2.5	
Size	542						x	х	х	х	х	х	x	х	x	x	x	x	х	x	14H		
Weight	2508						~	~	^	~	~	~	~	~	~	~	~	~	~	~	1411		
Size Weight	600 3630							х	х	х	х	х	х	х	х	х	х	х	х	х	15H		
*			ر پې	(	á	> (	<u></u>			) [	ñ.	) <	Ã	)	• •			<b>jement</b> 0		<mark>Class</mark> I	<b>Fan Sizes</b> 402-600	U 13H	UT
Cicckwise Upblast CW 360	Clockwise Top Angular U CW45		tockwise Horizontal CW90	Тор	Clockwise Angular Do CW135	) ( 	unterclockw Upblast CCW360	rise Coo	Angular U CCW45		Aunterclockw roop Horizont ccw90	) <	Angular Do CCW135	) wn			1 Wh C Sta		rial eel			13H	
	Top Angular U	, 100	A Horizontal	( Top	Angular Do CW135	) [	Upblast CCW360	) (	Angular U CCW45		CCW90	аl Тор (	Angular Do CCW135	wn			1 Wh C Sta	0 eel Mate arbon Ste ainless St	rial eel	I II Fan	402-600 Fan Sizes	13H U 1: 1: 1: 1: 1:	H-15 JUT 3H 4H 5H
Clockwise	Clockwise Bottom Angular U	) [	Lockwise Horizontal CW90	) <	Angular Do	) (	unterclockw Upblast ccW360 unterclockw Downblast		unterclockw pp Angular U CCW45 CCW45 unterclockw pr Angular C ccW25		op Horizont	al Top	Interclock w Angular Do CCW135	wise			1 Wh C Sta	0 eel Mate arbon Ste ainless St	rial eel	I II Fan	402-600 Fan Sizes 402-600 Base Material A36 Steel	13⊢ U 1: 1: 1 1 1 1 13H	H-15 UT 3H 4H 5H UT H-15
Clockwise	Top Angular U CW45	) [	Clockwise	) <	Angular Dor CW135	wn ) ( <sub>gr Up</sub> ©	Upblast CCW360	rise Co Botte	Angular U CCW45	vise Down	ounterclocky ccw20	vise Cc Bo	Angular Do CCW135	wise ar Up			1 Wh C Sta	0 eel Mate arbon Ste ainless St	rial eel	I II Fan Hou	402-600 Fan Sizes 402-600 Base Material	13⊢ U 1: 1: 1: 1 1 U 13H	H-15 JUT 3H 4H 5H
Clockwise	Top Angular U CW45	) [	Clockwise	) <	Angular Dor CW135	wn ) ( <sub>gr Up</sub> ©	Upblast CCW360	rise Co Botte	Angular U CCW45	vise Down	CCW90	vise Cc Bo	Angular Do CCW135	wise ar Up			1 Wh C Sta	0 eel Mate arbon Ste ainless St	rial eel	I II Fan Hou C	402-600 Fan Sizes 402-600 Base Material A36 Steel sing Material	13⊢ U 1: 1: 1: 1 1 1 13H	1-15 3H 3H 4H 5H
Clockwise	Top Angular U CW45	p Top	Clockwise tor Posit	тор ) <	Angular Do CW135	wn ( ( () () () () () () () () () () () ()	Upblast CCW360	rise Co Botte	Angular C CCW45	Jp T vise Down Bc	ounterclocky UUT 14	vise Cc Bo	ounterclock UUT 15	wise ar Up			1 Wh C Sta	0 eel Mate arbon Ste ainless St	rial eel	I II Fan Hou C Sta	402-600  an Sizes  402-600  Base Material  A36 Steel  sing Material arbon Steel	13H U 1. 1. 1. 1. 1. U 1.3H	H-15 3H 4H 5H UUT 1-15 UUT 3H 4H
Clockwise	Top Angular U CW45	p Top	Clockwise tom Horizor CW270	тор ) <	Angular Do CW135	wn fir Up JT /A	Upblast CCW360	rise Co Botte	Angular U CCW45	vise Down	op Horizont CCW90 ounterclocks bitom Horizo CCW270 UUT 14	vise Canntal	Angular Do CCW135	wise ar Up			1 Wh C Sta	0 eel Mate arbon Ste ainless St	rial eel	I II Fan Hou C Sta	402-600 Fan Sizes 402-600 Base Material A36 Steel sing Material arbon Steel ainless Steel	13⊢ U 1: 1: 1: 1: 1: 13H U 13H	H-15 HUT 3H 4H 5H H-15 H-15 HUT 3H

### Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables.
 (2) Housed Fans are certified for all discharge configurations.

### Table 13 - Certified Configurations: Belt Driven Housed Fans

	Models: B nt Model: C				BAF-SW	/SI				Arrang Driv	gement e Type	: 3 : Belt															
ackward lined Fan	HP Motor Wt	<b>1/4</b> 19	1/3 19	1/2 27	<b>3/4</b> 27	<b>1</b> 29	<b>1-1/2</b> 32	<b>2</b> 48	<b>3</b> 110	<b>5</b> 115	7-1/2 165	<b>10</b> 180	<b>15</b> 280	<b>20</b> 315	<b>25</b> 380	<b>30</b> 415	<b>40</b> 490	<b>50</b> 560	<b>60</b> 800	75 840	<b>100</b> 1120	<b>125</b> 1160	<b>150</b> 1540	<b>200</b> 1730	UUT	SDS <sup>1</sup>	z/
Size	122	- X	X	27 X	X	29 X	32 X	40 X	x	X	105 X	160 X	200	315	360	415	490	500	800	040	1120	1100	1340	1730	Extrapolated	2.0	
Weight Size	284 135	x	x	х	x	x	x	x	x	x	х	x	х		_		_								16H, 18H	2.5 2.5	-
Weight Size	312 150	^																								2.5	+
Weight	372	-	х	Х	Х	х	Х	Х	х	х	х	х	х														
Size Weight	165 422	-	х	Х	Х	х	х	Х	х	х	х	х	х	Х													
Size Weight	182 464	-		х	х	х	х	х	х	х	х	х	х	х	Х												
Size Weight	200 628	_		х	х	х	х	х	х	х	х	х	х	х	Х												
Size	222	_			х	х	х	х	х	х	х	х	х	х	х	х											
Veight Size	801 245				х	x	x	x	x	x	x	x	x	x	х	x	х										
Veight Size	884 270																										
Veight	1080	-			Х	Х	Х	Х	Х	Х	х	Х	х	Х	Х	Х	Х	Х							Interpolated		
Size Veight	300 1473	-				х	х	х	х	х	х	х	х	х	Х	х	х	х	х							2.0 2.5	
Size Veight	330 1626	-					х	х	х	х	х	х	х	х	х	х	х	х	х	х							
Size	365	-					х	х	х	х	х	х	х	х	х	х	х	х	х	х							
leight Size	2043 402							х	x	х	х	x	х	х	х	х	х	х	х	х	x	x					
leight Size	2554 445																										
/eight	3175 490							Х	х	х	х	х	х	Х	х	Х	х	Х	Х	Х	Х	х	х	Х			
Size /eight	3472	-							х	х	х	х	х	х	Х	х	х	х	Х	х	х	х	Х	Х			
Size /eight	<u>542</u> 4400	-							х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	17H, 19H		
Size /eight	600 6189	_								х	х	х	х	х	х	х	х	х	х	х	х	х	х	х	Extrapolated		
eigin	0105						16H					I	I	I		I		I	I				_				
						001															Arranc	tement	Fan	Class 	Fan Sizes	U 16F	
~~	$\wedge$	1		6			<u></u>	$\langle \rangle$		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				Mo	<mark>tor Posi</mark> t W	tion	UL 16	UT SH			:	3		 	122-660	<u>17⊢</u>	đ.
$(\mathcal{N})$	(Å)	( (	ά, μ		<u>`</u> >	1 (1)	3,4 ]	(A	Ő) –	۱À	)) <	À	)		X Y			7H			14/1-	eel Mate	al al			U	
E	X = X	- Y-	-1	Y	1	Y	$\underline{Y}$	<u>X-</u>	Y	<u>Y</u>	Y	Υ	ζ		Z			зн Эн				arbon Ste		ſ	Fan Sizes	1	
Clockwise Upblast CW 360	Clockwise Top Angular Up CW45	Cloc Top H	kwise orizontal W90	Cloc Top Ang CM	kwise ular Down V135	Countere Upt	clockwise blast W360	Counterclo Top Angu CCW4	ockwise Ilar Up	Counterclo Top Horiz CCW9	ckwise ( contal 1	Counterclock op Angular I CCW135	wise Down	Fan	Base Ma	terial	UL	ІТ				ainless S Aluminur			122-660	<u>16⊢</u>	H, 17
		•			_				~		~				A36 Stee		16H-										<u> </u>
9)			2	$\bigwedge$		(1)	്)	(6	2)	(m	$\lambda$	6	$\sim$			•				Specia	Wheel Const	Width/Di ruction	ameter	D	escription	U	IL
<u>ر</u> آ	$\langle \mathbf{v} \rangle$	[[	N	V.	V.	Ľ	γį	- Vz	X	Υ <sub>C</sub>		YO	$\tilde{\mathbf{V}}$		<mark>sing Mat</mark> arbon Ste			_		Spe		h (50 - 10	)5%)		50% Width		18
Clockwise	Clockwise	- <u></u> -	ockwise	си си	ockwise	Counter	clockwise	Countercle	ockwise	Counterclo	ockwise	Counterclo	kwise	Sta	inless St	teel		,19H		Sneci	al Diame	ter (97 -	101%)	97	05% Width % Diameter	1	19 16
	Bottom Angular Do CW225	wn Bottor	n Horizontal CW270	Bottom	Angular Up W315	Dow	nblast W180	Bottom Ang CCW	ular Down 225	Bottom Ho CCW2	rizontal 270	Bottom Ang CCW3	ular Up I5		Aluminun	n	17	7H		Speci	a blame			10 <sup>-</sup>	1% Diameter	1	17
																								Fan Type	9	U	<u>j</u>
						001	17H			UUT	18H	UUT 1	9H											kward Inc		<u>16⊢</u>	

Note:

(1) Certification level is limited to the lower rating on either the Certified Subcomponent Tables, as listed above, or as listed on the Certified Fan Tables. (2) Housed Fans are certified for all discharge configurations.

