

AIRFOIL FAN SINGLE SUCTION

"TSAF-SS" Series Rev. 00

'March 2024





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INTRODUCTION &
AMCA SEAL INFORMATION



주)티에스에어테크는 공조용 및 산업용송풍기(FAN, BLOWER), 공기 조화기(AHU) 생산업체로서 1997년 설립 이래 송풍기 개발에 적극 참여하여 왔으며 그동안 축적해온 경험과 끊임없는 연구개발 및 기술 혁신을 통해 고품질의 송풍기를 고객 여러분께 제작 공급하고자 혼신의 노력을 다하고 있습니다.

주)티에스에어테크는 꾸준한 제품개발과 철저한 고객서비스로 명실 상부한 송풍기(FAN)전문 메이커로서 정상에 우뚝 서고자 심혈을 기울여 최선을 다 할 것이며 끊임없는 기술개발과 철저한 품질관리로 여러분의 성원에 보답하고자 항상 노력하는 회사가 되겠습니다. 감사합니다.



(주)티에스에어테크가 획득한 TSAF SERIES AIRFOIL FAN 의 AMCA seal에 대한 내용입니다.

등급표시는 AMCA 211과 AMCA 311에 의거 테스트 및 절차에 따른 것이며, AMCA 보증프로그램의 요구사항과 일치합니다.

TS Airtech Co.,Ltd certifies that the type "TSAF-SS Series Airfoil Fan Single Suction shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA publication

211 and AMCA publication 311 and comply with the requirements of AMCA Certified Ratings Program

ABOUT FANS



● 구조 및 형상

날개의 끝부분이 회전방향의 뒤쪽으로 굽은 후곡형 (BACKWARD CURVE TYPE) 구조

● MODEL & TYPE

SIZE : 임펠러 깃 바깥지름 기준 (#1.5호 ~ #18호)

흡입방식 : 편흡입(Single Suction), 양흡입(Double Suction)

베어링 지지방식 : 양축지지형, 편축지지형

구동방식 : V-BELT 구동형(v-belt driven type)

직결식(direct driven type-with coupling)

재질 : STEEL, STS

옵션 : SILENCER, GUIDE VANE, FILTER CHAMBER



● AIRFOIL FAN의 특징

1) 고효율 (High Efficiency)

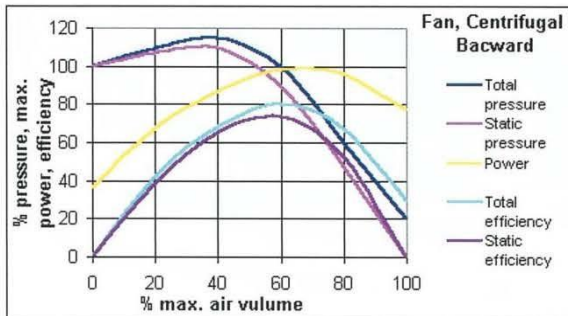
원심형 송풍기중 가장 높은효율을 가지며 50~300mmAq의 압력에 적합합니다.

2) 안전한운전 (Safety Operation)

LIMIT LOAD 특성(일정 회전수 아래에서는 소요동력에 최대점이 있으므로 그 점에서 풍량이 다시 증가해도 소요 동력은 증가하지 않거나 오히려 감소됨)이 있으므로 과부하율이 적습니다.

3) 견고성 (High strong structure)

구조가 강대하면서도 견고하며, 유체역학적으로도 무리가 없으므로 높은 효율과 고속 회전이 가능합니다.



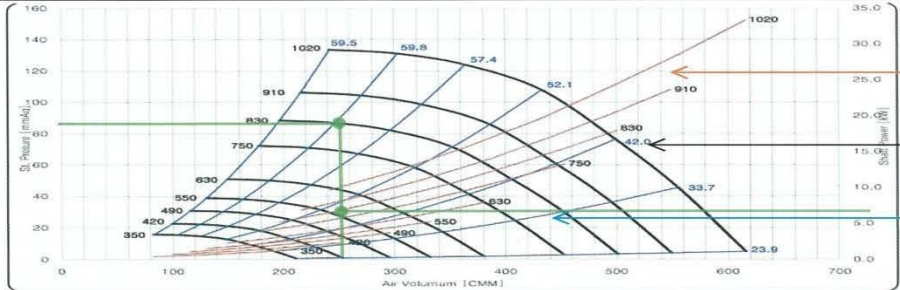
● 주요용도

- 빌딩, 공장의 냉난방, 일반 환기용, 냉동장치용, 집진용

FAN SELECT METHOD

ex)

AIR VOLUME	STATIC PRESSURE	FAN SPEED	TOTAL EFFICIENCY	SHAFT POWER	SOUND
246 CMM	86.7 mmAq	830 rpm	59.8%	6.64 kW	95 dB(A)



- RED SHAFT POWER
- BLACK PERFORMANCE
- BLUE TOTAL EFFICIENCY

830	Q(m³/min)	P(mmAq)	H(mm)	η₁(%)	LwA(dBA)	910	Q(m³/min)	P(mmAq)	H(mm)	η₁(%)	LwA(dBA)	1020	Q(m³/min)	P(mmAq)	H(mm)	η₁(%)	LwA(dBA)
1	501	3.3	17.93	23.9	108	1	549	3.9	23.63	23.9	110	1	616	5.0	33.27	23.9	114
2	452	30.1	15.33	33.7	105	2	496	36.1	20.20	33.7	107	2	556	45.4	28.45	33.7	110
3	406	50.5	13.08	42.0	102	3	446	60.7	17.24	42.0	105	3	499	76.3	24.28	42.0	108
4	352	71.3	10.56	52.1	99	4	386	85.8	13.92	52.1	101	4	433	107.8	19.60	52.1	104
5	296	83.0	8.36	57.4	96	5	325	98.6	11.02	57.4	98	5	364	123.9	15.52	57.4	102
6	246	86.7	6.64	59.8	95	6	270	104.2	8.75	59.8	98	6	303	131.0	12.32	59.8	101
7	197	88.3	5.18	59.5	95	7	216	106.2	6.82	59.5	97	7	242	133.4	9.61	59.5	101

1	830	RPM
2	m³/min	AIR VOLUME
3	mmAq	STATIC PRESSURE
4	Kw	SHAFT POWER
5	ηt	TOTAL EFFICIENCY

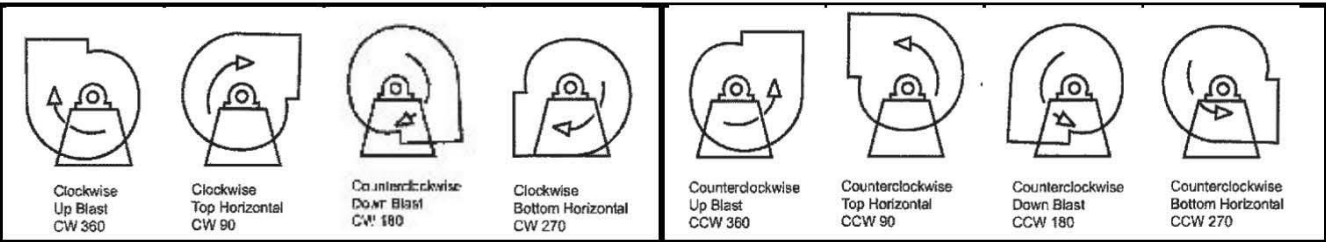
FAN 회전과 토출방향 (Fan Rotation and Discharge)

FAN의 회전과 토출방향은 AMCA 표준 99-2406-03을 기준으로 합니다.

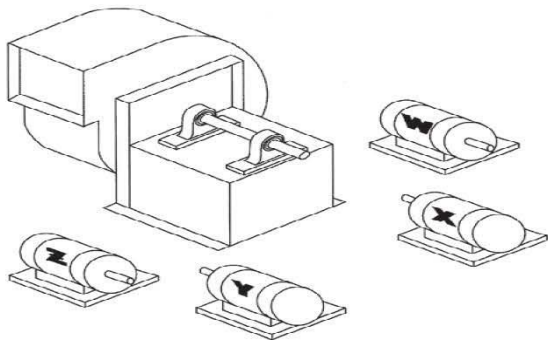
회전방향은 FAN의 구동측으로 부터 결정됩니다.

CW-clockwise rotation

CCW-center-clockwise rotation



모터 위치 (Motor Position)

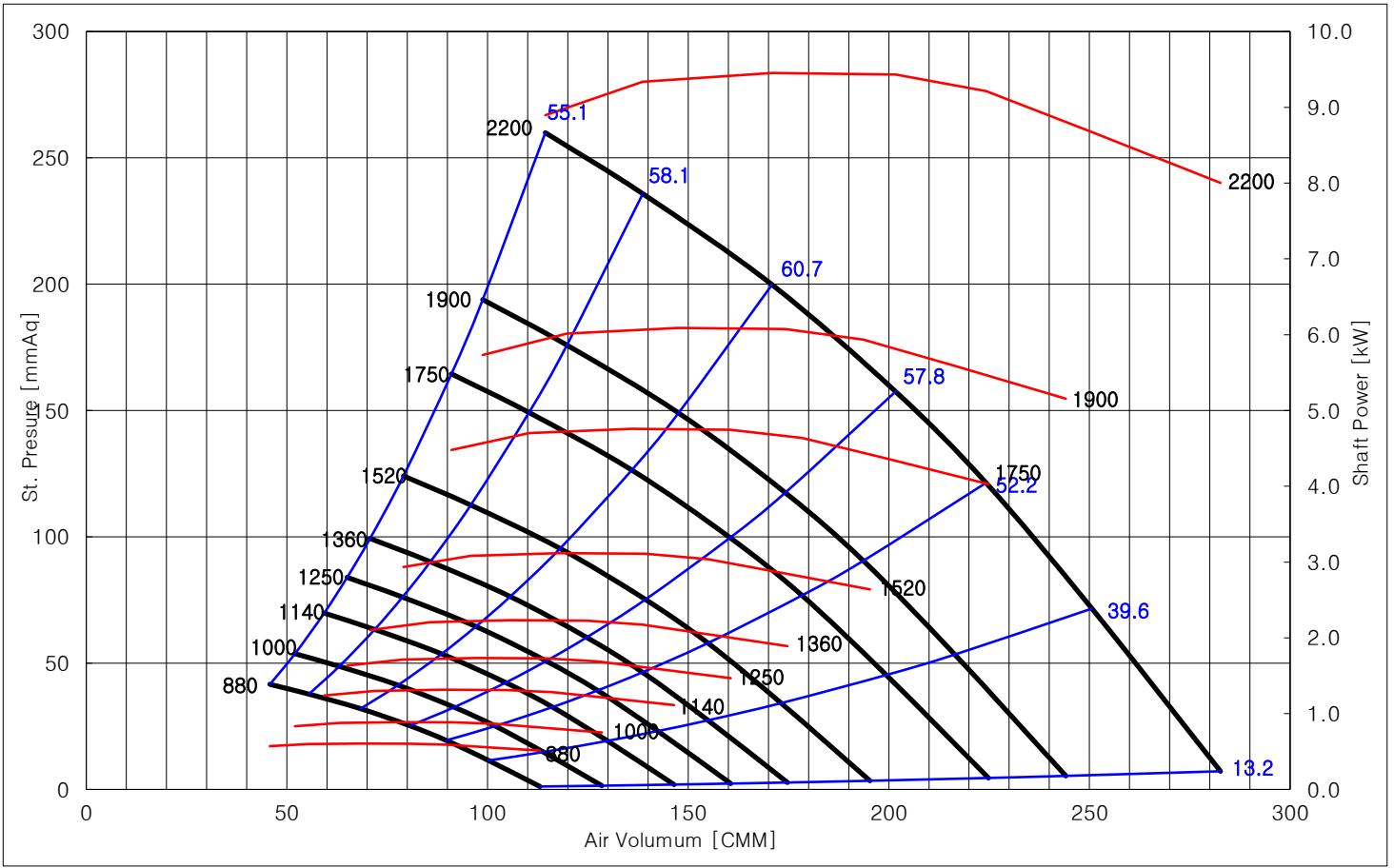


벨트구동 원심형 FAN의 모터방향은 AMCA 표준 99-2407-03을 기준으로 합니다.

