



TECHNICAL DATA FOR VANEAXIAL ADJUSTABLE PITCH FANS

This document provides supplementary data concerning Vaneaxial Adjustable Pitch (VXAP) Fan design, construction, and performance.

A practical discussion of typical applications is included herein. In addition, procedures for selection are outlined in detail.

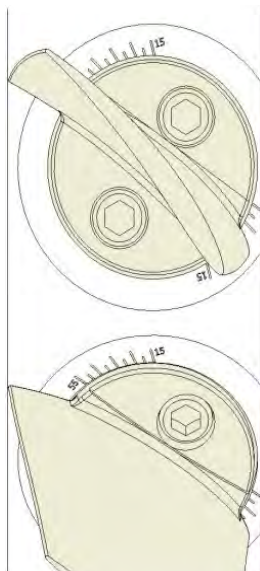
I. Design Features

The VXAP Fan is a direct drive axial fan designed for volumes up to 400,000 CFM and static pressures up to 20" W.G. To accommodate various application's flow and pressure requirements, the VXAP is available with three different hub ratios (0.45, 0.54 and 0.60). For higher fans and pressures, Additional Flow Pressure Ax – 4300 and Ax – 4500. Typical applications in this high-pressure range include:

1. High-pressure industrial process systems such as combustion air (flare systems), auxiliary mine shaft ventilation, general ventilation, spray booths, pulp & paper, power, etc.
2. Applications requiring field adjustment of flow/pressure to fine-tune process requirements.

The VXAP is custom tailored for each specific application. This means that the motor requirements, vane size, and tube length may vary with each fan selection. Therefore, each fan and motor combination is designed for each specific application.

The VXAP wheel's adjustable blade angle (15°-65°) allows the fans performance to be manually adjusted in the field at rest to accommodate changes in process requirements without the need for an adjustable speed drive.



Size	Blade Hardware Torque Value			
	Torque [lbf-ft] 0.45 hub ratio	Torque [lbf-ft] 0.54 hub ratio	Torque [lbf-ft] 0.60 hub ratio	Torque [lbf-ft] 0.60 (OV)hub ratio
21	-	-	10	30
24	-	-	20	30
27	-	-	20	70
29	-	20	20	135
32	41	20	35	135
36	45	35	35	135
38	81	35	35	135
42	89	35	55	135
48	102	55	55	200
54	27	55	55	200
60	31	55	55	250
66	80	80	80	-
72	85	85	85	-
84	95	95	105	-

Blade shown at 55°
* Blade may be torqued no more than 5 times before needing to be replaced

Adjustments to blade angle may be limited to existing motor HP capability. In addition, due to the motor located directly in the gas stream, the VXAP is intended to be typically used in clean air applications.

II. Performance

The typical performance range of the VXAP Fan involves consideration of a number of factors. Major considerations should be recognized and include temperature, altitude and point of operation on the fan curve. In addition, resistance from various accessories must also be factored into the fan selection due to high gas stream velocities.

The performance curves (see pages 4 through 38) give fan performance based on air at 70°F. at sea level at a density of .075 lb./cu.ft. If the airstream density is other than .075 lb/cu.ft., corrections must be made to static pressure and brake horsepower. (See charts I & II)

[Fan-to-Size \(F2S\)](#) should be used to generate fan performance curves which can be corrected for blade angle, motor speed, non-standard gas stream conditions as well as corrections resulting from the addition of fan accessories. In addition, replace blades if they lose more than 20% of their thickness in any spot or have any type of pitting. Fan-to-Size online is also capable of determining sound performance for your selection.

III. Density Corrections

Calculating Fans at Temperatures other than 70°F. Chart I gives factors for correcting pressure and brake horsepower for temperatures other than 70°F. Corrosion do to abrasive or corrossing gas stream.

EXAMPLE:

1. Require 10,000 CFM at 15"SP at -25°F. at sea level.
2. Chart I indicates 0.82 factor for -25°F.
3. Select the fan for 12.3" SP [15" x 0.82] at 70°F.
4. Divide 70°F. brake horsepower by 0.82 to determine BHP at conditions.

CHART I

SP AND BHP CORRECTION FACTORS FOR TEMPERATURE [°F.]

Temperature	Factor
-25°	.82
0°	.87
20°	.91
40°	.94
60°	.98
70°	1.00
80°	1.02
105°	1.06

Calculating Fans at Altitude other than Sea Level Correction for altitudes is the same as for temperature except using the factors in Chart II.

EXAMPLE:

1. Require 10,000 CFM at 15" SP at 5000 feet above sea level.
2. Chart II indicates a 1.20 factor for 5000 feet above sea level.
3. Select the fan for 18" SP [15" x 1.20] at 70° F. and sea level.
4. Divide the sea level brake horsepower by 1.20 to determine BHP at conditions.

CHART II SP AND BHP CORRECTION FACTORS FOR ALTITUDE [FEET]

Altitude	Factor	Altitude	Factor
0	1.00	5000	1.20
500	1.02	5500	1.22
1000	1.04	6000	1.25
1500	1.06	6500	1.27
2000	1.08	7000	1.30
2500	1.10	7500	1.32
3000	1.12	8000	1.35
3500	1.14	9000	1.40
4000	1.16	10000	1.45
4500	1.18	11,000	1.50

Handling Gases Other than Air

Whenever the fan airstream is made up of gases other than standard air, the density of the airstream must be determined for accurate fan selection. Engineering handbook reference is frequently required to calculate the densities in such applications. Consult your **nyb** representative for assistance.

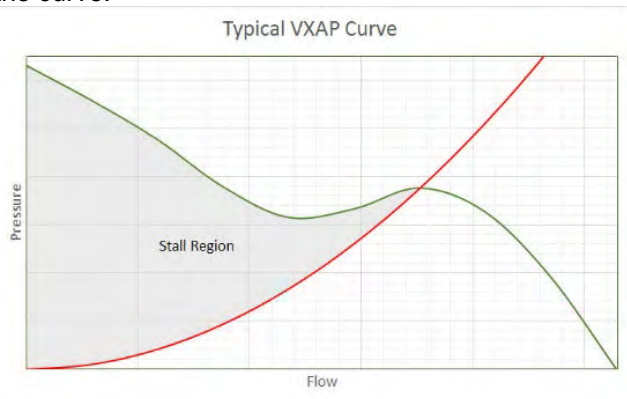
IV. Accessory Pressure Addition/Drop

The capacity curves for VXAP Fans reflect performances at standard conditions without accessories. Resistance is added to a system by the addition of an inlet silencer, external inlet vane damper, inlet guard, outlet silencer, outlet guard and filters and diffuser. Each of these accessories changes the static pressure requirement for the fan and the corrected SP must be determined in order to make a proper selection.

Consult [Fan-to-Size Online](#) (F2S) for performance corrections resulting from the addition of fan accessories.

V. VXAP Selection

Care must be taken to not select an axial fan at an unstable operating point (stall region). The stall region is characterized as an area of extreme instability to the left of the "hump" in the middle of the curve.



The curves included in this supplement have been cropped to avoid unintentional selection in this region.

VI. Motor Requirements

VXAP fans are designed to be used with the following motor: C-Face Footed with front feet (shaft side) removed from 404TC to 449TC frame size.

Standard C-Face motors can be substituted for PAD mount motors as long as the motor cooling fins and front feet do not interfere with the ID of the motor support band. If so, these components will need to be removed.

D-face motors and IEC flange mounted motors need to be reviewed per application since the flange diameter may affect the size of the band that connects the motor support structure to the vanes (see Chart IV).

Motor thrust loads are orientation dependent and need to be reviewed to ensure that the motors maximum permissible thrust load capability is not exceeded in Chart IV. Note that when reviewing vertical installations, the weight of the wheel must be added to upblast VXAP fans and deducted from downblast VXAP fans. Consult nyb when thrust loads are exceeded for additional motor modifications.

Motor conduit boxes are removed and the electrical leads are extended outside the fan to an external junction box for all motors with the exception of those with explosion proof requirements. For explosion proof motors or motors requiring the conduit boxes inside the gas stream, the fans overall performance needs to be derated accordingly to accommodate the airstream obstruction (consult nyb).

In addition to identifying maximum permissible thrust loads, Chart VI (pg. 32) identifies maximum motor diameter and minimum motor shaft lengths for each NEMA motor frame size. To avoid potential interference issues, 3D motor drawings are required for all motors not supplied by nyb.

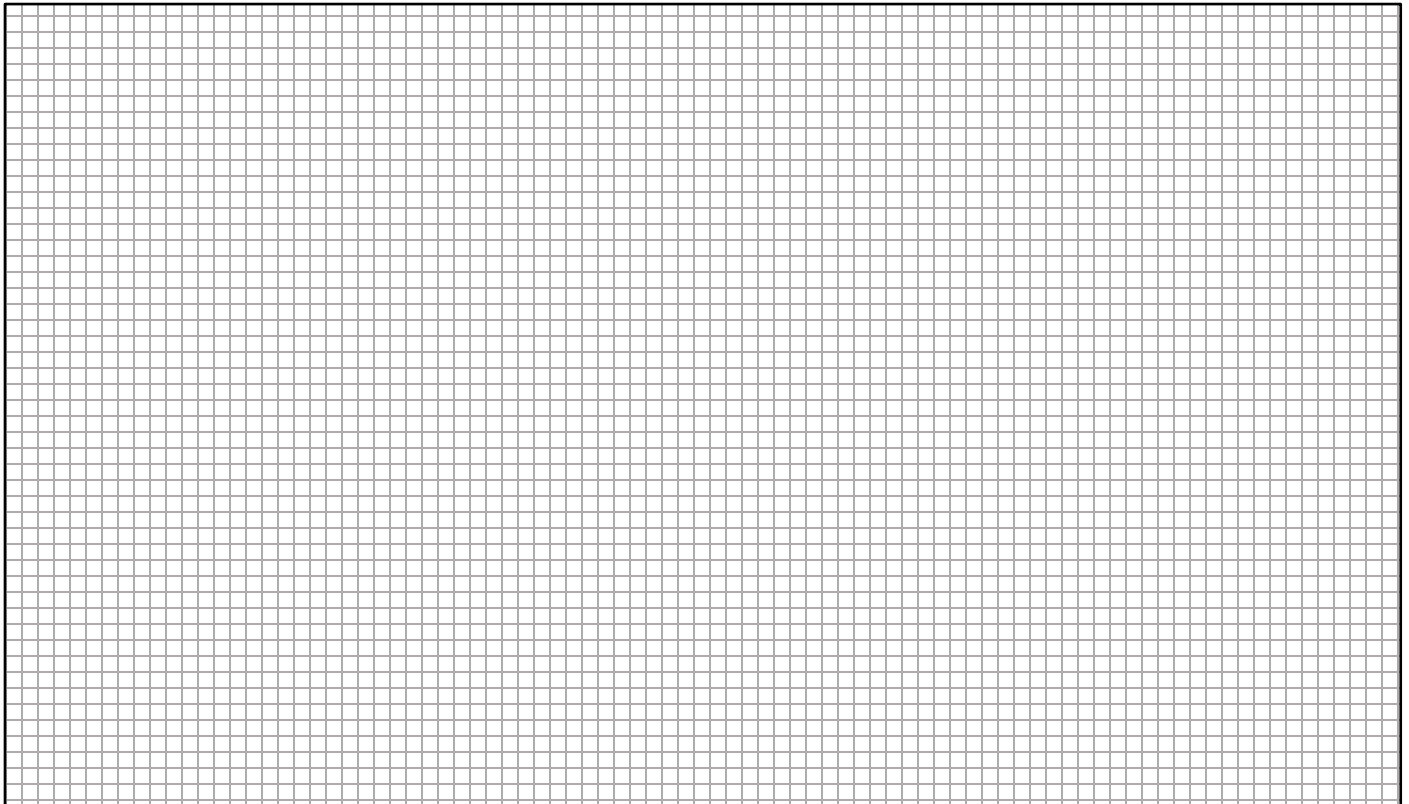
VII. Performance Curves

Note that all performance curves listed on the following pages are for installation Type B: Free inlet, ducted outlet at standard conditions (0.075 lbs/ft³). Performance ratings do not include the effects of appurtenances (accessories).

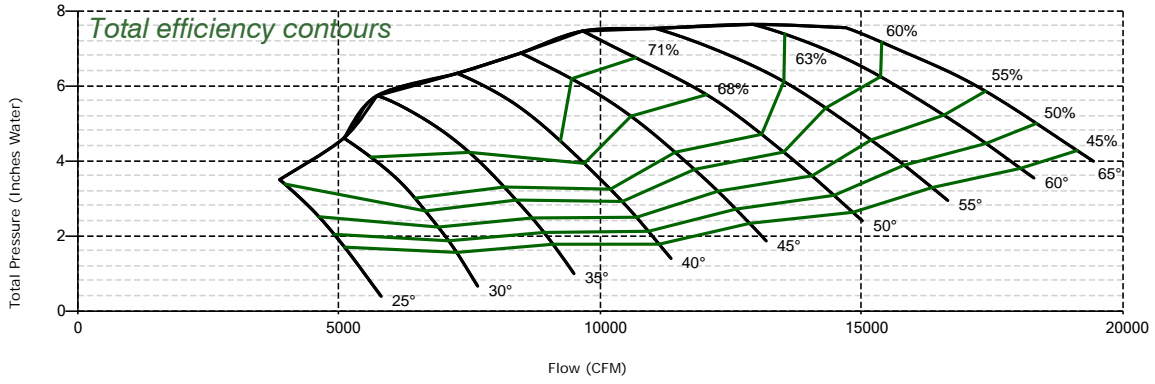
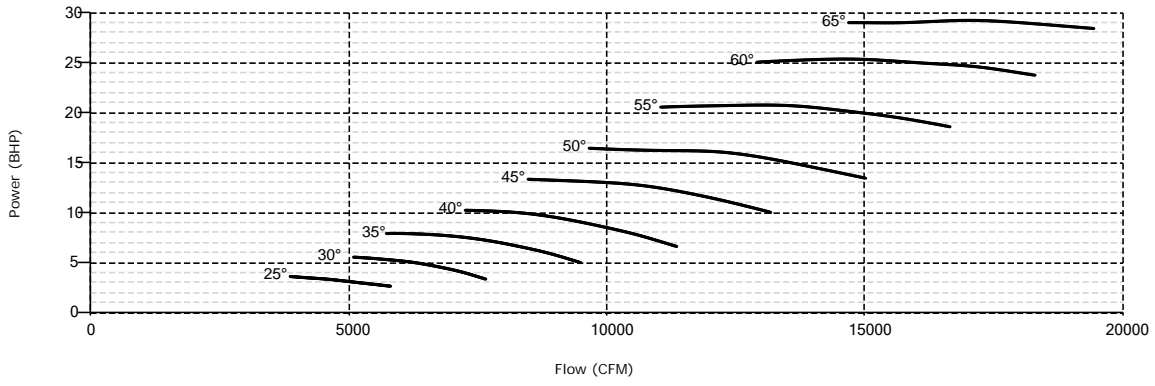
VIII. Stall Conditions

1. Starting procedures must ensure when starting multiple axial fans that one or more fans does not enter and remain in stall.
2. If the fan operates in stall, inspect and retorque all fasteners.
3. Wheel blades and bolts should be replaced if the fan operates in stall more than two separate occasions or a total of 20 minutes.
4. Fan can be supplied with Petermann tube and pressure sensor to detect when the fan is in stall and/or a stall warning device to predict when the fan is about to enter stall