Wheel

9-bladed

UUT

16H-19H

### Table 14 - Certified Subcomponents: Miscellaneous Components

Description	Availability	Material / Model / TCF Drawing #	Manufacturer	Test Unit
Access Door - Bolted & Hinged	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / Aluminum / SST	TCF	18H,9H
Drain	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / Aluminum / SST	TCF	5H
Flanged Inlet & Outlet Punched	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / Aluminum / SST	TCF	4H, 5H, 6H
Shaft & Bearing Guard	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / SST	TCF	14H
Belt Guard - OSHA & Quick Access Type	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / SST	TCF	3H,16H
Pressure transducer/transmitter	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	Series DH Digihelic	Dwyer	7H
Weather Cover	BC-SW, BAE-SW, BAF-SW	A 36 Steel / SST	TCF	13H
Shaft Seal	`	AL Cover Plate - Tetraglas Seal	TCF	11H
Extended Lube Lines	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	1/4" OD Copper Tubing / 1/4" Black Nylaflo LM	TCF	17H
Piezometer Ring	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	1/4" OD Copper Tubing / 1/4" Black Nylon Tubing	TCF	7Н
Split Housing	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / Aluminum / SST	TCF	2H
High Temperature Construction	BC-SW, BAE-SW, BAF-SW	A36 Steel	TCF	1H
Spark Resistant Construction - Type A,B & C	BC-SW, BAE-SW, BAF-SW	refer to AMCA 99-0401	TCF	15H, 4H
Outler Damper - Opposed & Parallel Blade	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	A36 Steel / SST	TCF	6H,5H
UL 705	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	refer to UL-705.6	TCF	13H
SS Nameplates	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	Stainless Steeel	TCF	19H
Bearing Upgrade	BC-SW, BAE-SW, BAF-SW, BC-DW, BAE-DW, BAF-DW	Unified SAF Bearings / Imperial	Dodge	19H

# Table 15 - Certified Subcomponents: Housed fan Wheels

Model	Drive	Arrangement	Reference Tables	Size	Shaft Diameter	Material	UUT
						Carbon Steel	
				105	.625"875"	Stainless Steel	Extrapolated
						Aluminum	
						Carbon Steel	4H
				122	.875" - 1.125"	Stainless Steel	
						Aluminum	
						Carbon Steel	
				135	.875" - 1.375"	Stainless Steel	_
						Aluminum	
						Carbon Steel	_
				150	.875" - 1.375"	Stainless Steel	_
						Aluminum	_
		4		165		Carbon Steel	_
					.875" - 1.625"	Stainless Steel	Interpolated
					-	Aluminum	
			2,10	182		Carbon Steel	
BC-SWSI					.875" - 1.875"	Stainless Steel	
BAE-SWSI					-	Aluminum	
	<b>D</b> : 1			200	4.405" 4.075"	Carbon Steel	
BAF-SWSI	Direct				1.125" - 1.875"	Stainless Steel	
						Aluminum	
				222	4.405" 4.075"	Carbon Steel	
					1.125" - 1.875"	Stainless Steel	
						Aluminum	
				0.15	4.075" 4.075"	Carbon Steel	_
				245	1.375" - 1.875"	Stainless Steel	_
						Aluminum	
				270	4.075" 0.405"	Carbon Steel	_
				270	1.375" - 2.125"	Stainless Steel Aluminum	_
				300	1.075" 0.105"	Carbon Steel	
				300	1.375" - 2.125"	Stainless Steel	
					+	Aluminum	
				330	1.625" - 2.375"	Carbon Steel Stainless Steel	5H
				330	1.020 - 2.3/0		Pic
					++	Aluminum	Internelated
				265	1.875" - 2.375"	Carbon Steel Stainless Steel	Interpolated
				365	1.0/0 - 2.3/0		6H
						Aluminum	DI

Model	Drive	Arrangement	Reference Tables	Size	Shaft Diameter	Material	UUT	
						Carbon Steel		
				122	1.00" - 1.437"	Stainless Steel	Extrapolated	
						Aluminum		
						Carbon Steel	1H, 7H	
				135	1.00" - 1.437"	Stainless Steel		
						Aluminum		
						Carbon Steel		
				150	1.00" - 1.687"	Stainless Steel		
						Aluminum		
						Carbon Steel		
				165	1.00" - 1.687"	Stainless Steel		
						Aluminum		
						Carbon Steel		
				182	1.00" - 1.687"	Stainless Steel		
			-			Aluminum		
				000	1 1071 1 0071	Carbon Steel		
				200	1.187" - 1.687"	Stainless Steel		
			_			Aluminum		
				222	1 427" 1 027"	Carbon Steel		
				222	1.437" - 1.937"	Stainless Steel		
			-			Aluminum	Internelated	
				245	1 427" 1 027"	Carbon Steel	Interpolated	
			2,9,11,12	245	1.437" - 1.937"	Stainless Steel		
		1				Aluminum		
				270	1.437" - 2.187"	Carbon Steel Stainless Steel		
		9, 9F 10			1.437 - 2.167	Aluminum		
BC-SWSI		10				Carbon Steel		
BAE-SWSI	Belt			300	1.437" - 2.187"	Stainless Steel		
	Deit				1.437 - 2.167	Aluminum		
BAF-SWSI						Carbon Steel		
				330	1.687" - 2.437"	Stainless Steel		
				350	1.067 - 2.437	Aluminum		
						Carbon Steel		
				365	1.687" - 2.687"	Stainless Steel		
				505	1.007 - 2.007	Aluminum		
							Carbon Steel	
				402	1.937" - 2.687"	Stainless Steel	_	
				402	1.001 2.001	Aluminum		
			-			Carbon Steel	13H	
				445	1.937" - 3.437"	Stainless Steel		
						Aluminum		
			I – – – – – – – – – – – – – – – – – – –		+	Carbon Steel		
				490	2.187" - 3.437"	Stainless Steel	Interpolated	
					2	Aluminum		
			I F		+ +	Carbon Steel		
				542	2.437" - 3.937"	Stainless Steel	14H	
				0.2	2.101 0.001	Aluminum		
			I F		+	Carbon Steel	Interpolated	
				600	2.937" - 4.437"	Stainless Steel		
						Aluminum	15H	
			1		1	Carbon Steel	Interpolated	
				660	2.937" - 4.437"	Stainless Steel	2H,11H	
		1	0.0.11			Aluminum		
		9	2,9,11		1	Carbon Steel	Interpolated	
		5		730	3.437" - 4.937"	Stainless Steel		
						Aluminum	3H,9H	

### Table 15 - Certified Subcomponents: Housed Fan Wheels (Continued)

Model	Drive	Arrangement	Reference Tables	Size	Shaft Diameter	Material	UUT
						Carbon Steel	
				122	1.187" - 1.437"	Stainless Steel	Extrapolated
						Aluminum	
						Carbon Steel	18H
				135	1.187" - 1.687"	Stainless Steel	<u>16H</u>
						Aluminum	
				450	1 407" 4 007"	Carbon Steel	
				150	1.437" - 1.687"	Stainless Steel	1
			-			Aluminum	
				165 1.437" - 1.937"	1 /37" - 1 937"	Carbon Steel Stainless Steel	
					Aluminum		
						Carbon Steel	
				182	1.687" - 1.937"	Stainless Steel	
				162	1.007 - 1.007	Aluminum	
			-			Carbon Steel	
				200	1.687" - 2.187"	Stainless Steel	
						Aluminum	
			-			Carbon Steel	
				222	1.937" - 2.437"	Stainless Steel	
						Aluminum	Interpolated
			-			Carbon Steel	
			2,13	245	2.187" - 2.437"	Stainless Steel	
						Aluminum	
				270	0.407# 0.007#	Carbon Steel	
BC-SWSI					2.187" - 2.687"	Stainless Steel	
BAE-SWSI	Belt	3				Aluminum	
BAE-SWSI	Deit	5	2,15		2.437" - 2.687"	Carbon Steel	
BAF-SWSI				300		Stainless Steel	
					-	Aluminum	
					0.407" 0.007"	Carbon Steel	
				330	2.437" - 2.687"	Stainless Steel	-
			-		_ <b>_</b>	Aluminum	
				365	2.437" - 2.687"	Carbon Steel Stainless Steel	
						Aluminum	
					+	Carbon Steel	
				402	2.437" - 2.687"	Stainless Steel	
				402	2.401 2.001	Aluminum	
			-			Carbon Steel	
				445	2.437" - 2.937"	Stainless Steel	
						Aluminum	
					1	Carbon Steel	1
				490	2.687" - 3.437"	Stainless Steel	1
						Aluminum	1
					+	Carbon Steel	1
				542	2.937" - 3.437"	Stainless Steel	1
				-		Aluminum	-
					1	Carbon Steel	1
				600	3.437" - 3.937"	Stainless Steel	1
						Aluminum	1
			ļ Ē			Carbon Steel	1
				660	3.437" - 3.937"	Stainless Steel	19H
						Aluminum	17H