모터의 위치는 FAN의 구동측 면과 지정된 위치인 W,X,Y,Z로 결정됩니다.

The position of the motor for belt drive centrifugal fan is in accordance with AMCA standard 99-2407-03. Location of motor is determined by facing the drive side of fan and designating the positions by letters W, X, Y, or Z.

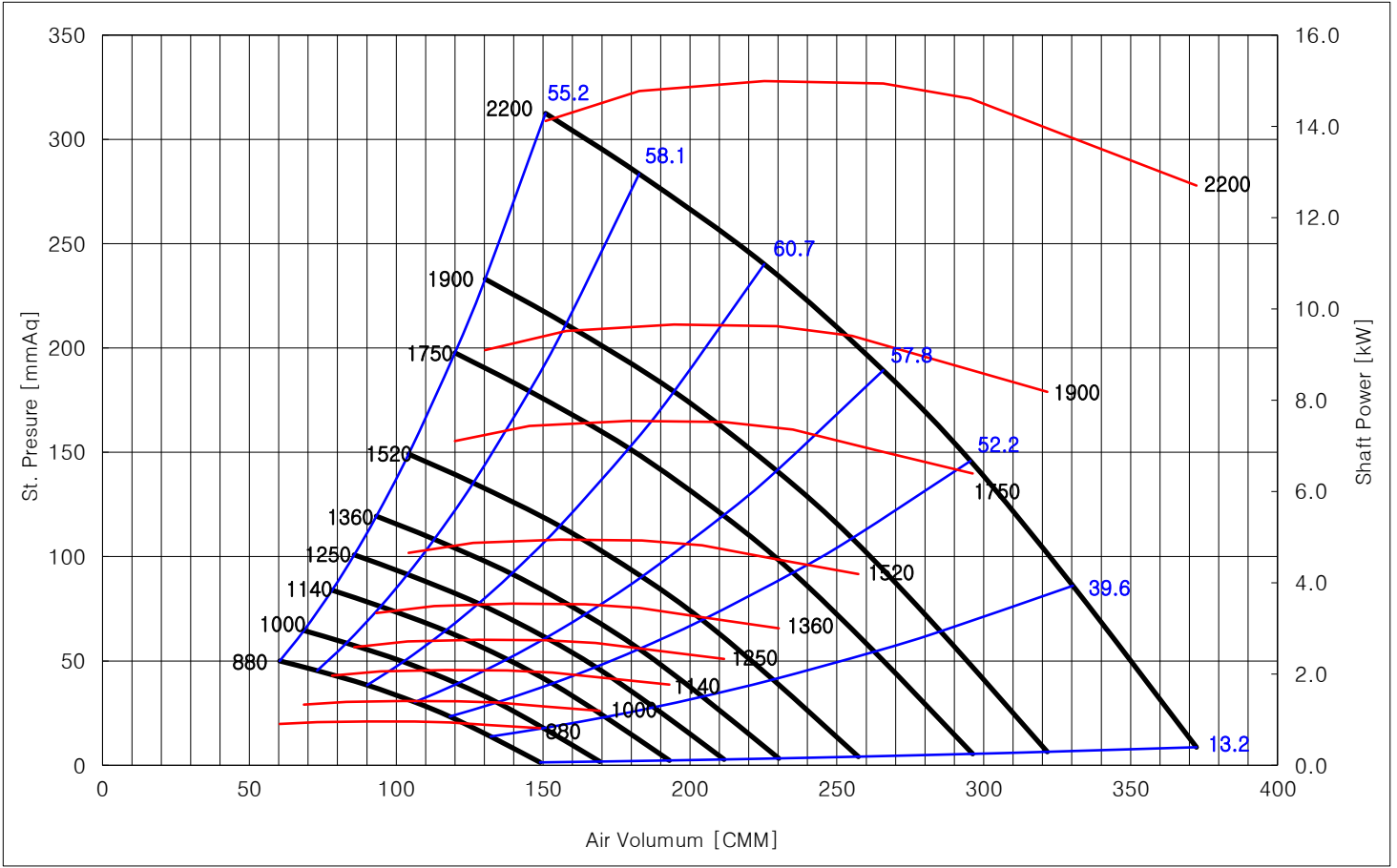
PERFORMANCE CURVES AND NOISE DATA - TSAF #4SS



880	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))	1000	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))	1140	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))
1	113	1.1	0.51	13.2	86	1	128	1.5	0.75	13.2	89	1	146	1.9	1.11	13.2	90
2	100	11.5	0.56	39.6	85	2	114	14.8	0.81	39.6	89	2	130	19.2	1.21	39.6	90
3	90	19.4	0.59	52.2	85	3	102	25.1	0.87	52.2	88	3	116	32.6	1.28	52.2	89
4	81	25.2	0.60	57.8	84	4	92	32.5	0.89	57.8	88	4	105	42.3	1.31	57.8	89
5	68	32.0	0.61	60.7	84	5	78	41.3	0.89	60.7	87	5	89	53.6	1.32	60.7	89
6	55	37.7	0.60	58.1	84	6	63	48.7	0.88	58.1	88	6	72	63.3	1.30	58.1	90
7	46	41.6	0.57	55.1	85	7	52	53.7	0.84	55.1	88	7	59	69.8	1.24	55.1	90
1250	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))	1360	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))	1520	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))
1	161	2.3	1.47	13.2	95	1	175	2.7	1.89	13.2	98	1	195	3.4	2.64	13.2	103
2	142	23.1	1.59	39.6	95	2	155	27.4	2.05	39.6	98	2	173	34.2	2.86	39.6	102
3	127	39.2	1.69	52.2	94	3	139	46.4	2.18	52.2	97	3	155	57.9	3.04	52.2	101
4	115	50.8	1.73	57.8	94	4	125	60.2	2.23	57.8	96	4	139	75.2	3.11	57.8	100
5	97	64.5	1.73	60.7	93	5	106	76.4	2.23	60.7	96	5	118	95.4	3.12	60.7	99
6	79	76.1	1.71	58.1	94	6	86	90.1	2.21	58.1	96	6	96	112.6	3.08	58.1	100
7	65	83.9	1.63	55.1	94	7	71	99.3	2.10	55.1	96	7	79	124.1	2.93	55.1	100
1750	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))	1900	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))	2200	Q(m³/min)	Ps(mmAq)	H(kW)	η_t (%)	Lwi(dB(A))
1	225	4.5	4.03	13.2	105	1	244	5.4	5.16	13.2	107	1	283	7.2	8.00	13.2	111
2	199	45.3	4.37	39.6	105	2	216	53.4	5.59	39.6	106	2	251	71.6	8.67	39.6	110
3	178	76.8	4.64	52.2	104	3	194	90.5	5.93	52.2	106	3	224	121.4	9.21	52.2	109
4	160	99.6	4.75	57.8	103	4	174	117.5	6.08	57.8	105	4	202	157.5	9.43	57.8	108
5	136	126.4	4.76	60.7	102	5	148	149.0	6.09	60.7	104	5	171	199.8	9.45	60.7	108
6	110	149.2	4.70	58.1	103	6	120	175.9	6.02	58.1	105	6	139	235.8	9.34	58.1	109
7	91	164.5	4.48	55.1	103	7	99	193.9	5.73	55.1	105	7	114	260.0	8.90	55.1	109

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

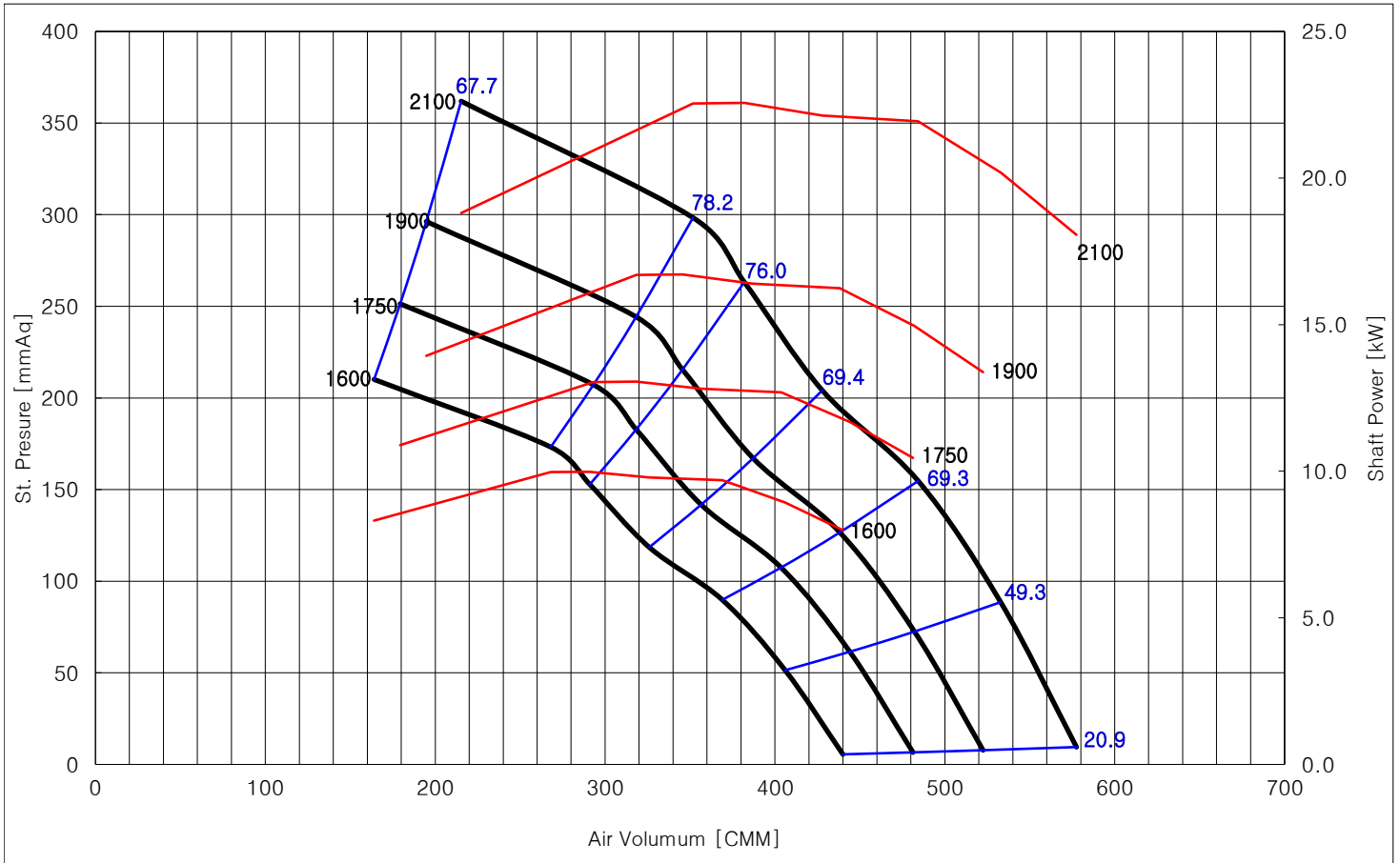
PERFORMANCE CURVES AND NOISE DATA - TSAF #4.5SS