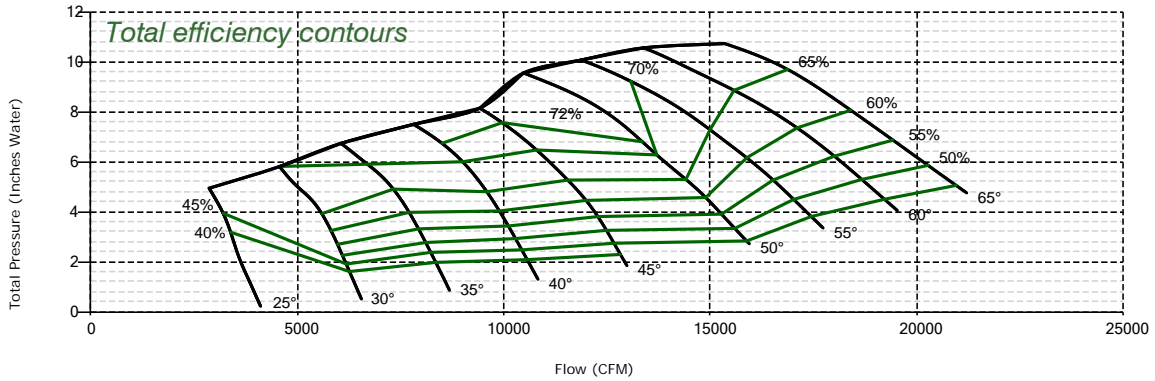
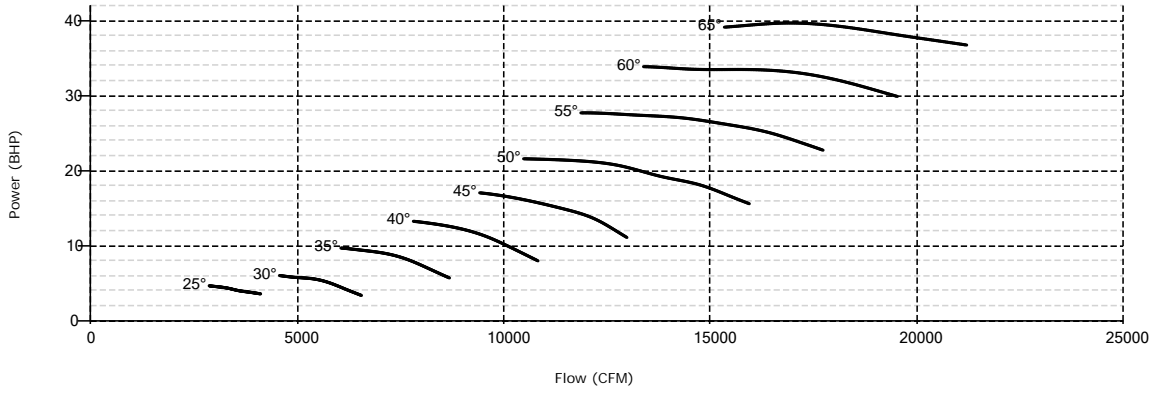
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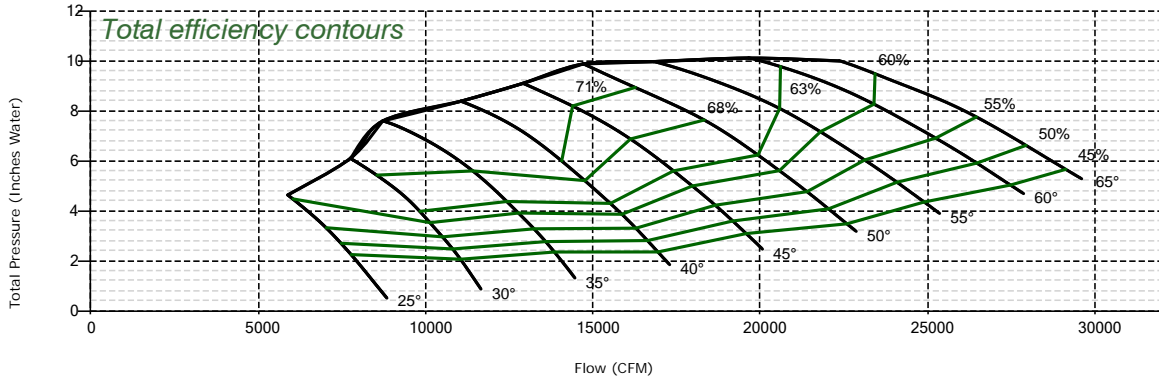
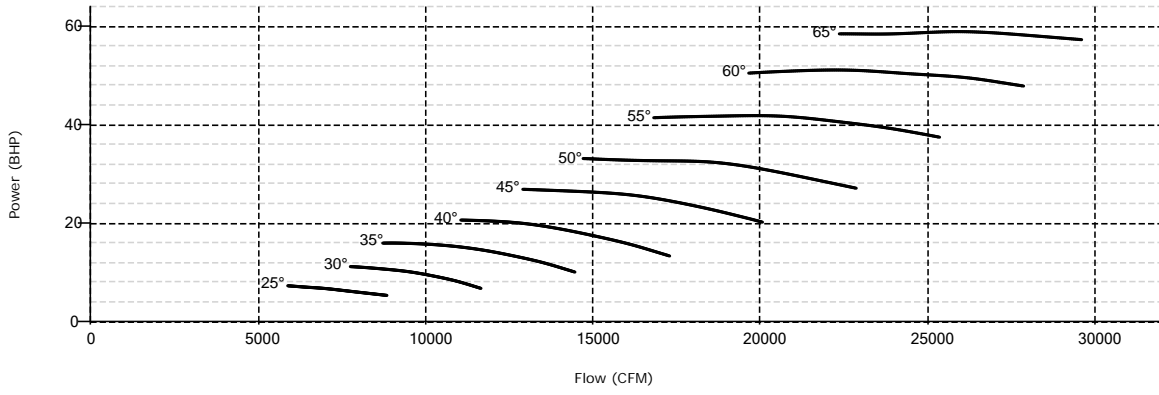
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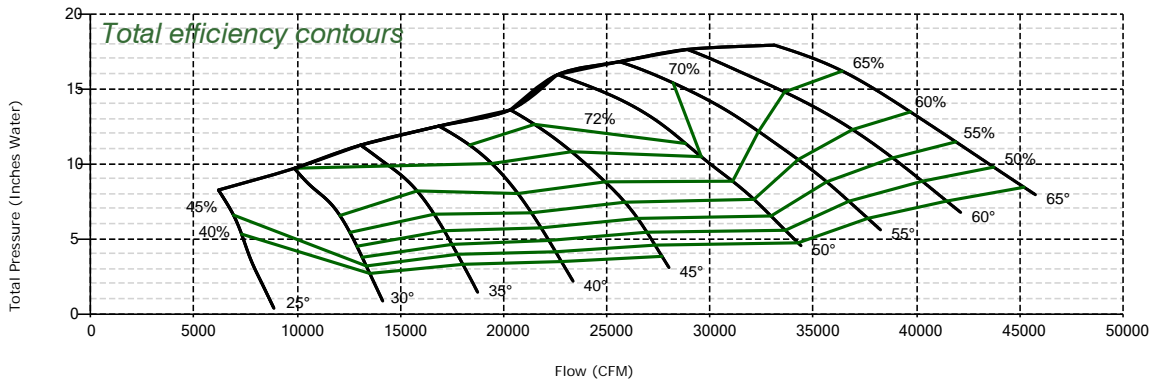
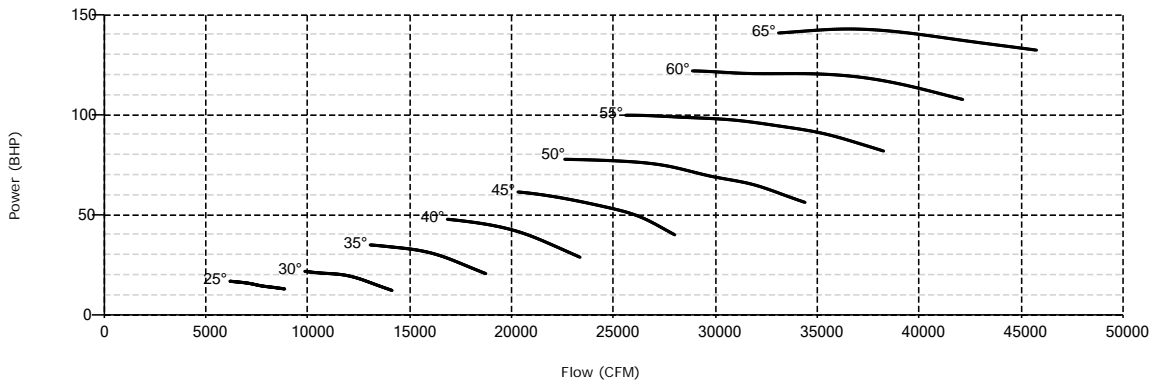
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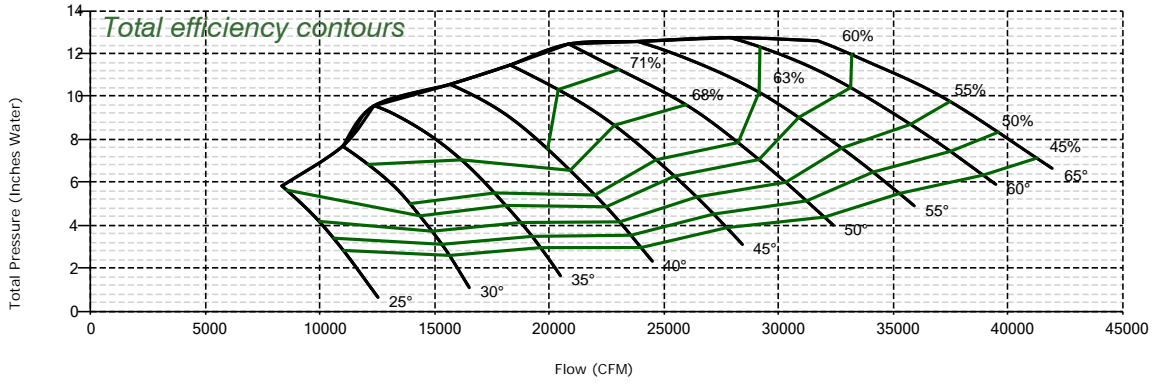
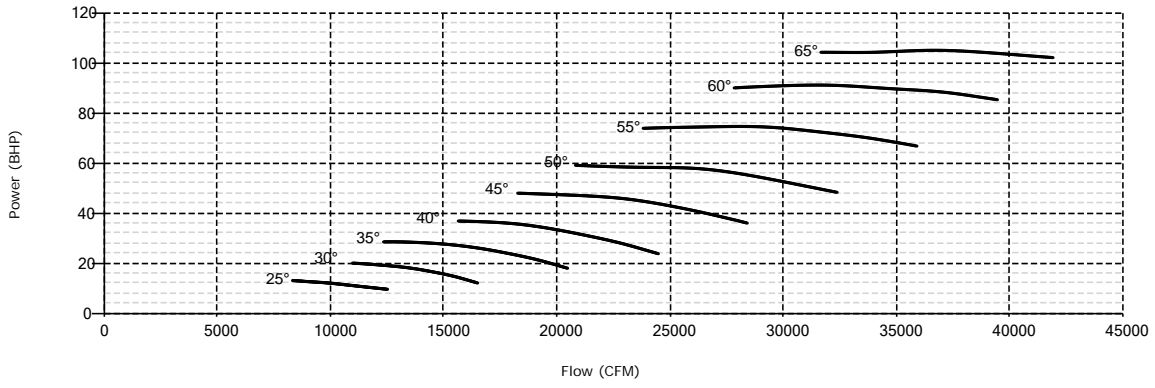
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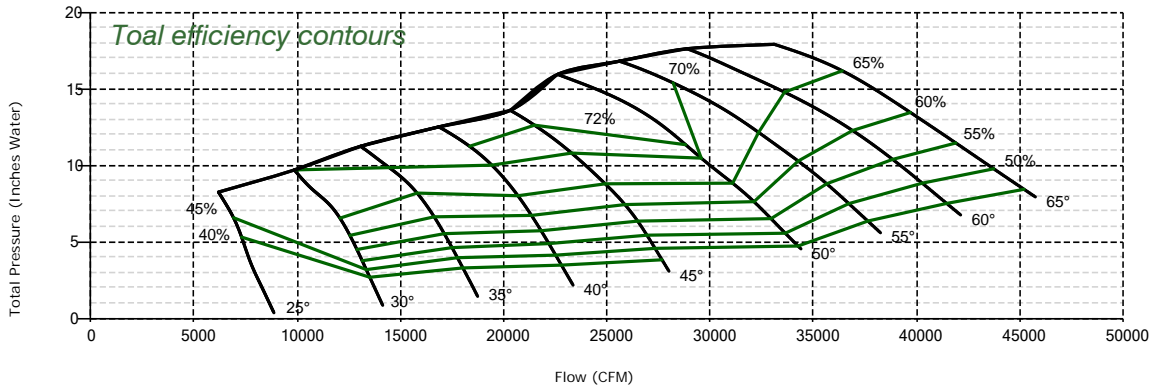
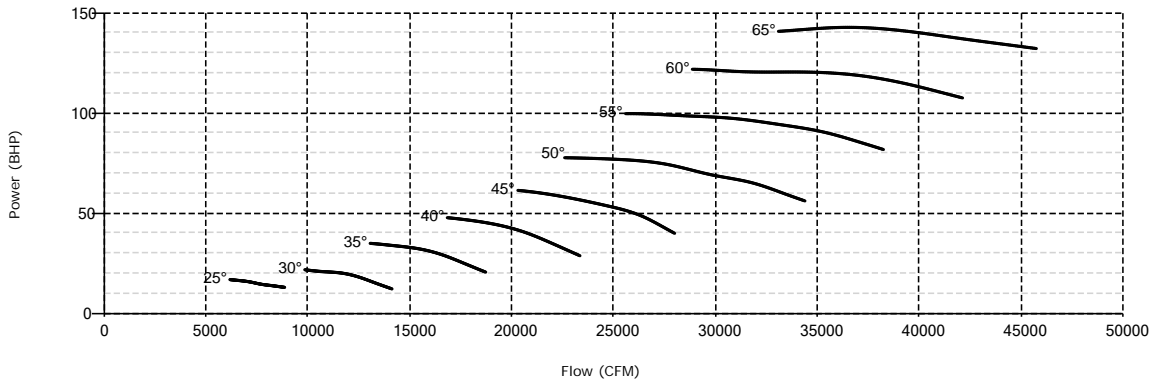
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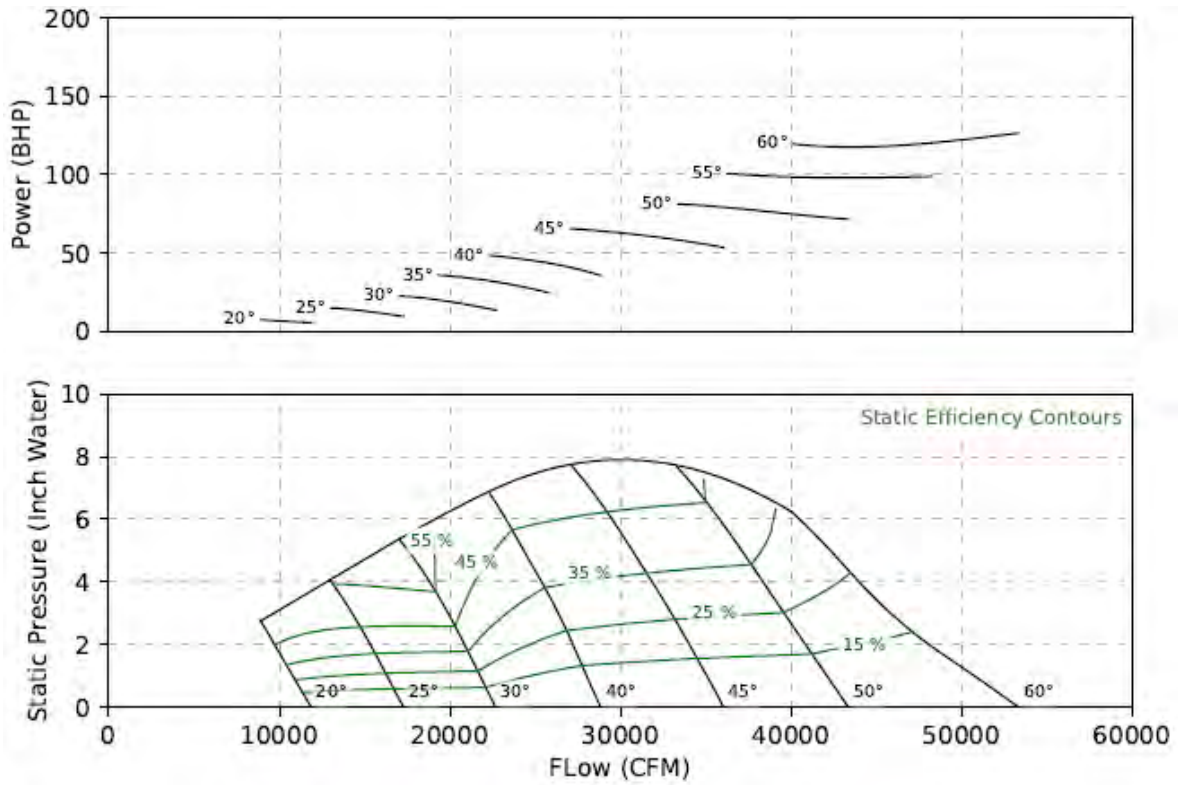
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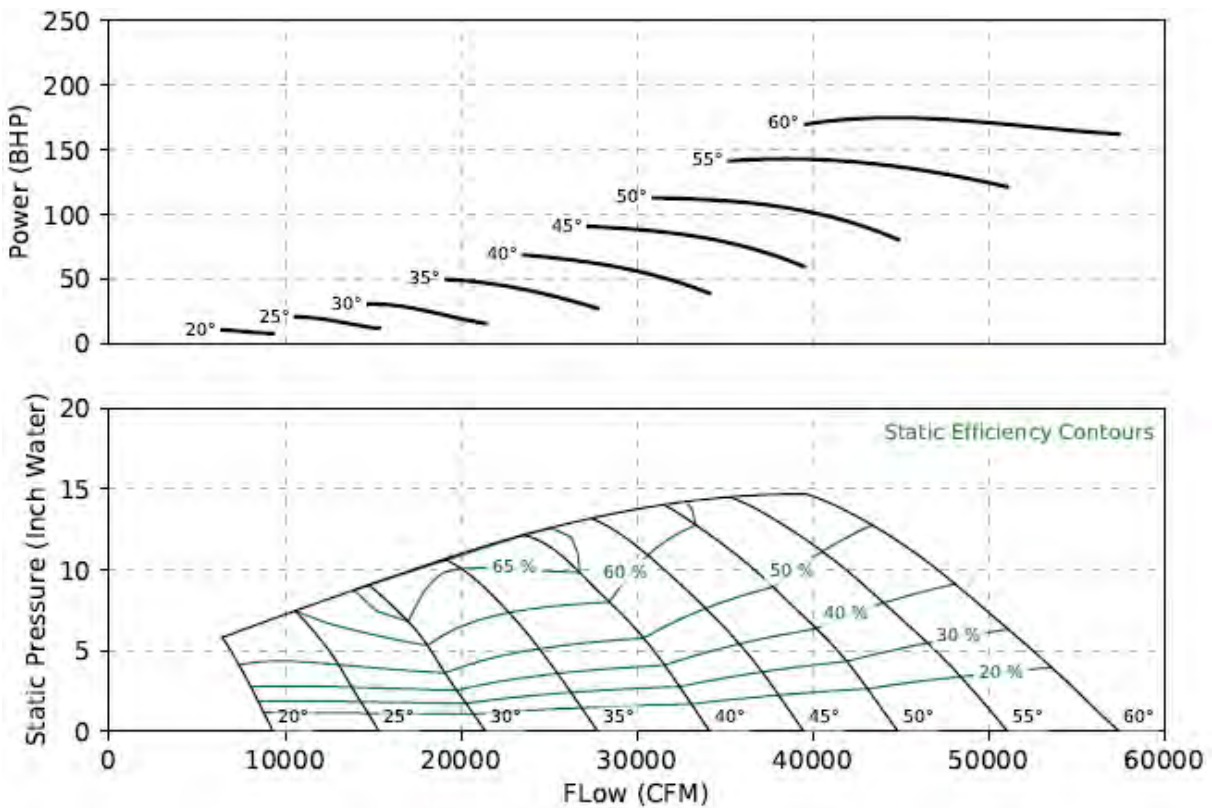
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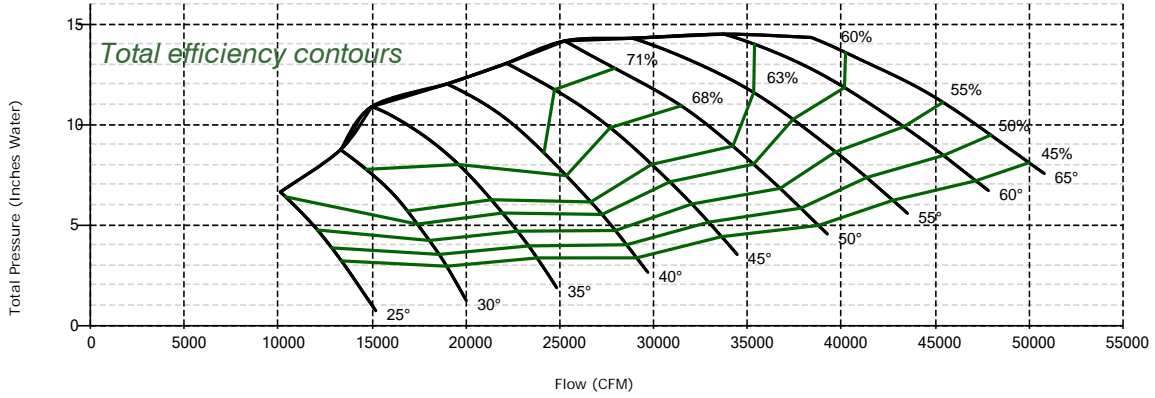
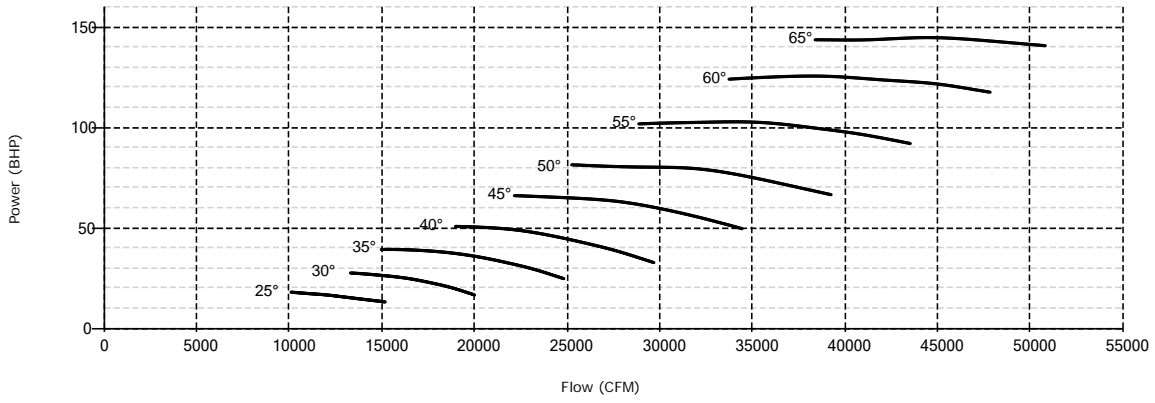
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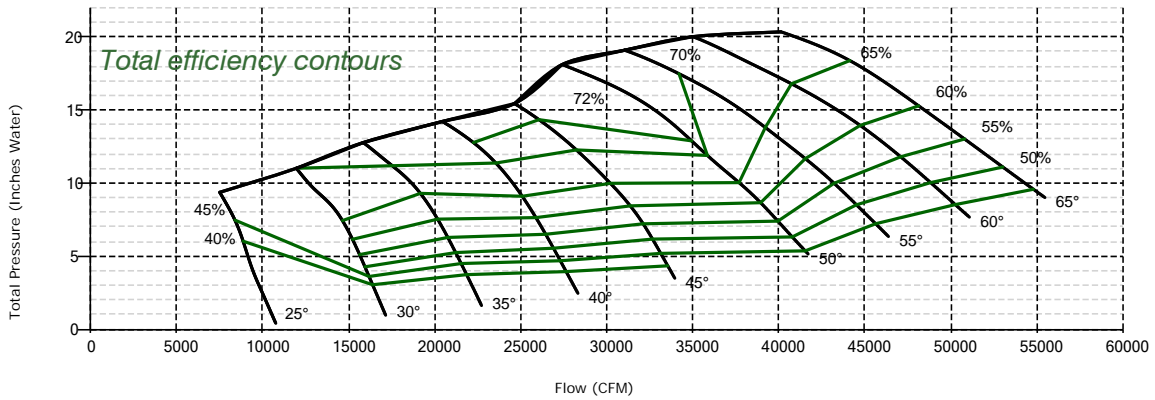
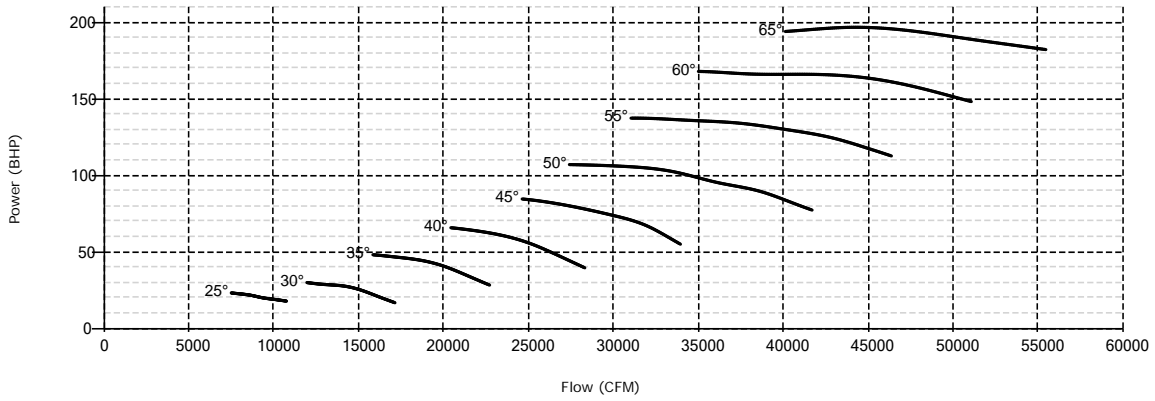
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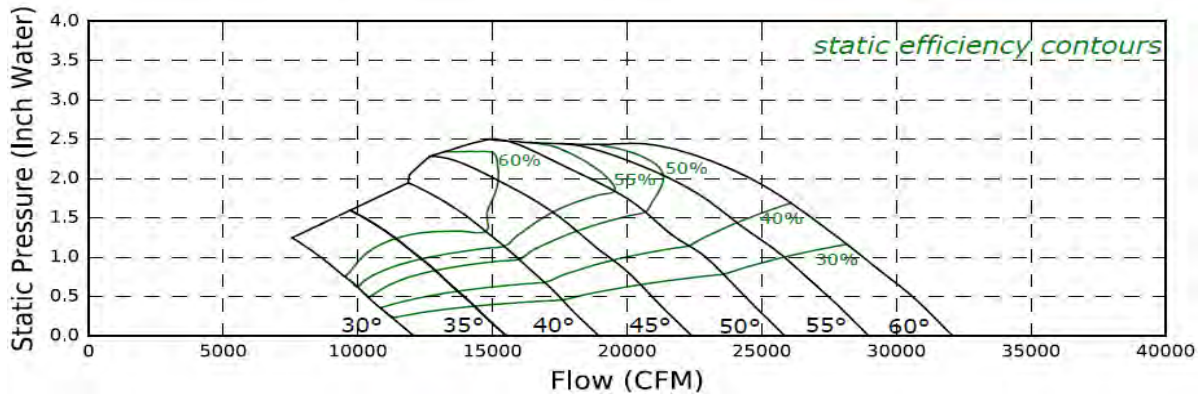
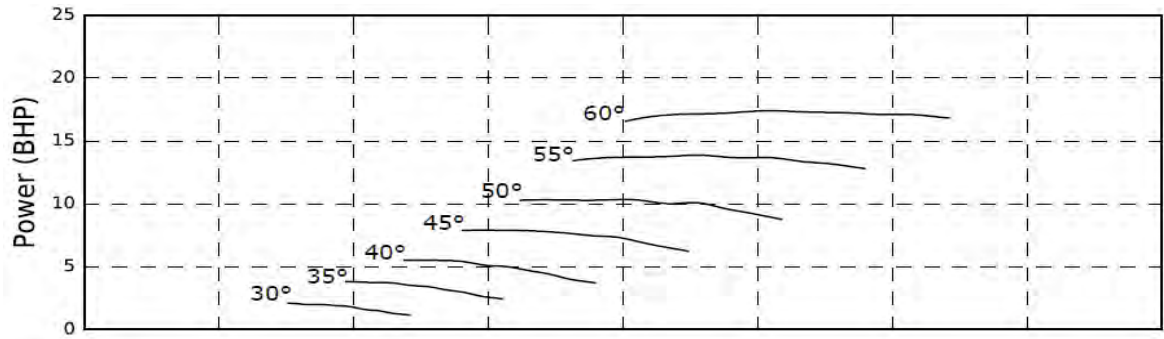
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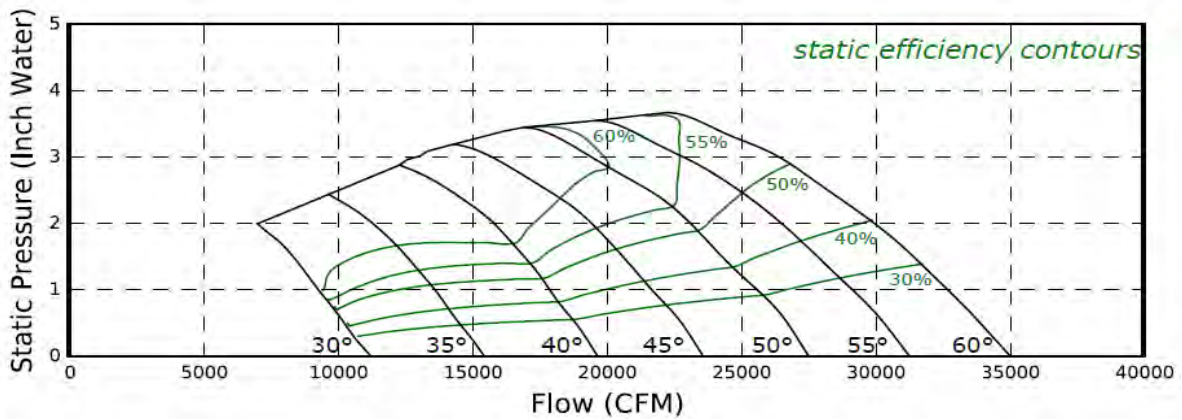
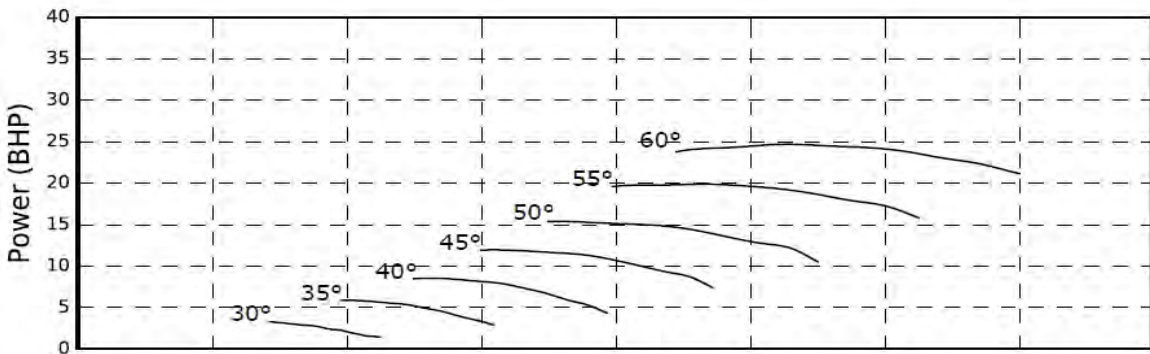
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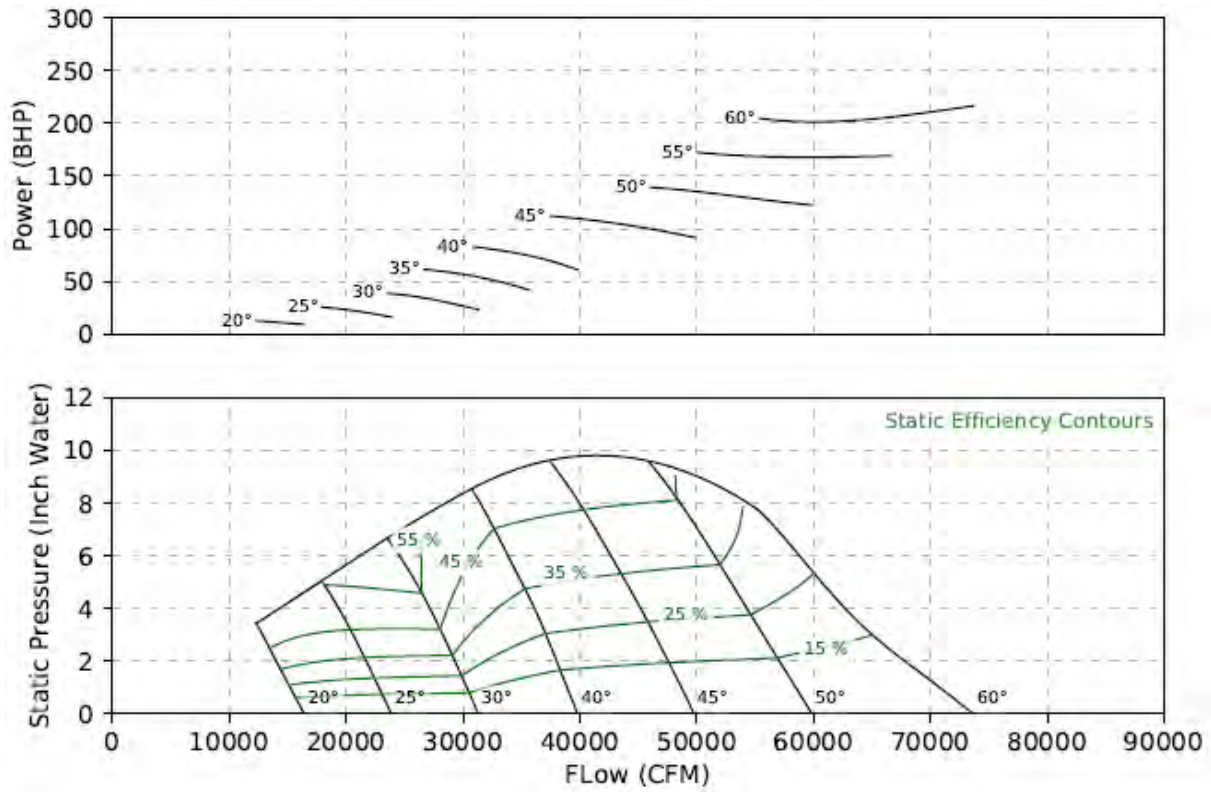
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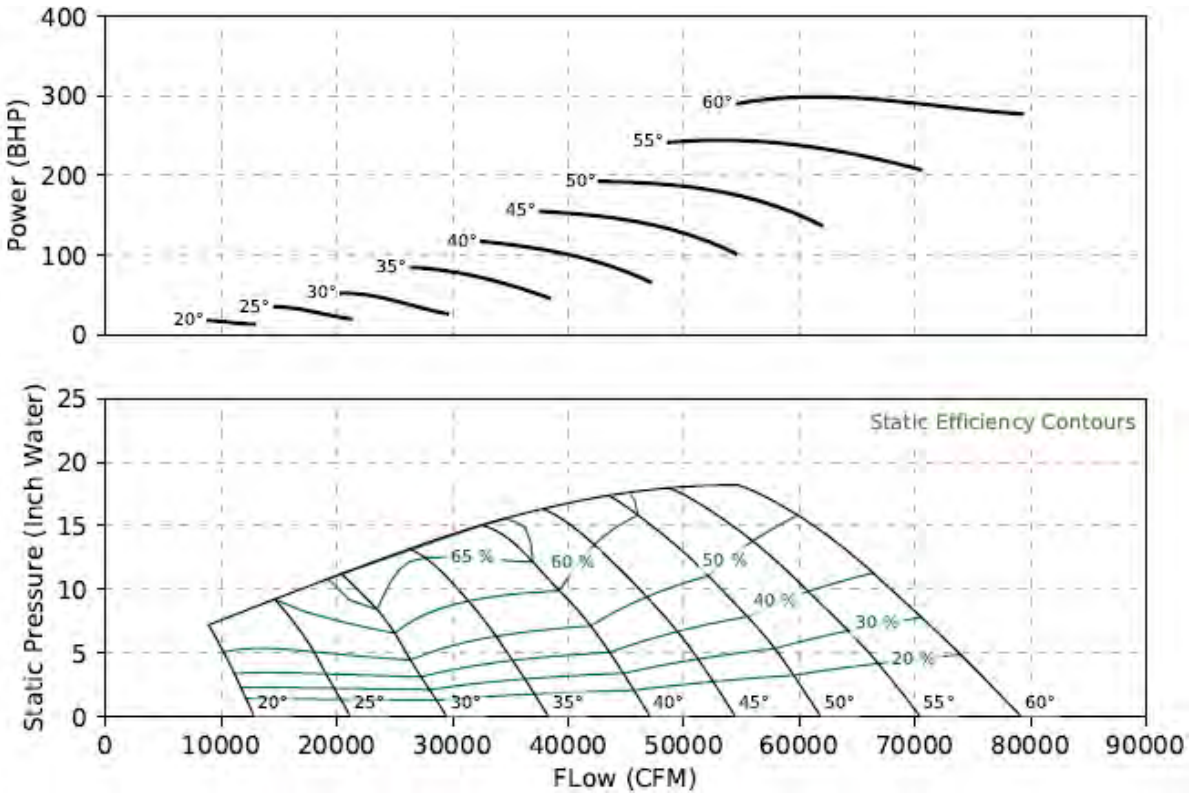
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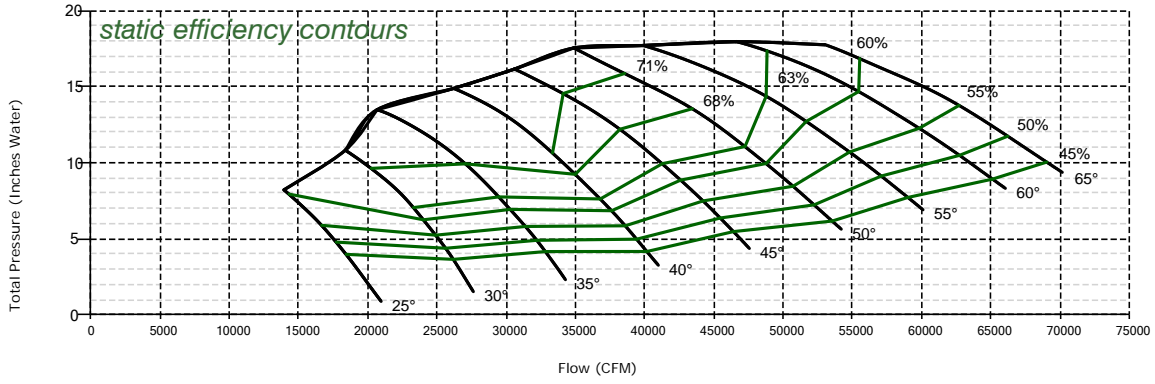
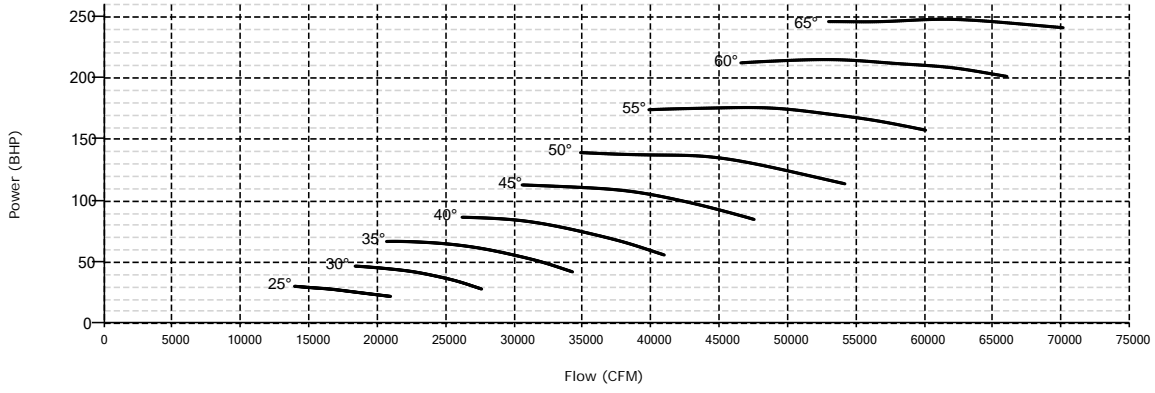
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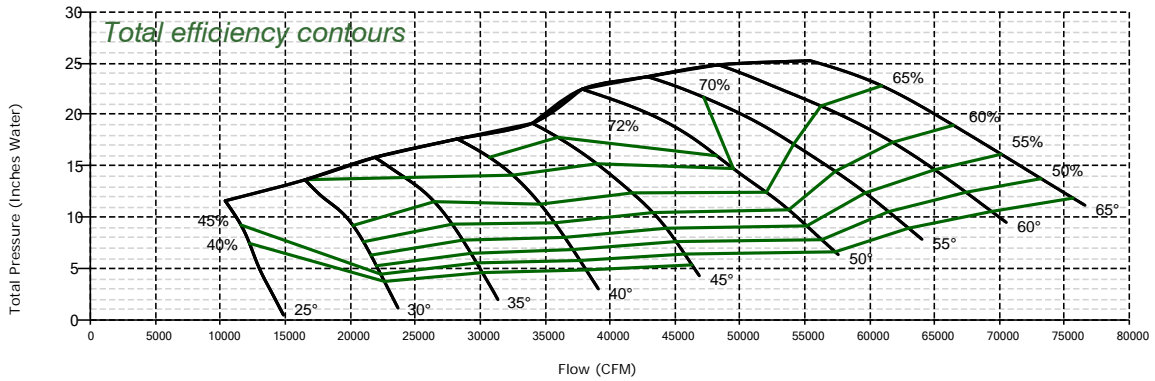
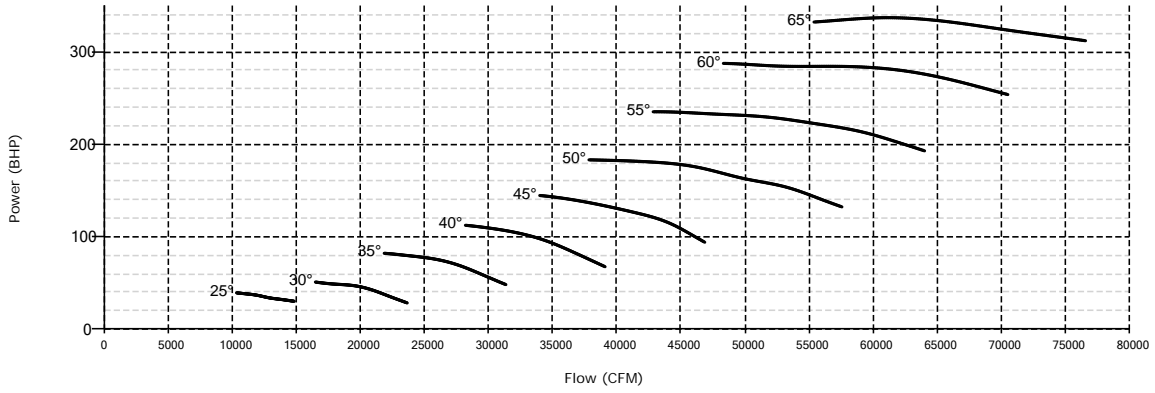
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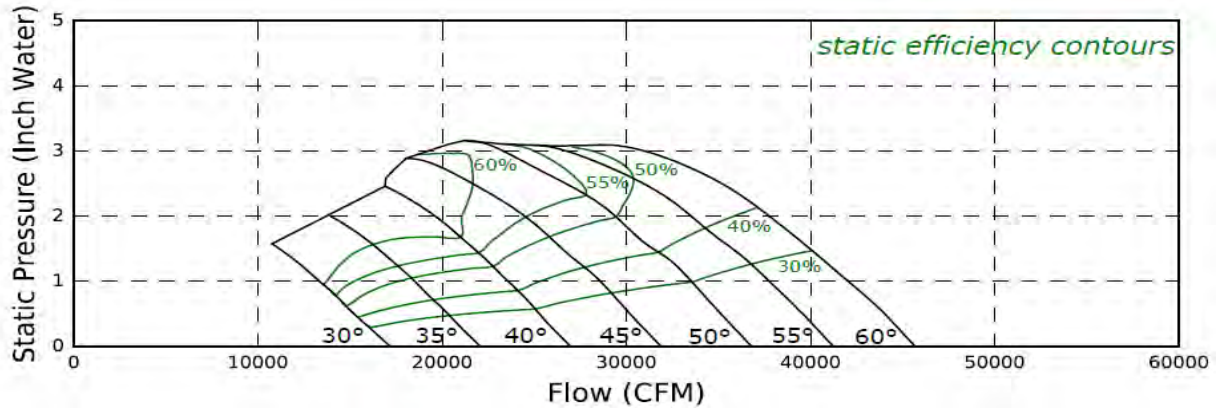
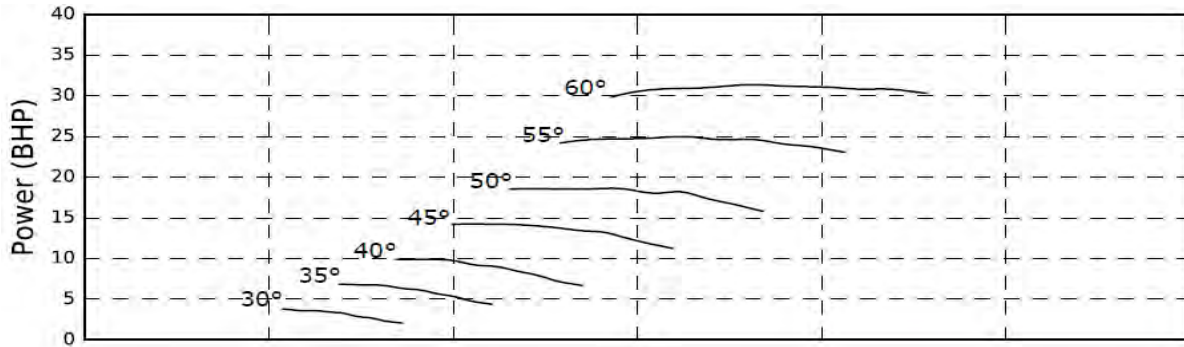
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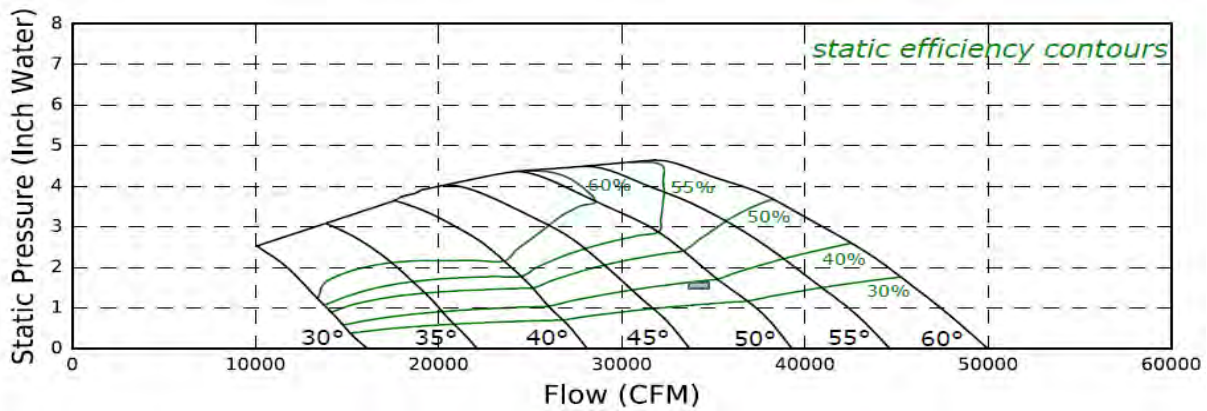
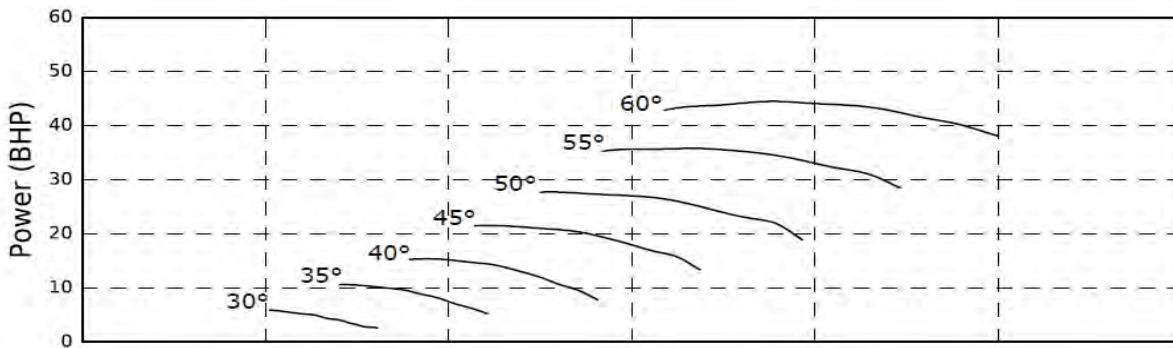
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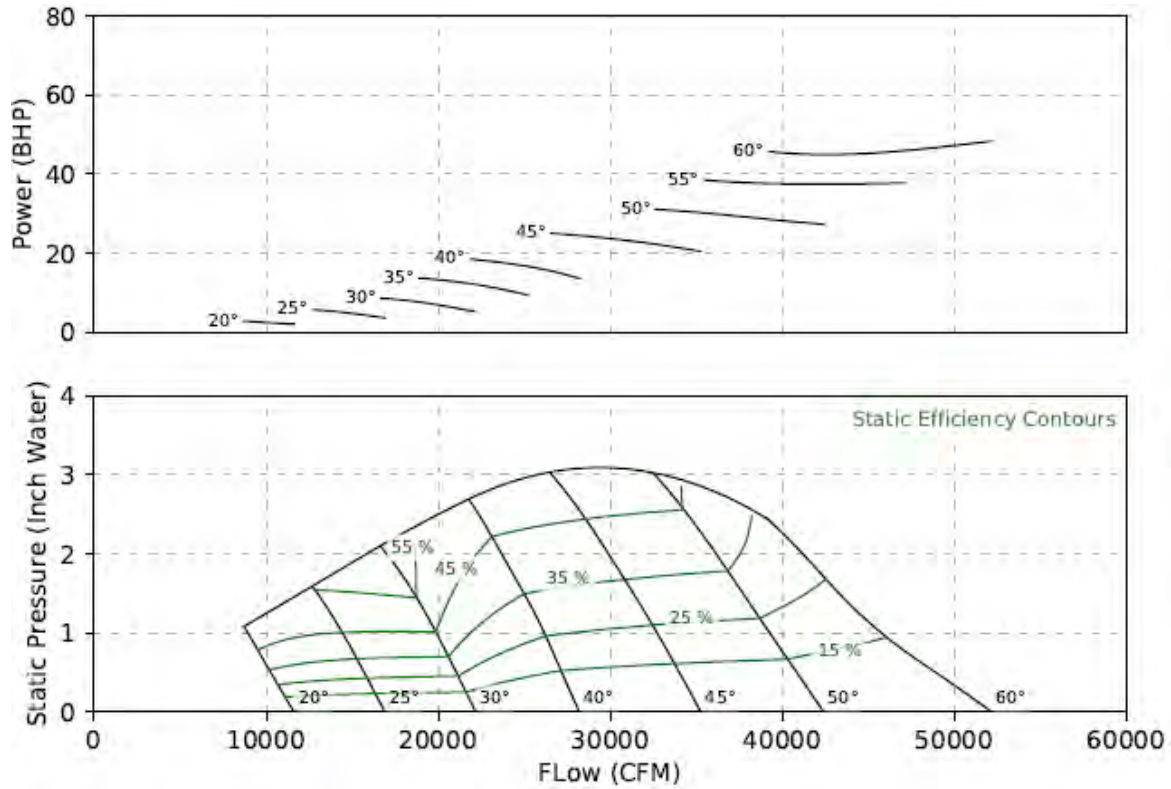
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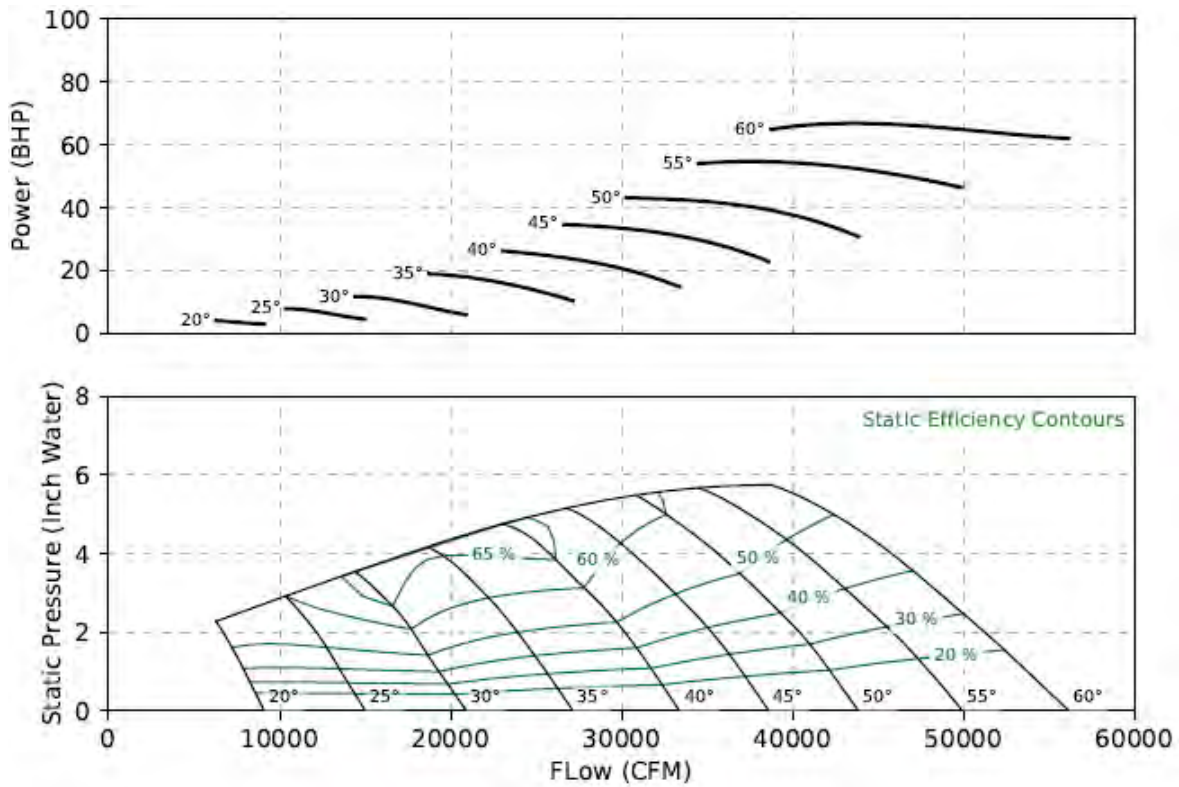
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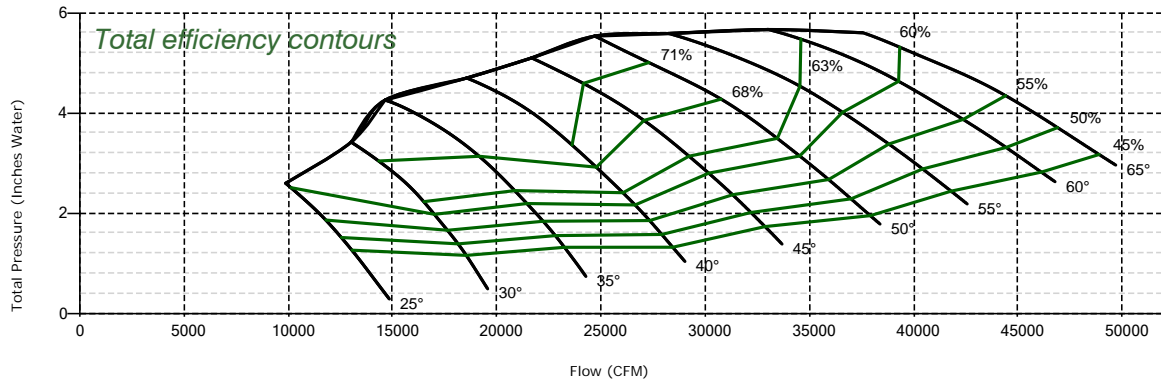
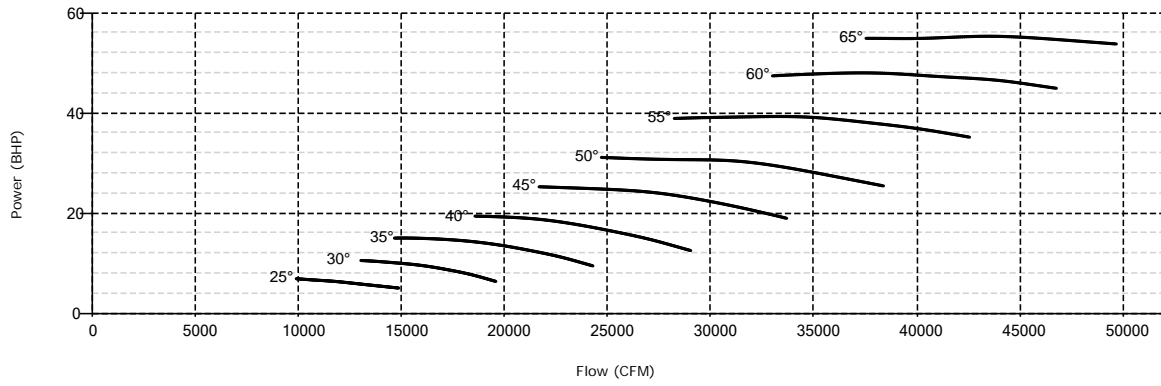
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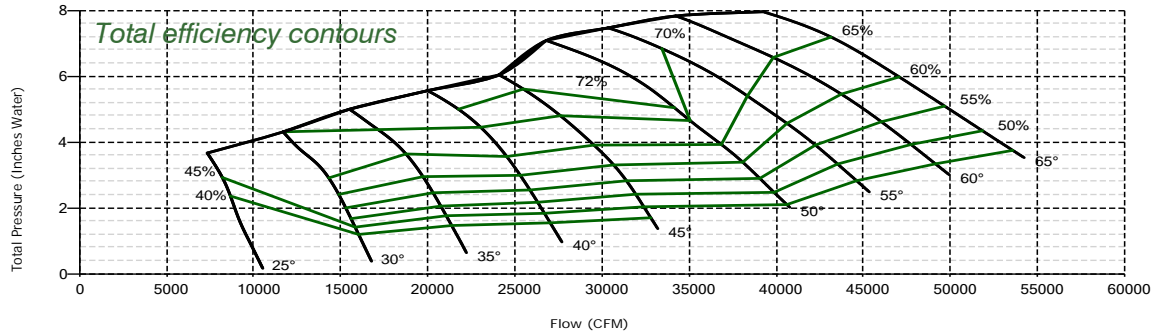
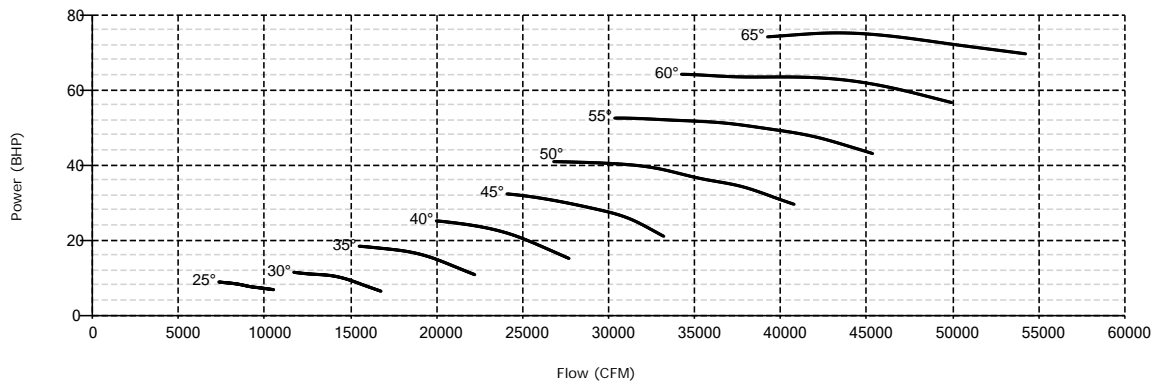
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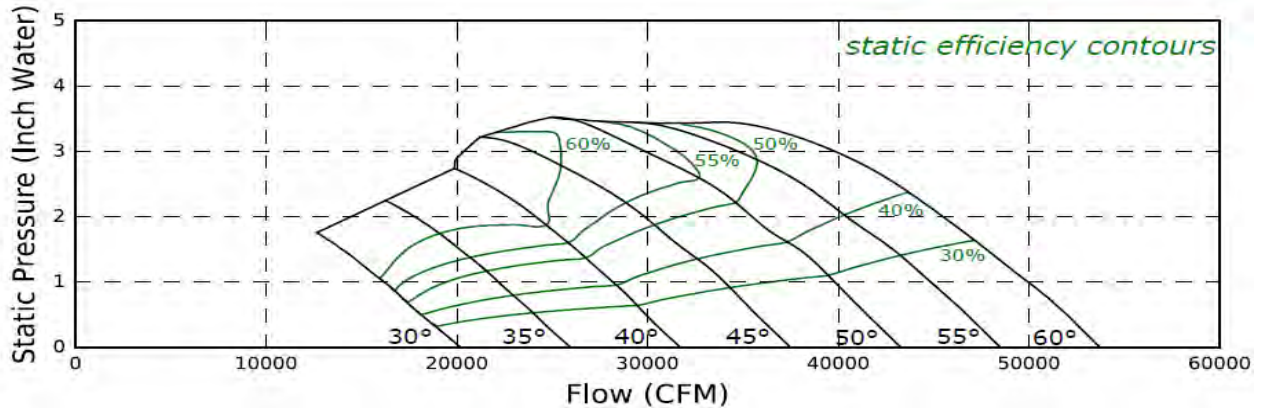
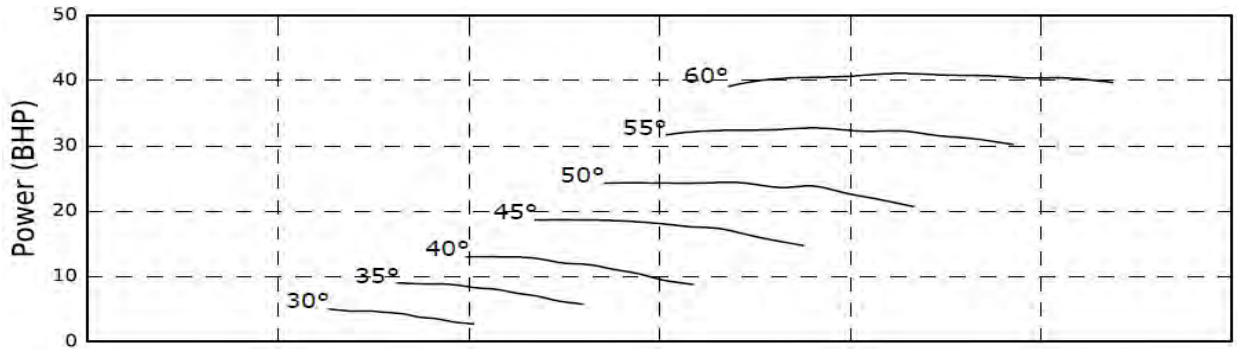
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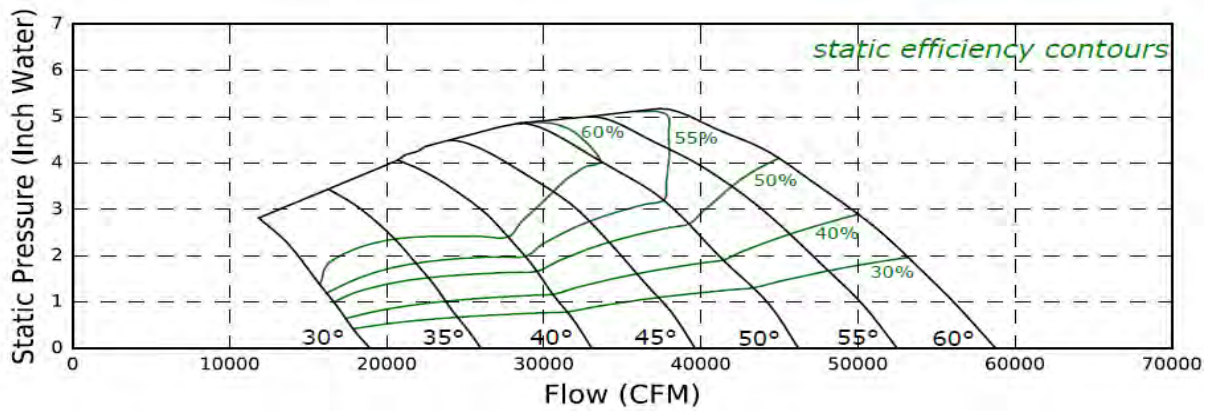
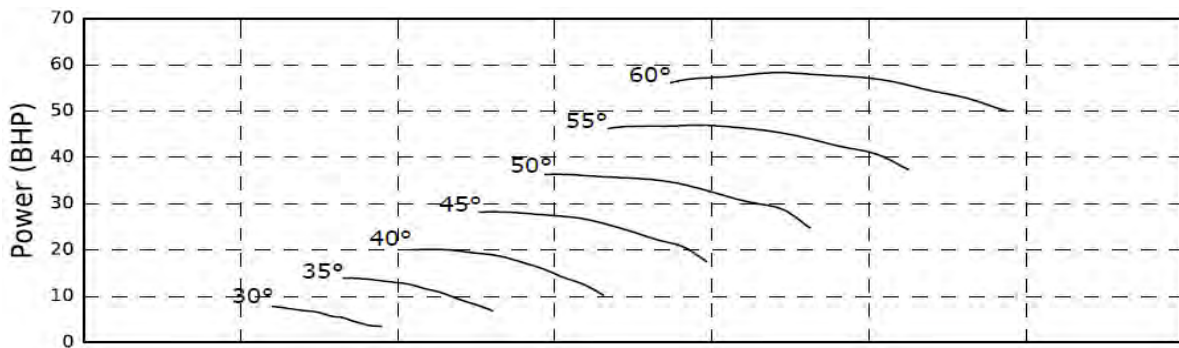
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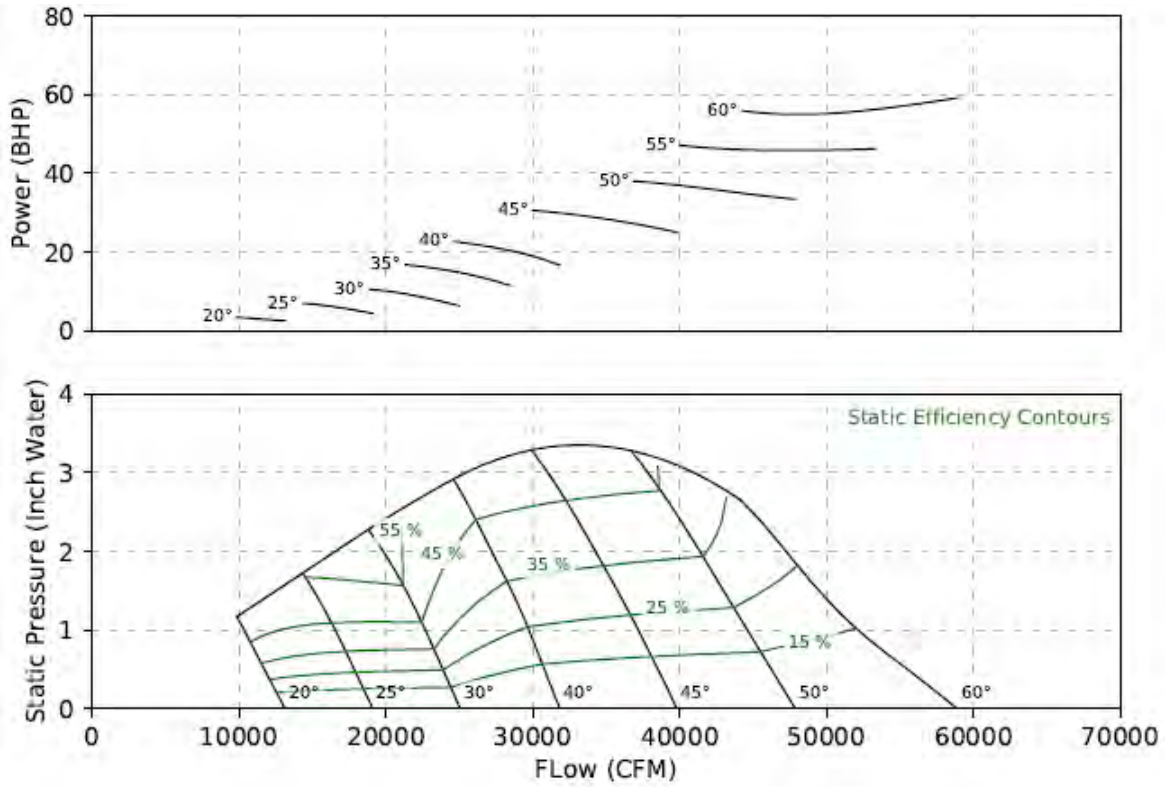
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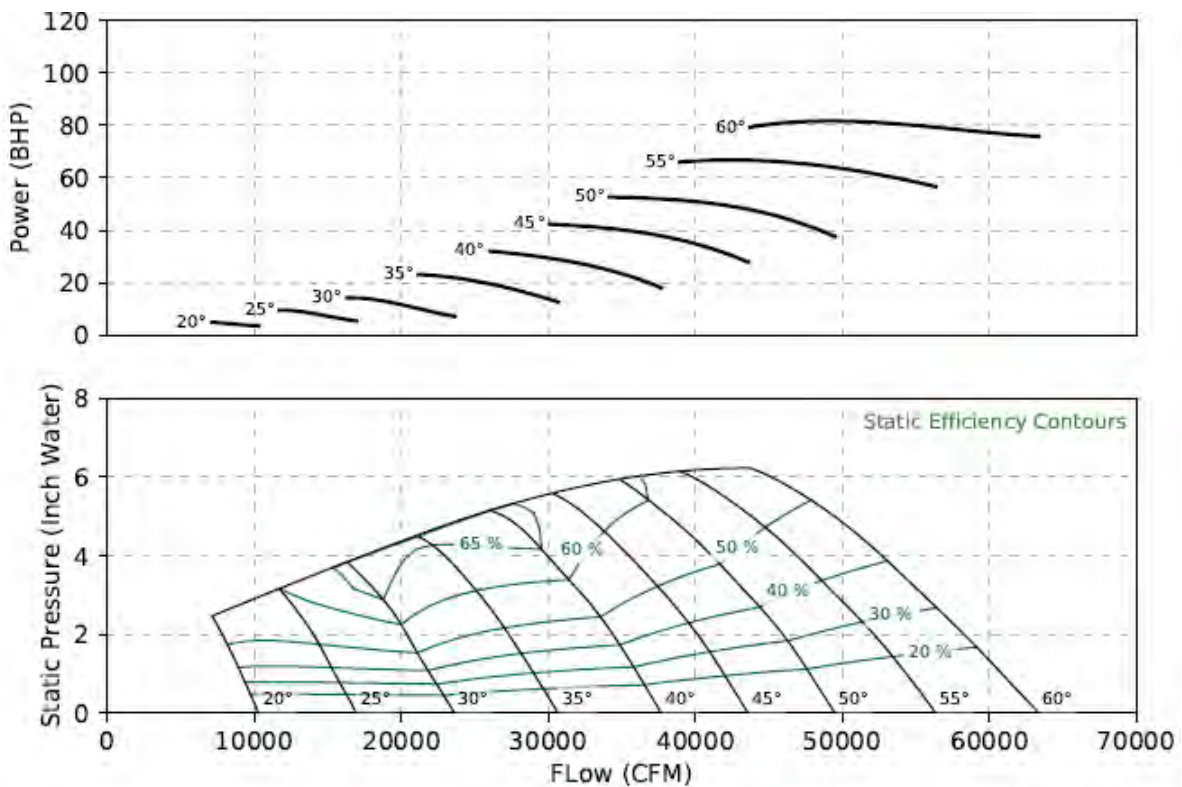
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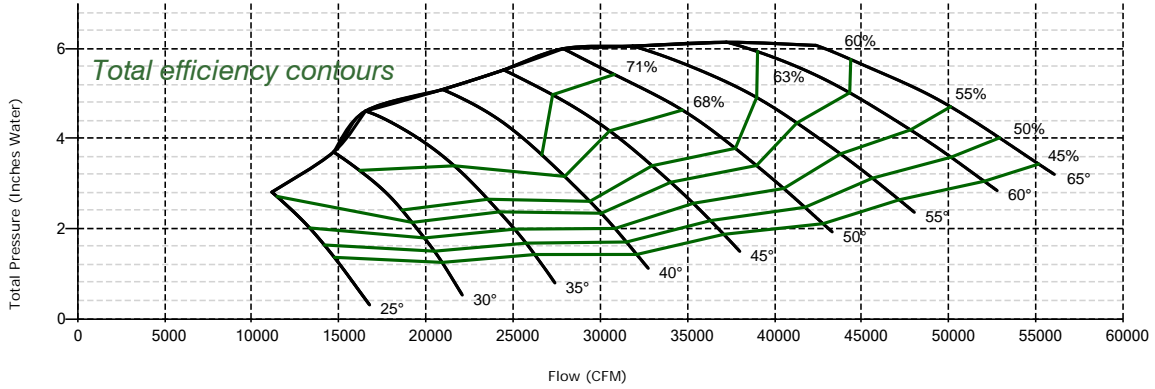
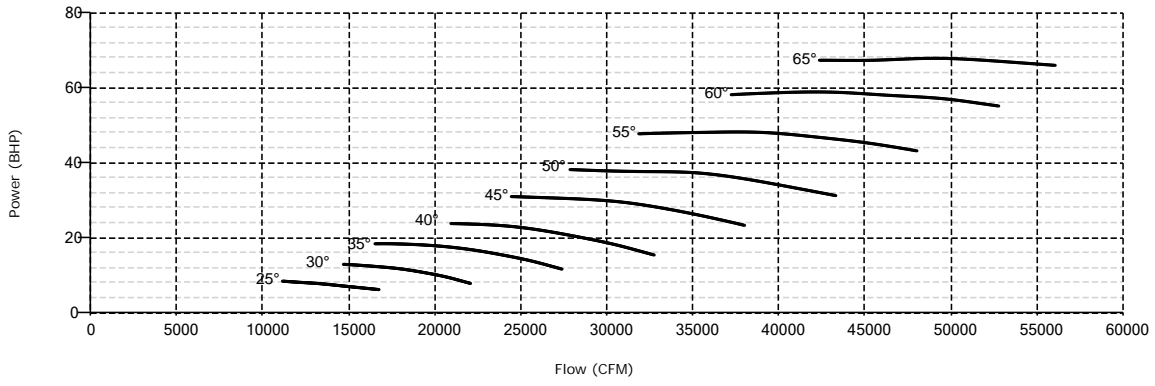
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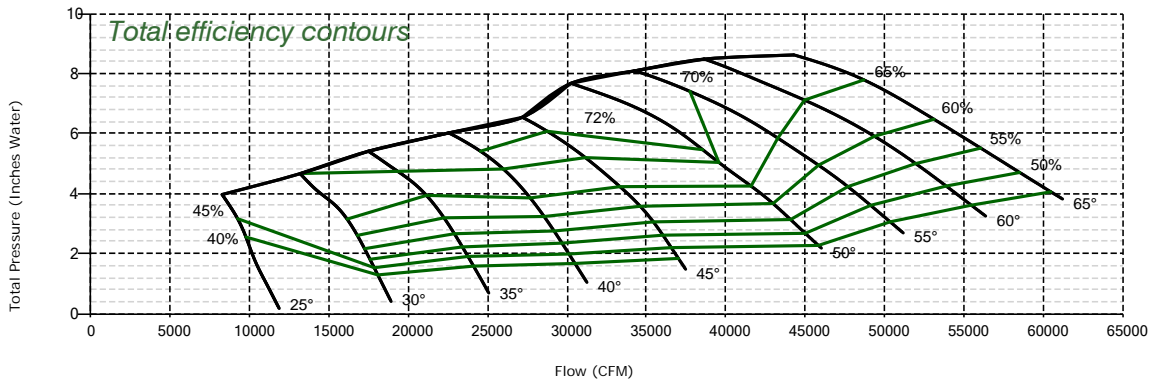
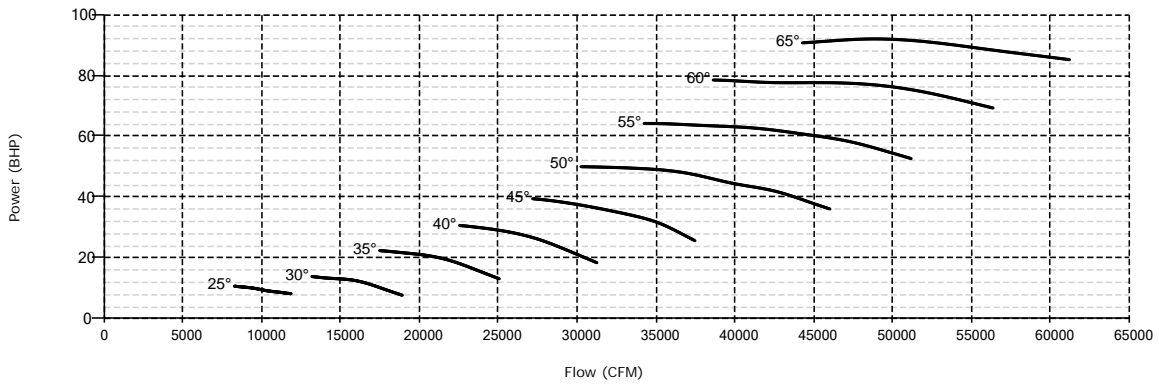
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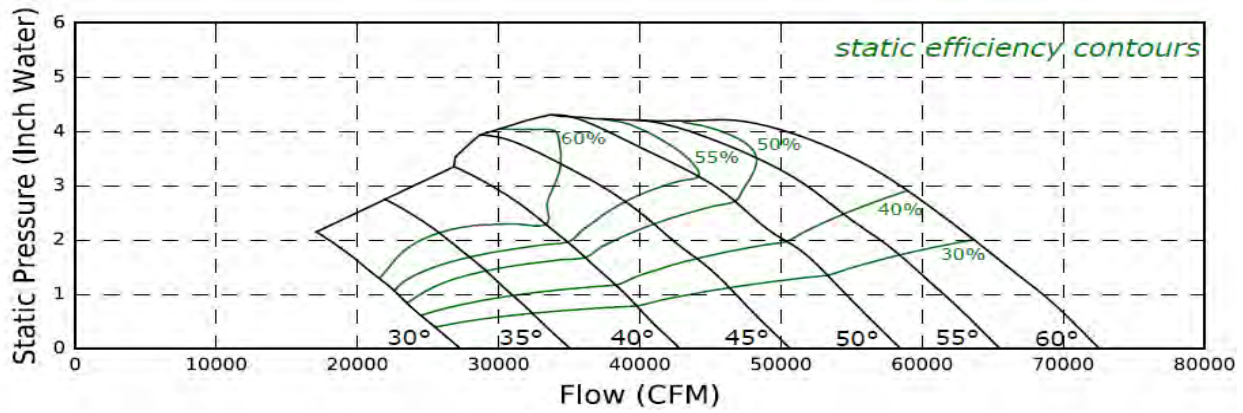
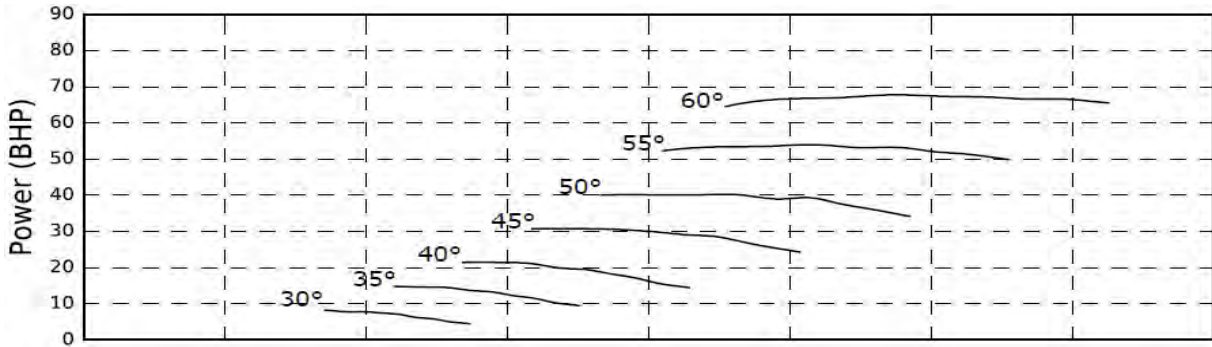
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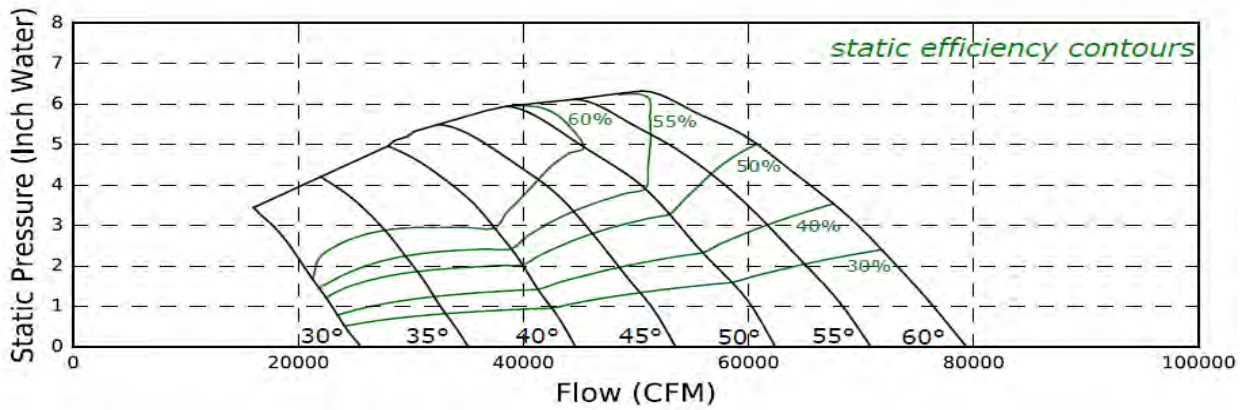
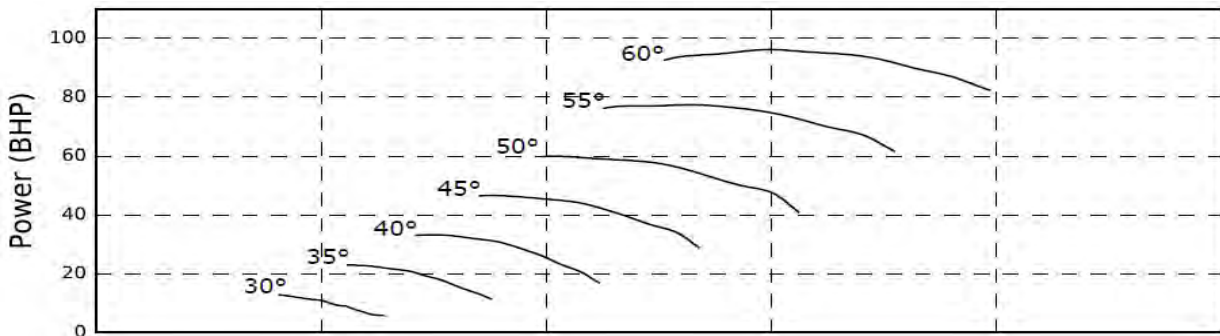
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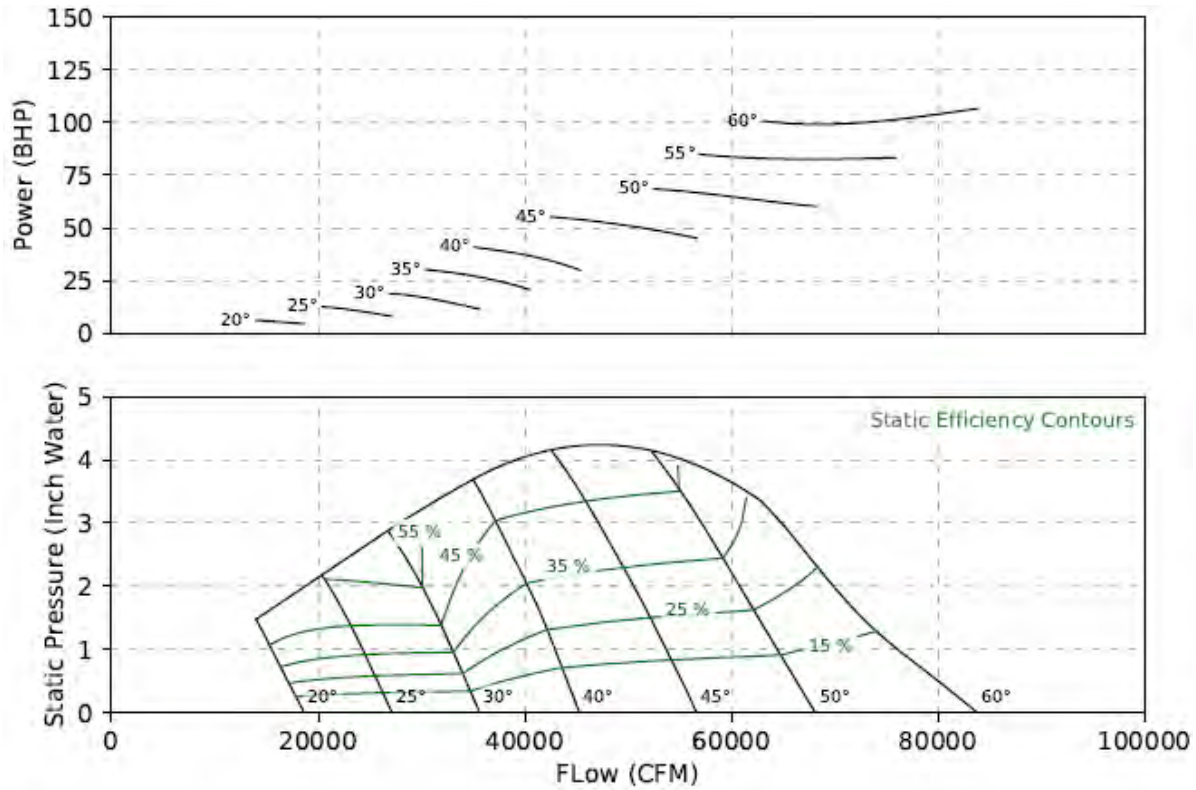
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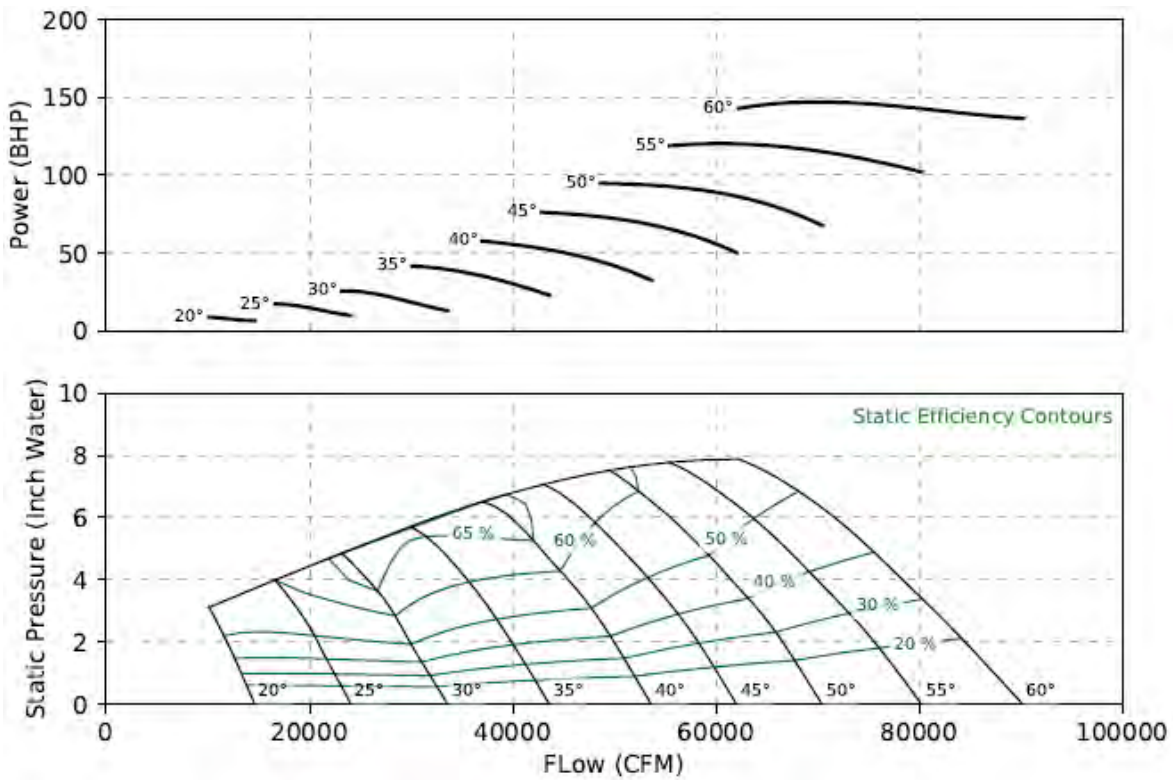
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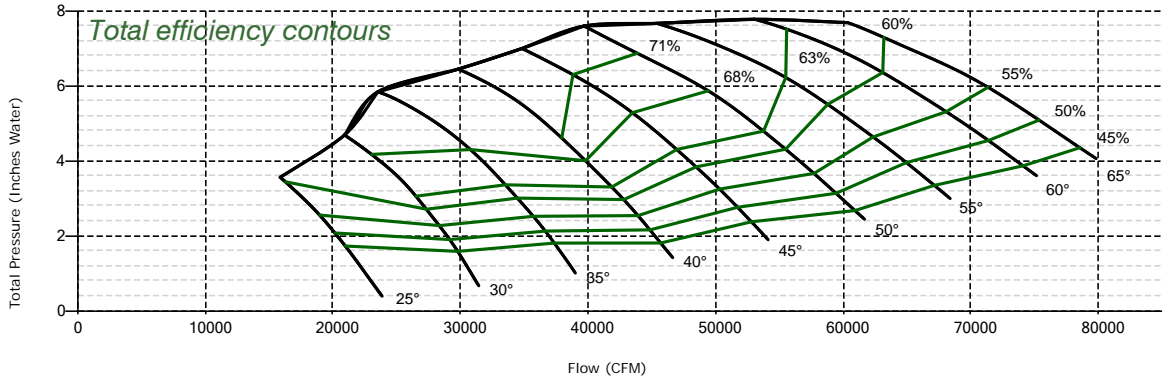
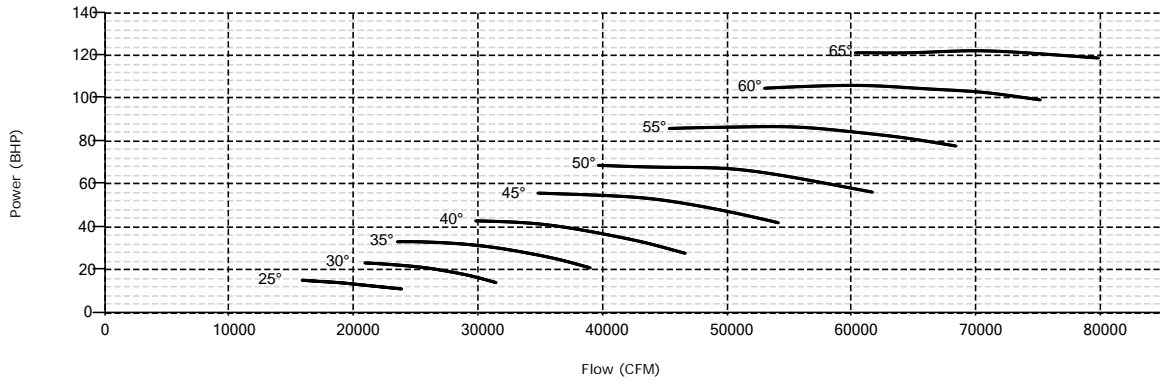
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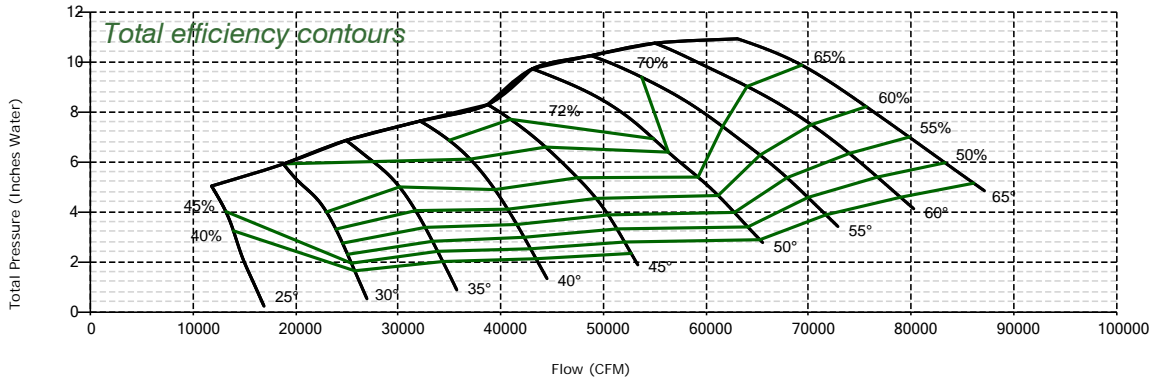
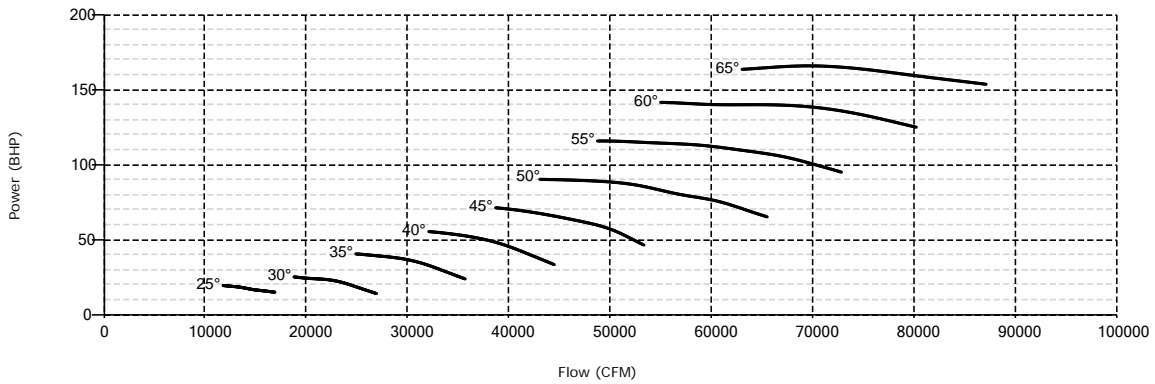
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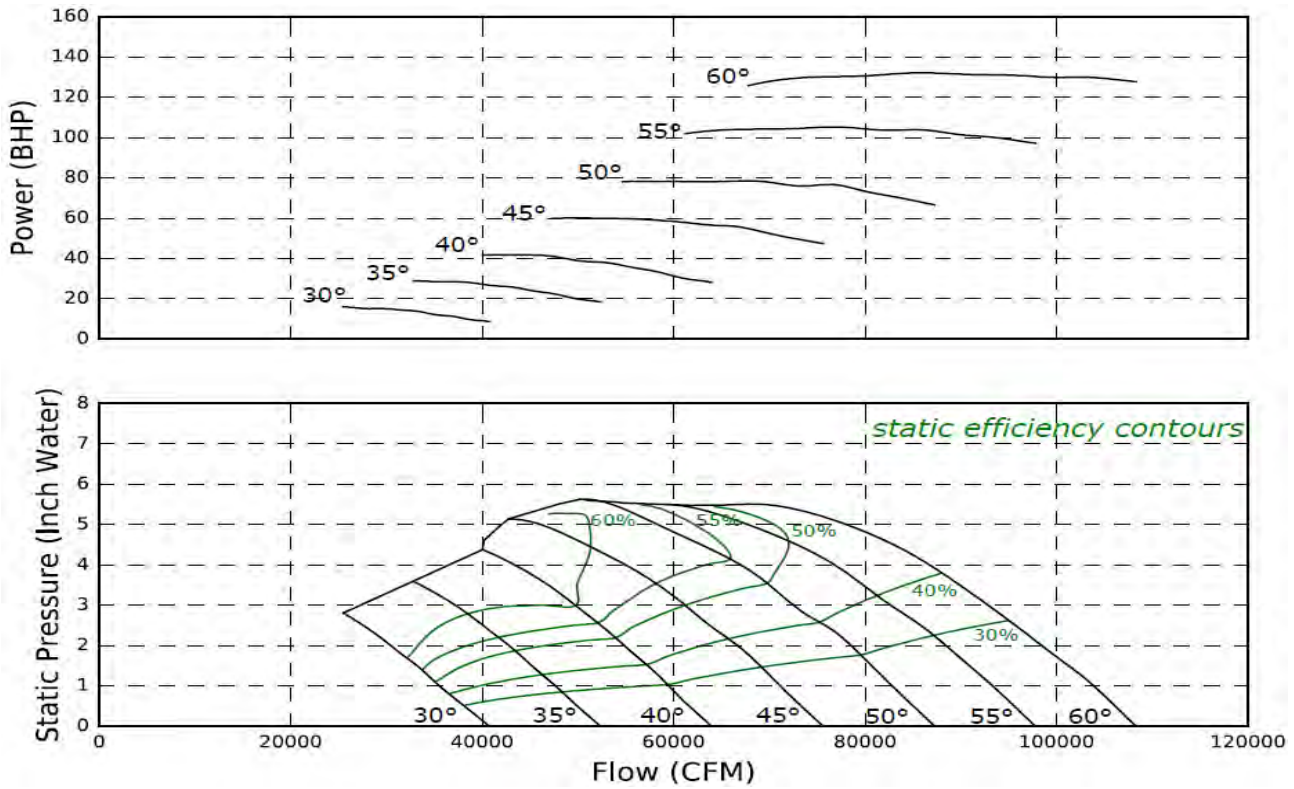
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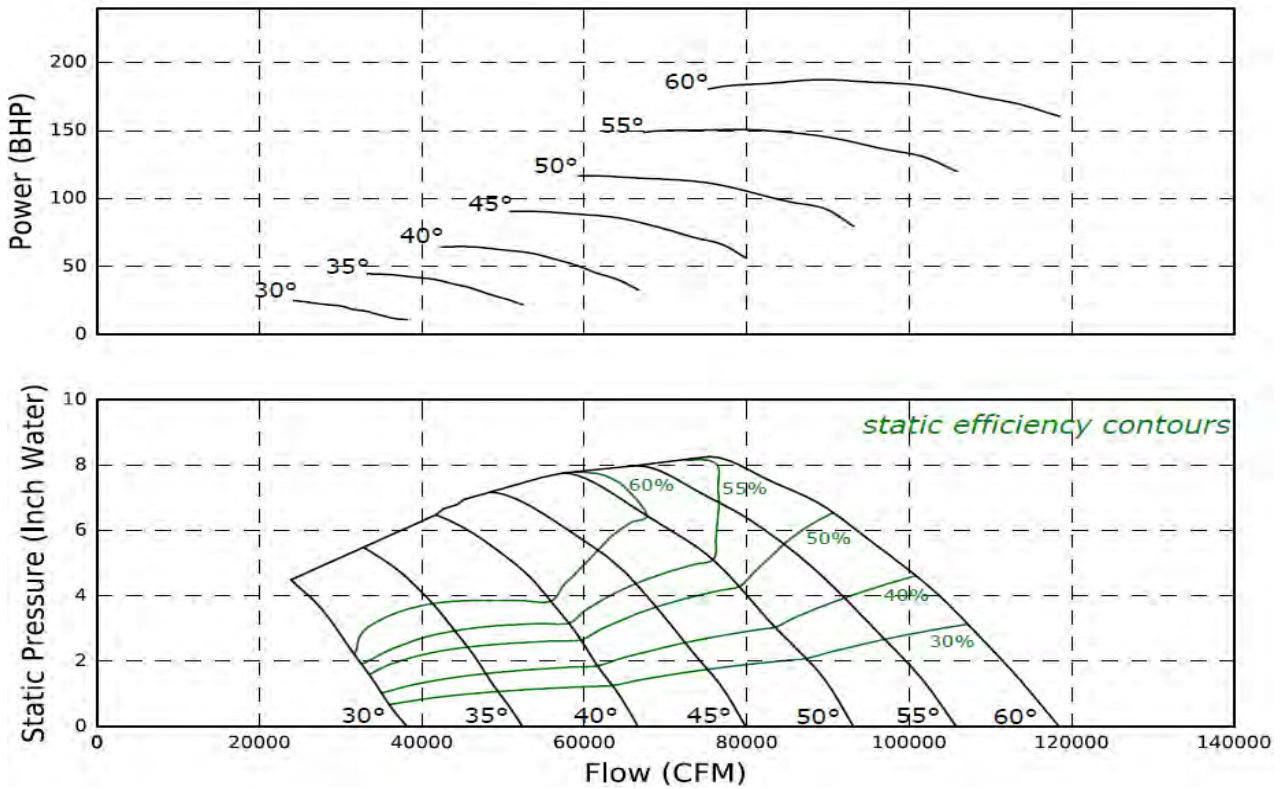
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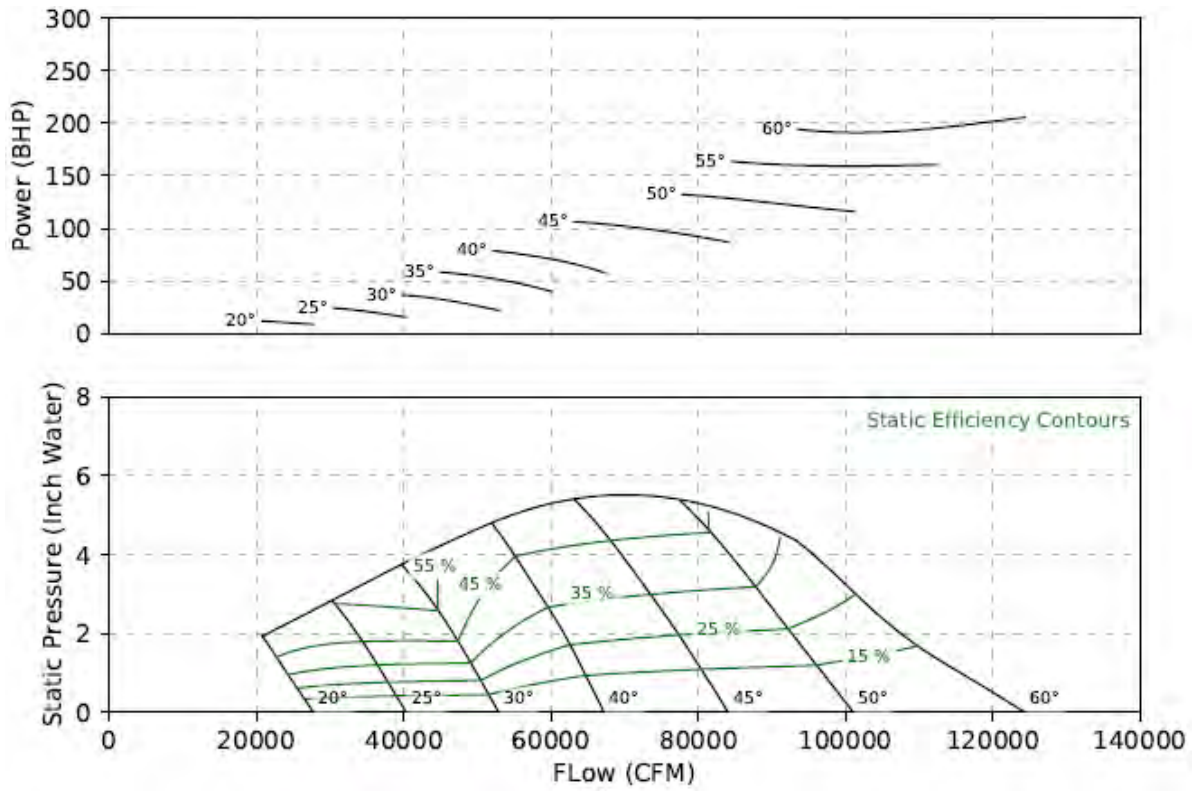
Size 48 1800 RPM 0.45 Hub Ratio - 5 Bladed