Motor Drive Configuration	НР	Voltage (V)	Weight (lbs.)	Manufacturer	UUT
Comgaration	1 1/2	230	32		1P
	200	460	1730		2P
	200	460	1730	Baldor	3Н
	200	460	1730		17H
	1/3	115	19		18H
	1/3	230	19	Marathon	1H
	1 1/2	230	32		5P
	1 1/2	230	32		3P
	1 1/2	230	32	Тесо	13H
Belt	75	230	840		15H
	60	460	800		6P
	60	230	800	Toshiba	14H
	200	460	1730		19H
	75	460	840		4P
	100	460	1120	Siemens	9H
	100	460	1120		11H
	1/3	115	19		16H
	1/3	230	19	Weg	7H
	150	460	1540		2H
	40	230	460		5H
	40	460	490	Marathon	6H
	1	230	29		11P
<b>D</b> : (	2	230	48	1 _	9P
Direct	125	460	1160	Тесо	12P
	150	460	1540	1	10P
	1	230	29	Mar	4H
	1	230	29	Weg	7P

### Table 16 - Certified Subcomponents: Motors

	Table 17	- Plenum	ו Fans Ul	JT Overvi	iew		Blowers
	Speci	al Seismic C	ertification	Test Units		Twin	City
Manufacturer:							
		Twin City Fan Co	ompanies, Ltd.				
Product Line:		FPE, FPO, FPEN,	EPQN, EPLFN, EP	'I ON			
Certified Produc	t Line Constructio			Vheel, Direct and	Belt Driven, Single Hori	izontal Inlet, Single Vertical Inlet,	
Certified Option	s:	Special Width Co SS Nameplate /	onstruction / Piez Special Diameter	cometer Flow Mea Construction / Pr	asurement Ring, Pressu	nlet Collar / Aero Acoustic Diffuser / re Transducer-Transmitter with Display / rust Restraint Brackets / Inlet Screen / e Electric Motors	
The fans were s manufacturer re	commendations	as possible. The	isolators were bo	lted to a 1.00" th	•	ne isolators were set as close to per VMC hardware recommendations, hardware.	
Product Line	Model Tested		Dimensions (inche Width		Weight (lbm)	Notes:	UUT ID:
EPF	150	26.06	54.97	26.00	248		UUT-1P
EPQ	660	112.06	122.75	91.50	7000		UUT-2P
EPF	150	22.19	22.00	38.81	170		UUT-3P
EPQ	542	60.36	76.00	107.38	2848		UUT-4P
EPF	150	22.00	40.75	22.01	160		UUT-5P
EPQ	490	68.00	98.00	55.44	2338		UUT-6P
EPFN	150	27.97	22.00	22.00	128		UUT-7P
EPQN	660	98.26	81.50	81.50	5400		UUT-8P
EPFN	182	26.00	38.00	35.50	188		UUT-9P
EPQN	490	68.00	80.00	81.06	2462		UUT-10P
			27.04	20.00	116		
EPLFN	150	29.78	27.84	20.00	110		UUT-11P

### **Table 18 - Housed Fans UUT Overview**

### **Special Seismic Certification Test Units**

Manufacturer:						
	Twin City Fan Companies, Ltd.					
Product Line:						
	BC - SWSI, BC -DWDI, BAE - SWSI, BAE - DWDI, BAF - SWSI, BAF - DWDI					
Certified Product Line Cons	truction:					
	Carbon Steel Wheel, Stainless Steel Wheel, Aluminum Wheel, Carbon Steel Housing, Stainless Steel Housing,					
	Aluminum Housing, Direct and Belt Drive, Single Horizontal Inlet, Double Horizontal Inlet, Horizontal Shaft,					
	Class I, II and III Construction					
Certified Options:	High Temp Package / Split Housing / OSHA Belt Guard / Type A & B Spark Resistant Construction / Special Width Construction /					
	Special Diameter Construction / Drain / Parralel and Opposed Blade Outlet Damper / Flanged Outlet / Pressure Tranducer -					
	Transmitter / Piezometer Ring / Access Door / Bolted Pedestal / Shaft Seal / Weather Cover / Shaft and Bearing Guard /					
	UL 705 / Quick Access Belt Guard / Extended Lube Lines / Access Door - Bolted / SS Nameplates / Bearing Upgrade /					
	Marathon, Weg, Baldor, Seimens, Teco, Toshiba Motors					

mounting Description:

The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. The isolators were bolted to a 1.00" thick steel adaptor plate per VMC hardware recommendations, which used 3/8-16 UNC A325 bolts. The adaptor plates were mounted to the table using 5/8-11 UNC A325 hardware.

Product Line	Model Tested	D	imensions (inche	s)	Weight (lbm)	Notes:	UUT ID:
FIOUUCE LINE	woder rested	Depth	Width	Height	Weight (IDIII)	NOLES.	00110.
BC - SWSI	135	33.75	48.69	32.50	314		UUT-1H
BAE - SWSI	600	98.50	137.19	121.58	7760		UUT-2H
BC-SWSI	660	111.32	155.50	136.88	6910		UUT-3H
BAE - SWSI	122	32.44	21.75	25.69	142		UUT-4H
BC-SWSI	330	61.56	56.86	56.25	1862		UUT-5H
BAF-SWSI	365	59.38	59.61	83.30	1508		UUT-6H
BC - SWSI	135	33.38	46.50	37.03	294		UUT-7H
BC - SWSI	660	116.63	125.69	121.32	5208		UUT-9H
BAE - SWSI	600	114.00	129.27	109.59	6902		UUT-11H
BAF - SWSI	445	71.25	83.81	73.63	1620		UUT-13H
BC - SWSI	542	86.86	89.75	101.44	3552		UUT-14H
BAE - SWSI	600	91.38	126.63	100.00	2988		UUT-15H
BC - DWDI	135	31.88	53.19	29.00	358		UUT-16H
BC - DWDI	542	119.54	126.87	101.80	5630		UUT-17H
BAF - DWDI	135	37.58	47.88	32.50	312		UUT-18H
BAE - DWDI	542	165.30	171.30	78.05	7220		UUT-19H

Fans & Blowers

**Twin City** 



EPF, Plenum Fans

150

M	ar	nut	а	ct	ur	er	:

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

Product Line:

Testing Laboratory:

Model Number:

Product Construction Summary:

Aluminum Wheel, Steel Housing, Belt Driven, Base Mounted, Arrangement 3 with Motor Position W, Horizontal Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSS-1C-100 Seismic Spring Isolators, Motor: Baldor EM3154T, 1.5 HP, 208-230/460V, Belt Drive OSHA Belt Guard Painted OSHA Yellow

				UU	T PRO	PERTIES					
D	imensions (inche	s)		aight			Lowest Natural Freque	encies (Hz) +/	'-		
Depth	Width	Height	VVE	Weight		Back (Horizontal X)	Side-Side (Horizontal Y)		Up-D	Up-Down (Vertical Z)	
26.06	54.97	26.00	248	lbm	6.00		5.32			13.90	
				SEISM	IIC PAF	RAMETERS					
Buildin	ng Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016 ICC-ES AC156		2.5		1.0	1.5	4.00	3.00	1.68	0.68		

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 3/8-16 UNC Grade A307 bolts, which were welded to an adaptor plate.

UUT 2F
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EPQ, Plenum Fans

660

Manufacturer

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

Product Line:

Testing Laboratory:

Model Number:

Product Construction Summary:

Steel Wheel, Steel Housing, Belt Driven, Base Mounted, Arrangement 3 with Motor Position X, Horizontal Shaft Rotation Axis

Option / Component Summary:

Qty (2) VMC MSSH-1E-2575N, Qty (1) VMC MSSH-1E-1700N, Qty (1) VMC MSSH-1E-3250N Seismic Spring Isolators, Motor: Baldor ECP4407TR-4, 200 HP, 460V, Belt Drive Extended Life Bearings

				UU	T PRO	PERTIES					
Dimensions (inches) Lowest Natural Frequencies (Hz) +/-											
Depth	Width	Height	vve	Weight		Back (Horizontal X)	Side-Side (Horizontal Y)		Up-Down (Vertical Z)		
112.06	122.75	91.50	7000	lbm	3.65		2.90			8.60	
	-			SEISN	IIC PAF	RAMETERS					
Buildir	ng Code	Test C	riteria	Sds (g)	1	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC	2016	ICC-ES	AC156	2.5		1.0	1.5	4.00	3.00	1.68	0.68

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 5/8-11 UNC Grade A325 bolts, which were welded to an adaptor plate.