880	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1000	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1140	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	149	1.4	0.81	13.2	89	1	169	1.8	1.19	13.2	92	1	193	2.3	1.77	13.2	96
2	132	13.8	0.88	39.6	88	2	150	17.8	1.29	39.6	92	2	171	23.1	1.91	39.6	95
3	118	23.3	0.94	52.2	88	3	134	30.1	1.37	52.2	91	3	153	39.2	2.03	52.2	95
4	106	30.3	0.96	57.8	87	4	121	39.1	1.40	57.8	91	4	138	50.8	2.08	57.8	94
5	90	38.4	0.96	60.7	87	5	102	49.6	1.41	60.7	90	5	117	64.5	2.09	60.7	94
6	73	45.3	0.95	58.1	87	6	83	58.6	1.39	58.1	91	6	95	76.1	2.06	58.1	94
7	60	50.0	0.90	55.2	88	7	69	64.6	1.33	55.2	91	7	78	83.9	1.96	55.2	94
1250	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1360	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1520	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	212	2.8	2.33	13.2	98	1	230	3.3	3.00	13.2	101	1	257	4.1	4.19	13.2	105
2	188	27.8	2.52	39.6	98	2	204	32.9	3.25	39.6	101	2	228	41.1	4.53	39.6	105
3	168	47.1	2.68	52.2	97	3	183	55.7	3.45	52.2	100	3	204	69.6	4.82	52.2	104
4	151	61.1	2.74	57.8	97	4	164	72.3	3.53	57.8	99	4	184	90.4	4.93	57.8	103
5	128	77.5	2.75	60.7	96	5	139	91.8	3.54	60.7	99	5	156	114.6	4.94	60.7	102
6	104	91.5	2.71	58.1	97	6	113	108.3	3.49	58.1	99	6	126	135.3	4.87	58.1	102
7	86	100.9	2.59	55.2	97	7	93	119.4	3.34	55.2	99	7	104	149.2	4.66	55.2	103
1750	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1900	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	2200	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	296	5.5	6.39	13.2	108	1	322	6.4	8.18	13.2	110	1	372	8.6	12.70	13.2	114
2	263	54.4	6.91	39.6	108	2	285	64.2	8.85	39.6	109	2	330	86.1	13.74	39.6	113
3	235	92.3	7.35	52.2	107	3	255	108.8	9.41	52.2	109	3	296	145.9	14.61	52.2	112
4	211	119.8	7.52	57.8	106	4	230	141.2	9.62	57.8	108	4	266	189.3	14.94	57.8	111
5	179	152.0	7.55	60.7	105	5	195	179.1	9.66	60.7	107	5	225	240.2	14.99	60.7	111
6	145	179.3	7.44	58.1	106	6	158	211.4	9.52	58.1	108	6	183	283.4	14.77	58.1	111
7	120	197.7	7.11	55.2	106	7	130	233.1	9.10	55.2	108	7	151	312.5	14.12	55.2	112

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

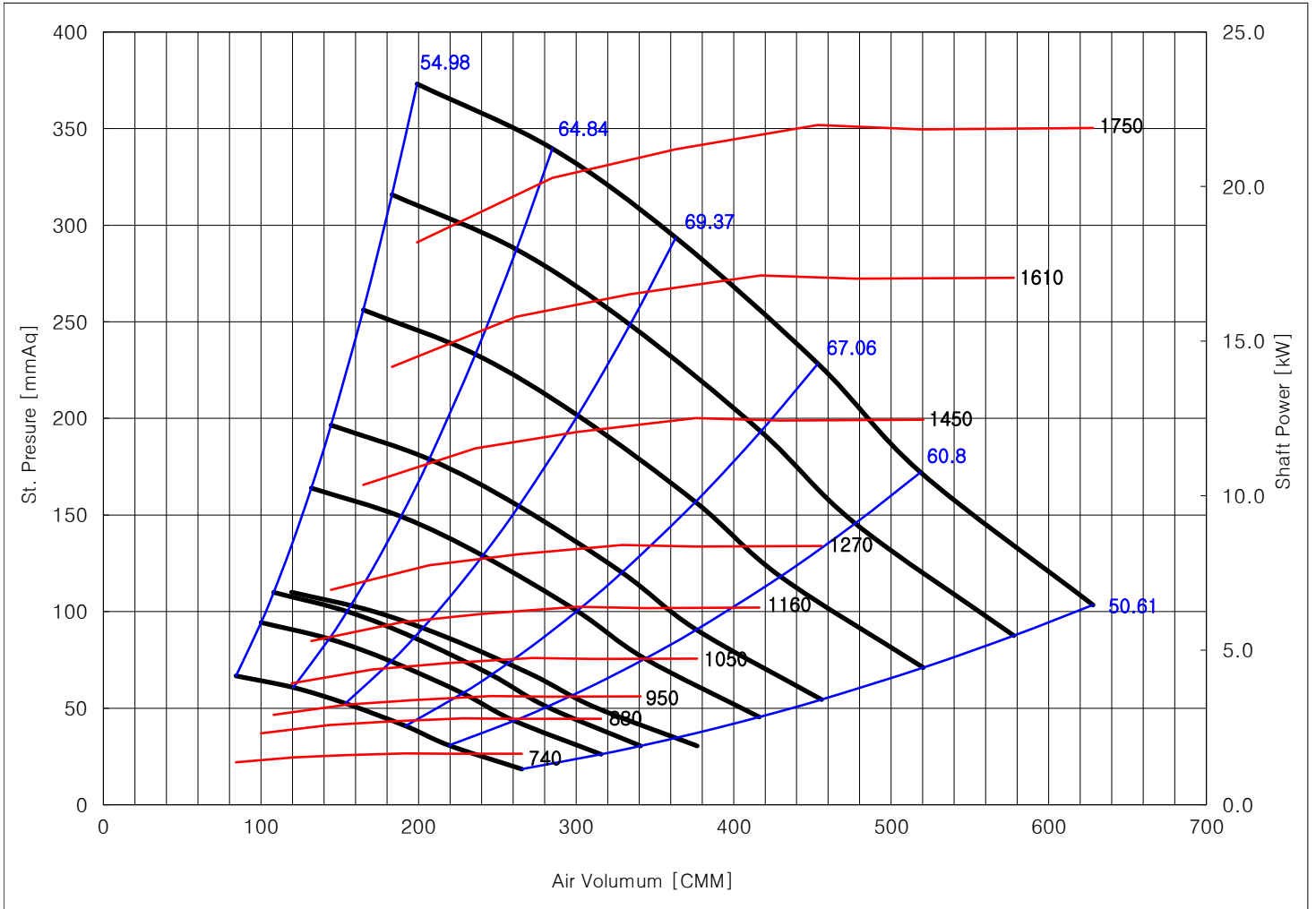
PERFORMANCE CURVES AND NOISE DATA - TSAF #5SS



1600	Q(m³/min)	Ps(mmAq)	H(kW)	ηt(%)	Lwi(dB(A))	1750	Q(m³/min)	Ps(mmAq)	H(kW)	ηt(%)	Lwi(dB(A))	1900	Q(m³/min)	Ps(mmAq)	H(kW)	ηt(%)	Lwi(dB(A))
1	440	5.5	7.99	20.9	109	1	481	6.6	10.45	20.9	111	1	523	7.8	13.38	20.9	113
2	406	51.4	8.93	49.3	109	2	444	61.5	11.68	49.3	110	2	482	72.5	14.95	49.3	112
3	369	89.8	9.70	63.3	108	3	404	107.4	12.69	63.3	110	3	438	126.6	16.24	63.3	112
4	326	118.5	9.79	69.4	106	4	357	141.8	12.81	69.4	109	4	387	167.1	16.39	69.4	111
5	291	152.8	9.98	76.0	106	5	318	182.8	13.06	76.0	108	5	346	215.5	16.71	76.0	110
6	268	173.2	9.97	78.2	107	6	293	207.2	13.05	78.2	109	6	318	244.2	16.70	78.2	111
7	164	210.1	8.32	67.7	107	7	179	251.3	10.89	67.7	109	7	195	296.3	13.93	67.7	111
2100	Q(m³/min)	Ps(mmAq)	H(kW)	ηt(%)	Lwi(dB(A))												
1	578	9.5	18.07	20.9	115												
2	533	88.5	20.19	49.3	115												
3	484	154.7	21.93	63.3	114												
4	428	204.1	22.14	69.4	113												
5	382	263.2	22.56	76.0	113												
6	352	298.4	22.54	78.2	113												
7	215	361.9	18.81	67.7	114												

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

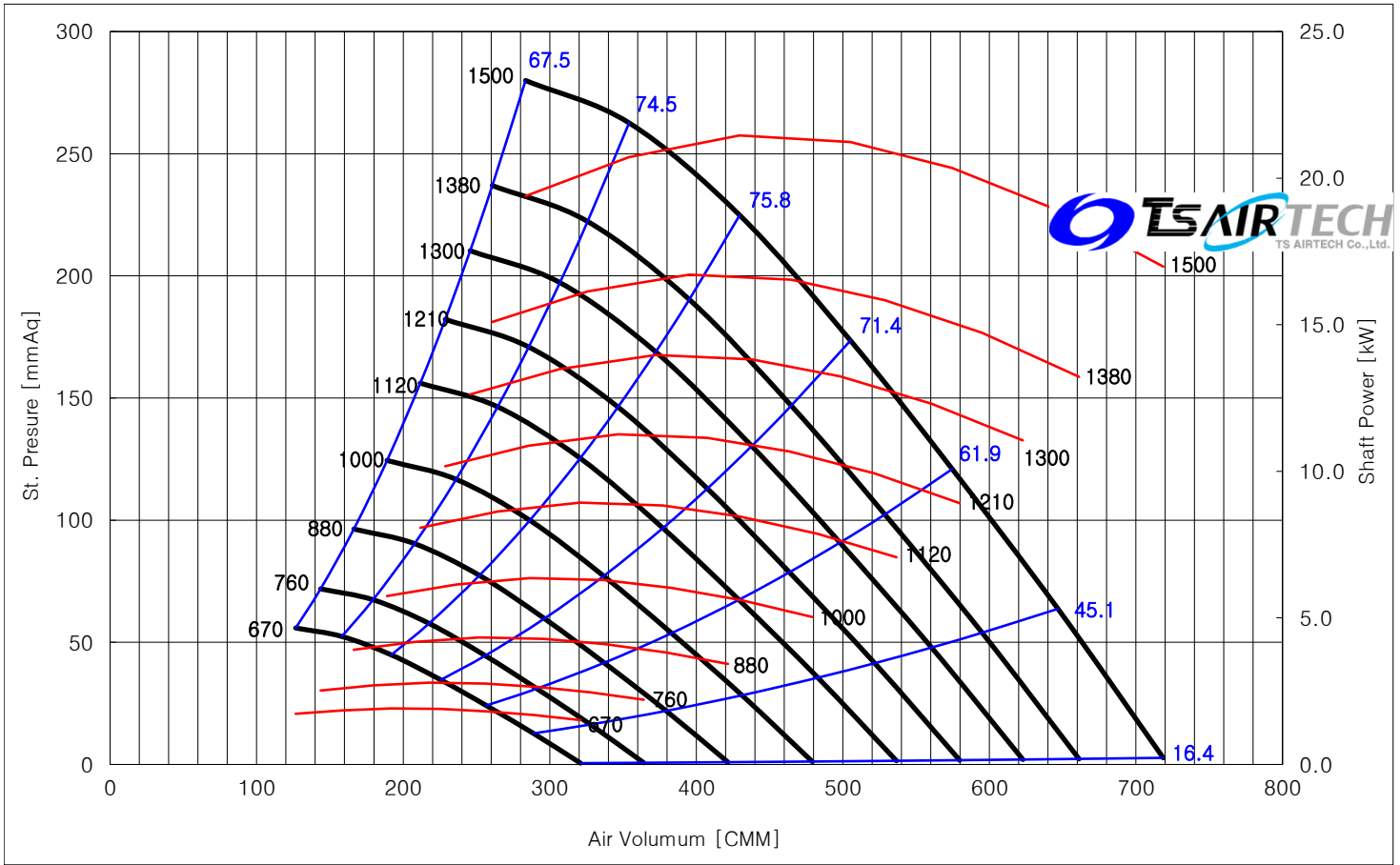
PERFORMANCE CURVES AND NOISE DATA - TSAF #5.5SS