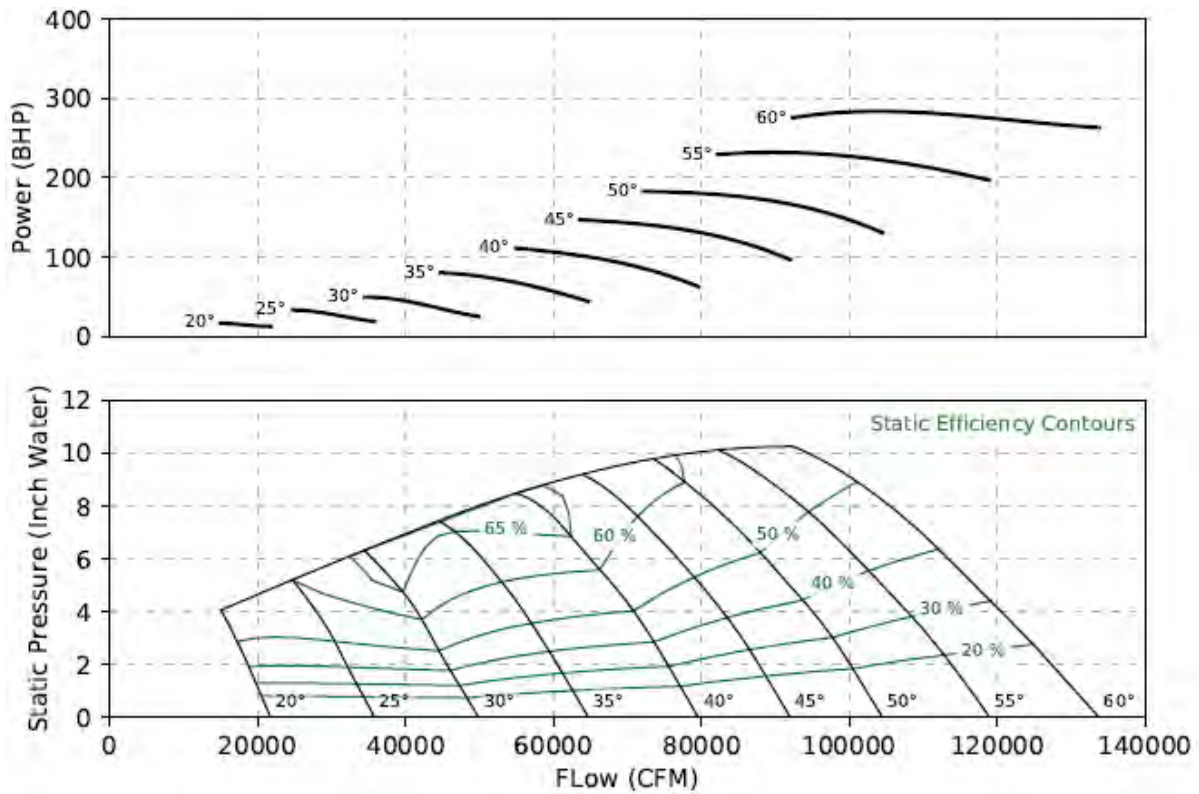
Size 48 1800 RPM 0.45 Hub Ratio - 10 Bladed