Manufacturer: Product Line:

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442 EPF, Plenum Fans

Testing Laboratory: Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

150

Model Number:

Product Construction Summary:

Aluminum Wheel, Steel Housing, Belt Driven, Base Mounted, Arrangement 3HA with Motor Position S, Horizontal Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSS-1C-100 Seismic Spring Isolators, Motor: Teco DTP1/54, 1.5 HP, 230/460V, Belt Drive OSHA Belt Guard - Quick Access - Painted OSHA Yellow

						PERTIES					
C	Dimensions (inche	s)					Lowest Natural Freque	ncies (Hz) +/	_		
Depth Width Height Weight			Front-	Back (Horizontal X)	Side-Side (Horizo	ntal Y)	Up-D	o-Down (Vertical Z)			
22.19	22.00	38.81	170	lbm	3.20		3.15		19.40		
	•			SEISN	/IC PA	RAMETERS					
Buildir	ng Code	Test C	riteria	Sds (g	)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V
CBC 2016 ICC-ES AC156		2.5		1.0	1.5	4.00	3.00	1.68	0.68		

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 3/8-16 UNC Grade A307 bolts, which were welded to an adaptor plate.



EPQ, Plenum Fans

542

Manufacturer:
Product Line:

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

Testing Laboratory:

Model Number:

Product Construction Summary:

Steel Wheel, Steel Housing, Belt Driven, Base Mounted, Arrangement 3HA with Motor Position S, Horizontal Motor Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSSH-1E-1000 Seismic Spring Isolators, Motor: Siemens 1LE23213CB212AA3, 75 HP, 230/460V, Belt Drive. Extended Lube Lines

				UU	T PRO	PERTIES						
[	Dimensions (inche	s)	14/-	:-h+			Lowest Natural Frequ	encies (Hz) +,	-			
Depth	Width	Height	VVE	Weight		Back (Horizontal X)	Side-Side (Horizontal Y)		Up-D	Up-Down (Vertical Z)		
60.36	76.00	107.38	2848	lbm	om 2.40		lbm 2.40 3.00 7.05		3.00		7.05	
	-			SEISM	IIC PAF	RAMETERS						
Buildir	ng Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (	
CBC 2016 ICC-ES AC156		AC156	2.5		1.0	1.5	4.00	3.00	1.68	0.68		

# <image>

The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 5/8-11 UNC Grade A325 bolts, which were welded to an adaptor plate.

All units were filled with contents and maintained structural integrity and functionality after the ICC-ES AC 156 test

04/28/2016

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EPF, Plenum Fans

150

Manufacturer:	

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

Testing Laboratory:	

Product Line:

Model Number:

\_ . . .

Product Construction Summary:

Aluminum Wheel, Steel Housing, Belt Driven, Base Mounted, Arrangement 3VA with Motor Position S, Vertical Shaft Rotation Axis

Option / Component Summary:

Qty (2) VMC MSS-1C-50 and Qty (2) VMC MSS-1C-100 Seismic Spring Isolators, Motor: Marathon U759, 1.5 HP, 230/460V, Belt Drive Round Inlet Collar

	UUT PROPERTIES										
Dimensions (inches) Lowest Natural Frequencie								ncies (Hz) +/	-		
Depth	Width	Height	we	Weight		Back (Horizontal X)	Side-Side (Horizo	ntal Y)	Up-D	own (Vertio	cal Z)
22.00	40.75	22.01	160	50 lbm 5.4		5.40	6.75			11.50	
				SEISN	/IC PAF	RAMETERS					
Building Code Test Criteria			Sds (g	.)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CBC 2016 ICC-ES A		AC156	2.5		1.0	1.5	4.00	3.00	1.68	0.68	

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 3/8-16 UNC Grade A307 bolts, which were welded to an adaptor plate.

U	U	Т	6	Ρ
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# Manufacturer:

	Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442
Product Line:	
	EPQ, Plenum Fans
Testing Laboratory:	
	Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442
Model Number:	
	490
Product Construction Summary:	
	Steel Wheel, Steel Housing, Belt Driven, Base Mounted, Arrangement 3VA with Motor Position S, Vertical Shaft Rotation Axis
	Inlet Collar - Round
Option / Component Summary:	
	Qty (2) VMC MSSH-1E-530N and Qty (2) VMC MSSH-1E-1200N Seismic Spring Isolators, Belt Drive,
	Motor: Toshiba 0604SDSR41A-P, 60 HP, 230/460V,
	Round Inlet Collar

# UUT PROPERTIES

Dimensions (inches)			Woight		Lowest Natural Frequencies (Hz) +/-							
Depth	Width	Height	we	Weight		Back (Horizontal X)	Side-Side (Horizontal Y)		Up-Down (Vertical Z)			
68.00	98.00	55.44	2338	lbm		4.95	4.40		7.00			
SEISM				1IC PAF	RAMETERS							
Buildin	g Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CBC	2016 ICC-ES AC156 2.5			1.0	1.5	4.00	3.00	1.68	0.68			

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 5/8-11 UNC Grade A325 bolts, which were welded to an adaptor plate.



EPFN, Plenum Fans

150

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

### Manufacturer:

Product Line:

### Testing Laboratory:

.....

Model Number:

Product Construction Summary:

Aluminum Wheel, Steel Housing, Direct Drive, Base Mounted, Arrangement 4, Horizontal Motor Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSS-1C-50 Seismic Spring Isolators, Motor: WEG 00118OT3E143T, 1 HP, 230/460V, Direct Drive Aero Acoustic Diffuser, Special Width Construction

				UU	T PRO	PERTIES						
Dimensions (inches) Lowest Natural Frequencies (Hz) +/-												
Depth	Width	Height	we	light	Front-	Back (Horizontal X)	Side-Side (Horizo	ontal Y)	Up-D	own (Vertio	cal Z)	
27.97	22.00	22.00	128	lbm	7.60		6.25		7.60 6.25 21.		21.30	
		-		SEISM	IIC PAF	RAMETERS			<u>.</u>			
Buildin	ng Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CBC	2016	16 ICC-ES AC156 2.5			1.0	1.5	4.00	3.00	1.68	0.68		

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 3/8-16 UNC Grade A307 bolts, which were welded to an adaptor plate.



EPQN, Plenum Fans

660

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

### Manufacturer:

Product Line:

### Testing Laboratory:

Model Number:

### Product Construction Summary:

Aluminum Wheel, Steel Housing, Direct Drive, Base Mounted, Arrangement 4, Horizontal Motor Shaft Rotation Axis

Option / Component Summary:

Qty (6) VMC MSSH-1E-1700N Seismic Spring Isolators, Motor: Worldwide Electric, WWE200-9-449TBB, 200 HP, 460V, Direct Drive Piezometer Ring, Pressure Transducer/Transmitter with Display, Special Width Construction

				UU	T PRO	PERTIES						
D	imensions (inche	s)	14/-	:-h+	Lowest Natural Frequencies (Hz) +/-							
Depth	Width	Height	vve	eight	Front-	Back (Horizontal X)	Side-Side (Horiz	ontal Y)	Up-D	Down (Verti	cal Z)	
98.26	81.50	81.50	5400	lbm		2.85	3.35		6.90			
	•	•	•	SEISN	IIC PAF	RAMETERS			•			
Buildin	ng Code	Test C	riteria	Sds (g)	)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CBC 2016 ICC-ES AC156		2.5		1.0	1.5	4.00	3.00	1.68	0.68			

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (6) 5/8-11 UNC Grade A325 bolts, which were welded to an adaptor plate.



EPFN, Plenum Fans

182

### Manufacturer:

Product Line:

### Testing Laboratory:

### Model Number:

Product Construction Summary:

Aluminum Wheel, Steel Housing, Direct Drive, Base Mounted, Arrangement 4, Vertical Motor Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSS-1C-50 Seismic Spring Isolators, Motor: Teco DHP0024, 2 HP, 230/460V, Direct Drive Stainless Steel Nameplate, Special Diameter Construction

# UUT PROPERTIES

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

Dimensions (inches)			M/sight		Lowest Natural Frequencies (Hz) +/-							
Depth	Width	Height	we	Weight		Back (Horizontal X)	Side-Side (Horizo	ntal Y)	Up-Down (Vertical Z)			
26.00	38.00	35.50	188	lbm		7.35	12.25		19.20			
	SEISN			SEISM	IIC PAF	RAMETERS						
Buildin	ng Code	Test C	riteria	iteria Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CBC	2016	ICC-ES	AC156	2.5		1.0	1.5	4.00	3.00	1.68	0.68	

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 3/8-16 UNC Grade A307 bolts, which were welded to an adaptor plate.

EPQN, Plenum Fans

490



### Unit Under Test (UUT) Summary Sheet

**UUT 10P** 

### Manufacturer:

Product Line:

Testing Laboratory:

Model Number:

### Product Construction Summary:

Aluminum Wheel, Steel Housing, Direct Drive, Base Mounted, Arrangement 4, Vertical Motor Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSSH-1E-1400N Seismic Spring Isolators, Motor: Teco E0508, 50 HP, 230/460V, Direct Drive Inlet Screen, Shaft Grounding Ring, Special Diameter Construction, Inlet Screen

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

				UUI	r Pro	PERTIES					
D	imensions (inche	s)	14/2	iaht			Lowest Natural Freque	ncies (Hz) +/	-		
Depth	Width	Height	vve	ight —	Front-	Back (Horizontal X)	Side-Side (Horizo	ntal Y)	Up-D	Down (Verti	cal Z)
68.00	80.00	81.06	2462	lbm		4.15	4.45		8.05		
			•	SEISM	IC PAF	RAMETERS					
Buildin	g Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V
CBC 2016 ICC-ES AC156		2.5		1.0	1.5	4.00	3.00	1.68	0.68		

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 5/8-11 UNC Grade A325 bolts, which were welded to an adaptor plate.