740	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	880	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	950	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	266	15.1	1.66	50.6	90	1	316	21.4	2.78	50.6	94	1	341	25.0	3.50	50.6	96
2	219	25.2	1.65	60.8	87	2	261	35.7	2.78	60.8	91	2	282	41.6	3.50	60.8	93
3	192	33.5	1.66	67.1	85	3	228	47.3	2.80	67.1	89	3	246	55.1	3.52	67.1	91
4	154	43.1	1.60	69.4	85	4	183	60.9	2.70	69.4	89	4	197	71.0	3.39	69.4	91
5	121	49.8	1.53	64.8	85	5	143	70.4	2.58	64.8	89	5	155	82.0	3.24	64.8	91
6	84	54.7	1.38	55.0	85	6	100	77.3	2.31	55.0	89	6	108	90.1	2.91	55.0	91
1050	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1160	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1270	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	377	30.5	4.73	50.6	99	1	416	37.2	6.38	50.6	101	1	456	44.6	8.37	50.6	103
2	311	50.8	4.72	60.8	95	2	344	62.0	6.36	60.8	98	2	376	74.3	8.35	60.8	100
3	272	67.3	4.75	67.1	93	3	301	82.2	6.40	67.1	96	3	329	98.5	8.40	67.1	98
4	218	86.7	4.58	69.4	93	4	241	105.8	6.18	69.4	96	4	264	126.8	8.10	69.4	98
5	171	100.2	4.38	64.8	93	5	189	122.3	5.91	64.8	96	5	207	146.6	7.75	64.8	98
6	119	110.0	3.93	55.0	93	6	132	134.3	5.30	55.0	96	6	144	161.0	6.95	55.0	98
1450	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1610	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1750	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	520	58.1	12.46	50.6	106	1	578	71.7	17.05	50.6	109	1	628	84.7	21.90	50.6	111
2	430	96.9	12.43	60.8	104	2	477	119.4	17.02	60.8	107	2	519	141.1	21.85	60.8	109
3	376	128.4	12.51	67.1	102	3	417	158.3	17.12	67.1	105	3	454	187.1	21.99	67.1	107
4	301	165.3	12.06	69.4	102	4	334	203.8	16.51	69.4	105	4	363	240.8	21.20	69.4	107
5	236	191.1	11.53	64.8	102	5	262	235.6	15.79	64.8	105	5	285	278.3	20.28	64.8	107
6	165	209.8	10.35	55.0	102	6	183	258.7	14.17	55.0	105	6	199	305.7	18.19	55.0	107

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

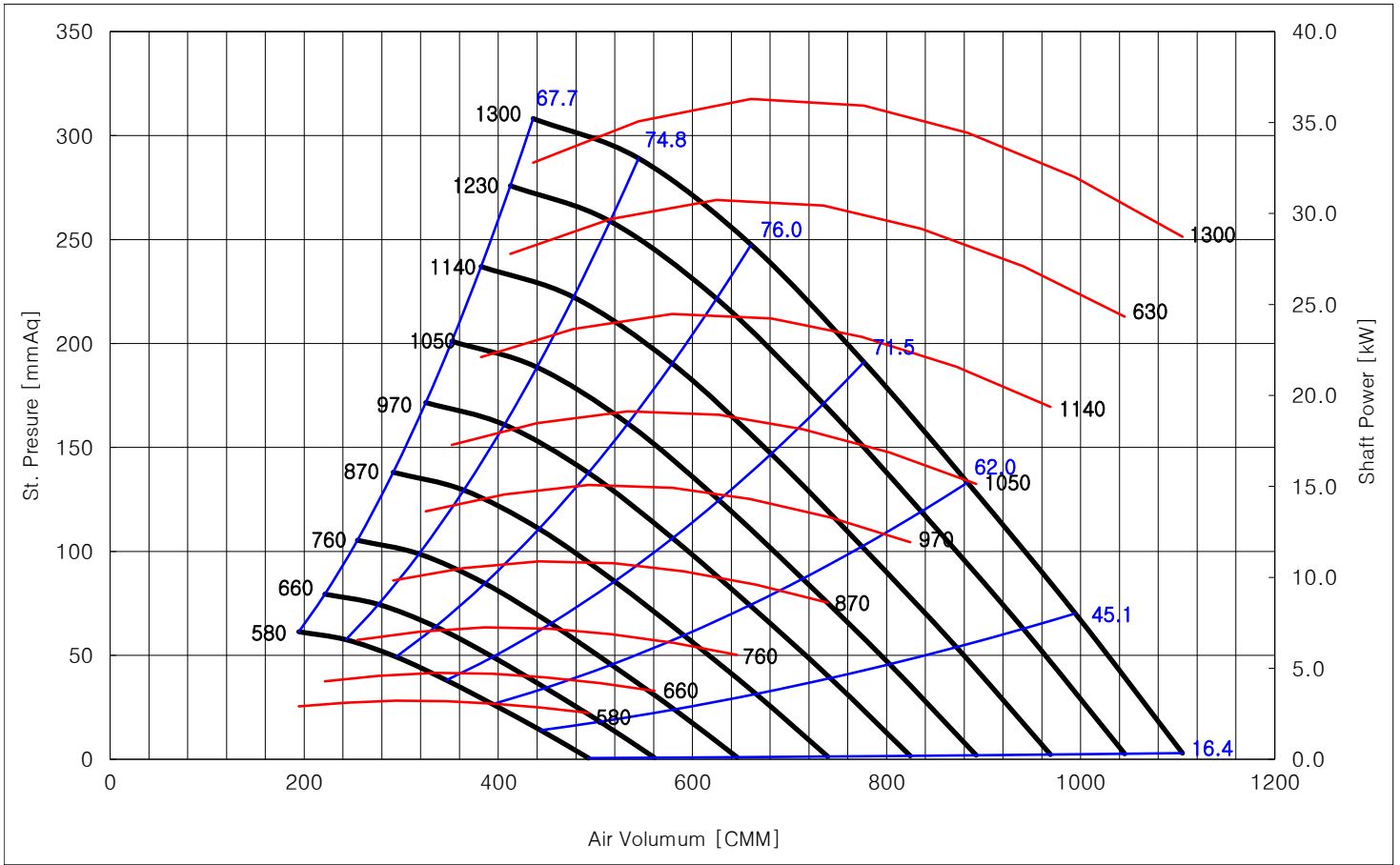
PERFORMANCE CURVES AND NOISE DATA - TSAF #6SS



670	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	760	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	880	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	321	0.5	1.51	16.4	83	1	364	0.7	2.21	16.4	86	1	422	0.9	3.43	16.4	90
2	289	12.7	1.69	45.1	81	2	328	16.4	2.46	45.1	84	2	379	21.9	3.82	45.1	88
3	257	24.1	1.81	61.9	79	3	291	31.0	2.65	61.9	83	3	337	41.6	4.11	61.9	87
4	226	34.6	1.89	71.4	78	4	256	44.6	2.76	71.4	82	4	296	59.7	4.29	71.4	86
5	192	44.9	1.91	75.8	78	5	218	57.7	2.79	75.8	81	5	252	77.4	4.33	75.8	85
6	158	52.4	1.85	74.5	78	6	179	67.4	2.69	74.5	82	6	208	90.4	4.18	74.5	86
7	127	55.9	1.73	67.5	80	7	144	71.9	2.52	67.5	84	7	166	96.4	3.92	67.5	88
1000	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1120	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1210	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	479	1.2	5.03	16.4	94	1	537	1.5	7.07	16.4	97	1	580	1.8	8.91	16.4	99
2	431	28.3	5.60	45.1	92	2	483	35.5	7.87	45.1	95	2	522	41.5	9.93	45.1	97
3	383	53.7	6.03	61.9	90	3	429	67.4	8.47	61.9	93	3	464	78.7	10.68	61.9	96
4	337	77.1	6.29	71.4	89	4	377	96.8	8.84	71.4	93	4	408	112.9	11.15	71.4	95
5	286	99.9	6.36	75.8	89	5	321	125.4	8.93	75.8	92	5	347	146.3	11.26	75.8	95
6	236	116.7	6.14	74.5	90	6	264	146.4	8.62	74.5	93	6	286	170.9	10.88	74.5	95
7	189	124.4	5.75	67.5	91	7	212	156.1	8.07	67.5	95	7	229	182.2	10.18	67.5	97
1300	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1380	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1500	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	623	2.0	11.06	16.4	101	1	661	2.3	13.22	16.4	102	1	719	2.7	16.98	16.4	104
2	561	47.9	12.31	45.1	99	2	595	53.9	14.73	45.1	101	2	647	63.7	18.91	45.1	103
3	498	90.8	13.24	61.9	98	3	529	102.3	15.84	61.9	99	3	575	120.9	20.34	61.9	102
4	438	130.3	13.82	71.4	97	4	465	146.9	16.54	71.4	99	4	505	173.5	21.24	71.4	101
5	372	168.9	13.97	75.8	97	5	395	190.3	16.71	75.8	99	5	430	224.9	21.46	75.8	101
6	307	197.3	13.49	74.5	97	6	326	222.3	16.13	74.5	99	6	354	262.6	20.72	74.5	102
7	246	210.3	12.62	67.5	99	7	261	237.0	15.10	67.5	101	7	284	280.0	19.39	67.5	104

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

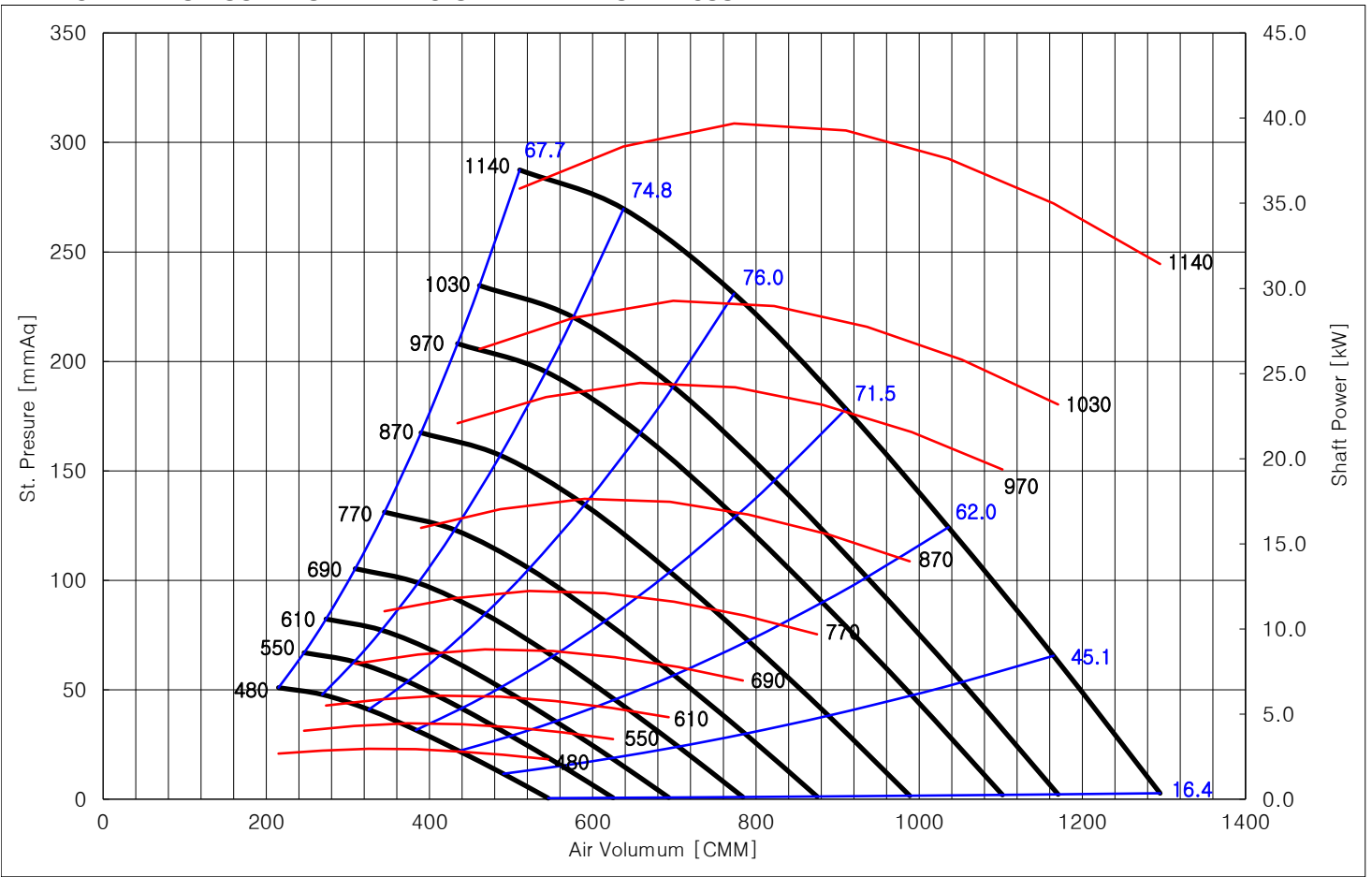
PERFORMANCE CURVES AND NOISE DATA - TSAF #7SS