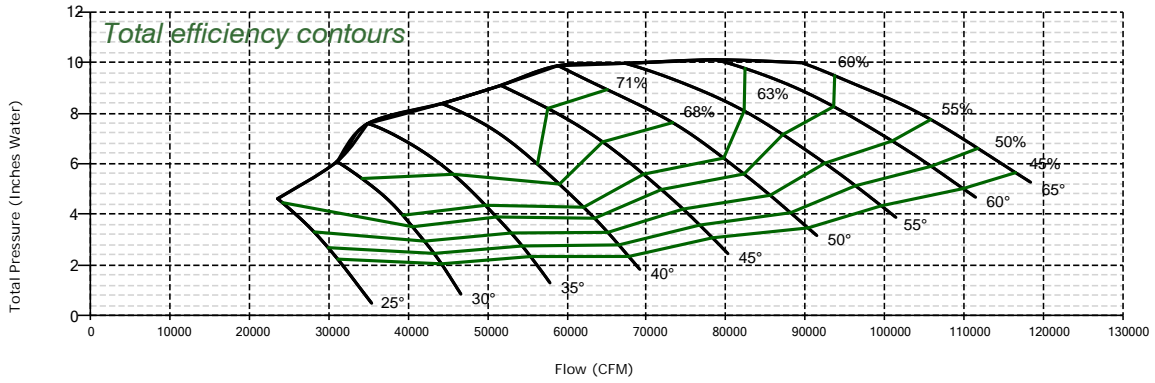
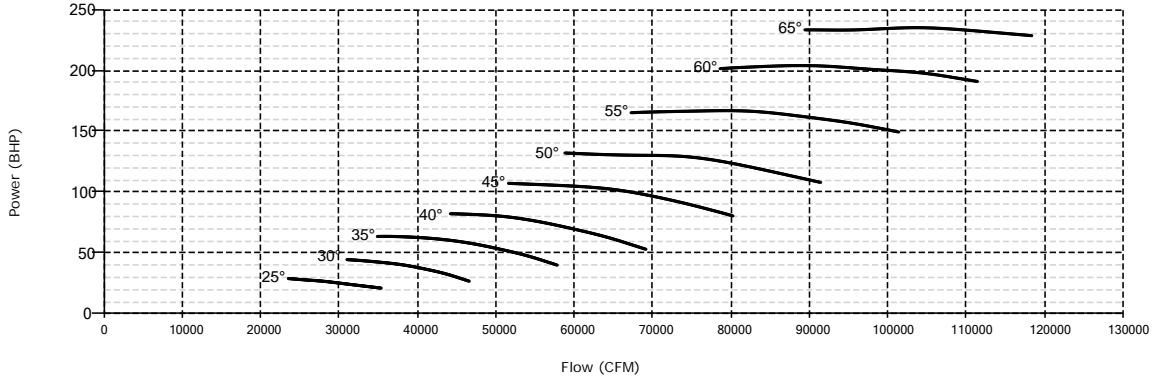
Size 48 1800 RPM 0.54 Hub Ratio - 6 Bladed



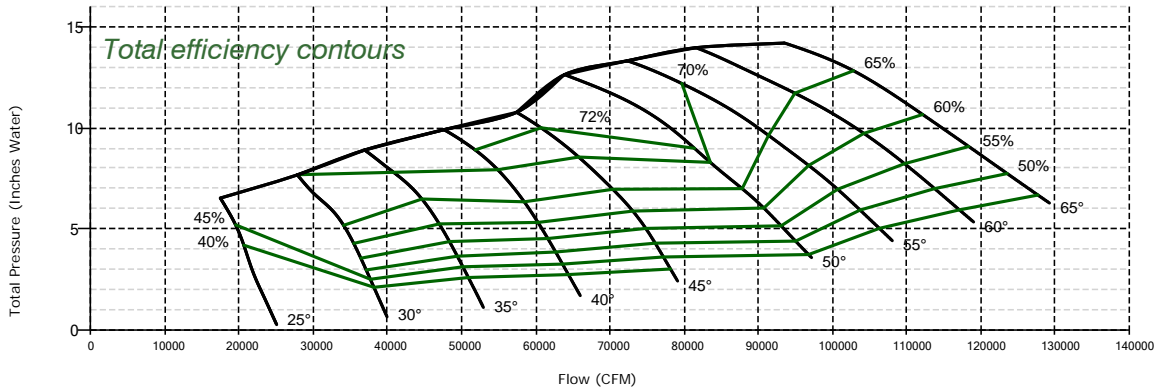
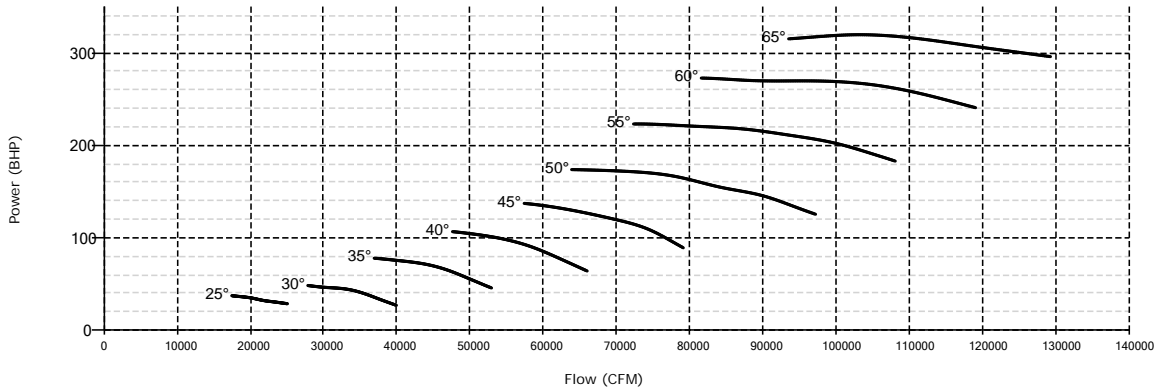
Size 48 1800 RPM 0.54 Hub Ratio - 12 Bladed