EPLFN, Plenum Fans

150

Manufacturer: Product Line:

Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442

Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

**UUT 11P** 

Testing Laboratory:

Model Number:

Product Construction Summary:

Aluminum Wheel, Steel Housing, Direct Drive, Base Mounted, Arrangement 4, Horizontal Motor Shaft Rotation Axis

Option / Component Summary:

Qty (4) VMC MSS-1C-50 Seismic Spring Isolators, Motor: Teco DTP0014, 1 HP, 230/460V, Direct Drive Protective Enclosure, Thrust Restraint Brackets

	UUT PROPERTIES											
D	imensions (inche	s)	10/0	iaht	Lowest Natural Frequencies (Hz) +/-							
Depth	Width	Height	we	ight	Front-Back (Horizontal X)		Side-Side (Horizontal Y)		Up-Down (Vertica		cal Z)	
29.78	27.84	20.00	116	lbm		10.00	7.75		13.90			
				SEISM	1IC PAF	RAMETERS						
Buildin	ng Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CBC	2016	ICC-ES	AC156	2.5		1.0	1.5	4.00	3.00	1.68	0.68	

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 3/8-16 UNC Grade A307 bolts, which were welded to an adaptor plate.

All units were filled with contents and maintained structural integrity and functionality after the ICC-ES AC 156 test

**Fans & Blowers** 

Twin City

**UUT 12P** 

Unit Under Test (UUT) Summary Sheet

Manufacturer:	
	Twin City Fan Companies, Ltd., 5959 Trenton Lane North, Plymouth, MN 55442
Product Line:	
	EPLQN, Plenum Fans
Testing Laboratory:	
	Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442
Model Number:	
	490
Product Construction Summary:	
	Aluminum Wheel, Steel Housing, Direct Drive, Base Mounted, Arrangement 4, Horizontal Motor Shaft Rotation Axis
Option / Component Summary:	
	Qty (2) VMC MSSH-1E-530N and Qty (2) VMC MSSH-1E-825N Seismic Spring Isolators, Motor: Teco EP1004, 100 HP, 460V, Direct Drive
	Inlet Screen

### **UUT PROPERTIES** Lowest Natural Frequencies (Hz) +/-Dimensions (inches) Weight Front-Back (Horizontal X) Up-Down (Vertical Z) Depth Width Height Side-Side (Horizontal Y) 75.84 73.97 68.00 2450 lbm 3.95 4.40 6.85 **SEISMIC PARAMETERS** Z/h Aflx-H (g) Aflx-V (g) **Building Code** Test Criteria Sds (g) lp Arig-H (g) Arig-V (g) 4.00 3.00 1.68 CBC 2016 ICC-ES AC156 2.5 1.0 1.5 0.68

### Unit Mounting Description / Configuration:



The fans were secured to the isolators using the supplied bolt and jam-nut. The spacing and deflection of the isolators were set as close to manufacturer recommendations as possible. Field installation should have an air gap of 1/4". The isolators were each bolted to a 1.00" thick carbon steel pad per VMC hardware recommendations using Qty. (4) 5/8-11 UNC Grade A325 bolts, which were welded to an adaptor plate.

All units were filled with contents and maintained structural integrity and functionality after the ICC-ES AC 156 test

**Fans & Blowers** 

**Twin City**
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1										
	win City Fan Co	mpanies, Ltd., 59	55 Trenton Lane	North, Plym	outh, MN 55442					
	3C - SW Flat-Blac	le Backward Incli	ned Centrifugal Fa	an						
I	win City Fan Co	mpanies, Ltd., 59	55 Trenton Lane	North, Plym	iouth, MN 55442					
	125									
on Summany:	135									
,	Carbon Steel Wh	eel Carbon Stee	Housing Belt Dri	von Arrano	rement 1 Motor Positio	n W. Class I Construct	ion			
		,	i nousing, beit Di	ven, Anang	gement I Motor Positio	in w, class i construct	1011,			
Г		ROLALION AXIS								
nt Summary:										
	Dty (2) VMC MS	S-1C-100 and Otv	(2) VMC MSS-1C-	150 Seismi	c Spring Isolators, High	Temp Construction				
					c opining isolators, high	remp construction,				
_										
			UU	T PRO	PERTIES					
onsions (inchos	\					Lowest Natural Frequ	encies (Hz) +/	·_		
, ,	,	We	ight	Front-I			( ) )		own (Vertie	al 7)
	ÿ				, ,		ionical 17	00-		,a,
33.75         48.69         32.50         314         5.65         5.75         9.10										
			SEISN	1IC PAF	RAMETERS					
Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g
CBC 2016         ICC-ES AC156         2.5         1.0         1.5         4.00         3.00         1.68         0.68										
1	: 1 on Summary: ( ht Summary: ( 1 nensions (inches) Width ( 48.69	: Twin City Fan Cor 135 on Summary: Carbon Steel Wh Horizontal Shaft nt Summary: Qty (2) VMC MSS 1/3 HP 1800 RPM Midth Height 48.69 32.50	: Twin City Fan Companies, Ltd., 55 135 on Summary: Carbon Steel Wheel, Carbon Stee Horizontal Shaft Rotation Axis nt Summary: Qty (2) VMC MSS-1C-100 and Qty 1/3 HP 1800 RPM Single Phase, 6 Hensions (inches) We 48.69 32.50 3	: Twin City Fan Companies, Ltd., 5955 Trenton Lane 135 on Summary: Carbon Steel Wheel, Carbon Steel Housing, Belt Dri Horizontal Shaft Rotation Axis nt Summary: Qty (2) VMC MSS-1C-100 and Qty (2) VMC MSS-1C- 1/3 HP 1800 RPM Single Phase, 60 Hz 240V Marath UU rensions (inches) Weight 48.69 32.50 314 SEISN	Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plym         135         On Summary:         Carbon Steel Wheel, Carbon Steel Housing, Belt Driven, Arrang Horizontal Shaft Rotation Axis         nt Summary:       Qty (2) VMC MSS-1C-100 and Qty (2) VMC MSS-1C-150 Seismi 1/3 HP 1800 RPM Single Phase, 60 Hz 240V Marathon         UUT PROI         iensions (inches)         Weight       Front-I         48.69       32.50       314	: Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442	: Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442	: Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442	: Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442	: Twin City Fan Companies, Ltd., 5955 Trenton Lane North, Plymouth, MN 55442

#### Unit Mounting Description / Configuration:



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Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane N	North, Plym	outh, MN 55442					
Product Line:											
Testing Laborat	0.00%	BAE - SW Airfoil	Centrifugal Fan								
	ory.	Twin City Fan Co	mnanies Itd 59	955 Trenton Lane N	North Plym	outh MN 55442					
Model Number		Twill city full co	inpunics, Etd., 55		tor cri, r tym	outil, Mill 33442					
		600									
Product Constru	uction Summary:		/heel, Stainless Si Rotation Housinį		ngment 1 w	ith Motor Position Z, Be	elt Driven, Class III Cons	truction,			
Option / Compo	onent Summary:			nic Spring Isolators 150 HP 1800 RPM		•					
				UU	IT PROI	PERTIES					
1	Dimensions (inche	es)				l	Lowest Natural Frequer	cies (Hz) +/	-		
Depth	Width	Height	vve	ight	Front-I	Back (Horizontal X)	Side-Side (Horizo	ntal Y)	Up-l	Down (Verti	cal Z)
98.50	137.19	121.58	77	760		2.77	3.96			9.20	
			SEISN	IIC PARAM	ETERS	(refer to ASCE 7-10 Su	ipplement)				
Buildi	ng Code	Test C	riteria	Sds (g)	)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
<b>CD</b> (	2016		AC156	2.0		1.0	1.5	3.20	2.40	1.34	0.54
CBC	2010	ICC-ES	ACIDO	2.5		0.0	1.5	2.50	1.00	1.68	0.68
	Description / Conf			1		1	1		1	1	