580	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	660	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	760	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	493	0.6	2.55	16.4	85	1	561	0.8	3.76	16.4	88	1	646	1.0	5.74	16.4	92
2	444	14.0	2.84	45.1	83	2	505	18.1	4.19	45.1	86	2	581	24.0	6.39	45.1	90
3	394	26.5	3.06	62.0	81	3	448	34.3	4.51	62.0	84	3	516	45.5	6.88	62.0	89
4	347	38.0	3.19	71.5	80	4	394	49.2	4.70	71.5	84	4	454	65.3	7.18	71.5	88
5	295	49.3	3.22	76.0	79	5	335	63.8	4.75	76.0	83	5	386	84.6	7.25	76.0	87
6	243	57.5	3.11	74.8	80	6	276	74.5	4.59	74.8	84	6	318	98.8	7.01	74.8	88
7	194	61.3	2.91	67.7	81	7	221	79.4	4.29	67.7	85	7	255	105.3	6.55	67.7	89
870	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	970	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1050	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	739	1.3	8.61	16.4	96	1	824	1.7	11.93	16.4	99	1	892	1.9	15.14	16.4	101
2	666	31.4	9.59	45.1	94	2	742	39.0	13.29	45.1	97	2	803	45.8	16.86	45.1	99
3	591	59.6	10.32	62.0	92	3	659	74.1	14.30	62.0	95	3	714	86.8	18.14	62.0	97
4	520	85.6	10.77	71.5	91	4	580	106.3	14.93	71.5	94	4	627	124.6	18.93	71.5	97
5	442	110.9	10.88	76.0	91	5	493	137.8	15.08	76.0	94	5	533	161.5	19.13	76.0	96
6	364	129.5	10.51	74.8	91	6	406	160.9	14.57	74.8	94	6	440	188.6	18.48	74.8	97
7	292	138.0	9.83	67.7	93	7	325	171.6	13.62	67.7	96	7	352	201.0	17.28	67.7	98
1140	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1230	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1300	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	969	2.3	19.37	16.4	103	1	1045	2.7	24.33	16.4	105	1	1105	3.0	28.73	16.4	106
2	872	53.9	21.58	45.1	101	2	941	62.8	27.10	45.1	103	2	994	70.1	32.00	45.1	105
3	775	102.4	23.22	62.0	100	3	836	119.1	29.16	62.0	102	3	883	133.1	34.43	62.0	103
4	681	146.9	24.23	71.5	99	4	735	171.0	30.43	71.5	101	4	777	191.0	35.93	71.5	103
5	579	190.3	24.48	76.0	99	5	625	221.6	30.75	76.0	101	5	660	247.5	36.30	76.0	103
6	477	222.3	23.65	74.8	99	6	515	258.8	29.70	74.8	102	6	545	289.1	35.07	74.8	103
7	382	237.0	22.12	67.7	101	7	412	275.9	27.78	67.7	103	7	436	308.2	32.80	67.7	105

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B - free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

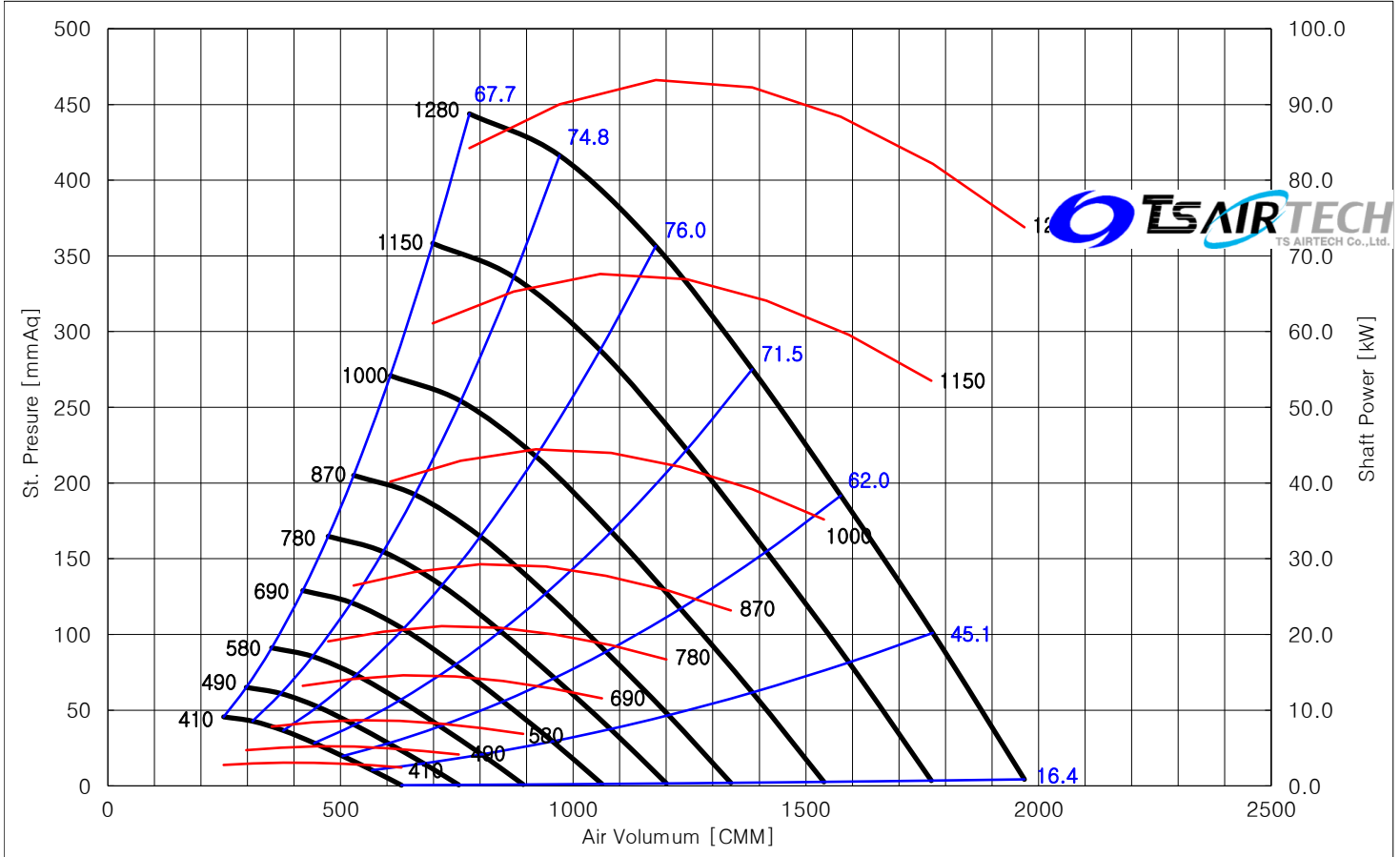
PERFORMANCE CURVES AND NOISE DATA - TSAF #8SS



480	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	550	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	610	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	545	0.5	2.35	16.4	82	1	625	0.6	3.53	16.4	86	1	693	0.8	4.82	16.4	89
2	490	11.6	2.61	45.1	80	2	562	15.2	3.93	45.1	84	2	623	18.8	5.36	45.1	87
3	436	22.0	2.81	62.0	78	3	500	28.9	4.22	62.0	82	3	554	35.6	5.76	62.0	85
4	383	31.6	2.93	71.5	77	4	439	41.5	4.41	71.5	81	4	487	51.0	6.02	71.5	84
5	326	40.9	2.96	76.0	77	5	373	53.8	4.46	76.0	81	5	414	66.1	6.08	76.0	84
6	269	47.8	2.86	74.8	77	6	308	62.8	4.30	74.8	81	6	341	77.2	5.87	74.8	84
7	215	51.0	2.68	67.7	78	7	246	66.9	4.03	67.7	82	7	273	82.3	5.49	67.7	86
690	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	770	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	870	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	784	1.0	6.97	16.4	92	1	875	1.2	9.69	16.4	95	1	989	1.6	13.97	16.4	99
2	705	24.0	7.76	45.1	90	2	787	29.9	10.78	45.1	93	2	889	38.2	15.56	45.1	97
3	627	45.5	8.34	62.0	89	3	700	56.7	11.59	62.0	92	3	791	72.3	16.72	62.0	95
4	551	65.3	8.71	71.5	88	4	615	81.3	12.10	71.5	91	4	695	103.8	17.46	71.5	94
5	468	84.6	8.80	76.0	87	5	522	105.4	12.23	76.0	91	5	590	134.5	17.64	76.0	94
6	386	98.8	8.50	74.8	88	6	431	123.0	11.81	74.8	91	6	487	157.1	17.04	74.8	94
7	309	105.3	7.95	67.7	89	7	345	131.1	11.05	67.7	93	7	390	167.4	15.94	67.7	96
970	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1030	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1140	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	1102	2.0	19.36	16.4	102	1	1170	2.2	23.18	16.4	103	1	1295	2.7	31.43	16.4	106
2	991	47.4	21.56	45.1	100	2	1052	53.5	25.81	45.1	101	2	1165	65.5	35.00	45.1	104
3	881	89.9	23.17	62.0	98	3	936	101.4	27.74	62.0	100	3	1036	124.2	37.61	62.0	103
4	775	129.1	24.20	71.5	97	4	823	145.5	28.97	71.5	99	4	910	178.2	39.28	71.5	102
5	658	167.2	24.45	76.0	97	5	699	188.5	29.27	76.0	99	5	773	230.9	39.69	76.0	102
6	543	195.3	23.61	74.8	97	6	576	220.2	28.27	74.8	99	6	638	269.7	38.33	74.8	102
7	434	208.1	22.09	67.7	99	7	461	234.6	26.44	67.7	101	7	511	287.4	35.85	67.7	104