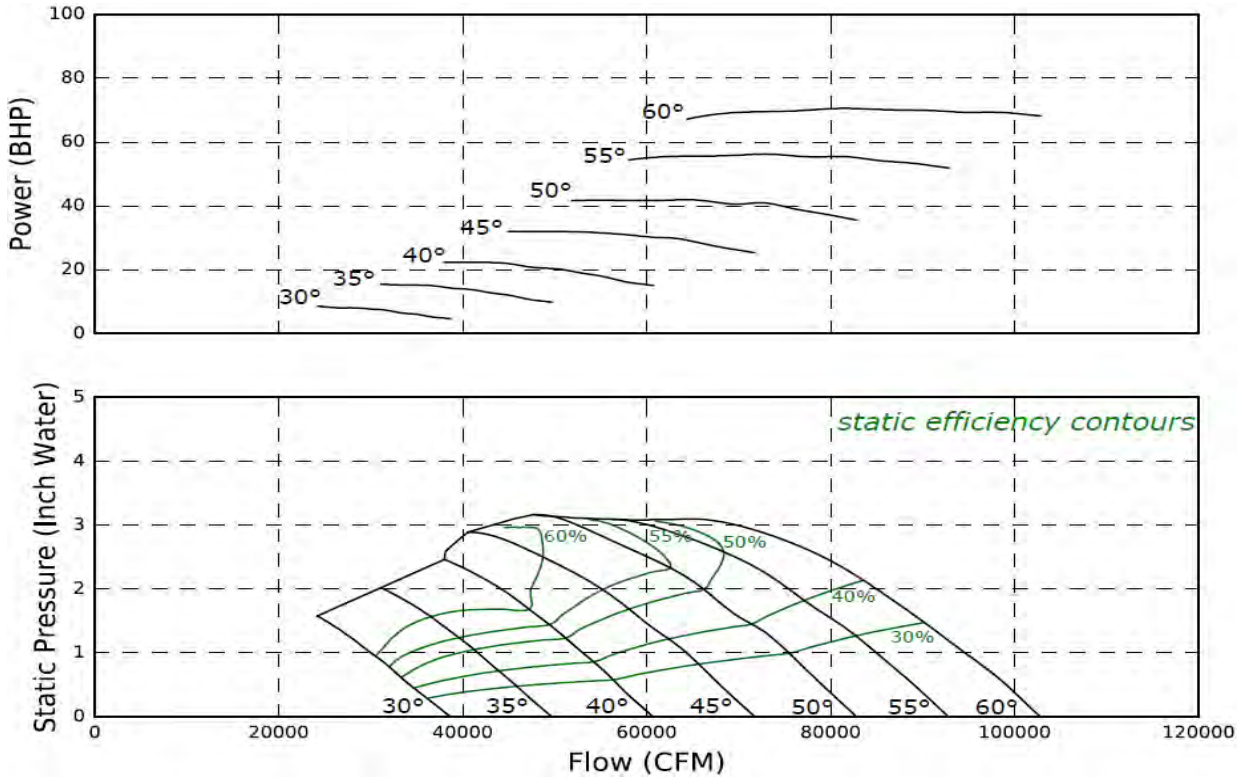
Size 48 1800 RPM 0.60 Hub Ratio - 6 Bladed



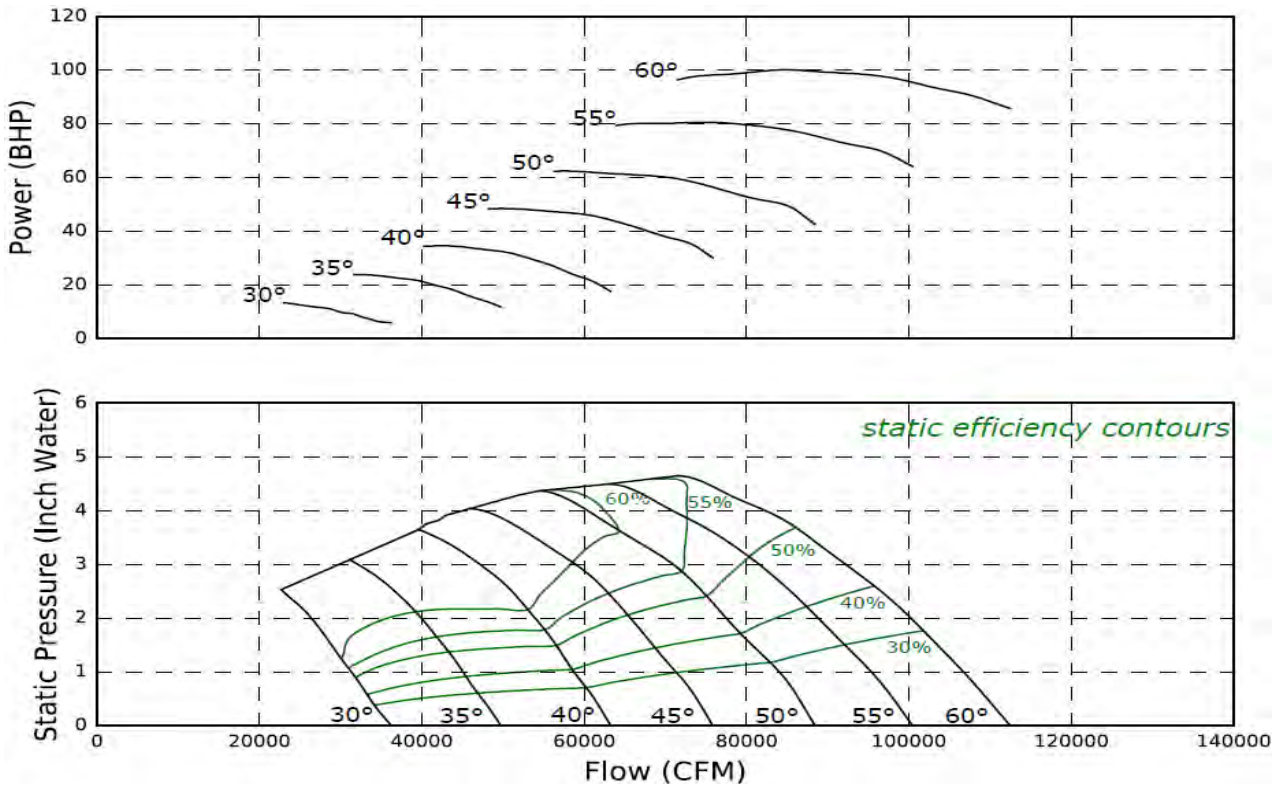
Size 48 1800 RPM 0.60 Hub Ratio - 12 Bladed



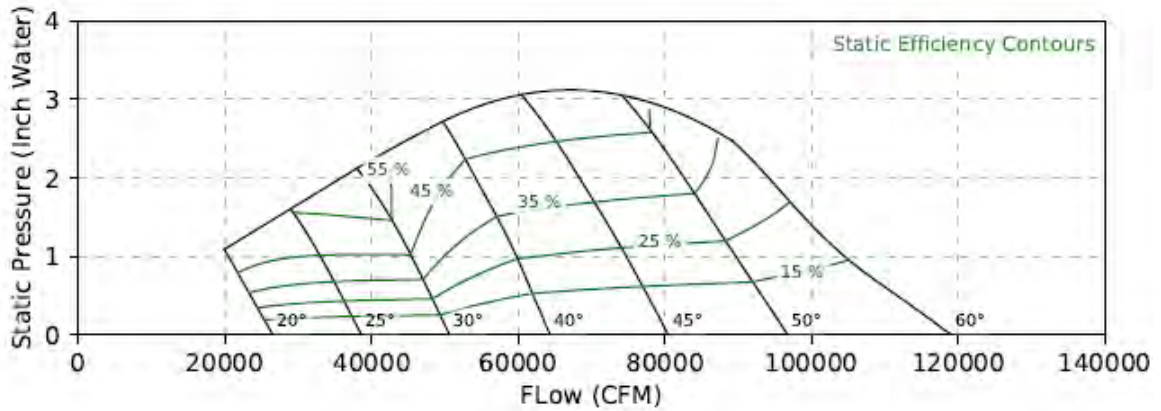
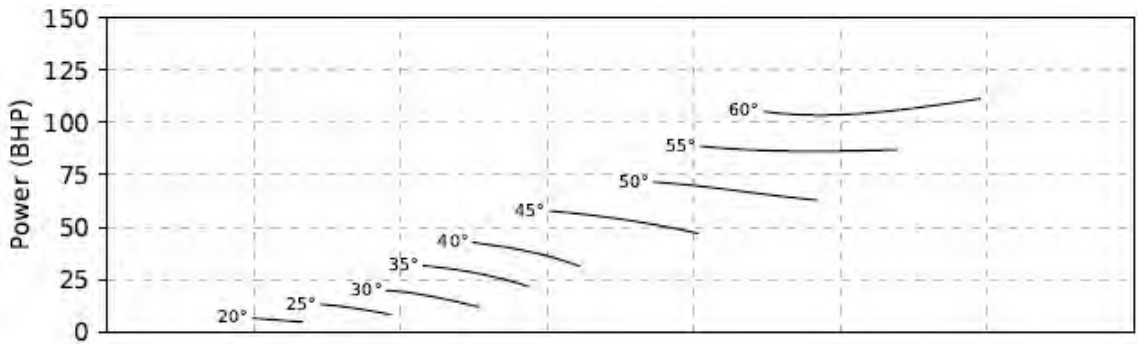
Size 54 1200 RPM 0.45 Hub Ratio - 5 Bladed



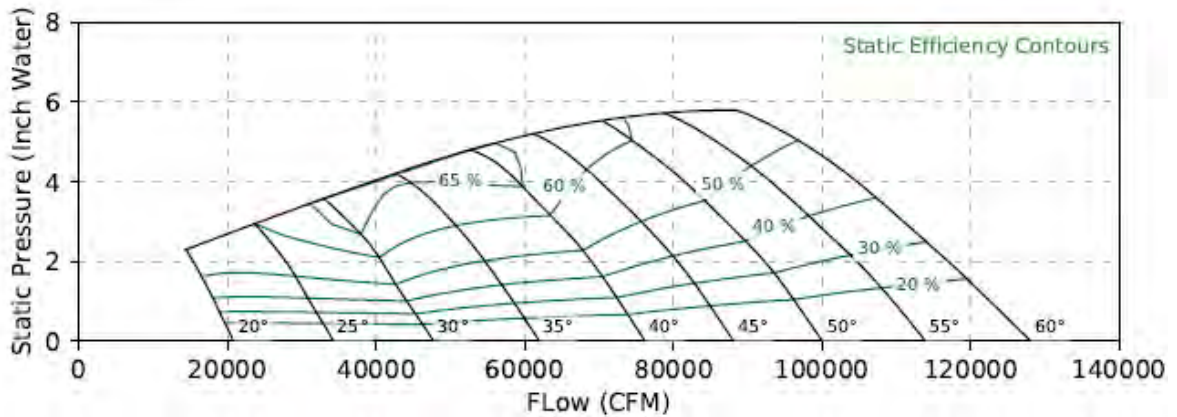
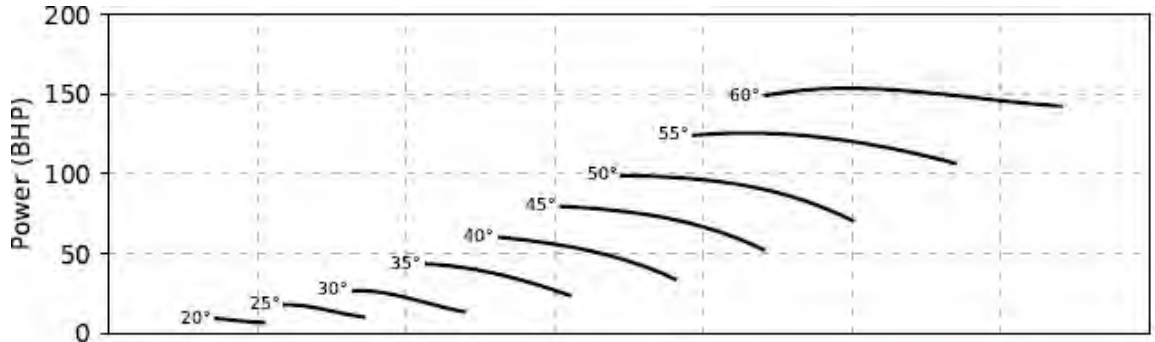
Size 54 1200 RPM 0.45 Hub Ratio - 10 Bladed



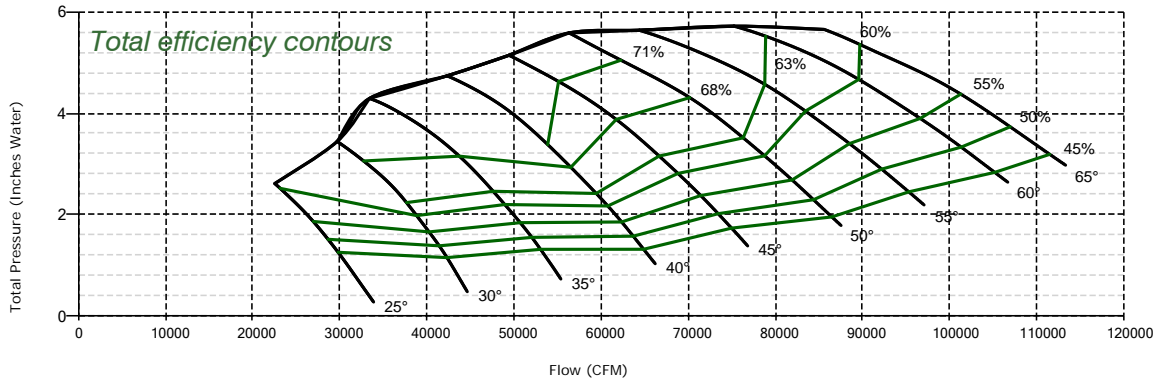
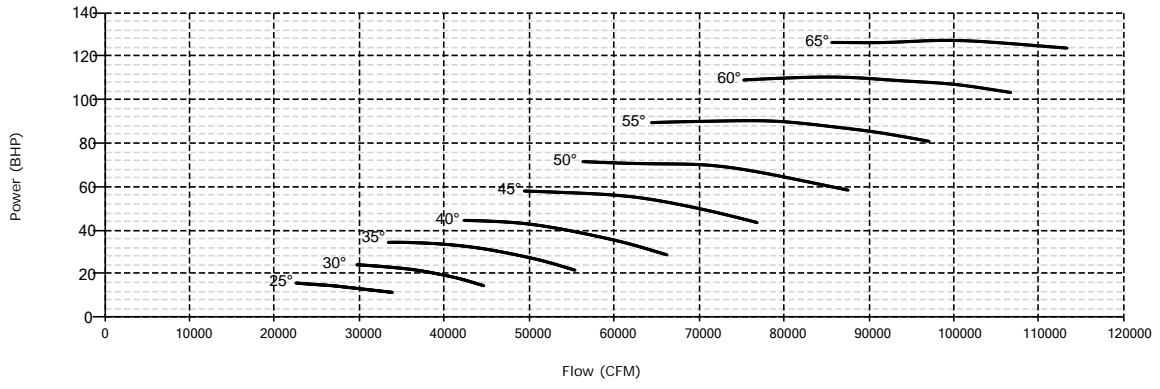
Size 54 1200 RPM 0.54 Hub Ratio - 6 Bladed



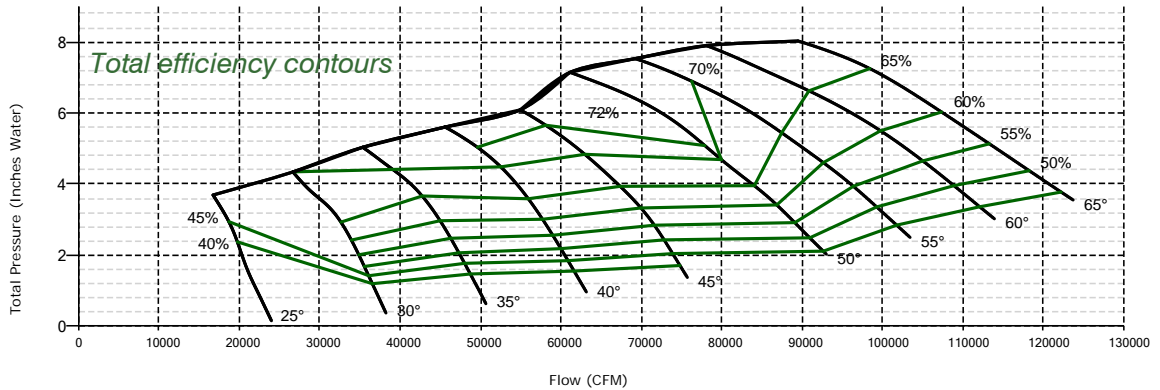
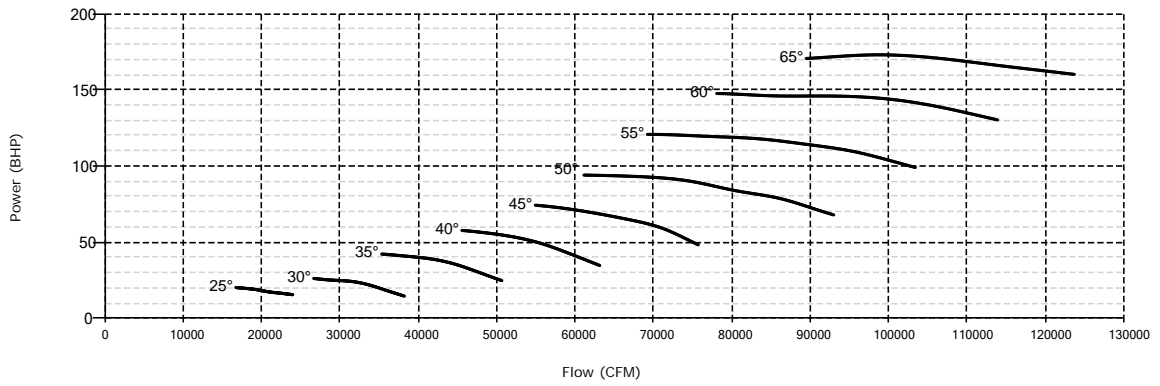
Size 54 1200 RPM 0.54 Hub Ratio - 12 Bladed



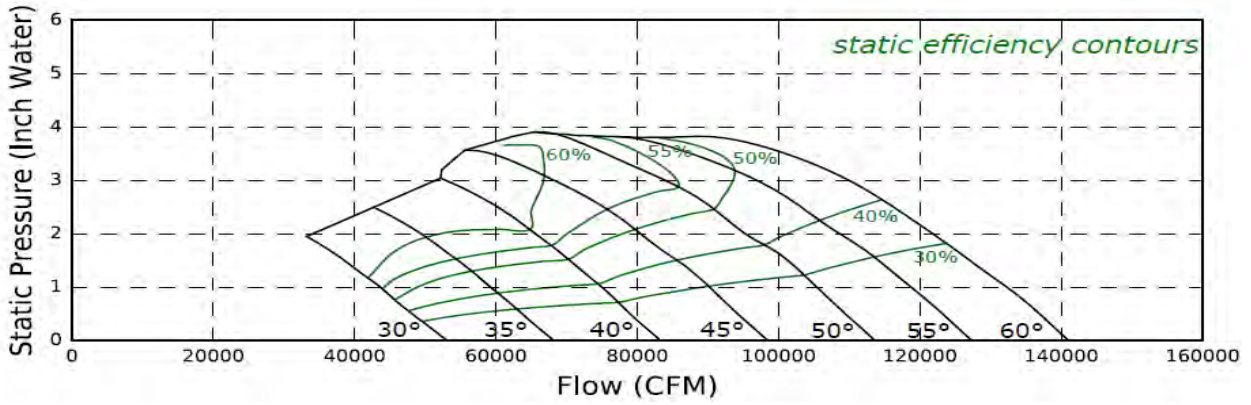
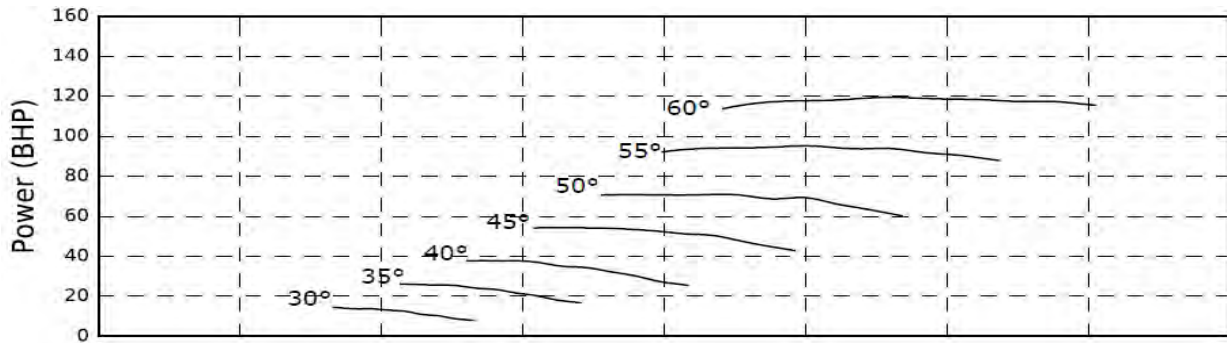
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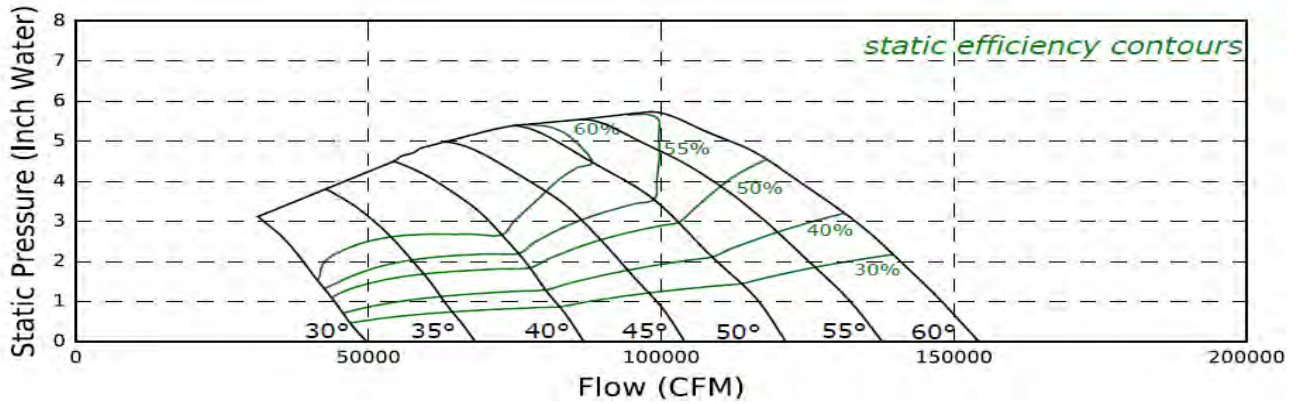
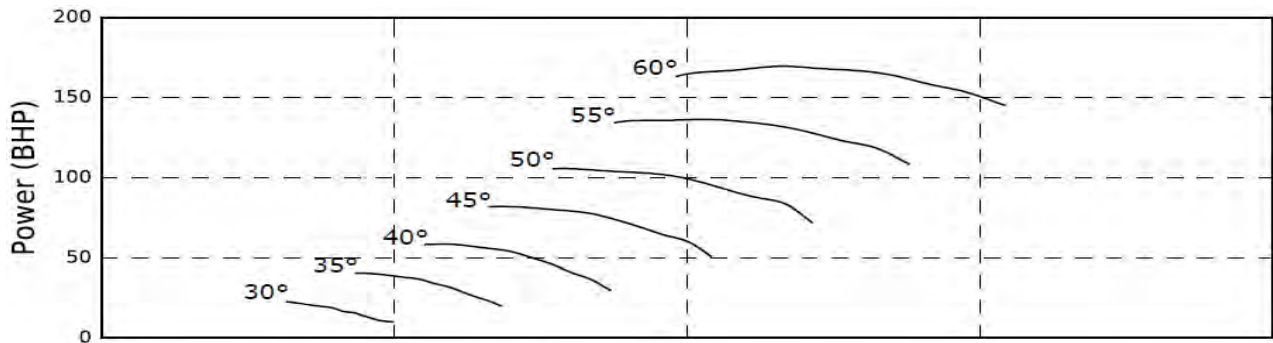
Size 54 1200 RPM 0.60 Hub Ratio - 6 Bladed



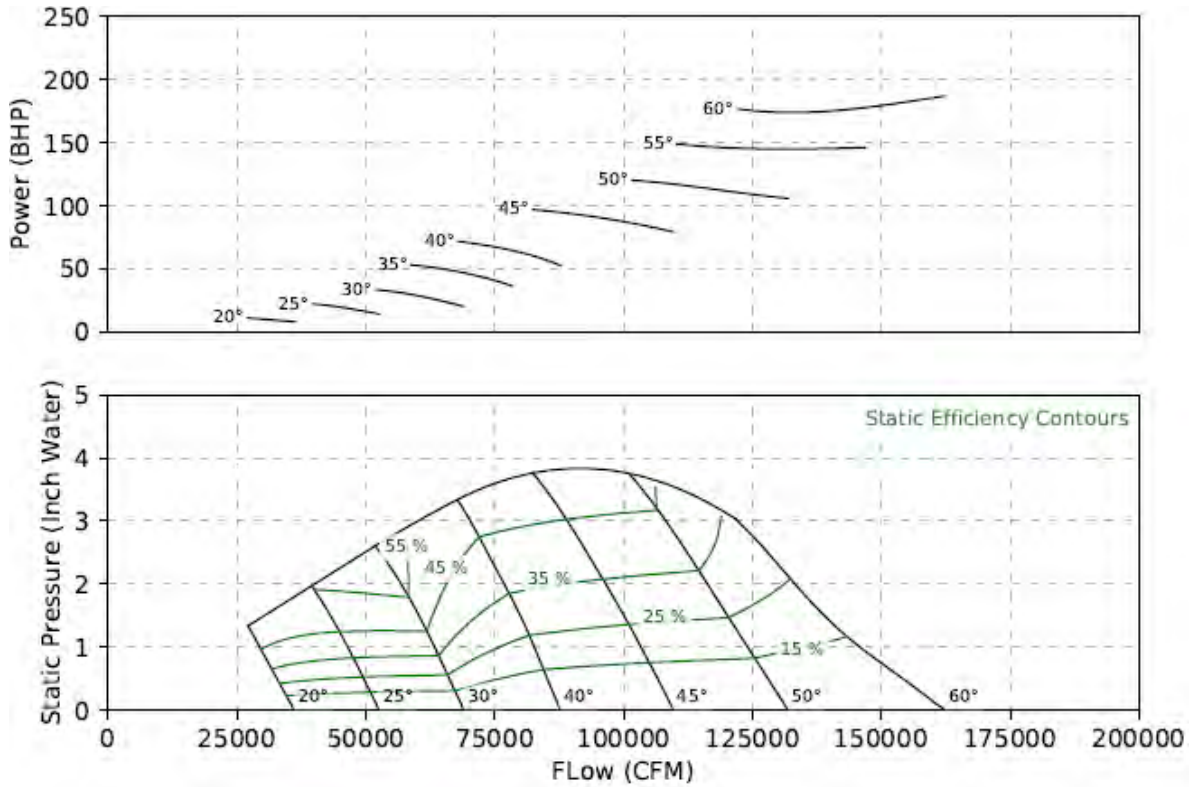
Size 60 1200 RPM 0.45 Hub Ratio - 5 Bladed



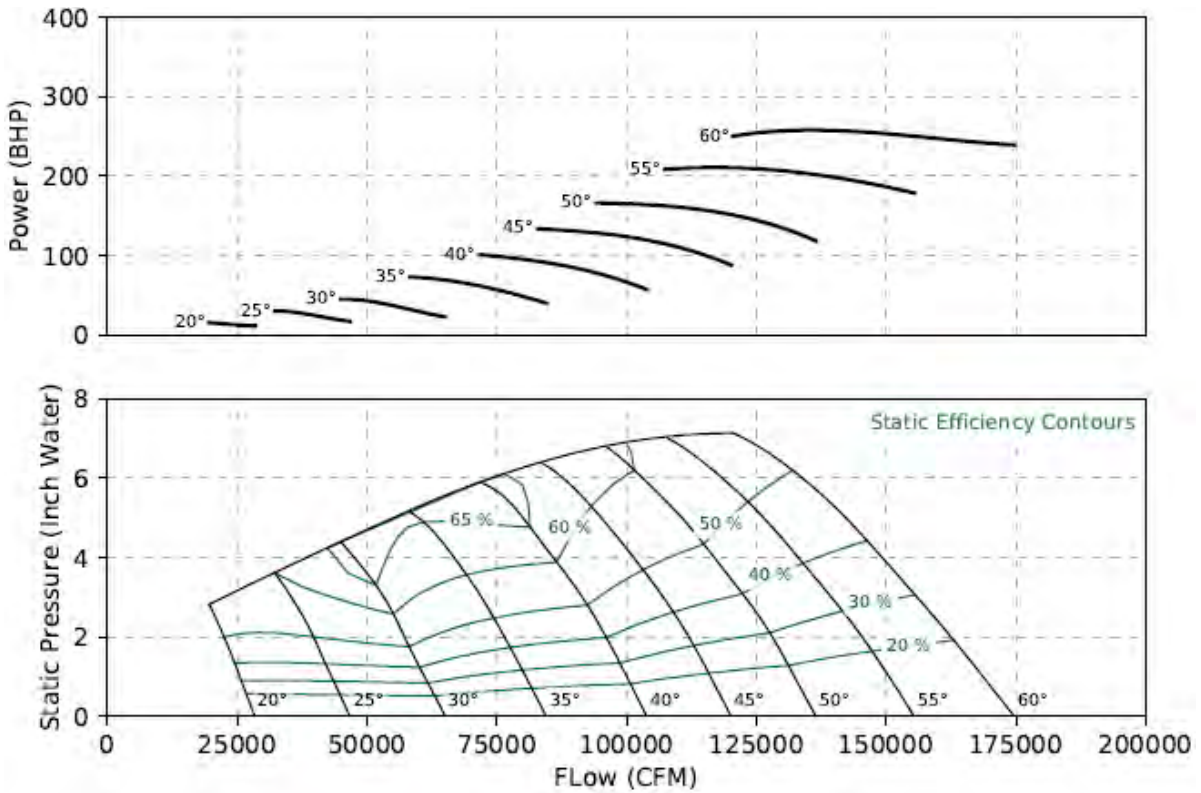
Size 60 1200 RPM 0.45 Hub Ratio - 10 Bladed



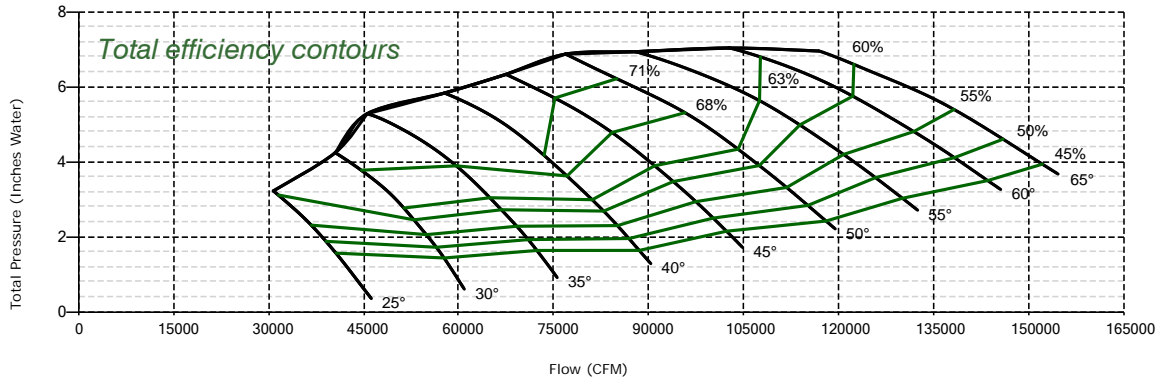
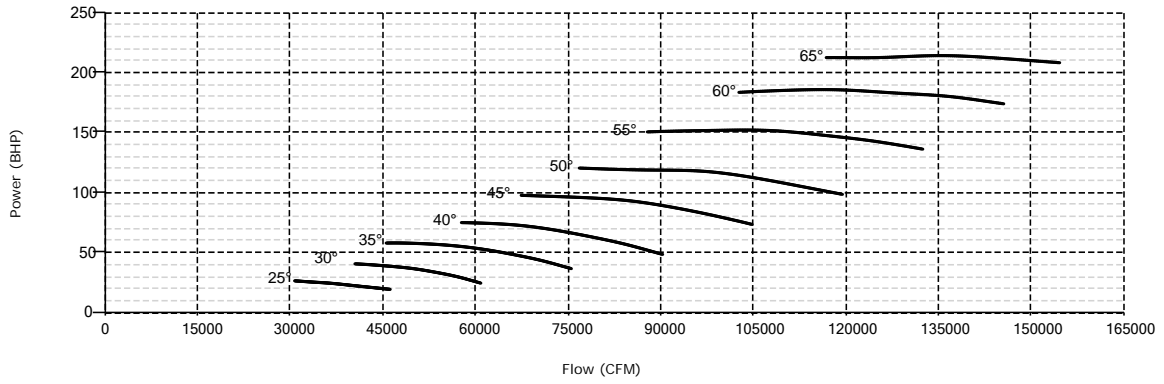
Size 60 1200 RPM 0.54 Hub Ratio - 6 Bladed