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Manufacturer:											
<b></b>		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane I	North, Plym	outh, MN 55442					
Product Line:											
<u> </u>		BC - SW Flat-Bla	de Backward Incli	ined Centrifugal Fa	an						
Testing Laborat	tory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane I	North, Plym	outh, MN 55442					
Model Number											
		660									
Product Constr	uction Summary:	Aluminum Whee	el, Aluminum Hou	using, Arrangment	1 with Mot	or Position X, Single Wi	de Single Inlet, Belt Driv	en,			
			-	haft Rotation Hou			0 /				
1		Qty (6) VMC MS	SH_1E_1700N and	I OH (2) MAC MAC			OCULA Dalla Consul				
		.,.,		HP 1800 RPM 3/60	0/460V 4451	1 0	, USHA Belt Guard,				
	Dimensions (inche	Motor: Baldor #	EM2563T-4 200	HP 1800 RPM 3/60	0/460V 4451	PERTIES	, USHA Belt Guard,	cies (Hz) +/-			
Depth	Dimensions (inche Width	Motor: Baldor #	EM2563T-4 200	HP 1800 RPM 3/60	0/460V 4451 JT PROI	PERTIES		( ) )		Down (Vertie	cal Z)
		Motor: Baldor #	EM2563T-4 200	HP 1800 RPM 3/60	0/460V 4451 JT PROI	ODP PREM EFF	owest Natural Frequer	( ) )		Down (Vertie 8.40	cal Z)
Depth	Width	Motor: Baldor #	EM2563T-4 200   We	HP 1800 RPM 3/60	0/460V 4451 JT PROI Front-E	T ODP PREM EFF PERTIES Back (Horizontal X)	owest Natural Frequer Side-Side (Horizo 4.26	( ) )			cal Z)
Depth 111.32	Width	Motor: Baldor #	EM2563T-4 200   We	HP 1800 RPM 3/60	0/460V 4451 JT PROI Front-E	PERTIES Back (Horizontal X) 3.17	owest Natural Frequer Side-Side (Horizo 4.26	( ) )	Up-E		
Depth 111.32 Build	Width 155.50	Motor: Baldor #	EM2563T-4 200 We 65 SEISN	HP 1800 RPM 3/60	0/460V 4451 JT PROI Front-E	T ODP PREM EFF PERTIES Back (Horizontal X) 3.17 (refer to ASCE 7-10 SL	owest Natural Frequer Side-Side (Horizo 4.26 Ipplement)	ntal Y)	Up-E	8.40	cal Z) Arig-V (g) 0.54

Unit Mounting Description / Configuration:



UUT-4H



#### Unit Under Test (UUT) Summary Sheet

Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	nouth, MN 55442					
Product Line:											
		BAE - SW Airfoil	Centrifugal Fan								
Testing Laborat	ory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	nouth, MN 55442					
Model Number	:										
		122									
Product Constr	uction Summary:										
					ent 4, Single	Wide Single Inlet, Dire	ct Drive, Class 1 Constru	uction			
		Horizontal Shaft	izontal Shaft Rotation Housing								
Option / Comp	onent Summary:										
Option / Compo	onent Summary.	Oty (2) VMC MS	S-1C-50 and Oty	(2) VMC MSS-1C-1	00 Seismic	Spring Isolators Type F	3 Spark Resistant Constr	uction			
		Special Width W			loo seisinie	Spring isolators, Type I		uction,			
		•	<i>i</i> 1	ECO 1 HP 1800 RPI	M 1/60/230	IV 143T ODP					
			·	UU	IT PRO	PERTIES					
	Dimensions (inche	201					Lowest Natural Freque	ncies (Hz) +/	_		
	Width	Height	We	eight	Front-	Back (Horizontal X)	Side-Side (Horizo			Down (Vertio	al Z)
Depth									-		
	21.75	25.00	1	42			F 00			0.65	
Depth 32.44	21.75	25.69	1	42		7.30	5.00			9.65	·
	21.75	25.69	1		IIC PAF		5.00			9.65	
32.44	21.75 ng Code		1 iriteria			7.30	5.00	Aflx-H (g)	Arig-H (g)	9.65 Aflx-V (g)	Arig-V (g
32.44 Buildi		Test C		SEISN		7.30		Aflx-H (g) 4.00	Arig-H (g) 3.00		Arig-V (g 0.68

#### Unit Mounting Description / Configuration:



UUT-5H



#### Unit Under Test (UUT) Summary Sheet

Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	10uth, MN 55442					
Product Line:											
		BC - SW Flat-Blac	de Backward Incl	ined Centrifugal Fa	an						
Testing Labora	tory:	Turin City Fan Ca									
Model Numbe	·•	Twin City Fan Co	mpanies, Ltd., 55	955 Trenton Lane	vorth, Plyff	100th, 1919 55442					
	•	330									
Product Constr	uction Summary:	550									
			/heel, Stainless S Rotation Housin	•	ngment 4, S	Single Wide Single Inlet	, Direct Drive, Class 2 (	Construction,			
Option / Comp	onent Summary:										
option, comp	onene oannaryr	Qtv (4) VMC MS	SH-1E-530N and	Qtv(2) VMC MSSH	-1E-825N S	eismic Spring Isolators,	Drain. Outlet Damper	- Parallel Bla	de.		
		Flanged Outlet I							,		
		Motor: Maratho	n #GT1035 40 HF	2 1200 RPM TEFC I	PREM EFF 3	/60/230-460V					
				UU	T PRO	PERTIES					
	Dimensions (inche	es)					Lowest Natural Freque	encies (Hz) +/	/_		
Depth	Width	Height	VVe	eight	Front-	Back (Horizontal X)	Side-Side (Horiz	ontal Y)	Up-[	Down (Verti	cal Z)
61.56			362	5.10		5.15		9.65			
				SEISN	IIC PAF	RAMETERS					
Build	ing Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g
	CBC 2016 ICC-ES AC156										

#### Unit Mounting Description / Configuration:



UUT-6H



#### Unit Under Test (UUT) Summary Sheet

Manufacturer:											
ivialiulactulei.		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	outh, MN 55442					
Product Line:		,				,					
		BAF - SW Airfoil	Centrifugal Fan								
Testing Laborat	ory:										
		Twin City Fan Co	mpanies, Ltd., 59	55 Trenton Lane	North, Plym	nouth, MN 55442					
Model Number	:										
		365									
Product Constr	uction Summary:										
I			,	0, 0	: 4, Single W	/ide Single Inlet, Direct	Drive, Class 2 Construct	tion			
		Horizontal Shaft	zontal Shaft Rotation Housing								
Option / Comp	onent Summary:										
	,	Qtv (4) VMC MS	SH-1E-650 and Q	tv (2) VMC MSSH-	1E-530N Se	ismic Spring Isolators.	Outlet Damper - Oppos	ed Blade.			
		.,.,		, , ,		00 RPM TEFC PREM EF		,			
		Special Width W	/heel, Special Dia	meter Wheel							
				UL	IT PRO	PERTIES					
	Dimensions (inche	es)					Lowest Natural Freque	ncies (Hz) +/	-		
Depth	Width	Height	We	ight	Front-	Back (Horizontal X)	Side-Side (Horizo			Down (Vertie	cal Z)
59.38	59.61	83.30	15	1508		4.35 10.00			4.40		
1	4	•		SEISN		RAMETERS					
Buildi	ng Code	Test C	riteria	Sds (g	)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g

#### Unit Mounting Description / Configuration:



U	U	T	-7	



Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plyn	nouth, MN 55442					
Product Line:											
		BC - SW Flat-Bla	de Backward Incli	ined Centrifugal F	an						
Testing Laborat	ory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plyn	nouth, MN 55442					
Model Number	:	405									
135 Product Construction Summary:											
Product Constru	action Summary:	o 1 o 1144									
			-			n motor position L, Sing	le Wide Single Inlet, Bel	t Drive,			
		Class 1 Construction, Horizontal Shaft Rotation Housing									
Ontion / Comm											
Option / Compo	onent Summary:		5 1C 100 and Ot	()) VINAC NASS 10	1EQ Solomi	c Spring Isolators,					
				r, Piezometer Rin		c spring isolators,					
				IP 1800 RPM ODF	0,	,					
		Wotor: Weg #33	100510050 1/51								
				UL	JT PRO	PERTIES					
[	Dimensions (inche	es)					Lowest Natural Frequer	ncies (Hz) +/	-		
Depth	Width	Height	We	eight	Front-	Back (Horizontal X)	Side-Side (Horizo	ntal Y)	Up-[	Down (Vertio	cal Z)
33.38	46.50	37.03	2	94		6.10	5.40			12.50	
55.50	40.50	57.05	2	54		0.10	5.40			12.50	
				SEISN		RAMETERS					
Buildi	ng Code	Test (	riteria	Sds (g	)	Z/h	gl	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
Ballali	ing coue	iest C		Sus (g	1	4/11	אי	(g)	7118-11 (B)	711V-A (R)	2118-1 (B)
СВС	2016	ICC-ES	AC156	2.5		1.0	1.5	4.00	3.00	1.68	0.68
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#### Unit Mounting Description / Configuration:



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Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane N	North, Plymo	outh, MN 55442					
Product Line:											
		BC - SW Flat-Bla	de Backward Incl	ined Centrifugal Fa	in						
Testing Laborate	ory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane N	North, Plymo	outh, MN 55442					
Model Number:											
		660									
Product Constru	iction Summary:	A l			0		Vida Cinala Iulat, Dalt Dui				
						or Position L, Single V	Vide Single Inlet, Belt Dri	ve,			
		Class 3 Construc	tion, Horizontal s	Shaft Rotation Hous	sing						
Option / Compo	nent Summary:										
option / compo	nent Summary.	Access Door - Hi	nged. Bolted Ped	estal. Motor: Siem	ens #SD100	100 HP 1800 RPM 3	/60/230-460V 405T TEF0	PREM FEE			
			•	-		ismic Spring Isolators					
			22 2000 and		12 00011 00						
				UU <sup>.</sup>	T PROP	PERTIES					
Г	) imensions (inch	25)					Lowest Natural Freque	ncies (Hz) +/	-		
Depth	Width	Height	We	eight	Front-B	ack (Horizontal X)	Side-Side (Horizo			Down (Vertie	cal Z)
						2.00	1.00		· ·	0.07	
116.63	125.69	121.32	54	208		3.80	4.92			8.07	
	•		SEISI	IIC PARAM	ETERS (I	refer to ASCE 7-10	Supplement)				
Buildir	ng Code	Test C	riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
	2016	100 50	10150	2.0		1.0	1.5	3.20	2.40	1.34	0.54
СВС	2016	ICC-ES	AC126	2.5		0.0	1.5	2.50	1.00	1.68	0.68
Unit Mounting [	Description / Con		A BULLEY					•			