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

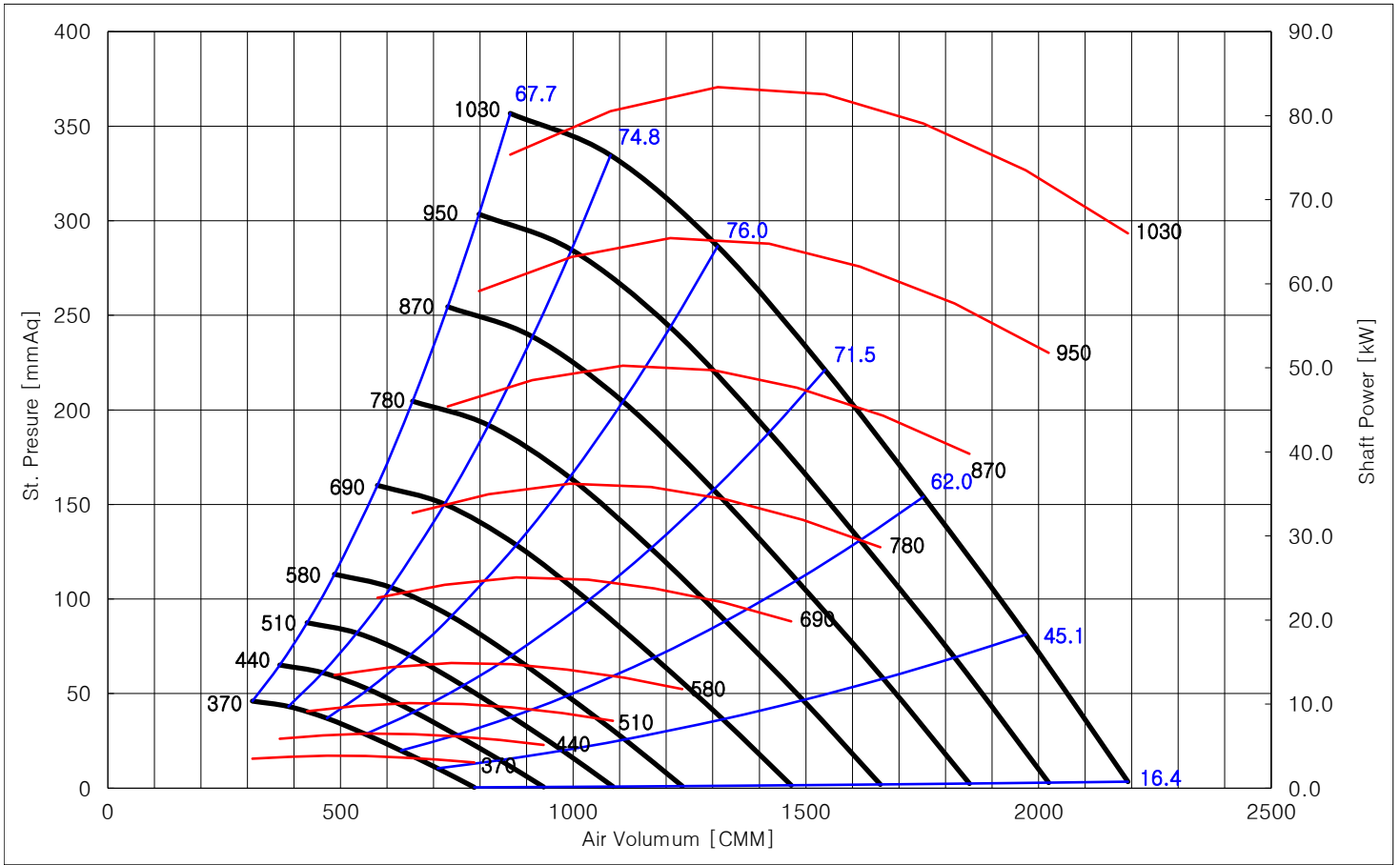
PERFORMANCE CURVES AND NOISE DATA - TSAF #9SS



410	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))	490	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))	580	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))
1	631	0.4	2.42	16.4	81	1	754	0.6	4.14	16.4	85	1	893	0.9	6.86	16.4	90
2	568	10.4	2.70	45.1	79	2	679	14.8	4.61	45.1	84	2	803	20.7	7.64	45.1	88
3	504	19.7	2.90	62.0	77	3	603	28.1	4.96	62.0	82	3	714	39.4	8.22	62.0	86
4	444	28.2	3.03	71.5	76	4	530	40.3	5.18	71.5	81	4	627	56.5	8.58	71.5	85
5	377	36.6	3.06	76.0	76	5	451	52.2	5.23	76.0	80	5	534	73.2	8.67	76.0	85
6	311	42.7	2.96	74.8	76	6	372	61.0	5.05	74.8	81	6	440	85.5	8.38	74.8	86
7	249	45.5	2.77	67.7	78	7	297	65.0	4.73	67.7	83	7	352	91.1	7.84	67.7	87
690	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))	780	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))	870	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))
1	1062	1.2	11.56	16.4	95	1	1200	1.6	16.70	16.4	98	1	1339	2.0	23.17	16.4	101
2	956	29.4	12.87	45.1	93	2	1080	37.5	18.59	45.1	97	2	1205	46.7	25.80	45.1	99
3	849	55.7	13.85	62.0	91	3	960	71.2	20.00	62.0	94	3	1071	88.5	27.75	62.0	98
4	746	79.9	14.45	71.5	90	4	844	102.2	20.88	71.5	94	4	941	127.1	28.97	71.5	97
5	635	103.6	14.60	76.0	90	5	718	132.4	21.10	76.0	93	5	800	164.7	29.27	76.0	96
6	523	121.0	14.10	74.8	90	6	591	154.6	20.37	74.8	94	6	660	192.3	28.27	74.8	97
7	419	129.0	13.20	67.7	92	7	473	164.8	19.06	67.7	95	7	528	205.0	26.45	67.7	99
1000	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))	1150	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))	1280	Q(m³/min)	Ps(mmAq)	H(kW)	η _t (%)	Lwi(dB(A))
1	1539	2.6	35.18	16.4	105	1	1770	3.5	53.51	16.4	109	1	1970	4.3	73.79	16.4	111
2	1385	61.7	39.18	45.1	104	2	1593	81.5	59.58	45.1	108	2	1773	101.0	82.16	45.1	110
3	1230	117.0	42.15	62.0	101	3	1415	154.7	64.10	62.0	105	3	1575	191.7	88.39	62.0	108
4	1082	167.9	43.99	71.5	101	4	1244	222.1	66.91	71.5	104	4	1385	275.1	92.26	71.5	107
5	920	217.6	44.46	76.0	100	5	1058	287.7	67.61	76.0	104	5	1177	356.5	93.23	76.0	107
6	758	254.1	42.92	74.8	101	6	872	336.0	65.28	74.8	105	6	971	416.3	90.02	74.8	108
7	607	270.9	40.17	67.7	103	7	698	358.3	61.09	67.7	106	7	777	443.8	84.24	67.7	110

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

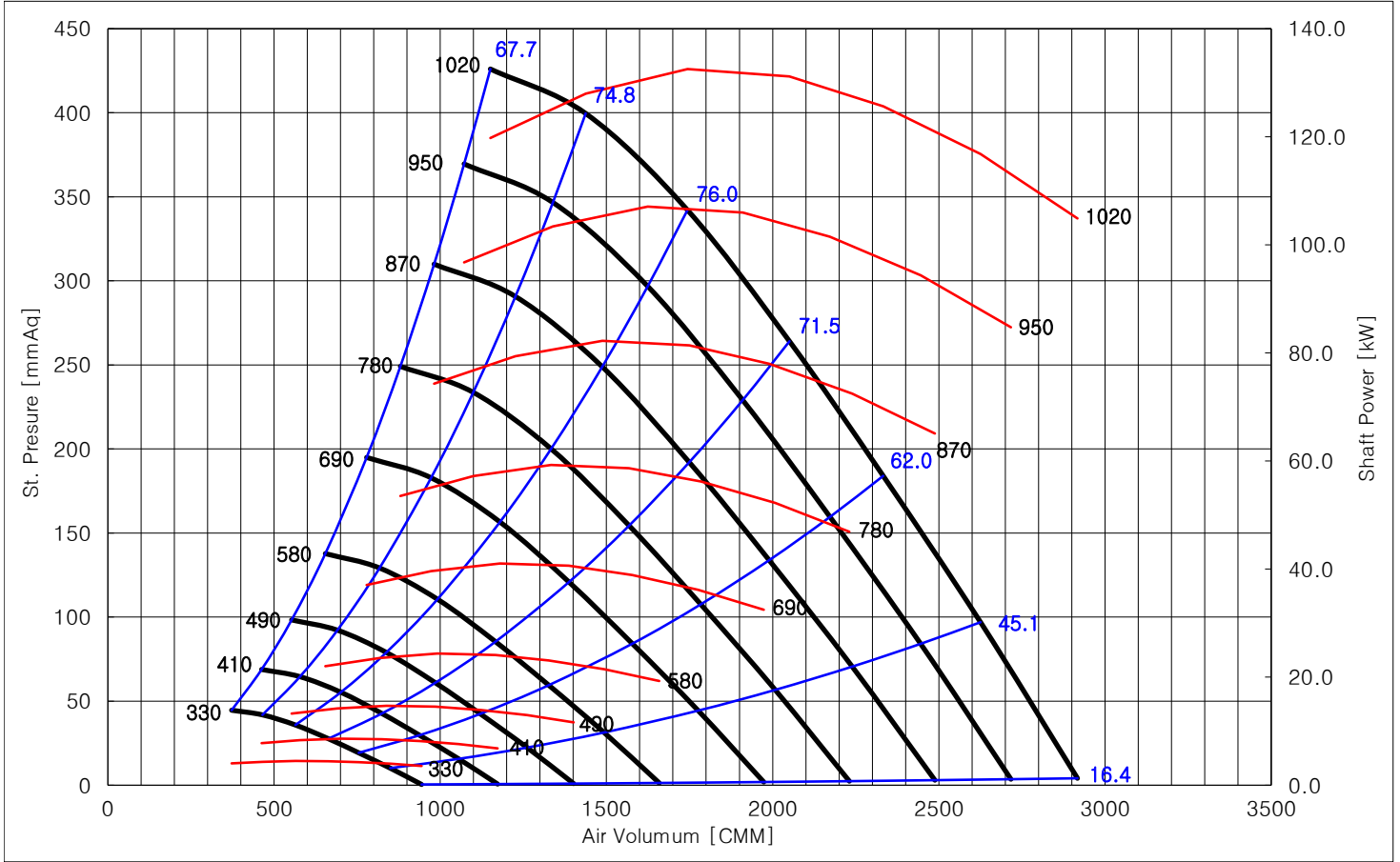
PERFORMANCE CURVES AND NOISE DATA - TSAF #10SS



370	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	440	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	510	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	787	0.4	3.06	16.4	81	1	936	0.6	5.15	16.4	86	1	1085	0.8	8.01	16.4	90
2	709	10.5	3.41	45.1	80	2	843	14.8	5.73	45.1	84	2	977	19.9	8.92	45.1	89
3	630	19.9	3.67	62.0	78	3	749	28.1	6.16	62.0	82	3	868	37.8	9.60	62.0	86
4	554	28.5	3.83	71.5	77	4	658	40.4	6.43	71.5	81	4	763	54.2	10.02	71.5	85
5	471	37.0	3.87	76.0	76	5	560	52.3	6.50	76.0	81	5	649	70.2	10.12	76.0	85
6	388	43.2	3.73	74.8	77	6	461	61.1	6.28	74.8	82	6	535	82.0	9.78	74.8	85
7	311	46.0	3.49	67.7	79	7	369	65.1	5.87	67.7	83	7	428	87.5	9.15	67.7	87
580	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	690	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	780	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	1234	1.1	11.79	16.4	93	1	1468	1.5	19.84	16.4	98	1	1660	2.0	28.66	16.4	101
2	1111	25.7	13.12	45.1	92	2	1322	36.4	22.09	45.1	#N/A	2	1494	46.6	31.92	45.1	99
3	987	48.9	14.12	62.0	90	3	1174	69.1	23.77	62.0	94	3	1327	88.4	34.34	62.0	98
4	868	70.1	14.74	71.5	89	4	1032	99.2	24.81	71.5	93	4	1167	126.8	35.84	71.5	97
5	738	90.8	14.89	76.0	88	5	878	128.6	25.07	76.0	93	5	992	164.3	36.22	76.0	96
6	608	106.1	14.38	74.8	89	6	724	150.2	24.21	74.8	94	6	818	191.9	34.97	74.8	97
7	487	113.1	13.46	67.7	91	7	579	160.1	22.65	67.7	95	7	655	204.6	32.73	67.7	99
870	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	950	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))	1030	Q(m³/min)	Ps(mmAq)	H(kW)	η_r (%)	Lwi(dB(A))
1	1852	2.5	39.78	16.4	104	1	2022	2.9	51.79	16.4	107	1	2192	3.4	66.00	16.4	109
2	1666	57.9	44.29	45.1	103	2	1820	69.1	57.67	45.1	106	2	1973	81.2	73.49	45.1	108
3	1481	109.9	47.65	62.0	101	3	1617	131.1	62.04	62.0	103	3	1753	154.1	79.07	62.0	106
4	1302	157.8	49.74	71.5	100	4	1421	188.1	64.76	71.5	103	4	1541	221.1	82.53	71.5	105
5	1107	204.4	50.26	76.0	100	5	1209	243.7	65.44	76.0	102	5	1310	286.5	83.40	76.0	104
6	912	238.7	48.53	74.8	100	6	996	284.7	63.18	74.8	103	6	1080	334.6	80.53	74.8	105
7	730	254.5	45.41	67.7	102	7	798	303.5	59.13	67.7	104	7	865	356.7	75.36	67.7	107