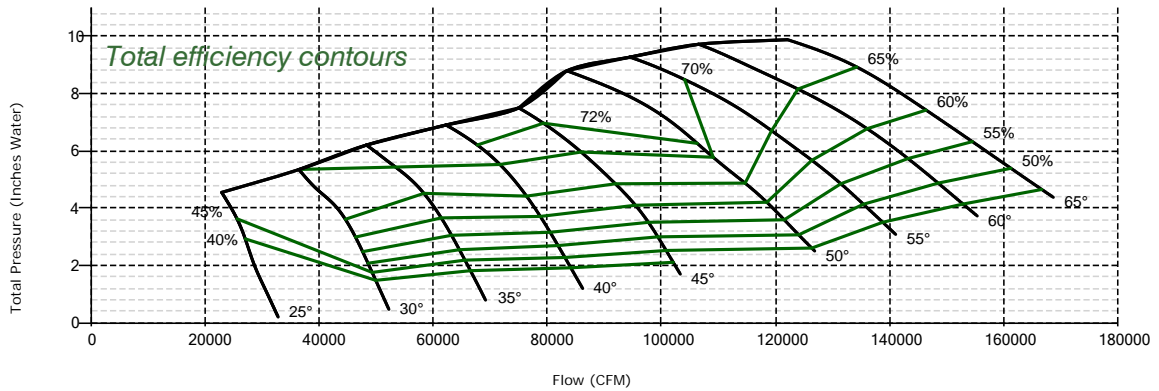
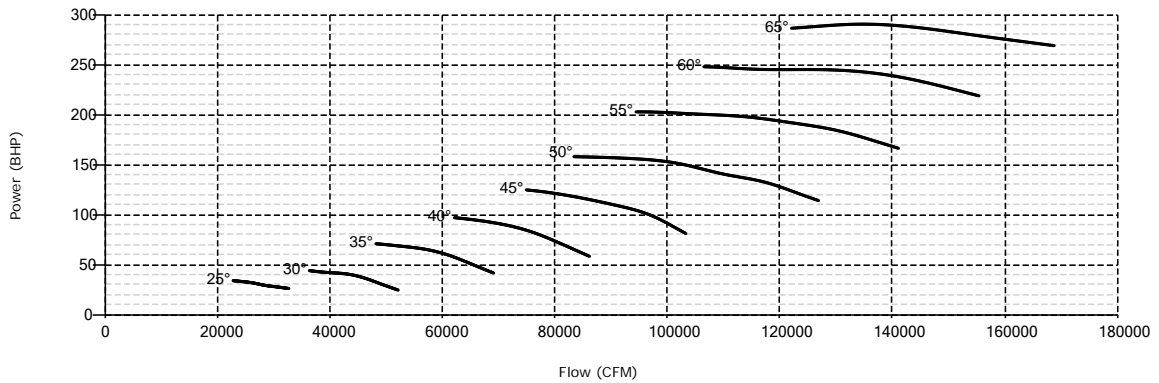
Size 60 1200 RPM 0.54 Hub Ratio - 12 Bladed



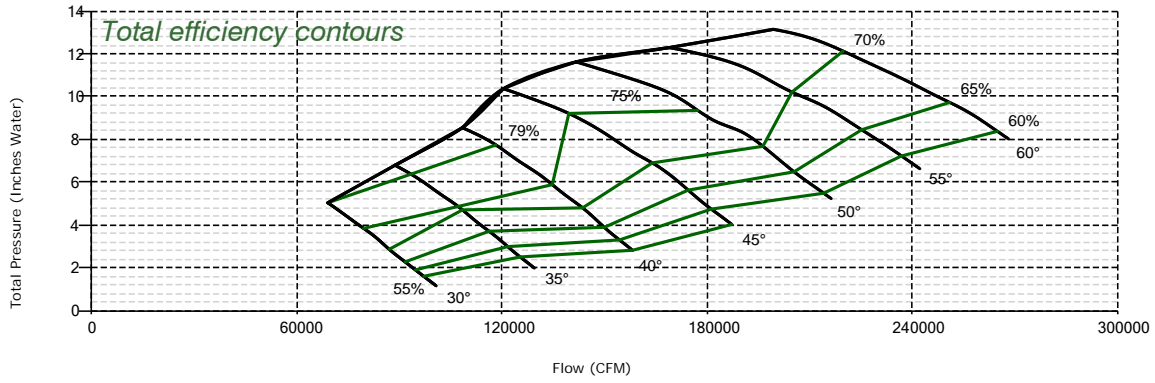
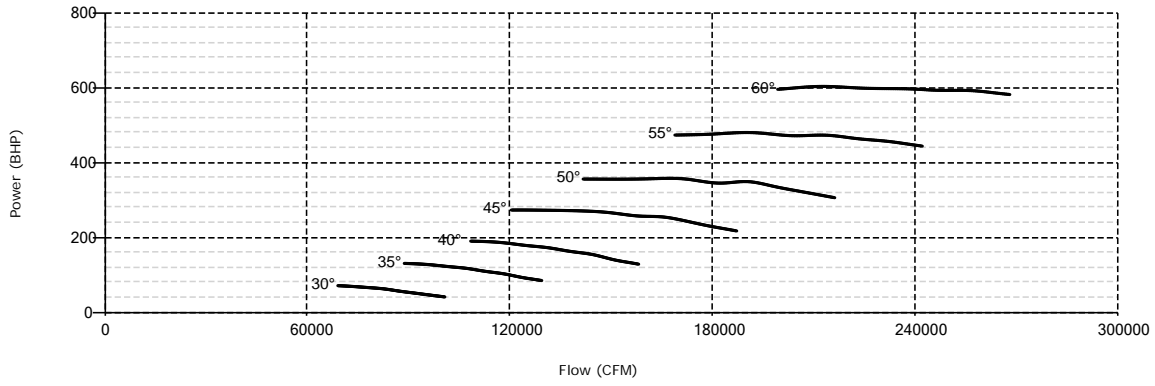
Size 60 1200 RPM 0.60 Hub Ratio - 6 Bladed



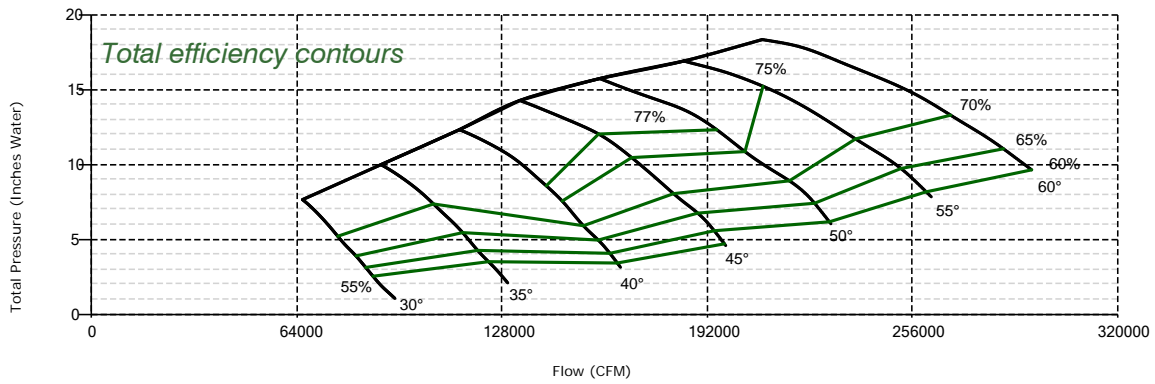
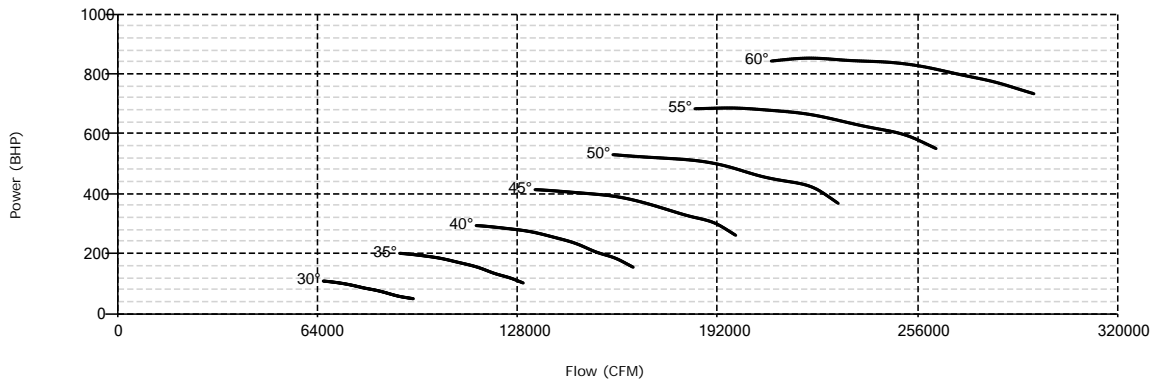
Size 60 1200 RPM 0.60 Hub Ratio - 12 Bladed



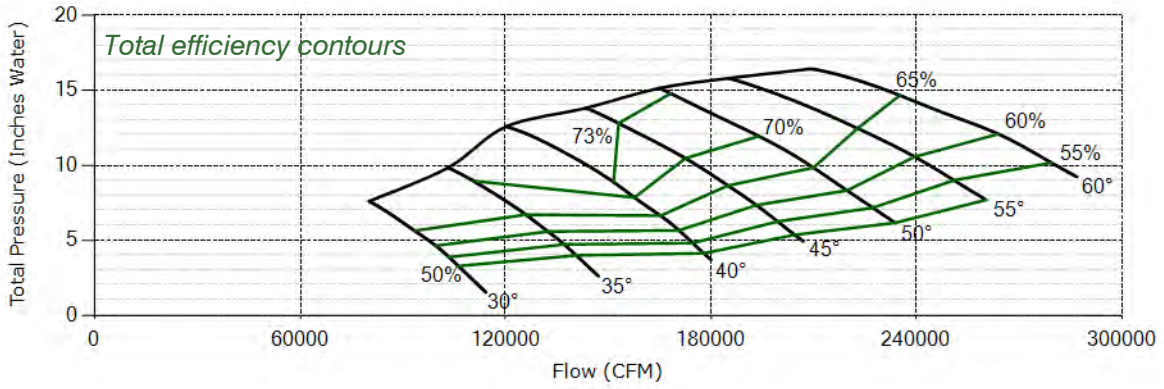
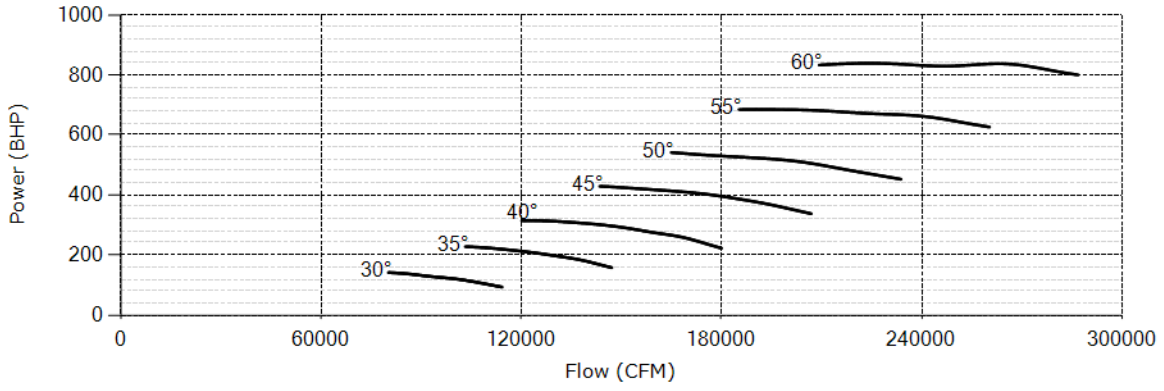
Size 66 1200 RPM 0.45 Hub Ratio - 6 Bladed



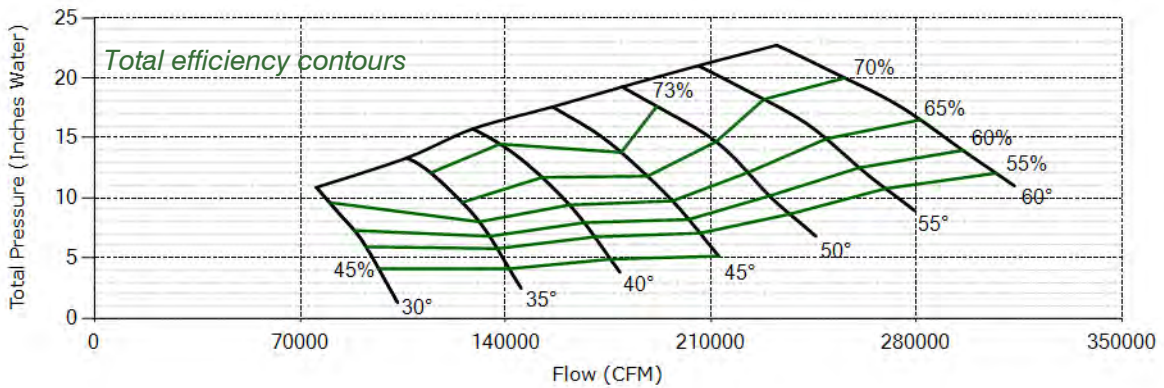
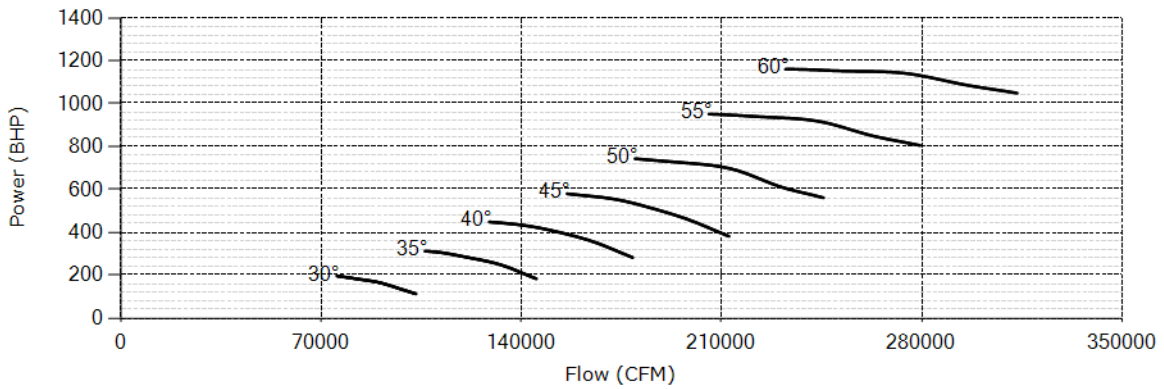
Size 66 1200 RPM 0.45 Hub Ratio - 12 Bladed



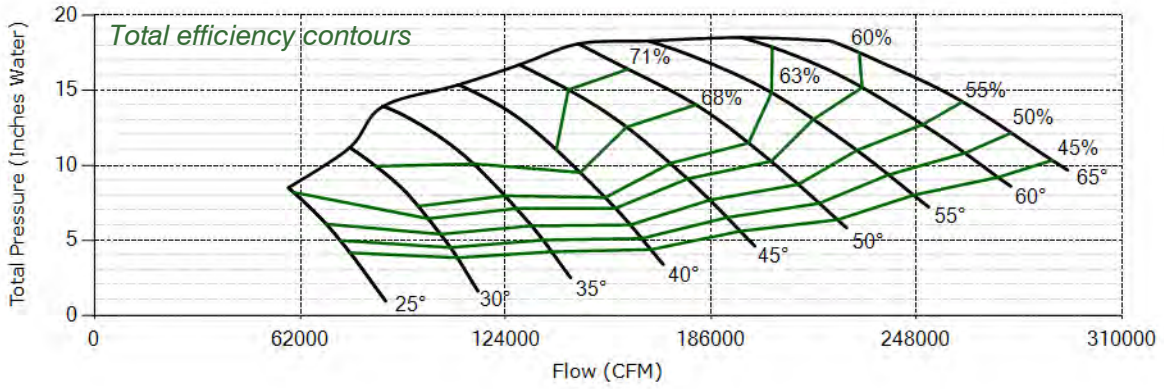
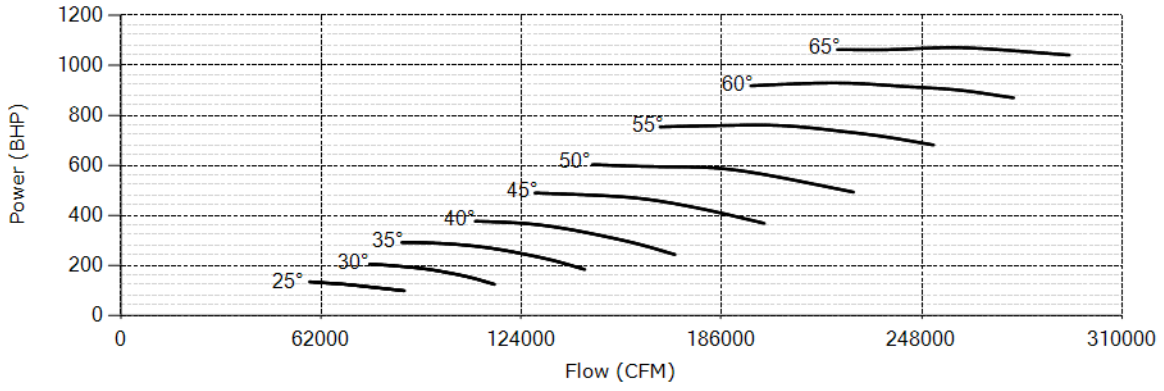
Size 66 1200 RPM 0.54 Hub Ratio - 6 Bladed



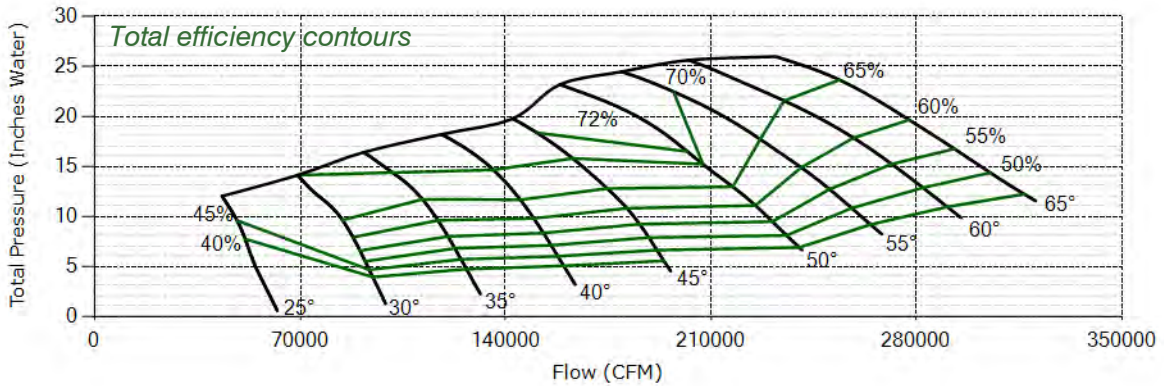
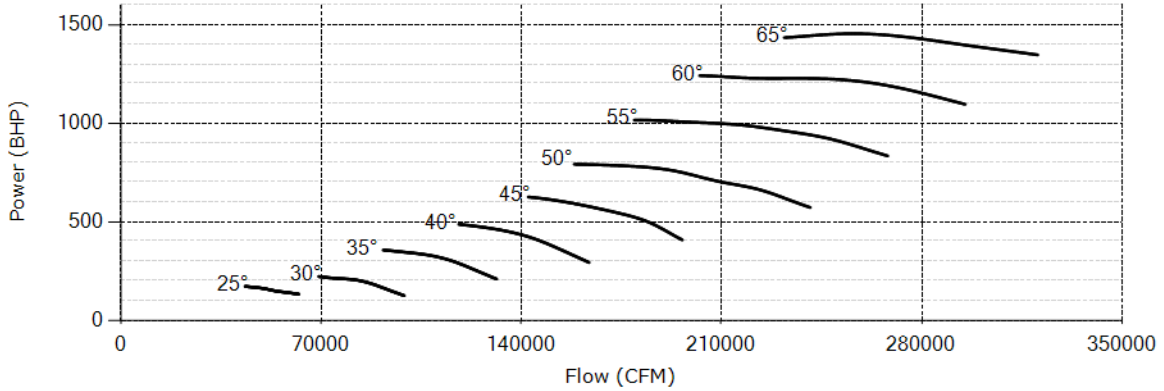
Size 66 1200 RPM 0.54 Hub Ratio - 12 Bladed



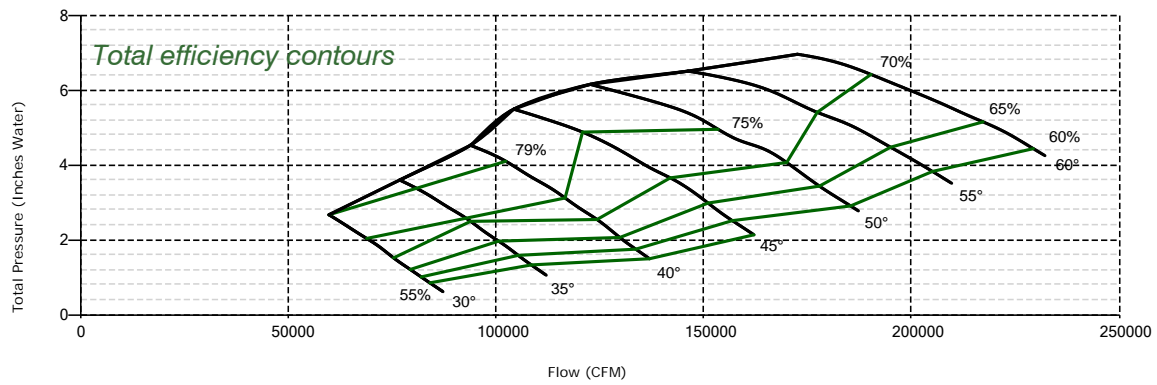
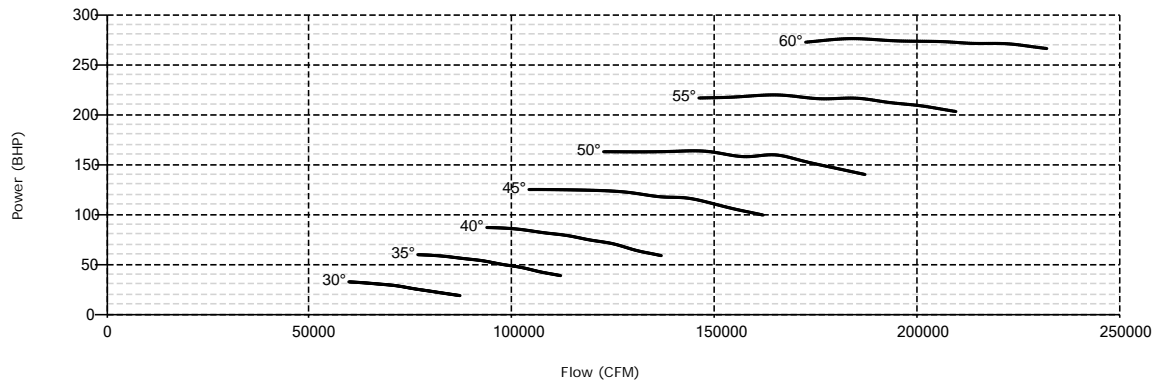
Size 66 1200 RPM 0.60 Hub Ratio - 6 Bladed



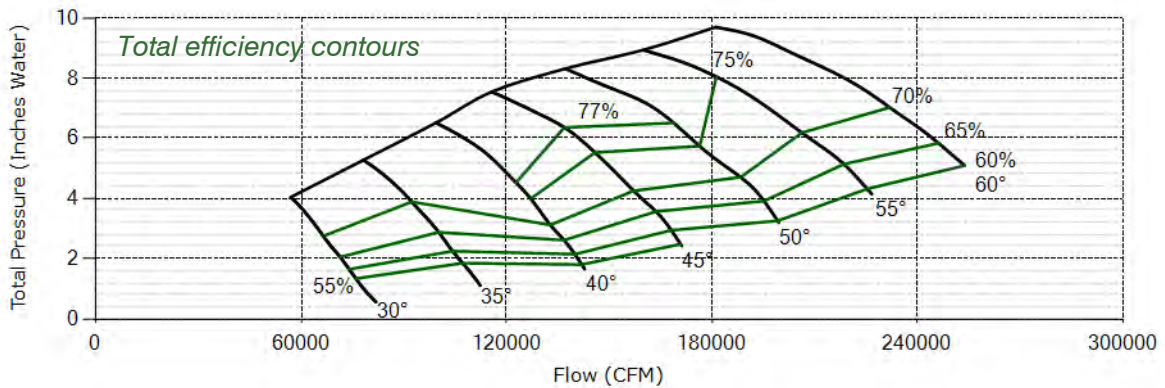
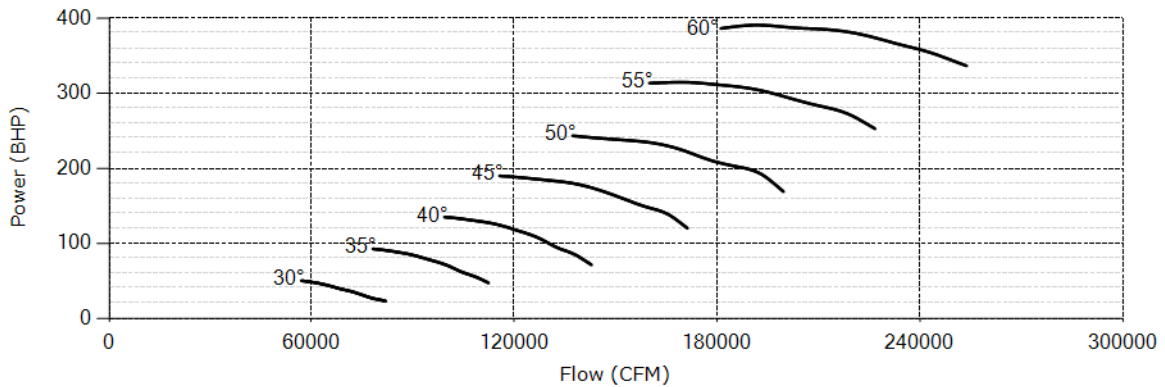
Size 66 1200 RPM 0.60 Hub Ratio - 12 Bladed



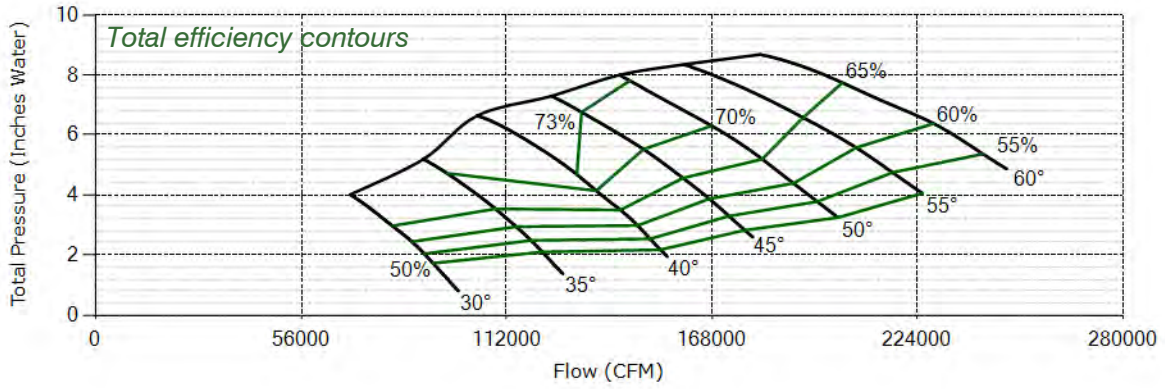
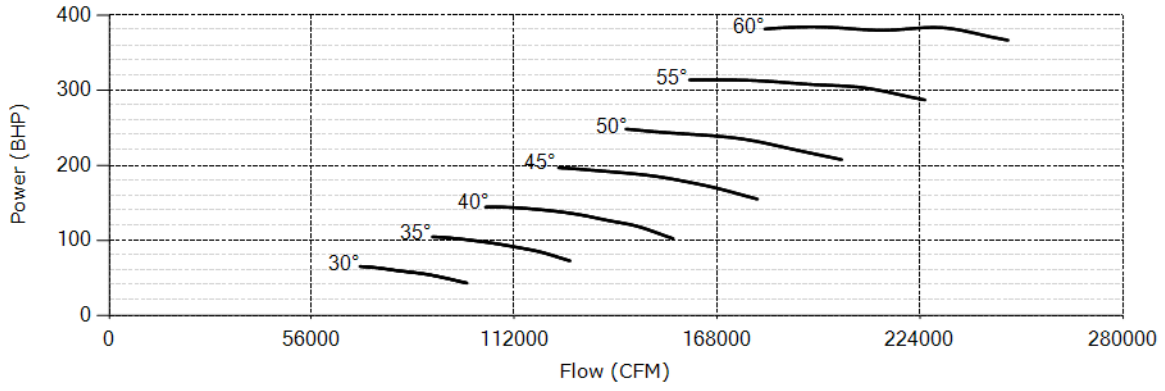
Size 72 1200 RPM 0.45 Hub Ratio - 6 Bladed



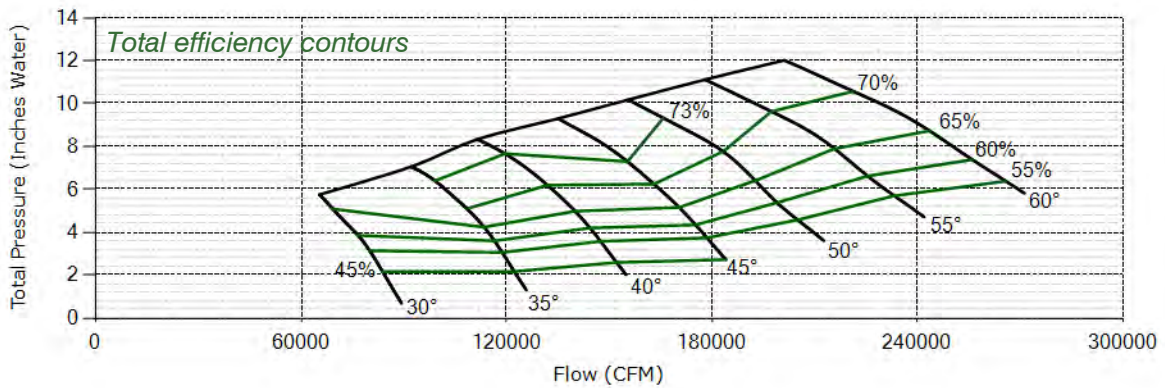
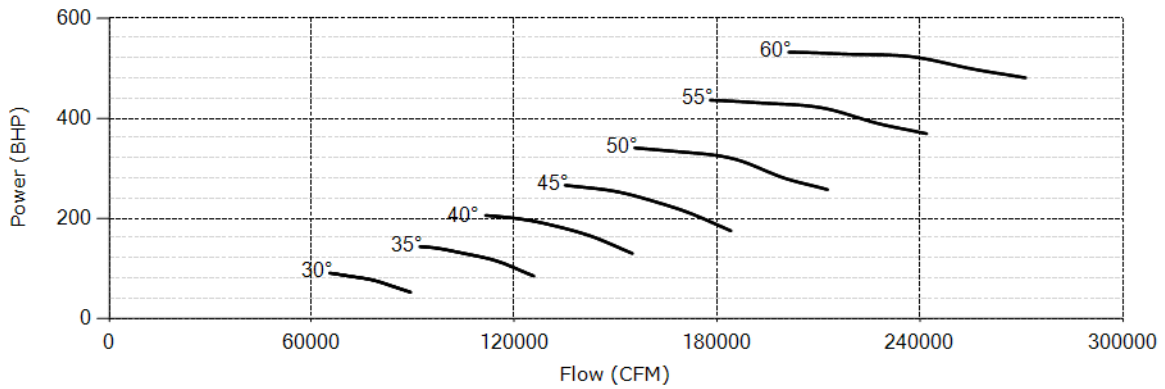
Size 72 1200 RPM 0.45 Hub Ratio - 12 Bladed



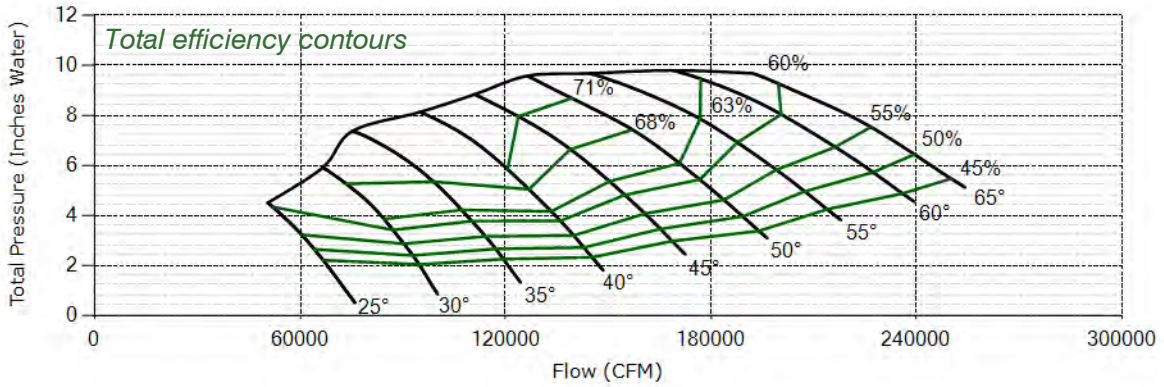
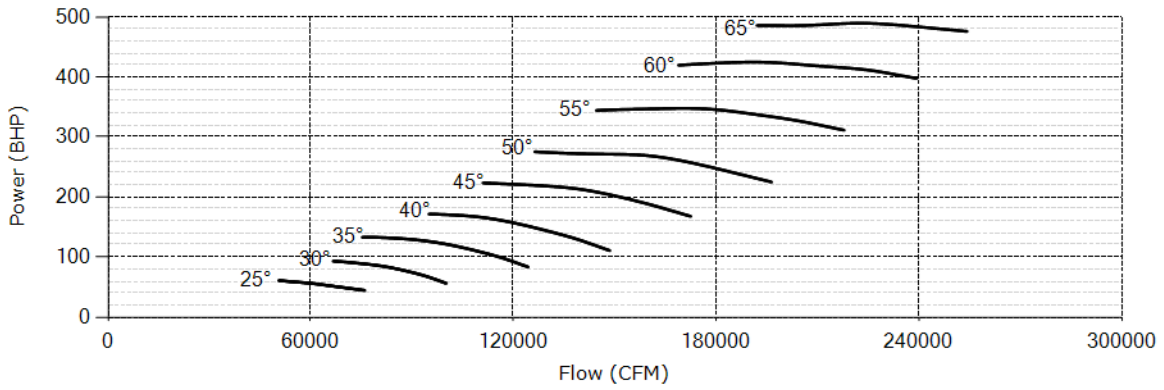
Size 72 1200 RPM 0.54 Hub Ratio - 6 Bladed