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Manufacturer:				·							
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	outh, MN 55442					
Product Line:											
		BAE - SW Airfoil	Centrifugal Fan								
Testing Laborate	ory:										
Model Number:		Twin City Fan Co	mpanies, Ltd., 55	955 Trenton Lane	North, Plym	iouth, IVIN 55442					
Nodel Number.		600									
Product Constru	ction Summary:										
	ction Summary.	Stainless Steel W	heel. Stainless S	teel Housing, Arra	angment 9 v	with motor position R	Single Wide Single Inlet,	Belt Drive			
				Shaft Rotation Hou	-		Single Wide Single	Den Dine,			
l					using						l
Option / Compo	nent Summary:										
		Qty (4) VMC MS	SH-1E-2990 Seisr	nic Spring Isolator	rs, Shaft Sea	l, Motor: Siemens 100	HP 1800 RPM TEFC PRE	M EFF 3/60/	/460V		
					-,	·,···-					
				UU	JT PRO	PERTIES					
	imensions (inche	25)	I				Lowest Natural Freque	ncies (Hz) +/	-		
Depth	Width	Height	We	eight	Front-	Back (Horizontal X)	Side-Side (Horizo	. , .		Down (Verti	cal Z)
				202		11.20	2.50			C 00	
114.00	129.27	109.59	05	902		11.20	2.56			6.90	
			SEISIV	IIC PARAM	IETERS	(refer to ASCE 7-10 S	Supplement)				
Buildir	g Code	Test C	Criteria	Sds (g)	:)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
	2016	100 50		2.0		1.0	1.5	3.20	2.40	1.34	0.54
CBC	2016	ICC-ES	AC156	2.5		0.0	1.5	2.50	1.00	1.68	0.68
				<u> </u>							L
Unit Mounting [	Description / Con	figuration:									
0		1Xun			M	X	100				



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Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane N	orth, Plym	nouth, MN 55442					
Product Line:											
		BAF - SW Airfoil	Centrifugal Fan								
Testing Laborat		Turin City Fan Ca			- the Diver						
Model Number:		TWIN City Fan Co	mpanies, Ltd., 55	955 Trenton Lane N	orth, Piym	nouth, IVIN 55442					
	•	445									
Product Constri	uction Summary:										
		Carbon Steel Wh	neel, Carbon Stee	el Housing, Arrangm	ent 10, Si	ngle Wide Single Inlet, I	Belt Drive, Class 2 Cons	truction			
		Horizontal Shaft	Rotation Housing	g		-					
Option / Compo	onent Summary:										
		Qty (4) VMC MS	SH-1E-530N and	Qty (2) VMC MSSH-	-1E-1000 S	Seismic Spring Isolators.	, Weather Cover, UL 70	5 Constructi	on,		
		Motor: Teco #D1	FP1/56 11/2HP	1200 RPM ODP PRE							
		Motor: Teco #D1	FP1/56 11/2HP	1200 RPM ODP PRE	EM EFF 3/	60/230-460V			·		
		Motor: Teco #D1	FP1/56 11/2HP	1200 RPM ODP PRE	EM EFF 3/				·		
	Dimensions (inche		· ·	1200 RPM ODP PRE	EM EFF 3/	60/230-460V PERTIES	Lowest Natural Freque	ncies (Hz) +/	· /_		
[ Depth	Dimensions (inche Width		· ·	1200 RPM ODP PRE	em eff 3/0 T PRO	60/230-460V PERTIES	Lowest Natural Freque Side-Side (Horizo			Down (Vertic	cal Z)
		s)	We	1200 RPM ODP PRE	em eff 3/0 T PRO	60/230-460V PERTIES				Down (Vertie 14.60	cal Z)
Depth	Width	s) Height	We	1200 RPM ODP PRE	EM EFF 3/4 T PRO	Back (Horizontal X)	Side-Side (Horizo				cal Z)
Depth 71.25	Width	s) Height 73.63	We	1200 RPM ODP PRE	EM EFF 3/4 T PRO	Back (Horizontal X) 5.90	Side-Side (Horizo				cal Z) Arig-V
Depth 71.25 Buildin	Width 83.81	s) Height 73.63 Test C		1200 RPM ODP PRE	EM EFF 3/0 T PRO	Back (Horizontal X) 5.90	Side-Side (Horizo	ntal Y)	Up-[	14.60	



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N.4											
Manufacturer:		T : 0" F 0									
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane N	North, Plym	nouth, MN 55442					
Product Line:											
		BC - SW Flat-Blac	de Backward Incl	ined Centrifugal Fa	in						
Testing Labora	tory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane N	North, Plym	nouth, MN 55442					
Model Number	r:										
		542									
Product Constr	uction Summary:	o				o:					
			-	•	ngment 10,	, Single Wide Single Inle	t, Belt Drive, Class 2 Co	nstruction			
		Horizontal Shaft	Rotation Housing	g							
Option / Comp	onent Summary:										
				d Qty (2) VMC MSSI	H-1E-825N	Seismic Spring Isolator	s, Shaft and Bearing Gu	iard,			
		Motor: Toshiba 6	50HP 1800 RPM <sup>-</sup>	TEFC PREM EFF 3/6	50/230-460						
		Motor: Toshiba	50HP 1800 RPM <sup>-</sup>	TEFC PREM EFF 3/6	50/230-460						
		Motor: Toshiba (	50HP 1800 RPM <sup>-</sup>								
	Dimensions (inche			UU		PERTIES	Lowest Natural Freque	ncies (Hz) +/	·		
	Dimensions (inche Width	s)			T PRO	PERTIES	Lowest Natural Freque Side-Side (Horizc		1	Down (Vertic	cal Z)
Depth	Width	s) Height	We	UU"	T PRO	PERTIES Back (Horizontal X)	Side-Side (Horizo		1	•	cal Z)
		s)	We	UU	T PRO	PERTIES			1	Down (Vertie 14.60	cal Z)
Depth	Width	s) Height	We	<b>UU</b> eight -	T PRO	PERTIES Back (Horizontal X)	Side-Side (Horizo		1	•	cal Z)
Depth 86.86	Width 89.75	s) Height 101.44	We	eight -	T PRO	PERTIES Back (Horizontal X) 18.80 RAMETERS	Side-Side (Horizo 4.45	ntal Y)	Up-[	14.60	
Depth 86.86	Width	s) Height 101.44	We 35	<b>UU</b> eight -	T PRO	PERTIES Back (Horizontal X) 18.80	Side-Side (Horizo		1	•	
Depth 86.86 Build	Width 89.75	s) Height 101.44 Test C	We 35	eight -	T PRO	PERTIES Back (Horizontal X) 18.80 RAMETERS	Side-Side (Horizo	ntal Y)	Up-[	14.60	Cal Z) Arig-V (g 0.68

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		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane No	orth, Plymouth,	MN 55442					
Product Line:											
		BAE - SW Airfoil	Centrifugal Fan								
Testing Laboratory	y:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane No	orth, Plymouth,	MN 55442					
Model Number:		600									
Product Constructi	tion Summary:	000									
Todact construct	lion Summary.	Aluminum Whee	l. Aluminum Hou	using. Arrangment 1	0. Single Wide S	Single Inlet, Belt I	Drive, Class 2 Construct	ion			
		Horizontal Shaft	-			ingle inlet, beit					
				0							
Option / Compone	ent Summary:										
	ene o'annai yi										
	ene ourmany.	Qty (4) VMC MS	SH-1E-1400 and (	Qty (2) VMC MSSH-1	1E-2000 Seismic	Spring Isolators	Type A Spark Resistant	Constructio	n,		
				Qty (2) VMC MSSH-1 RPM TEFC PREM EF			. Type A Spark Resistant	Constructio	n,		
							Type A Spark Resistant	Constructio	n,		
				RPM TEFC PREM EF		V	Type A Spark Resistant	Constructio	n,		
		Motor: Teco #EP	0754 75HP 1800	URPM TEFC PREM EF	FF 3/60/230-460	V	Type A Spark Resistant				
	nensions (inche Width	Motor: Teco #EP	0754 75HP 1800	RPM TEFC PREM EF	FF 3/60/230-460	TIES		ncies (Hz) +/		Down (Vertic	cal Z)
Dim Depth	nensions (inche Width	Motor: Teco #EP	0754 75HP 1800 We	PRM TEFC PREM EF	FF 3/60/230-460	TIES	Lowest Natural Freque Side-Side (Horizo	ncies (Hz) +/			cal Z)
Dim	nensions (inche	Motor: Teco #EP	0754 75HP 1800 We	URPM TEFC PREM EF	FF 3/60/230-460	TIES	Lowest Natural Freque	ncies (Hz) +/		Down (Vertic 14.60	cal Z)
Dim Depth	nensions (inche Width	Motor: Teco #EP	0754 75HP 1800 We	PRM TEFC PREM EF	FF 3/60/230-460	TIES Horizontal X)	Lowest Natural Freque Side-Side (Horizo	ncies (Hz) +/			cal Z)
Dim Depth	nensions (inche Width 126.63	Motor: Teco #EP	0754 75HP 1800 We	PRM TEFC PREM EF	FF 3/60/230-460 <b>PROPER</b> Front-Back (I 4.4	TIES Horizontal X)	Lowest Natural Freque Side-Side (Horizo 5.75	ncies (Hz) +/ ntal Y)	- Up-E	14.60	
Dim Depth 91.38	nensions (inche Width 126.63	Motor: Teco #EP	0754 75HP 1800 We	PRM TEFC PREM EF	FF 3/60/230-460 <b>PROPER</b> Front-Back (I 4.4	TIES Horizontal X) 40 IETERS	Lowest Natural Freque Side-Side (Horizo	ncies (Hz) +/			al Z) Arig-V