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

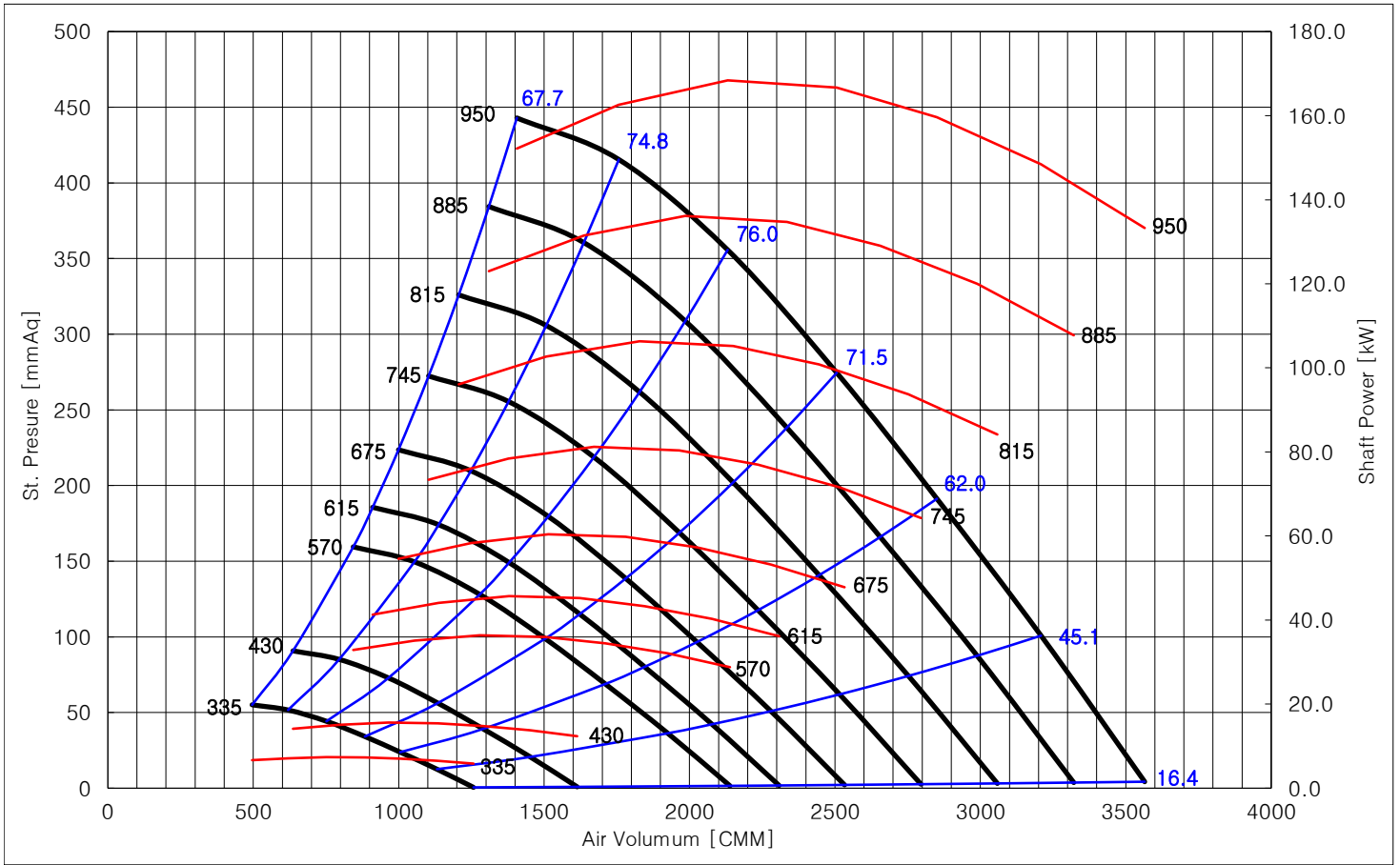
PERFORMANCE CURVES AND NOISE DATA - TSAF #11SS



330	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	410	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	490	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	944	0.4	3.55	16.4	81	1	1173	0.7	6.81	16.4	87	1	1401	0.9	11.63	16.4	92
2	849	10.1	3.96	45.1	80	2	1055	15.7	7.59	45.1	86	2	1261	22.4	12.95	45.1	91
3	755	19.3	4.26	62.0	78	3	938	29.7	8.16	62.0	83	3	1121	42.5	13.93	62.0	88
4	663	27.6	4.44	71.5	77	4	824	42.7	8.52	71.5	82	4	985	60.9	14.54	71.5	87
5	564	35.8	4.49	76.0	77	5	701	55.3	8.61	76.0	82	5	838	79.0	14.69	76.0	87
6	465	41.8	4.33	74.8	77	6	578	64.6	8.31	74.8	83	6	691	92.2	14.19	74.8	87
7	372	44.6	4.06	67.7	79	7	463	68.8	7.78	67.7	85	7	553	98.3	13.28	67.7	89
580	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	690	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	780	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	1659	1.3	19.29	16.4	96	1	1973	1.9	32.47	16.4	101	1	2231	2.4	46.91	16.4	104
2	1493	31.4	21.47	45.1	95	2	1776	44.4	36.16	45.1	100	2	2008	56.7	52.23	45.1	103
3	1326	59.5	23.10	62.0	93	3	1578	84.2	38.90	62.0	97	3	1784	107.6	56.19	62.0	101
4	1166	85.4	24.12	71.5	92	4	1387	120.8	40.60	71.5	96	4	1568	154.4	58.65	71.5	100
5	992	110.6	24.37	76.0	91	5	1180	156.6	41.03	76.0	96	5	1334	200.1	59.27	76.0	99
6	817	129.2	23.53	74.8	92	6	972	182.9	39.62	74.8	97	6	1099	233.7	57.23	74.8	100
7	654	137.8	22.02	67.7	94	7	778	195.0	37.07	67.7	98	7	880	249.1	53.56	67.7	102
870	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	950	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	1020	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	2488	3.0	65.09	16.4	107	1	2717	3.6	84.75	16.4	110	1	2917	4.1	104.90	16.4	112
2	2239	70.5	72.48	45.1	106	2	2445	84.1	94.37	45.1	109	2	2626	97.0	116.80	45.1	111
3	1990	133.9	77.98	62.0	104	3	2173	159.6	101.52	62.0	106	3	2333	184.0	125.66	62.0	108
4	1749	192.1	81.39	71.5	103	4	1910	229.1	105.97	71.5	106	4	2051	264.1	131.16	71.5	108
5	1487	248.9	82.24	76.0	103	5	1624	296.8	107.08	76.0	105	5	1744	342.2	132.54	76.0	107
6	1226	290.7	79.41	74.8	103	6	1339	346.6	103.39	74.8	106	6	1438	399.6	127.98	74.8	108
7	982	309.9	74.31	67.7	105	7	1072	369.6	96.76	67.7	107	7	1151	426.0	119.76	67.7	109

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
 - Performance certified is for installation type B - free inlet, ducted outlet
 - Performance ratings do not include the effects of appurtenances(accessories), Power rating kW does not include transmission losses.

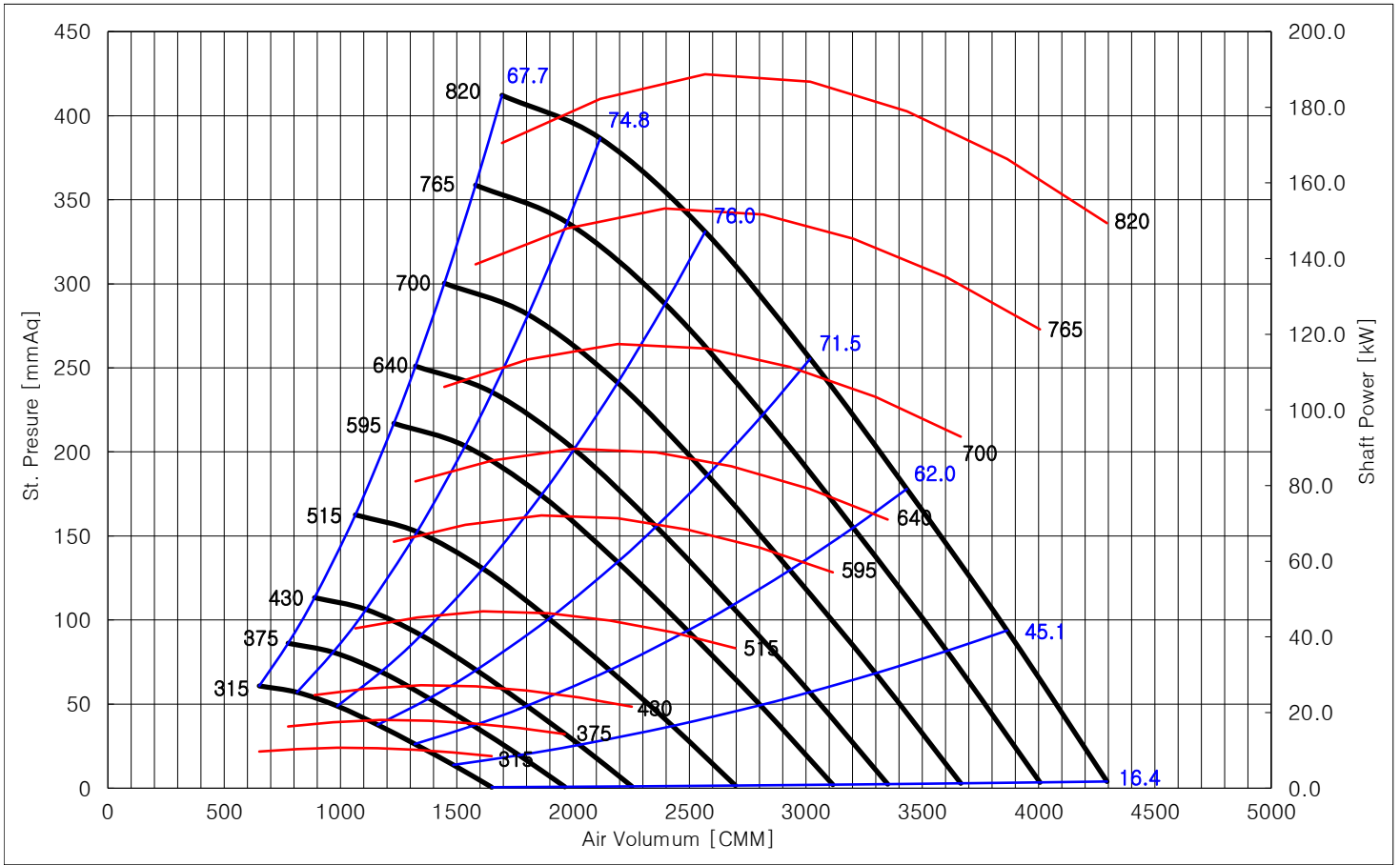
PERFORMANCE CURVES AND NOISE DATA - TSAF #12SS