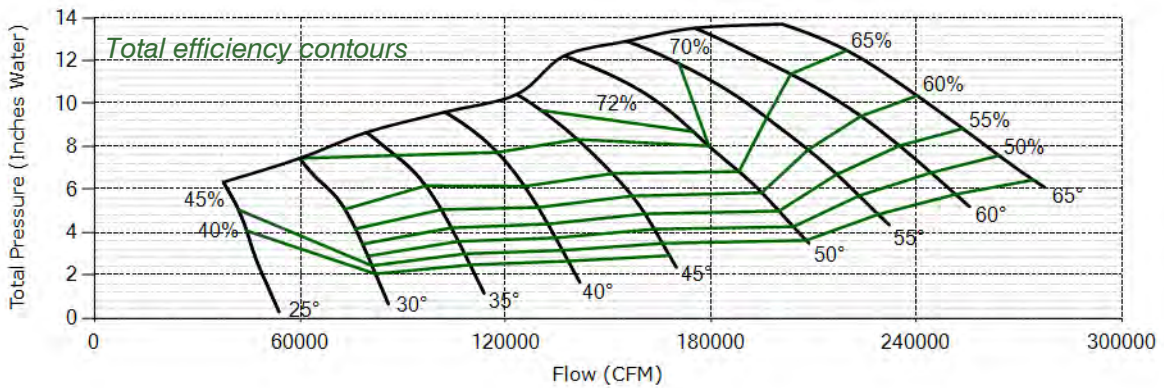
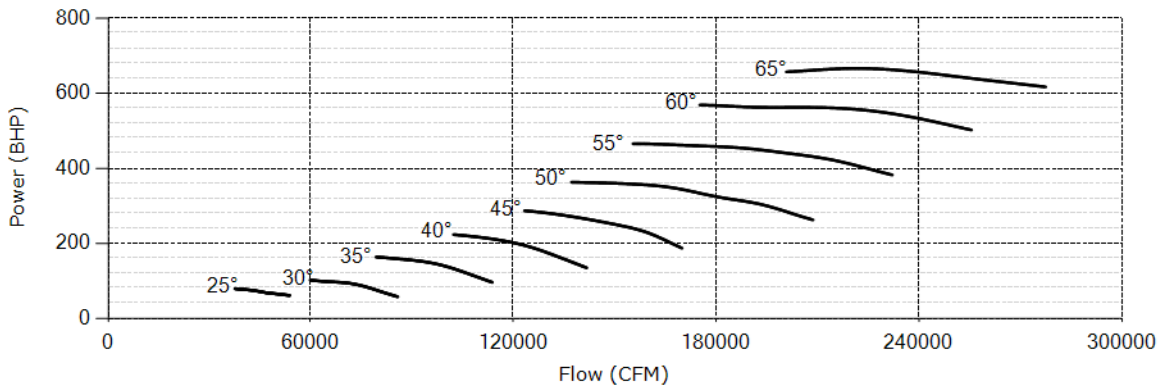
Size 72 1200 RPM 0.54 Hub Ratio - 12 Bladed



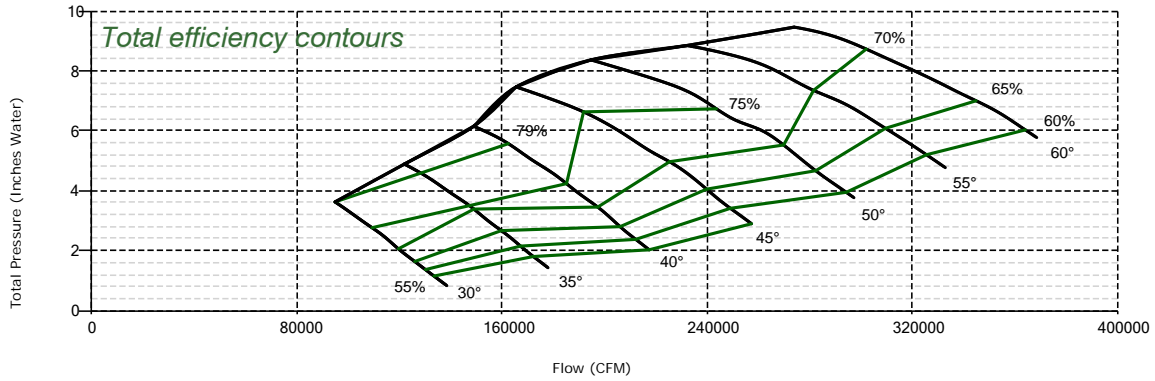
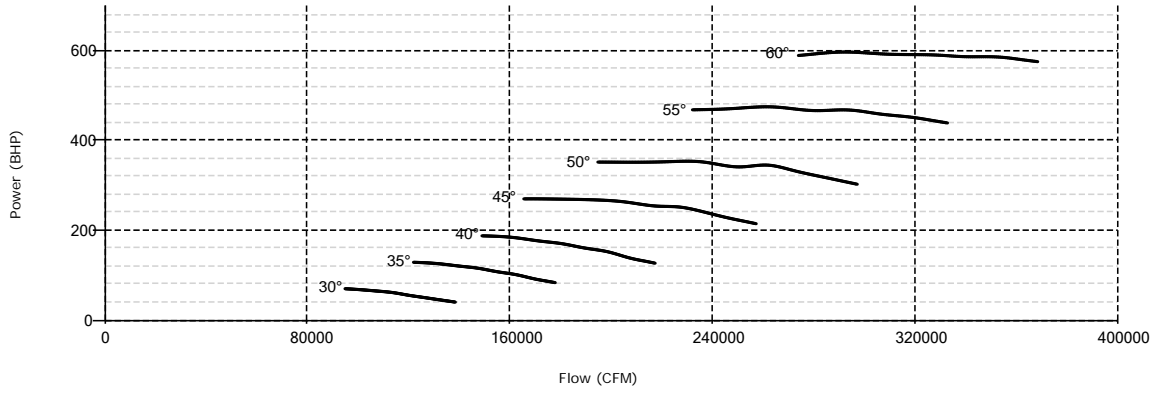
Size 72 1200 RPM 0.60 Hub Ratio - 6 Bladed



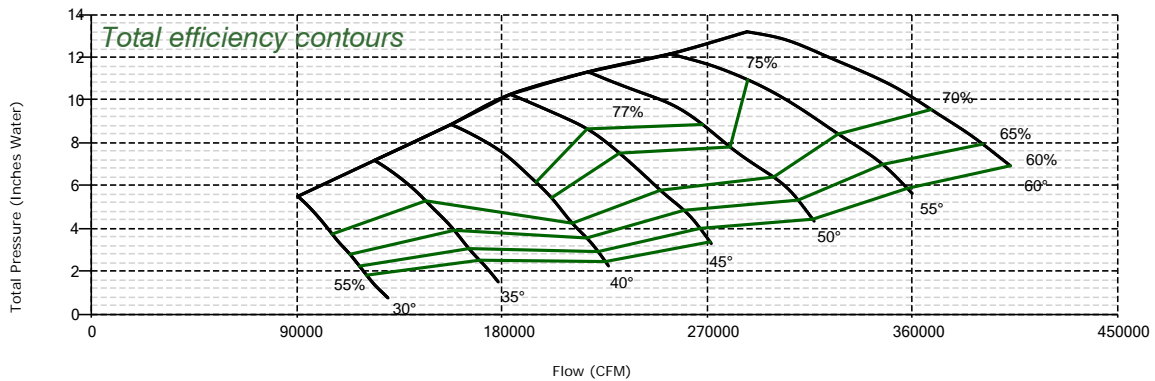
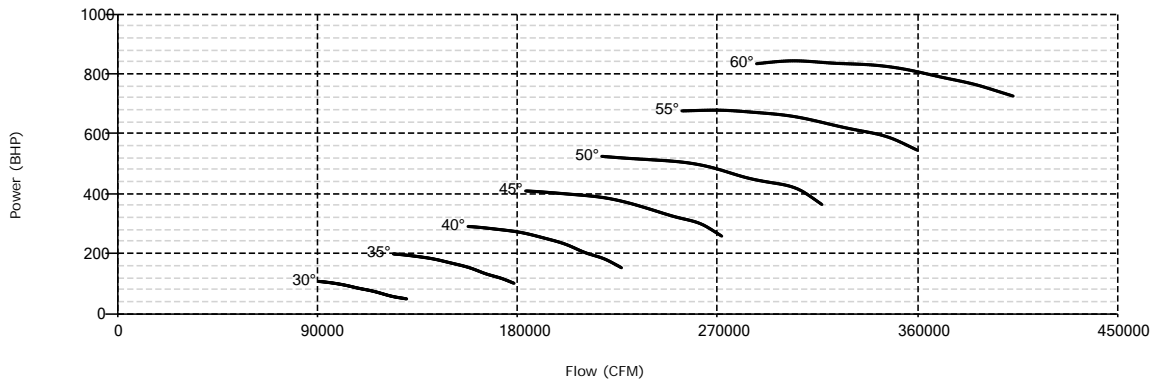
Size 72 1200 RPM 0.60 Hub Ratio - 12 Bladed



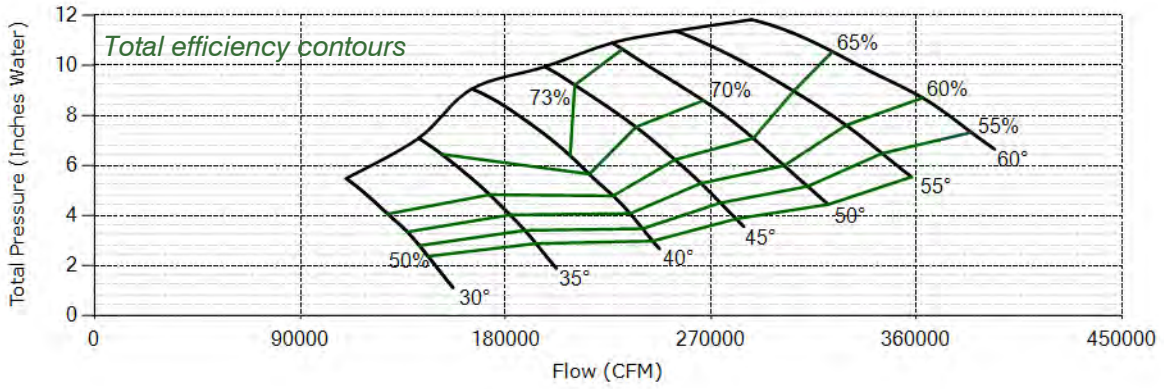
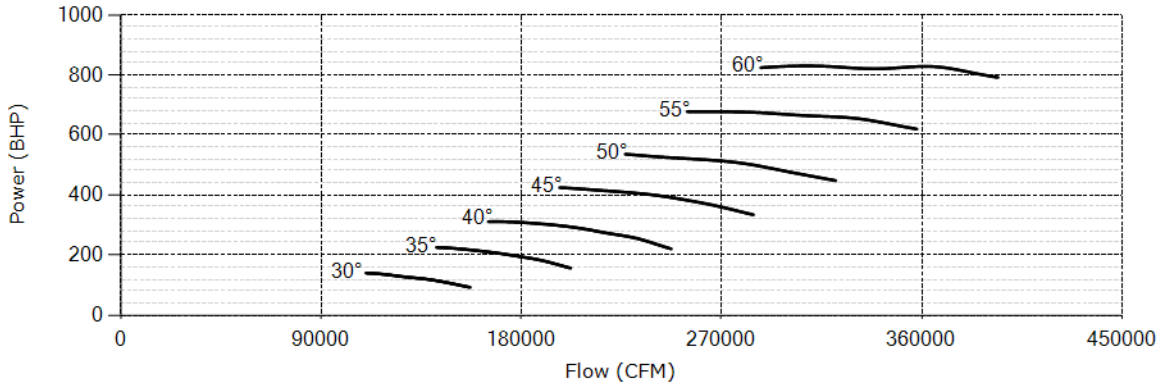
Size 84 1200 RPM 0.45 Hub Ratio - 6 Bladed



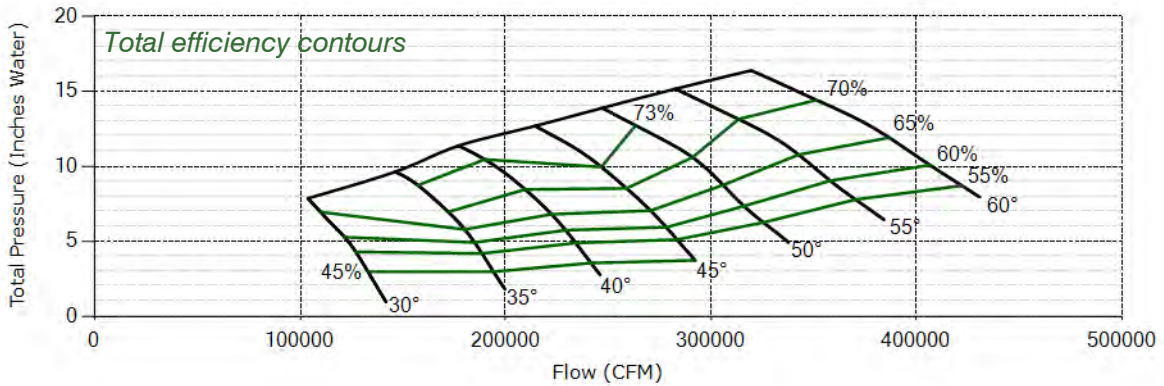
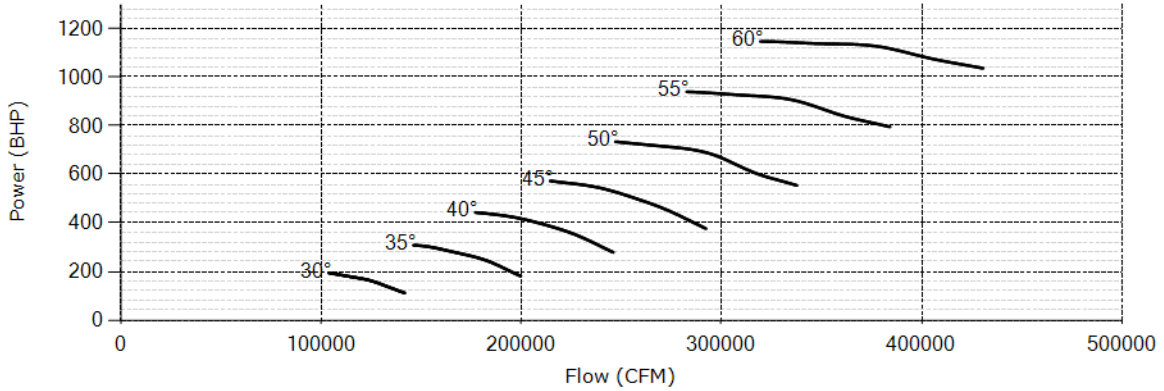
Size 84 1200 RPM 0.45 Hub Ratio - 12 Bladed



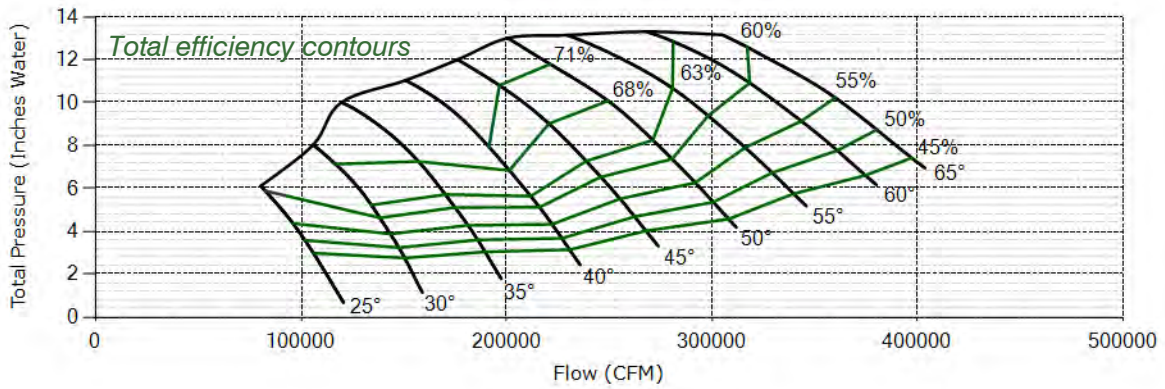
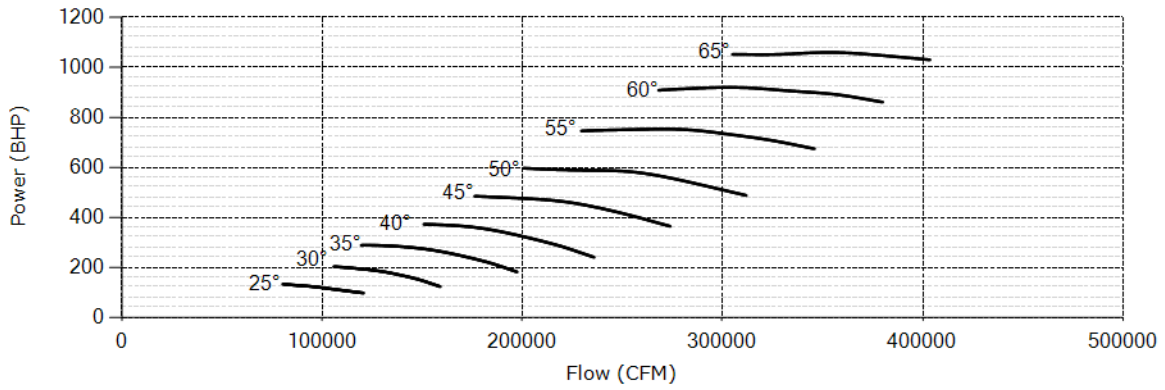
Size 84 1200 RPM 0.54 Hub Ratio - 6 Bladed



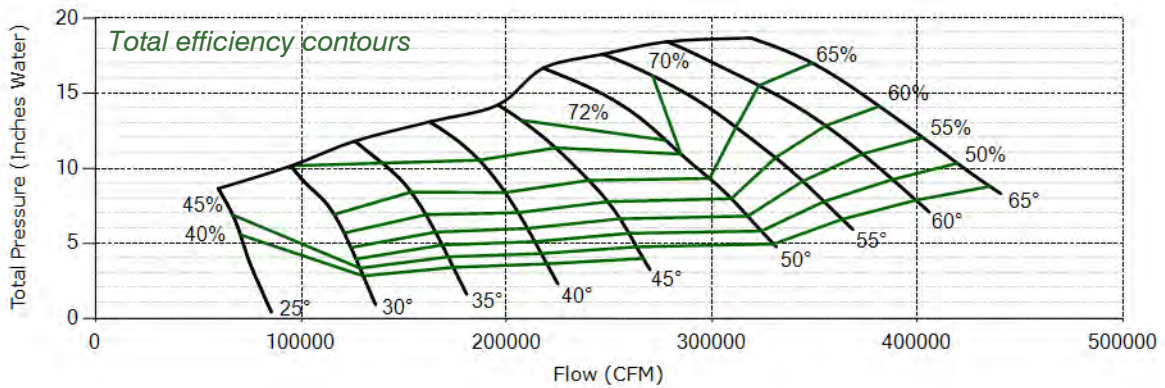
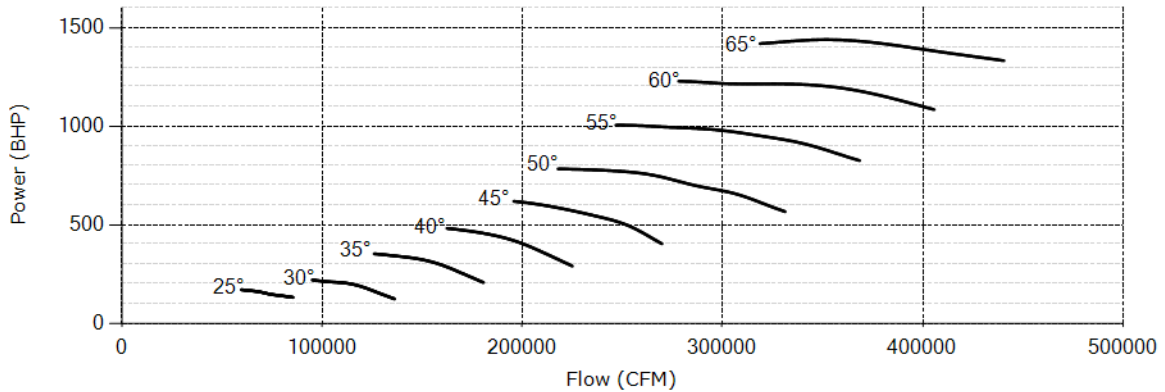
Size 84 1200 RPM 0.54 Hub Ratio - 12 Bladed



Size 84 1200 RPM 0.60 Hub Ratio -6 Bladed



Size 84 1200 RPM 0.60 Hub Ratio - 12 Bladed



MATERIAL SPECIFICATIONS

0.45 Hub Ratio CHART III

SIZE		MOTOR FRAME SIZE	MAX MOTOR DIAMETER	NUMBER OF BLADES		IMPELLER O.D. (IN)	HOUSING GAUGE	BUSHING TYPE	MOTOR SHAFT SIZE	†WHEEL WR ² (LB-FT ²)		†WHEEL WEIGHT (LBS)		†BARE FAN WEIGHT (APPROXIMATE) (LBS)		STRUCTURAL SAFE SPEED (RPM)
FULL SOLIDITY	HALF SOLIDITY			FULL SOLIDITY	HALF SOLIDITY					FULL SOLIDITY	HALF SOLIDITY	FULL SOLIDITY	HALF SOLIDITY	FULL SOLIDITY	HALF SOLIDITY	
32-14-10	32-14-05	213TC/215TC	13 3/8	10	5	32 1/4	7 GA	P1	1 3/8	29	20	73	61	290	400	1800
36-16-10	36-16-05	213TC/215TC	15 3/16	10	5	36 1/4	7 GA	P1	1 3/8	52	36	105	86	355	485	1800
		254TC/256TC	15 3/16					Q1	1 5/8	52	36	107	88	395	535	
38-18-10	38-18-05	213TC/215TC	15 7/8	10	5	37 3/4	1/4"	P1	1 3/8	63	43	116	96	500	645	1800
		254TC/256TC	15 7/8					Q1	1 5/8	63	43	118	98	550	705	
		284TC/286TC	15 7/8					Q1	1 7/8	63	43	119	98	575	735	
42-19-10	42-19-05	213TC/215TC	18	10	5	42 3/8	1/4"	Q1	1 3/8	112	75	154	127	580	745	1800
		254TC/256TC	18					Q1	1 5/8	112	75	156	129	640	815	
		284TC/286TC	18					Q1	1 7/8	112	75	157	129	670	845	
		324TC/326TC	18					Q2	2 1/8	112	75	159	131	700	885	
48-21-10	48-21-05	213TC/215TC	20 11/16	10	5	48 3/8	1/4"	Q1	1 3/8	210	142	219	181	725	925	1800
		254TC/256TC	20 11/16					Q1	1 5/8	210	142	220	182	795	1005	
		284TC/286TC	20 11/16					Q1	1 7/8	210	142	221	183	825	1045	
		324TC/326TC	20 11/16					Q2	2 1/8	210	142	223	185	865	1090	
		364TC/365TC	20 11/16					Q2	2 3/8	210	142	223	185	895	1125	
54-24-10	54-24-05	284TC/286TC	23 1/4	10	5	54 1/2	1/4"	Q1	1 7/8	333	208	222	169	965	1225	1500
		324TC/326TC	23 1/4					Q2	2 1/8	333	208	224	171	1000	1270	
		364TC/365TC	23 1/4					Q2	2 3/8	334	208	228	174	1040	1315	
		404TC/405TC	23 1/4					R2	2 7/8	334	208	234	180	1195	1480	
60-27-10	60-27-05	324TC/326TC	26	10	5	60 1/2	1/4"	Q2	2 1/8	567	356	307	234	1155	1480	1500
		364TC/365TC	26					Q2	2 3/8	567	356	311	238	1190	1525	
		404TC/405TC	26					R2	2 7/8	567	356	315	242	1365	1710	
		444TC/445TC	26					R2	3 3/8	567	357	319	246	1430	1790	
		447TC/449TC	26					R2	3 3/8	567	357	319	246	1595	1990	
66-30-10	66-30-05	284TC/286TC	28 1/16	10	5	65 1/2	1/4"	Q1	1 7/8	810	493	511	365	1825	2242	1200
		324TC/326TC	28 1/16					Q2	2 1/8	810	493	511	365	1820	2237	
		364TC/365TC	28 1/16					Q2	2 3/8	810	493	511	365	1813	2230	
		404TC/405TC	28 1/16					R2	2 7/8	810	493	511	365	1810	2227	
		444TC/445TC	28 1/16					R2	3 3/8	810	493	511	365	1808	2225	
		447TC/449TC	28 1/16					R2	3 3/8	810	493	511	365	1808	2225	
72-32-10	72-32-05	284TC/286TC	30 3/4	10	5	71 1/2	1/4"	Q1	1 7/8	1177	711	598	425	2022	2486	1200
		324TC/326TC	30 3/4					Q2	2 1/8	1177	711	598	425	2026	2490	
		364TC/365TC	30 3/4					Q2	2 3/8	1177	711	598	425	2024	2488	
		404TC/405TC	30 3/4					R2	2 7/8	1177	711	598	425	2022	2486	
		444TC/445TC	30 3/4					R2	3 3/8	1177	711	598	425	2020	2484	
		447TC/449TC	30 3/4					R2	3 3/8	1177	711	598	425	2020	2484	
84-38-10	84-38-05	284TC/286TC	36 3/16	10	5	83 1/2	1/4"	Q1	1 7/8	2475	1475	820	570	2445	3030	1200
		324TC/326TC	36 3/16					Q2	2 1/8	2475	1475	820	570	2450	3020	
		364TC/365TC	36 3/16					Q2	2 3/8	2475	1475	820	570	2450	3015	
		404TC/405TC	36 3/16					R2	2 7/8	2475	1475	820	570	2445	3005	
		444TC/445TC	36 3/16					R2	3 3/8	2475	1475	820	570	2445	3005	
		447TC/449TC	36 3/16					R2	3 3/8	2475	1475	820	570	2445	3005	

†Wheel weight and WR² Includes wheel, bushing and cover plate.

0.54 Hub Ratio CHART IV

SIZE		MOTOR FRAME SIZE	MAX MOTOR DIAMETER	NUMBER OF BLADES		IMPELLER O.D. (IN)	HOUSING GAUGE	BUSHING TYPE	MOTOR SHAFT SIZE	†WHEEL WR ² (LB-FT ²)		†WHEEL WEIGHT (LBS)		#BARE FAN WEIGHT (APPROXIMATE)		STRUCTURAL SAFE SPEED (RPM)
FULL SOLIDITY	HALF SOLIDITY			FULL SOLIDITY	HALF SOLIDITY					FULL SOLIDITY	HALF SOLIDITY	FULL SOLIDITY	HALF SOLIDITY	4-D	4-M	
29-15-12	29-15-06	213TC/215TC	14 13/16	12	6	29	7 GA	P1	1 3/8	30	23	83	72	262	365	3600
		Q1	1 5/8					30	23	85	74	292	402			
		Q1	1 7/8					30	23	85	74	305	419			
		Q1	1 5/8					30	23	85	74	305	419			
32-17-12	32-17-06	213TC/215TC	16 5/16	12	6	32 1/4	7 GA	P1	1 3/8	49	37	112	99	313	428	3600
		Q1	1 5/8					49	37	109	96	350	473			
		Q1	1 7/8					49	37	111	98	367	494			
		Q1	1 5/8					49	37	112	98	367	494			
		Q2	2 1/8					50	37	113	100	385	517			
		Q2	1 7/8					50	37	112	98	385	517			
36-19-12	36-19-06	213TC/215TC	18 7/16	12	6	36 1/4	7 GA	P1	1 3/8	87	66	151	131	391	524	3000
		Q1	1 5/8					87	66	154	134	438	582			
		Q1	1 7/8					88	66	155	135	457	605			
		Q2	2 1/8					88	66	156	136	478	631			
		Q2	2 3/8					88	66	156	135	498	656			
38-20-12	38-20-06	254TC/256TC	19	12	6	37 3/8	1/4"	B	1 5/8	102	76	160	137	589	748	3000
		Q1	1 7/8					102	76	161	138	613	778			
		R1	2 1/8					103	77	166	143	641	811			
		Q2	2 3/8					102	76	162	139	689	864			
		R2	2 7/8					103	77	169	147	727	909			
42-23-12	42-23-06	254TC/256TC	21 9/16	12	6	42 3/8	1/4"	B	1 5/8	180	133	214	183	692	875	1800
		Q1	1 7/8					180	133	215	184	722	910			
		R1	2 1/8					180	133	221	190	754	946			
		Q2	2 3/8					180	133	216	185	784	983			
		R2	2 7/8					180	133	224	193	852	1058			
48-26-12	48-26-06	284TC/286TC	24 13/16	12	6	48 3/8	1/4"	Q1	1 7/8	295	205	228	183	890	1119	1800
		Q1	2 1/8					295	205	226	182	929	1166			
		Q2	2 3/8					295	205	228	184	964	1207			
		R2	2 7/8					295	205	237	192	1102	1355			
		R2	3 3/8					295	206	238	193	1147	1410			
		R2	3 3/8					295	206	238	193	1306	1596			
54-29-12	54-29-06	324TC/326TC	28 3/16	12	6	54 1/2	1/4"	Q1	2 1/8	501	337	288	224	1090	1374	1500
		Q2	2 3/8					501	337	288	224	1130	1421			
		R2	2 7/8					501	337	296	232	1370	1673			
		R2	3 3/8					501	338	296	233	1427	1741			
		R2	3 3/8					501	338	296	233	1580	1923			
60-32-12	60-32-06	324TC/326TC	31 7/16	12	6	60 1/2	1/4"	Q2	2 1/8	844	571	390	305	1265	1614	1500
		Q2	2 3/8					844	571	393	308	1308	1665			
		R2	2 7/8					844	571	397	312	1572	1941			
		R2	3 3/8					844	571	396	312	1636	2018			
		R2	3 3/8					844	571	396	312	1805	2222			
66-36-12	66-36-06	254TC/256TC	34	12	6	65 1/2	1/4"	B	1 5/8	1258	789	636	453	1910	2327	1200
		Q1	1 7/8					1258	789	636	453	1904	2321			
		Q1	2 1/8					1258	789	636	453	1900	2317			
		Q2	2 3/8					1258	789	636	453	1896	2313			
		R2	3 3/8					1258	789	636	453	1892	2309			
		R2	3 3/8					1258	789	636	453	1880	2297			
72-39-12	72-39-06	284TC/286TC	37 1/4	12	6	72 1/2	1/4"	Q1	1 7/8	1795	1120	740	528	2135	2599	1200
		Q1	2 1/8					1795	1120	740	528	2123	2587			
		Q2	2 3/8					1795	1120	740	528	2119	2583			
		R2	3 3/8					1795	1120	740	528	2105	2569			
		R2	3 3/8					1795	1120	740	528	2100	2564			
84-45-12	84-45-06	284TC/286TC	43 3/4	12	6	83 1/2	1/4"	Q1	1 7/8	3775	2320	1015	725	2630	3200	1200
		Q1	2 1/8					3775	2320	1015	725	2615	3185			
		Q2	2 3/8					3775	2320	1015	725	2610	3185			
		R2	3 3/8					3775	2320	1015	725	2595	3165			
		R2	3 3/8					3775	2320	1015	725	2585	3160			

†Wheel weight and WR² Includes wheel, bushing and cover plate.