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Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	nouth, MN 55442					
Product Line:											
		BC - DW Flat-Bla	de Backward Incl	lined Centrifugal F	an						
Testing Labora											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	nouth, MN 55442					
Model Number	1										
	uction Summary:	135									
				teel Housing, Arra haft Rotation Hou	-	vith Motor Position W, I	Double Wide Double	nlet, Belt Driv	/e,		
Option / Comp											
	onent summary:			y (2) VMC MSS-1C- DP 1/60/115-230V		c Spring Isolators, Belt (	Guard - Quick Access,	Special Diam	eter Wheel,		
	onent summary:			OP 1/60/115-230V		c Spring Isolators, Belt C	Guard - Quick Access,	Special Diamo	eter Wheel,		
	Dimensions (inche	Motor: Weg 1/3	HP 1800 RPM OD	UU		PERTIES	Guard - Quick Access,				
		Motor: Weg 1/3	HP 1800 RPM OD	OP 1/60/115-230V	JT PROI	PERTIES		encies (Hz) +/	<u></u>	Down (Vertie	cal Z)
	Dimensions (inche	Motor: Weg 1/3	HP 1800 RPM OD	UU	JT PROI	PERTIES	Lowest Natural Frequ	encies (Hz) +/	<u></u>	Down (Verti 10.45	cal Z)
Depth	Dimensions (inche Width	Notor: Weg 1/3 s) Height	HP 1800 RPM OD	DP 1/60/115-230V UU Pight 158	JT PROI	PERTIES Back (Horizontal X)	Lowest Natural Frequ Side-Side (Hori:	encies (Hz) +/	<u></u>		cal Z)
Depth 31.88	Dimensions (inche Width	Motor: Weg 1/3 s) Height 29.00	HP 1800 RPM OD	DP 1/60/115-230V UU Pight 158	JT PROI Front-I	PERTIES Back (Horizontal X) 6.00	Lowest Natural Frequ Side-Side (Hori:	encies (Hz) +/	<u></u>		

#### Unit Mounting Description / Configuration:



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Manufacturer:												
<b>D I I I</b>		Twin City Fan Co	mpanies, Ltd., 59	55 Trenton Lane	North, Plym	outh, MN 55442						
Product Line:												
<b>-</b>		BC - DW Flat-Bla	de Backward Incl	ined Centrifugal F	an							
Testing Laborate	ory:	The City Free Co										
Model Number:		Twin City Fan Co	mpanies, Ltd., 55	55 Trenton Lane	North, Plym	iouth, IVIN 55442						
woder Number:		542										
Product Constru	iction Summany	542										
	ction Summary.			ising, Arrangment I Shaft Rotation H		or Position X, Double	Wide Double Inlet, Belt I	Drive,				
Option / Compo	nent Summary:			Qty (3) VMC MSSH	I-1E-825N S	EM2558T 150HP 1800 eismic Spring Isolators PERTIES	0 RPM 444T ODP PREM E s	EF 3/60/46	0V,			
				00		PERTIES						
C	imensions (inche	s)	Weight				Lowest Natural Frequer					
Depth	Width	Height		igint	Front-I	Back (Horizontal X)	Side-Side (Horizo	Side-Side (Horizontal Y)		Up-Down (Vertical Z)		
119.54	126.87	101.80	56	530		4.56	5.33		10.00			
			SEISIV	IIC PARAM	ETERS	(refer to ASCE 7-10 S	Supplement)					
Buildir	Building Code Test Criteria		riteria	Sds (g)		Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)	
CDC	2016	ICC-ES AC156		2.0		1.0	1.5	3.20	2.40	1.34	0.54	
CBC	2016			2.5		0.0	1.5	2.50	1.00	1.68	0.68	
Unit Mounting [	Description / Cont	figuration:										



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Manufacturer:											
Manufacturer:		Twin City Fan Co	mpanies. Ltd., 59	955 Trenton Lane	North, Plym	nouth, MN 55442					
Product Line:											
		BAF - DW Airfoil	Centrifugal Fan								
Testing Laborat	ory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane	North, Plym	nouth, MN 55442					
Model Number	:										
		135									
Product Constr	uction Summary:										
						n Motor Position Y, Dou	ible Wide Double Inlet,	Belt Drive,			
		Class 3 Construct	tion, Horizontal S	Shaft Rotation Ho	using						
Option / Comp	onent Summary:										
		Qty (1) VMC MS	S-1C-100, Qty (2)	VMC MSS-1C-150	0 and Qty (1	) VMC MSS-1C-250 Sei	smic Spring Isolators,				
		Access Door - Bo	lted, Special Wid	lth Wheel							
		Motor: Baldor #I	_1301 1/3 HP 180	00 RPM ODP 1/60	/115-230V						
				UL	JT PRO	PERTIES					
	Dimensions (inche	es)			Lowest Natural Frequencies (Hz) +/-						
Depth	Width	Height	We	eight	Front-Back (Horizontal X)		Side-Side (Horizontal Y)		Up-Down (Vertical Z)		cal Z)
37.58	47.88	32.50	3	12	6.60		6.50		9.65		
				SEISN		RAMETERS			•		
Building Code Test (		riteria	Sds (g	:)	Z/h	lp	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g	
Buildi											

#### Unit Mounting Description / Configuration:



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Manufacturer:											
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane I	North, Plyn	nouth, MN 55442					
Product Line:											
		BAE - DW Airfoil	Centrifugal Fan								
Testing Laborat	ory:										
		Twin City Fan Co	mpanies, Ltd., 59	955 Trenton Lane I	North, Plyn	nouth, MN 55442					
Model Number											
		542									
Product Constru	uction Summary:	o									
				•	-	with Motor Position Y, [	ouble Wide Double Inle	et, Belt Drive	2,		
		Class 3 Construc	tion, Horizontal S	Shaft Rotation Hou	ising						
Option / Compo	onent Summary:										
		Qty (4) VMC MS	SH-1E-2000 and (	Qty(2) VMC MSSH	-1E-1400 S	eismic Spring Isolators,					
		Stainless Steel N	ameplates, Beari	ng Upgrade, Speci	ial Width V	Vheel					
		Motor: Toshiba	#B1504VLF4USH	150 HP 1800 RPM	ODP PREN	A EFF 3/60/460V					
				UU	T PRO	PERTIES					
	Dimensions (inche	es)					Lowest Natural Frequer	ncies (Hz) +/	-		
Depth	Width	, Height	We	eight Front		Back (Horizontal X)	Side-Side (Horizo	ntal Y)	IIn-F		- 1 7)
					2.71			incur i j	Opt	Down (Vertic	carz)
171.30	165.30	78.05	72	220		, ,	2.77		000	6.60	car Z)
1/1.30	165.30	78.05			ETERS	, ,			000		:ai <i>Z)</i>
	165.30 ng Code					2.71		Aflx-H (g)	Arig-H (g)		Arig-V (g)
			SEISM	IIC PARAM		2.71 (refer to ASCE 7-10 St	upplement)			6.60	



## **Tested UUT-1P Spring Vibration Isolation Plan**



## **Tested UUT-2P Spring Vibration Isolation Plan**



# **Tested UUT-3P Spring Vibration Isolation Plan**



## **Tested UUT-4P Spring Vibration Isolation Plan**





## Tested UUT-5P Spring Vibration Isolation Plan



## Tested UUT-6P Spring Vibration Isolation Plan

# **Tested UUT-7P Spring Vibration Isolation Plan**



## **Tested UUT-8P Spring Vibration Isolation Plan**



## Tested UUT-9P Spring Vibration Isolation Plan



## Tested UUT-10P Spring Vibration Isolation Plan



# Tested UUT-11P Spring Vibration Isolation Plan



# Tested UUT-12P Spring Vibration Isolation Plan



## Tested UUT-1H Spring Vibration Isolation Plan





#### Tested UUT-2H Spring Vibration Isolation Plan



#### Tested UUT-3H Spring Vibration Isolation Plan



# **Tested UUT-4H Spring Vibration Isolation Plan**



# **Tested UUT-5H Spring Vibration Isolation Plan**



# **Tested UUT-6H Spring Vibration Isolation Plan**



## Tested UUT-7H Spring Vibration Isolation Plan



## Tested UUT-9H Spring Vibration Isolation Plan



## Tested UUT-11H Spring Vibration Isolation Plan

# Tested UUT-13H Spring Vibration Isolation Plan



## Tested UUT-14H Spring Vibration Isolation Plan



# Tested UUT-15H Spring Vibration Isolation Plan





## **Tested UUT-16H Spring Vibration Isolation Plan**



## Tested UUT-17H Spring Vibration Isolation Plan



## Tested UUT-18H Spring Vibration Isolation Plan



**Tested UUT-19H Spring Vibration Isolation Plan**