335	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	430	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	570	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	1257	0.5	5.84	16.4	84	1	1614	0.9	12.36	16.4	91	1	2139	1.5	28.79	16.4	99
2	1131	12.5	6.51	45.1	83	2	1452	20.7	13.76	45.1	90	2	1925	36.3	32.06	45.1	98
3	1005	23.8	7.00	62.0	81	3	1290	39.2	14.81	62.0	88	3	1710	68.9	34.49	62.0	95
4	884	34.1	7.31	71.5	80	4	1134	56.2	15.45	71.5	86	4	1504	98.8	36.00	71.5	94
5	752	44.2	7.38	76.0	80	5	965	72.9	15.62	76.0	86	5	1279	128.1	36.37	76.0	94
6	620	51.7	7.13	74.8	81	6	795	85.1	15.08	74.8	87	6	1054	149.6	35.12	74.8	94
7	496	55.1	6.67	67.7	83	7	637	90.7	14.11	67.7	89	7	844	159.5	32.87	67.7	96
615	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	675	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	745	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	2308	1.8	36.16	16.4	101	1	2533	2.2	47.81	16.4	103	1	2796	2.6	64.28	16.4	106
2	2077	42.2	40.26	45.1	100	2	2280	50.9	53.23	45.1	102	2	2516	62.0	71.57	45.1	105
3	1845	80.2	43.32	62.0	97	3	2025	96.6	57.27	62.0	100	3	2236	117.6	77.00	62.0	102
4	1622	115.1	45.21	71.5	96	4	1781	138.6	59.78	71.5	99	4	1965	168.8	80.37	71.5	101
5	1380	149.1	45.69	76.0	96	5	1514	179.6	60.41	76.0	98	5	1671	218.8	81.22	76.0	101
6	1137	174.1	44.11	74.8	96	6	1248	209.7	58.33	74.8	99	6	1378	255.5	78.42	74.8	102
7	910	185.6	41.28	67.7	98	7	999	223.6	54.58	67.7	101	7	1103	272.4	73.39	67.7	103
815	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	885	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	950	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	3058	3.1	84.15	16.4	108	1	3321	3.7	107.75	16.4	111	1	3565	4.3	133.28	16.4	113
2	2753	74.2	93.70	45.1	107	2	2989	87.5	119.98	45.1	110	2	3209	100.8	148.41	45.1	112
3	2446	140.8	100.81	62.0	105	3	2656	166.0	129.08	62.0	107	3	2851	191.3	159.66	62.0	109
4	2150	202.1	105.23	71.5	104	4	2335	238.3	134.73	71.5	106	4	2506	274.5	166.65	71.5	108
5	1828	261.8	106.33	76.0	104	5	1985	308.7	136.15	76.0	106	5	2131	355.7	168.40	76.0	108
6	1507	305.8	102.67	74.8	104	6	1637	360.6	131.46	74.8	106	6	1757	415.5	162.60	74.8	109
7	1207	326.0	96.08	67.7	106	7	1310	384.4	123.02	67.7	108	7	1406	442.9	152.17	67.7	110

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
 - Values shown are for inlet LwiA sound power levels for installation type B-free inlet, ducted outlet
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PERFORMANCE CURVES AND NOISE DATA - TSAF #13SS

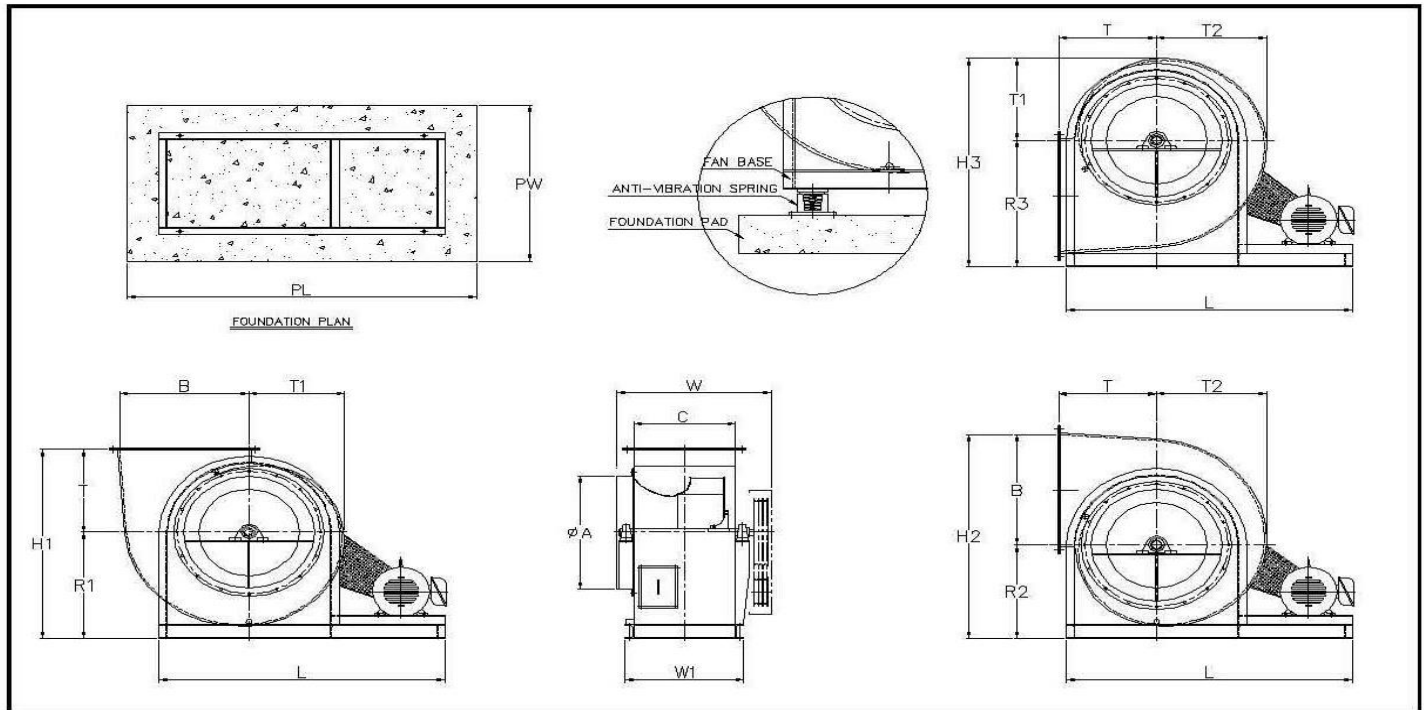


315	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	375	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	430	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	1650	0.6	8.47	16.4	86	1	1964	0.8	14.29	16.4	91	1	2252	1.1	21.54	16.4	95
2	1485	13.8	9.43	45.1	85	2	1767	19.6	15.91	45.1	89	2	2027	25.8	23.98	45.1	94
3	1319	26.3	10.14	62.0	83	3	1570	37.2	17.11	62.0	87	3	1801	48.9	25.80	62.0	91
4	1160	37.7	10.59	71.5	82	4	1381	53.4	17.86	71.5	86	4	1583	70.2	26.93	71.5	90
5	986	48.8	10.70	76.0	82	5	1174	69.2	18.05	76.0	86	5	1346	91.0	27.21	76.0	90
6	813	57.0	10.33	74.8	82	6	968	80.8	17.43	74.8	87	6	1110	106.3	26.28	74.8	90
7	651	60.8	9.67	67.7	84	7	775	86.2	16.31	67.7	89	7	888	113.3	24.59	67.7	92
515	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	595	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	640	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	2697	1.6	37.00	16.4	100	1	3116	2.1	57.07	16.4	103	1	3352	2.4	71.02	16.4	105
2	2427	37.0	41.20	45.1	99	2	2804	49.4	63.54	45.1	102	2	3017	57.1	79.07	45.1	104
3	2157	70.2	44.33	62.0	96	3	2492	93.7	68.36	62.0	100	3	2680	108.4	85.07	62.0	102
4	1896	100.8	46.27	71.5	95	4	2190	134.5	71.35	71.5	99	4	2356	155.6	88.80	71.5	101
5	1612	130.6	46.75	76.0	94	5	1863	174.3	72.10	76.0	98	5	2004	201.6	89.73	76.0	100
6	1329	152.5	45.14	74.8	95	6	1536	203.5	69.62	74.8	99	6	1652	235.5	86.64	74.8	101
7	1064	162.6	42.25	67.7	97	7	1229	217.0	65.15	67.7	101	7	1322	251.0	81.08	67.7	103
700	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	765	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))	820	Q(m³/min)	Ps(mmAq)	H(kW)	η _r (%)	Lwi(dB(A))
1	3666	2.9	92.92	16.4	108	1	4006	3.5	121.28	16.4	110	1	4294	4.0	149.37	16.4	112
2	3299	68.3	103.46	45.1	107	2	3606	81.6	135.05	45.1	108	2	3865	93.8	166.32	45.1	111
3	2931	129.7	111.31	62.0	104	3	3203	154.9	145.29	62.0	107	3	3434	178.0	178.93	62.0	109
4	2577	186.1	116.19	71.5	103	4	2816	222.3	151.65	71.5	106	4	3019	255.4	186.77	71.5	108
5	2191	241.2	117.41	76.0	103	5	2395	288.1	153.24	76.0	105	5	2567	331.0	188.73	76.0	107
6	1807	281.7	113.36	74.8	103	6	1974	336.4	147.97	74.8	106	6	2116	386.5	182.23	74.8	108
7	1446	300.3	106.09	67.7	105	7	1580	358.7	138.47	67.7	108	7	1694	412.1	170.53	67.7	110

- The A-Weighted sound ratings shown have been calculated per AMCA International Standard 301
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OVERALL DIMENSION

Backward Wheels (Airfoil) - "TSAF" SERIES



FAN NO.		DIMENSION (TSSF SERIES)													
		# 3	# 3.5	# 4	# 4.5	# 5	# 5.5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13
Inlet	A	480	580	635	700	770	855	940	1140	1255	1390	1545	1705	1870	2085
Outlet	B	460	557	615	675	745	830	910	1105	1215	1345	1495	1650	1810	2020
	C	360	435	480	530	580	645	710	860	945	1045	1165	1285	1410	1575
Width	W	590	660	730	800	870	965	1030	1210	1380	1560	1670	1750	1900	2000
Center Height	R1	455	525	570	660	725	775	830	975	1125	1280	1410	1540	1482	1990
	R2	415	465	515	565	650	690	780	870	1005	1140	1250	1375	1480	1750
	R3	515	590	675	770	840	910	970	1140	1315	1485	1635	1810	1970	2180
Total Height	H1	765	880	995	1120	1280	1360	1480	1685	1965	2280	2540	2775	2822	3600
	H2	865	975	1125	1245	1430	1530	1680	1920	2225	2485	2745	3025	3290	3770
	H3	825	940	1085	1205	1395	1490	1640	1870	2175	2505	2765	3045	3310	3790
Casing	T	350	410	460	510	560	610	660	740	860	1000	1130	1235	1340	1610
	T1	340	390	450	485	560	610	680	780	890	1020	1130	1235	1340	1610
	T2	385	450	520	580	660	700	790	890	1050	1160	1290	1400	1342	1850
Fan Base	L	1000	1150	1300	1400	1600	1650	1700	2000	2200	2400	2600	2800	3500	3600
	W1	440	500	560	620	700	760	820	940	1060	1175	1295	1435	1560	1725
Fan Pad	PL	1300	1450	1600	1700	1900	1950	2000	2300	2500	2700	2900	3100	3800	3900
	PW	740	800	860	920	1000	1060	1120	1240	1360	1475	1595	1735	1860	2025

(All Dimensions in mm)