0.60 Hub Ratio CHART V

SIZE		MOTOR FRAME	MAX MOTOR DIAMETER	NUMBER OF BLADES		IMPELLER O.D. (IN)	HOUSING GAUGE	BUSHING TYPE	MOTOR SHAFT SIZE	WHEEL WR ² (LB-FT ²)		WHEEL WEIGHT (LBS)		BARE FAN WEIGHT (APPROXIMATE) (LBS)		STRUCTURAL SAFE SPEED (RPM)
FULL SOLIDITY	HALF SOLIDITY			FULL SOLIDITY	HALF SOLIDITY					FULL SOLIDITY	HALF SOLIDITY	FULL SOLIDITY	HALF SOLIDITY	4-D	4-M	
21-12-12	21-12-06	182TC/184TC	11 3/4	6	6	21	7 GA.	B	1 1/8	8	6	32	28	156	220	3600
		213TC/215TC	11 3/4					B	1 3/8	8	6	34	20	172	240	
24-14-12	24-14-06	213TC/215TC	13 5/8	6	6	24 3/16	7 GA.	B	1 3/8	15	12	48	42	205	283	3600
		254TC/256TC	13 5/8					Q1	1 5/8	15	12	49	42	230	315	
27-16-12	27-16-06	213TC/215TC	15 3/16	12	6	27 3/16	7 GA.	B	1 3/8	27	21	69	59	239	326	3600
		254TC/256TC	15 3/16					Q1	1 5/8	27	21	70	60	268	363	
		284TC/286TC	15 3/16					Q2	1 7/8	26	21	67	61	282	380	
		284TSC/286TSC	15 3/16					B	1 5/8	27	21	69	59	282	380	
29-17-12	29-17-06	213TC/215TC	16 1/4	12	6	29	7 GA.	B	1 3/8	37	29	83	71	274	369	3600
		254TC/256TC	16 1/4					Q1	1 5/8	37	29	84	72	310	413	
		284TC/286TC	16 1/4					Q2	1 7/8	37	29	85	73	326	433	
		284TSC/286TSC	16 1/4					B	1 5/8	37	29	83	71	326	433	
		324TC/326TC	16 1/4					Q2	2 1/8	37	29	85	73	345	456	
		324TSC/326TSC	16 1/4					Q1	1 7/8	37	29	84	72	344	455	
32-19-12	32-19-06	213TC/215TC	18 1/4	12	6	32 1/4	7 GA.	B	1 3/8	61	47	107	92	328	438	3600
		254TC/256TC	18 1/4					Q1	1 5/8	61	49	107	100	358	473	
		284TC/286TC	18 1/4					Q2	1 7/8	62	49	116	102	376	495	
		284TSC/286TSC	18 1/4					B	1 5/8	61	47	107	92	376	495	
		324TC/326TC	18 1/4					Q2	2 1/8	62	49	116	102	397	521	
		324TSC/326TSC	18 1/4					Q1	1 7/8	62	49	115	100	397	520	
36-21-12	36-21-06	254TC/256TC	20 5/8	12	6	36 1/4	7 GA.	Q1	1 5/8	109	83	157	133	439	574	1800
		284TC/286TC	20 5/8					Q2	1 7/8	112	87	170	147	460	599	
		284TSC/286TSC	20 5/8					B	1 5/8	109	83	156	133	460	599	
		324TC/326TC	20 5/8					Q2	2 1/8	112	87	170	147	485	629	
		324TSC/326TSC	20 5/8					Q1	1 7/8	109	83	157	133	483	627	
		364TC/365TC	20 5/8					Q2	2 3/8	112	87	170	147	514	664	
		364TSC/365TSC	20 5/8					Q1	1 7/8	109	83	157	133	509	658	
38-22-12	38-22-06	254TC/256TC	21 9/16	12	6	37 3/4	1/4"	Q1	1 5/8	133	103	177	151	600	750	1800
		284TC/286TC	21 9/16					Q2	1 7/8	137	107	191	167	627	781	
		324TC/326TC	21 9/16					Q2	2 1/8	137	107	191	167	658	818	
		324TSC/326TSC	21 9/16					Q1	1 7/8	133	103	177	151	656	816	
		364TC/365TC	21 9/16					Q2	2 3/8	137	107	191	167	696	863	
		364TSC/365TSC	21 9/16					Q1	1 7/8	133	103	177	151	689	854	
42-25-12	42-25-06	324TC/326TC	24 1/8	12	6	42 3/8	1/4"	Q2	2 1/8	198	141	181	142	764	944	1800
		364TC/365TC	24 1/8					Q2	2 3/8	198	141	181	142	808	995	
		404TC/405TC	24 1/8					R2	2 7/8	199	142	185	147	959	1154	
		444TC/445TC	24 1/8					R2	3 3/8	199	142	185	147	1019	1225	
48-29-12	48-29-06	284TC/286TC	27 3/4	12	6	48 3/8	1/4"	Q2	1 7/8	366	263	249	198	897	1116	1800
		324TC/326TC	27 3/4					Q2	2 1/8	366	263	249	198	919	1141	
		364TC/365TC	27 3/4					Q2	2 3/8	366	263	249	198	970	1200	
		404TC/405TC	27 3/4					R2	2 7/8	366	263	253	202	1143	1382	
		444TC/445TC	27 3/4					R2	3 3/8	366	263	253	202	1226	1478	
		447TC/449TC	27 3/4					R2	3 3/8	366	263	253	202	1479	1759	
54-33-12	54-33-06	324TC/326TC	31 1/2	12	6	54 1/4	1/4"	Q2	2 1/8	637	452	333	261	1085	1353	1200
		364TC/365TC	31 1/2					Q2	2 3/8	637	452	333	261	1141	1418	
		404TC/405TC	31 1/2					R2	2 7/8	637	452	336	265	1403	1690	
		444TC/445TC	31 1/2					R2	3 3/8	637	452	336	265	1486	1788	
60-36-12	60-36-06	364TC/365TC	35 1/8	12	6	60 1/2	1/4"	Q2	2 3/8	1123	830	495	407	1363	1700	1200
		404TC/405TC	35 1/8					R2	2 7/8	1123	830	497	409	1589	1938	
		444TC/445TC	35 1/8					R2	3 3/8	1123	830	497	409	1710	2076	
		447TC/449TC	35 1/8					R2	3 3/8	1123	830	497	409	2027	2427	
66-40-12	66-40-06	324TC/326TC	38	12	6	65 1/2	1/4"	Q2	2 1/8	1720	1094	719	517	1962	2379	1200
		364TC/365TC	38					Q2	2 3/8	1720	1094	719	517	1959	2376	
		404TC/405TC	38					R2	2 7/8	1720	1094	719	517	1956	2373	
		444TC/445TC	38					R2	3 3/8	1720	1094	719	517	1942	2359	
		447TC/449TC	38					R2	3 3/8	1720	1094	719	517	1945	2362	
72-43-12	72-43-06	364TC/365TC	41 9/16	12	6	71 1/2	1/4"	Q2	2 3/8	2486	1566	848	607	2167	2631	1200
		404TC/405TC	41 9/16					R2	2 7/8	2486	1566	848	607	2168	2632	
		444TC/445TC	41 9/16					R2	3 3/8	2486	1566	848	607	2150	2614	
		447TC/449TC	41 9/16					R2	3 3/8	2486	1566	848	607	2154	2618	
84-50-12	84-50-06	364TC/365TC	48 11/16	12	6	83 1/2	1/4"	Q2	2 3/8	5225	3295	1785	1275	2670	3240	1200
		404TC/405TC	48 11/16					R2	2 7/8	5225	3295	1785	1275	2670	3245	
		444TC/445TC	48 11/16					R2	3 3/8	5225	3295	1785	1275	2650	3220	
		447TC/449TC	48 11/16					R2	3 3/8	5225	3295	1785	1275	2655	3225	

†Wheel weight and WR² Includes wheel, bushing and cover plate.

MATERIAL SPECS. CONTINUED

Motor Requirements & Permissible Motor Thrust Loads (WEG): Sizes 21-36

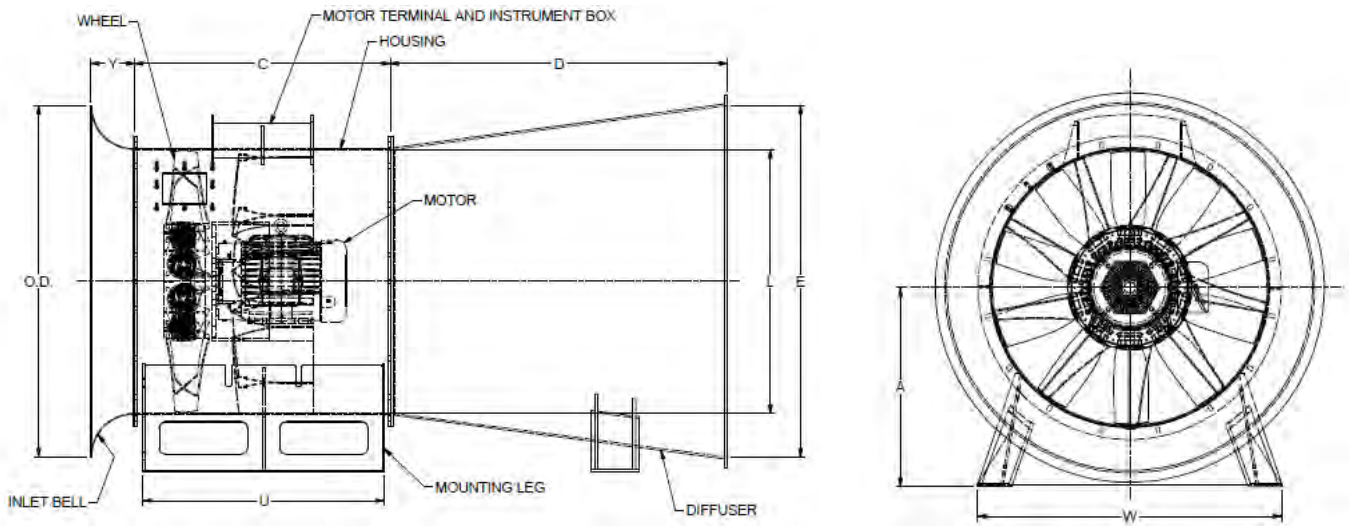
SIZE	LOW SPEED	FRAME	Max Thrust Vertical Shaft Down	Max Thrust Horizontal	Max Motor Diameter	†Min Motor Shaft Lengths	Vane Band Length
			(DE Angular Contact)	(Standard Bearing)			
			(LBS)	(LBS)			
21	1800	182/4TC	300	167	11 1/2	2 5/8	6 5/8
	3600	182/4TC	300	167		2 5/8	6 5/8
		213/5TC	300	180		3 1/8	7 1/8
		*254/6TC	400	268		3 3/4	9 3/8
24	1800	182/4TC	300	167	13 3/8	2 5/8	6 5/8
		213/5TC	300	220		3 1/8	7 1/8
	3600	213/5TC	300	180		3 1/8	7 1/8
		254/6TC	400	268		3 3/4	9 3/8
		*284/6TSC	800	273		3	10 1/4
27	1800	182/4TC	300	167	15 3/16	2 5/8	6 5/8
		213/5TC	300	220		3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
	3600	254/6TC	400	268		3 3/4	9 3/8
		284/6TSC	800	273		3	10 1/4
		*324/6TSC	900	407		3 1/2	11 3/8
29	1800	213/5TC	300	167	16	3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
	3600	254/6TC	400	268		3 3/4	9 3/8
		284/6TSC	800	273		3	10 1/4
		324/6TSC	900	407		3 1/2	11 3/8
		*364/5TSC	1100	700		3 1/2	12
32	1800	213/5TC	300	167	18	3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
	3600	284/6TSC	800	273		3	10 1/4
		324/6TSC	900	407		3 1/2	11 3/8
		*364/5TSC	1100	700		3 1/2	12
36	1200	213/5TC	300	220	20 3/8	3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
	1800	213/5TC	300	220		3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
		364/5TC	1100	799		5 5/8	12
38	1200	213/5TC	300	220	21 5/16	3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
	1800	213/5TC	300	220		3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
		364/5TC	1100	700		5 5/8	12

MATERIAL SPECS. CONTINUED

Motor Requirements & Permissible Motor Thrust Loads (WEG): Sizes 21-36

Size	LOW SPEED	FRAME	Max Thrust Vertical Shaft Down	Max Thrust Horizontal	Max Motor Diameter	+Min Motor Shaft Lengths	Vane Band Length
			(DE Angular Contact)	(Standard Bearing)			
			(LBS)	(LBS)			
38	1200	213/5TC	300	220	21 5/16	3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
	1800	213/5TC	300	220		3 1/8	7 1/8
		254/6TC	400	350		3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
364/5TC	1100	700	5 5/8	12			
42	1200	254/6TC	400	350	24 1/8	3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
	1800	254/6TC	400	350	24 1/8	3 3/4	9 3/8
		284/6TC	800	526		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
		364/5TC	1100	700	5 5/8	12	
		404/5TC	1100	875	23 7/8	7	16 3/8
		444/5TC	1300	1000	8 1/4	18 1/2	
48	1200	284/6TC	800	526	27 3/4	4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
	1800	254/6TC	400	350	27 3/4	3 3/4	9 3/8
		284/6TC	800	620		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
		364/5TC	1100	700	5 5/8	12	
		404/5TC	1100	875	7	16 3/8	
		444/5TC	1300	1000	27 1/2	8 1/4	18 1/2
		447/9TC	2000	1325	8 1/4	23 5/8	
54	1200	254/6TC	400	414	31 1/2	3 3/4	9 3/8
		284/6TC	800	560		4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
		364/5TC	1100	700	5 5/8	12	
		404/5TC	1100	875	31 1/4	7	16 3/8
		444/5TC	1600	1000	8 1/4	18 1/2	
60	1200	284/6TC	800	560	35 1/8	4 3/8	10 1/4
		324/6TC	900	620		5	11 3/8
		364/5TC	1100	700		5 5/8	12
		404/5TC	1100	875	34 7/8	7	16 3/8
		444/5TC	1600	1000	8 1/4	18 1/2	
		447/9TC	2000	1325	8 1/4	24 1/8	
66	1800	284/6TC	1000	700	38 1/2	4 3/8	10 1/4
		324/6TC	1600	1100		5	11 3/8
		364/5TC	1800	1200		5 5/8	12
		404/5TC	2300	1600		7	16 3/8
		444/5TC	2700	1800		8 1/4	18 1/2
		447/9TC	3800	2600		8 1/4	24 1/8
72	1500	284/6TC	700	500	42 1/16	4 3/8	10 1/4
		324/6TC	1400	1000		5	11 3/8
		364/5TC	2300	1600		5 5/8	12
		404/5TC	2400	1600		7	16 3/8
		444/5TC	2800	1900		8 1/4	18 1/2
		447/9TC	3800	2600		8 1/4	24 1/8
84	1200	324/6TC	1100	800	49 5/16	5	11 3/8
		364/5TC	1900	1300		5 5/8	12
		404/5TC	2100	1400		7	16 3/8
		444/5TC	3000	2000		8 1/4	18 1/2
		447/9TC	3600	2400		8 1/4	24 1/8

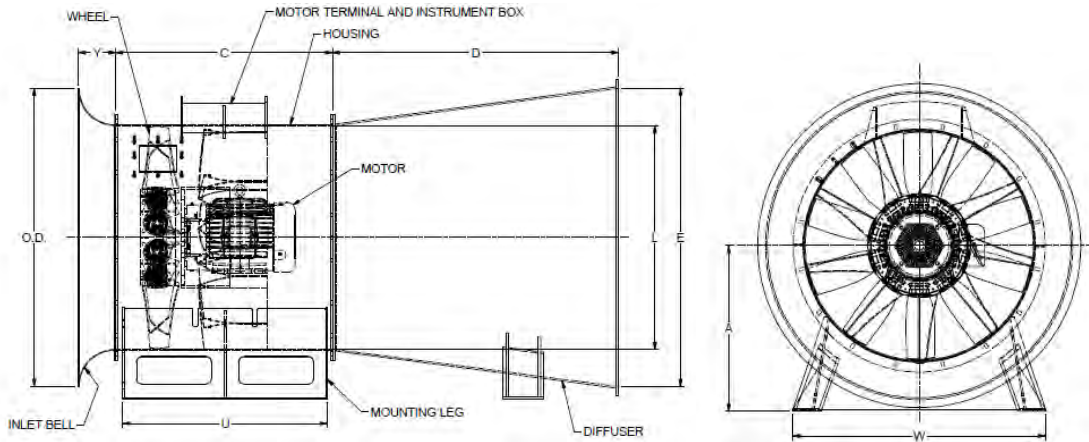
DIMENSIONS 0.45 Hub Ratio CHART VII



SIZE		MOTOR FRAME SIZE	MAX MOTOR DIAMETER	O.D.	Y	C	D		L (I.D.)	E	A	U	W
FULL SOLIDITY	HALF SOLIDITY						Short	Long					
32-14-10	32-14-05	213TC/215TC	13 3/8	43	5 1/2	31 1/2	20 3/4	27 3/4	32 1/2	39 13/16	23 1/2	27 1/2	36
36-16-10	16-16-05	213TC/215TC	15 3/16	48 1/2	6	31 7/8	23 1/5	31 1/8	36 1/2	44 2/3	26	27 7/8	41
		254TC/256TC	15 3/16			36 3/4						32 3/4	
38-18-10	38-10-05	213TC/215TC	15 7/8	50 1/2	6 1/2	32 3/8	24 1/4	32 1/2	38	46 4/7	27 1/2	28 3/8	42 1/2
		254TC/256TC	15 7/8			37 1/4						33 1/4	
		284TC/286TC	15 7/8			39 1/2						35 1/2	
42-19-10	21-19-05	213TC/215TC	18	57	7	33 1/4	27 1/3	36 9/16	42 3/4	52 3/8	30	29 1/4	47 1/2
		254TC/256TC	18			38 1/8						34 1/8	
		284TC/286TC	18			40 5/8						36 5/8	
		324TC/326TC	18			43 1/8						39 1/8	
48-21-10	48-21-05	213TC/215TC	20 11/16	65	8	34	31	41 9/16	48 3/4	59 11/16	33 1/2	30	53 1/2
		254TC/256TC	20 11/16			38 7/8						34 7/8	
		284TC/286TC	20 11/16			41 1/8						37 1/8	
		324TC/326TC	20 11/16			44						40	
		364TC/365TC	20 11/16			46 3/4						42 3/4	
54-24-10	54-24-05	404TC/405TC	20 11/16	73	9	43 1/8	35	47	55	67 3/8	37 1/2	37 3/4	60
		284TC/286TC	23 1/4			41 3/4						40 3/8	
		324TC/326TC	23 1/4			44 3/8						43 3/8	
		364TC/365TC	23 1/4			47 3/8						46 1/8	
60-27-10	60-27-05	444TC/445TC	23 1/4	81	10	51 1/8	38 13/16	52	61	74 11/16	41 1/2	47 1/8	66
		324TC/326TC	26			45 1/2						41 1/2	
		364TC/365TC	26			48 1/4						44 1/4	
		404TC/405TC	26			52 1/8						48 1/8	
		444TC/445TC	26			56 3/8						52 3/8	
66-30-10	66-30-05	447TC/449TC	26	86	12	67 1/2	42	56 1/4	66	80 13/16	44	63 1/2	71.5
		284TC/286TC	28 1/16			60						56	
		324TC/326TC	28 1/16			60						56	
		364TC/365TC	28 1/16			60						56	
		404TC/405TC	28 1/16			60						56	
		444TC/445TC	28 1/16			60						56	
72-32-10	72-32-05	447TC/449TC	28 1/16	92	12	60	45 7/8	61 1/2	72	88 3/16	47	56	77.5
		284TC/286TC	30 3/4			60						56	
		324TC/326TC	30 3/4			60						56	
		364TC/365TC	30 3/4			60						56	
		404TC/405TC	30 3/4			60						56	
84-38-10	84-38-05	444TC/445TC	30 3/4	104	12	60	53 1/2	71 11/16	84	102 7/8	53	56	85
		447TC/449TC	30 3/4			60						56	
		284TC/286TC	36 3/16			60						56	
		324TC/326TC	36 3/16			60						56	
		364TC/365TC	36 3/16			60						56	

*Motor may extend beyond tube
 **Consult nyb for non-nema frame size motors

DIMENSIONS 0.54 Hub Ratio CHART VIII

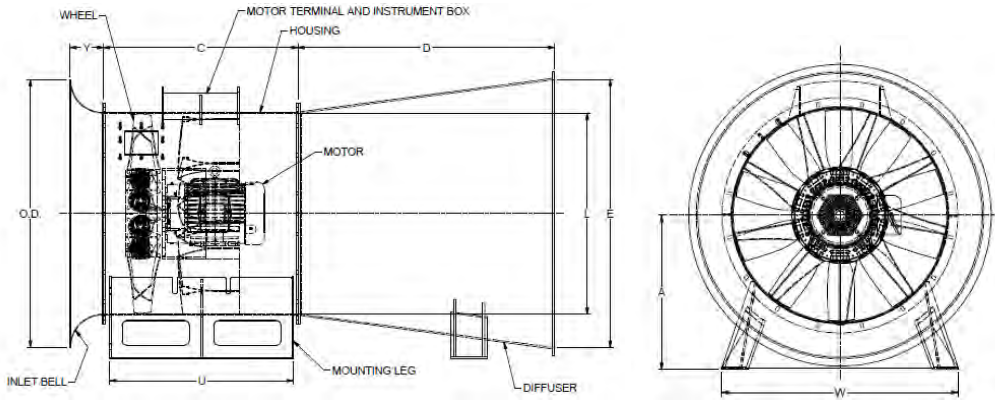


SIZE		MOTOR FRAME SIZE	MAX MOTOR DIAMETER	O.D.	Y	C	D		L (I.D.)	E	A	U	W
FULL SOLIDITY	HALF SOLIDITY						Short	Long					
29-15-12	29-15-13	213TC/215TC	14 13/16	38 7/8	5	33 1/8	18 5/8	24 15/16	29 3/16	35 3/4	22	29 1/8	32
		254TC/256TC	14 13/16			38						34	
		284TC/286TC	14 13/16			40 1/4						36 1/4	
		284TSC/286TSC	14 13/16			40 1/4						36 1/4	
32-17-12	32-17-06	213TC/215TC	16 5/16	43 [1092]	5 1/2 [140]	34 1/836	20 3/4	27 3/4	32 1/2	39 13/16	23 1/2	34 1/8	36
		254TC/256TC	16 5/16			39						35	
		284TC/286TC	16 5/16			41 1/4						37 1/4	
		284TSC/286TSC	16 5/16			41 1/4						37 1/4	
		324TC/326TC	16 5/16			43 3/4						39 3/4	
		324TSC/326TSC	16 5/16			43 3/4						39 3/4	
36-19-12	36-19-13	213TC/215TC	18 7/16	48 1/2	6 1/2	34 1/8	23 3/16	31 1/8	36 1/2	44 11/16	26	30 1/8	41
		254TC/256TC	18 7/16			40						36	
		284TC/286TC	18 7/16			42 1/4						38 1/4	
		324TC/326TC	18 7/16			44 3/4						40 3/4	
38-20-12	38-20-13	364TC/365TC	18 7/16	50 1/2	6 1/2	47 1/2	24 1/4	32 1/2	38	46 9/16	27 1/2	43 1/2	42 1/2
		254TC/256TC	19			40 3/8						36 3/8	
		284TC/286TC	19			42 5/8						38 5/8	
		324TC/326TC	19			45 1/4						41 1/4	
		404TC/405TC	19			48						44	
42-23-12	42-23-13	404TC/405TC	21 9/16	57	7	51 3/4	27 5/16	36 4/7	42 3/4	52 3/8	30	47 3/4	47 1/2
		254TC/256TC	21 9/16			42 3/8						38 3/8	
		284TC/286TC	21 9/16			44 7/8						40 7/8	
		324TC/326TC	21 9/16			47 3/8						43 3/8	
		364TC/365TC	21 9/16			50 1/8						46 1/8	
48-26-12	48-26-13	404TC/405TC	24 13/16	65	8	54	31	41 4/7	48 3/4	59 11/16	33 1/2	50	53 1/2
		284TC/286TC	24 13/16			46						42	
		324TC/326TC	24 13/16			48 7/8						44 7/8	
		364TC/365TC	24 13/16			51 5/8						47 5/8	
		404TC/405TC	24 13/16			55 3/8						51 3/8	
		444TC/445TC	24 13/16			59 5/8						55 5/8	
54-29-12	54-29-13	447TC/449TC	24 13/16	73	9	70 7/8	35 1/16	47	55	67 3/8	37 1/2	66 7/8	60
		324TC/326TC	28 3/16			50 1/4						46 1/4	
		364TC/365TC	28 3/16			53						49	
		404TC/405TC	28 3/16			57 1/8						53 1/8	
		444TC/445TC	28 3/16			61 3/8						57 3/8	
60-32-12	60-32-13	447TC/449TC	28 3/16	81	10 1/8	72 1/2	38 13/16	52	61	74 11/16	41 1/2	68 1/2	66
		324TC/326TC	31 7/16			52 3/8						48 3/8	
		364TC/365TC	31 7/16			55 1/8						51 1/8	
		404TC/405TC	31 7/16			59						55	
		444TC/445TC	31 7/16			63 1/4						59 1/4	
66-36-12	66-36-06	447TC/449TC	31 7/16	86	12	74 3/8	42	56 1/4	66	80 13/16	44	70 3/8	71.5
		254TC/256TC	34			60						56	
		284TC/286TC	34			60						56	
		324TC/326TC	34			60						56	
		364TC/365TC	34			60						56	
		404TC/405TC	34			60						56	
72-39-12	72-39-06	447TC/449TC	34	92	12	60	45 7/8	61 1/2	72	88 3/16	47	56	77.5
		284TC/286TC	37 1/4			60						56	
		324TC/326TC	37 1/4			60						56	
		364TC/365TC	37 1/4			60						56	
		404TC/405TC	37 1/4			60						56	
84-45-12	84-45-06	447TC/449TC	37 1/4	104	12	60	53 1/2	71 11/16	84	102 7/8	53	56	85
		284TC/286TC	43 3/4			60						56	
		324TC/326TC	43 3/4			60						56	
		364TC/365TC	43 3/4			60						56	

*Motor may extend beyond tube

**Consult nyb for non-nema frame size motors

DIMENSIONS 0.60 Hub Ratio CHART VIII



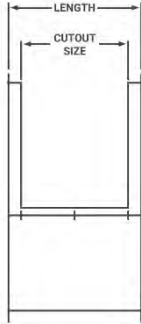
SIZE		MOTOR FRAME SIZE	MAX MOTOR DIAMETER	O.D.	Y	C	D		L (I.D.)	E	A	U	W
FULL SOLIDITY	HALF SOLIDITY						Short	Long					
21-12-12	21-12-13	182TC/184TC	11 3/4	28 1/4	3 11/16	22 7/8	13 1/2	18 1/16	21 3/16	25 15/16	17 5/8	18 7/8	25
		213TC/215TC	11 3/4			26 1/4						22 1/4	
24-14-12	24-14-12	213TC/215TC	13 5/8	32 1/8	4 1/16	26 7/8	15 5/8	20 7/8	24 3/8	29 7/8	19 1/4	22 7/8	28
		254TC/256TC	13 5/8			31 3/4						27 3/4	
27-16-12	27-16-06	213TC/215TC	15 3/16	36 3/8	4 11/16	27 5/8	17 3/8	23 1/4	27 3/8	33 1/2	20 1/2	23 5/8	31
		254TC/256TC	15 3/16			32 1/2						28 1/2	
29-17-12	29-17-13	284TC/286TC	15 3/16	38 7/8	5	34 5/8	18 5/8	24 15/16	29 3/16	35 3/4	22	30 5/8	33
		284TSC/286TSC	15 3/16			34 5/8						30 5/8	
32-19-12	32-19-12	213TC/215TC	16 1/4	43	5 1/2	27 7/8	20 3/4	27 3/4	32 1/2	39 13/16	23 1/2	23 7/8	36
		254TC/256TC	16 1/4			32 7/8						29 7/8	
36-21-12	36-21-13	284TC/286TC	16 1/4	48 1/2	6 1/2	35	23 3/16	31 1/8	36 1/2	44 11/16	26	26 7/8	41
		284TSC/286TSC	16 1/4			37 7/8						30 7/8	
38-22-12	38-22-13	324TC/326TC	16 1/4	50 1/2	6 1/2	37 7/8	24 1/4	32 1/2	38	46 9/16	27 1/2	33 7/8	42 1/2
		324TSC/326TSC	16 1/4			37 5/8						34 5/8	
42-25-12	42-25-13	213TC/215TC	18 1/4	57	7	30 7/8	27 5/16	36 9/16	42 3/4	52 3/8	30	26 7/8	47 1/2
		254TC/256TC	18 1/4			33 7/8						30 7/8	
48-29-12	48-29-13	284TC/286TC	18 1/4	65	8	36	31	41 9/16	48 3/4	59 11/16	33 1/2	34 5/8	53 1/2
		284TSC/286TSC	18 1/4			36						34 5/8	
54-33-12	54-33-13	324TC/326TC	18 1/4	73	9	38 7/8	35 1/16	47	55	67 3/8	37 1/2	34 5/8	60
		324TSC/326TSC	18 1/4			38 7/8						36 7/8	
60-36-12	60-36-13	364TC/365TC	20 5/8	81	10 1/8	37	38 13/16	52	61	74 11/16	41 1/2	36 7/8	66
		364TSC/365TSC	20 5/8			37						36 7/8	
66-40-12	66-40-06	364TC/365TC	20 5/8	86	12	37 5/8	42	56 1/4	66	80 13/16	44	37 5/8	71.5
		364TSC/365TSC	20 5/8			37 5/8						37 5/8	
72-43-12	72-43-06	404TC/405TC	20 5/8	92	12	38 7/8	45 7/8	61 1/2	72	88 3/16	47	38 7/8	77.5
		404TSC/405TSC	20 5/8			38 7/8						38 7/8	
84-50-12	84-50-06	444TC/445TC	20 5/8	104	12	39 7/8	53 1/2	71 11/16	84	102 7/8	53	39 7/8	85
		444TSC/445TSC	20 5/8			39 7/8						39 7/8	

*Motor may extend beyond tube
 **Consult nyb for non-nema frame size motors

CONTINUED DIMENSIONS

0.45 / 0.54 / 0.60 Hub Ratio *0.45 hub ratio available size 32-60 **0.54 hub ratio available size 29-60

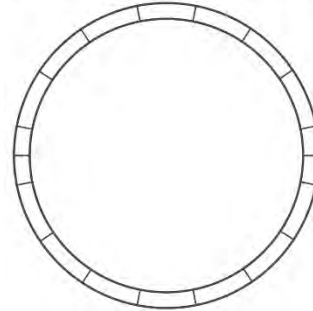
FAN ACCESS



INLET VANE DAMPER DIMENSIONS



FAN FLANGE COMPANION FLANGE DIFFUSER DISCHARGE



FAN FLANGE / COMPANION FLANGE				INLET VANE DAMPER		FAN ACCESS SECTION			DIFFUSER DIMENSIONS (DISCHARGE FLANGE DIMENSIONS)								
SIZE	FAN ID	BOLT CIRCLE	FLANGE OD	FLANGE SLOTS		LENGTH		LENGTH	CUTOUT SIZE	WEIGHT	ID	BOLT CIRCLE	OD	FLANGE SLOTS		LENGTH	
				NUMBER	SIZE	TYPE B	TYPE C							NUMBER	SIZE	SHORT	LONG
21	21 3/16	23	24 5/8	8	7/16 x 13/16	12	14	11 1/2	31 11/16 x 7 1/2	75.4	25 15/16	27 3/4	29 3/8	8	7/16 x 13/16	13 1/2	18 1/16
24	24 3/8	26 1/8	27 3/4			12	14	12	36 3/8 x 8	88.5	29 7/8	31 5/8	33 1/4			15 5/8	20 7/8
27	27 3/8	29 1/8	30 3/4			12	14	12 5/8	40 7/8 x 8 5/8	102.9	33 1/2	35 1/4	36 7/8			17 3/8	23 1/4
29	29 3/16	31	32 5/8			12	14	13 1/2	43 1/2 x 9 1/2	116.1	35 3/4	37 9/16	39 3/16			18 5/8	24 15/16
32	32 1/2	34 1/4	35 7/8			12	14	14	48 7/16 x 10	132	39 13/16	41 9/16	43 3/16			20 3/4	27 3/4
36	36 1/2	38 5/16	41			12	14	14 3/4	54 3/8 x 10 3/4	165.9	44 11/16	46 1/2	49 3/16			23 3/16	31 1/8
38	38	40 1/4	42 1/2	16	9/16 x 1	12	14	-	-	-	46 9/16	48 13/16	51 1/16	16	9/16 x 1	24 1/4	32 1/2
42	42 3/4	45	47 1/4			12	14	-	-	-	52 3/8	54 5/8	56 7/8			27 5/16	36 9/16
48	48 3/4	51	53 3/8			12	14	-	-	-	59 11/16	61 15/16	64 5/16			31	41 9/16
54	55	57 7/16	59 5/8			12	14	-	-	-	67 3/8	69 13/16	72			35 1/16	47
60	61	63 7/16	65 5/8			12	14	-	-	-	74 11/16	77 1/8	79 5/16			38 13/16	52
66	66	68 3/4	71 1/2			-	-	-	-	-	80 13/16	83 9/16	86 5/16			42	56 1/4
72	72	74 3/4	77 1/2	24		-	-	-	-	-	88 3/16	90 15/16	93 11/16	24		45 7/8	61 1/2
84	84	86 3/4	89 1/2			-	-	-	-	-	102 7/8	105 5/8	108 3/8			53 1/2	71 11/16