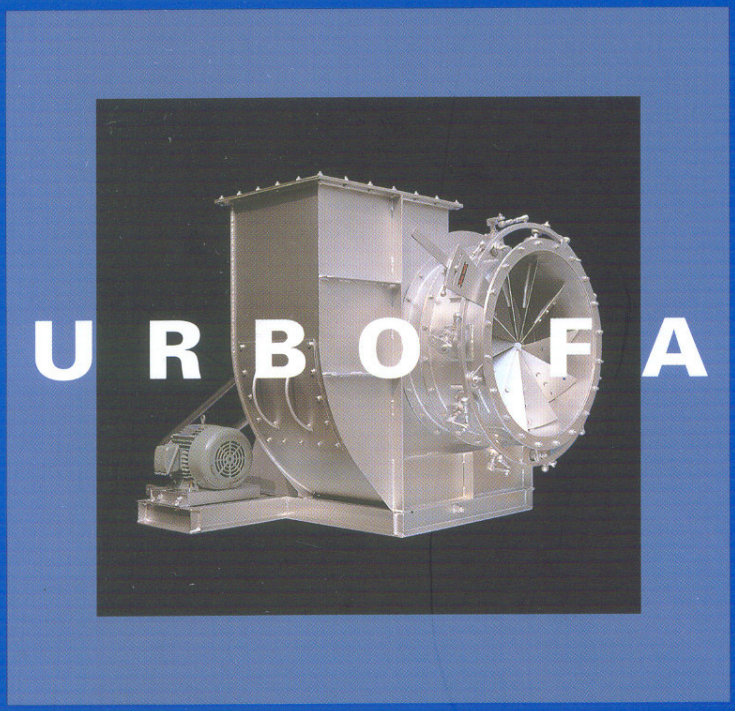
Industrial Air Is Our Business...

SMICC
K S A/ISO 9001



TURBO FAN

Turbo Fans Designed For Industrial Applications

Yujin Engineering & Mfg. Co., Ltd.
BUCHEON, KOREA

DEPENDABLE FANS BACKED BY EXPERIENCE, TECHNOLOGY AND HIGH EFFICIENCY

유진기연사는 1966년 창립이후 지난 30여년간 국내 송풍기업계의 선두주자로써 다양한 종류의 FAN과 BLOWER를 제작 납품하여 왔습니다. 이들 송풍기들은 일반 공조에서, 각종 산업 현장에서 다양한 용도로써 높은 효율과 기계적 안정성을 자랑하며 유진의 대표품목으로 자리하고 있습니다.

유진의 송풍기는 벨트 구동과 직결 구동, 터보, 다익, 에어포일 등의 원심형 송풍기, 축류송풍기 등 귀사의 모든 공조 및 분체이송 등 산업 현장의 다양한 요구조건을 만족 시킬수 있는 제품군을 이루고 있습니다.

유진의 송풍기는 사용자의 의뢰에 따라 전량 주문 제작 형태로 이루어지므로 특정 사용 환경에 알맞게 설계되어지고 그간의 축적된 많은 경험과 얻어진 노-하우를 바탕으로 제작됩니다. 또한 제작완료된 송풍기는 출고전, 인버터시스템을 이용하여 다양한 종류의 전동기 사양에 맞추어 시험 및 시운전을 거칩니다.

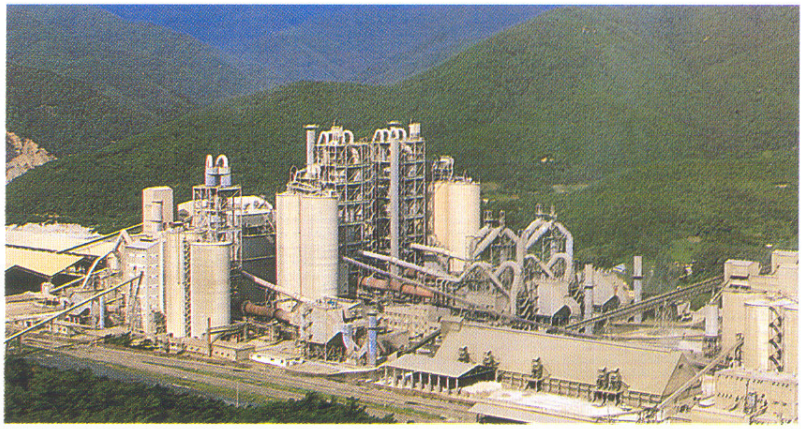
송풍기에 대한 다양한 경험과 숙련된 기술 인력에 의하여 뒷받침되는 고품질의 유진송풍기는 다양한 현장 요구조건에 부합하는 신뢰성 있는 성능을 제공합니다.

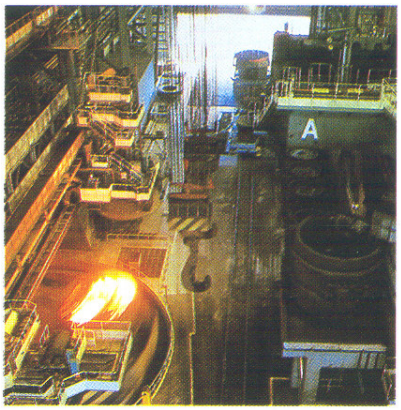
Yujin has been constant in our devotion to the production of various types of fans and blowers since the company was established in 1966. As our company history shows, it' s not an understatement to say that Yujin was and is still the pioneer in this field. These fans can be easily seen in all industrial sites in Korea.

Yujin offers belt and direct driven centrifugal fans and blowers which include the turbo, multi-blade and airfoil, and axial fans to fulfill and complement all your commercial and indutrial air handing requirements.

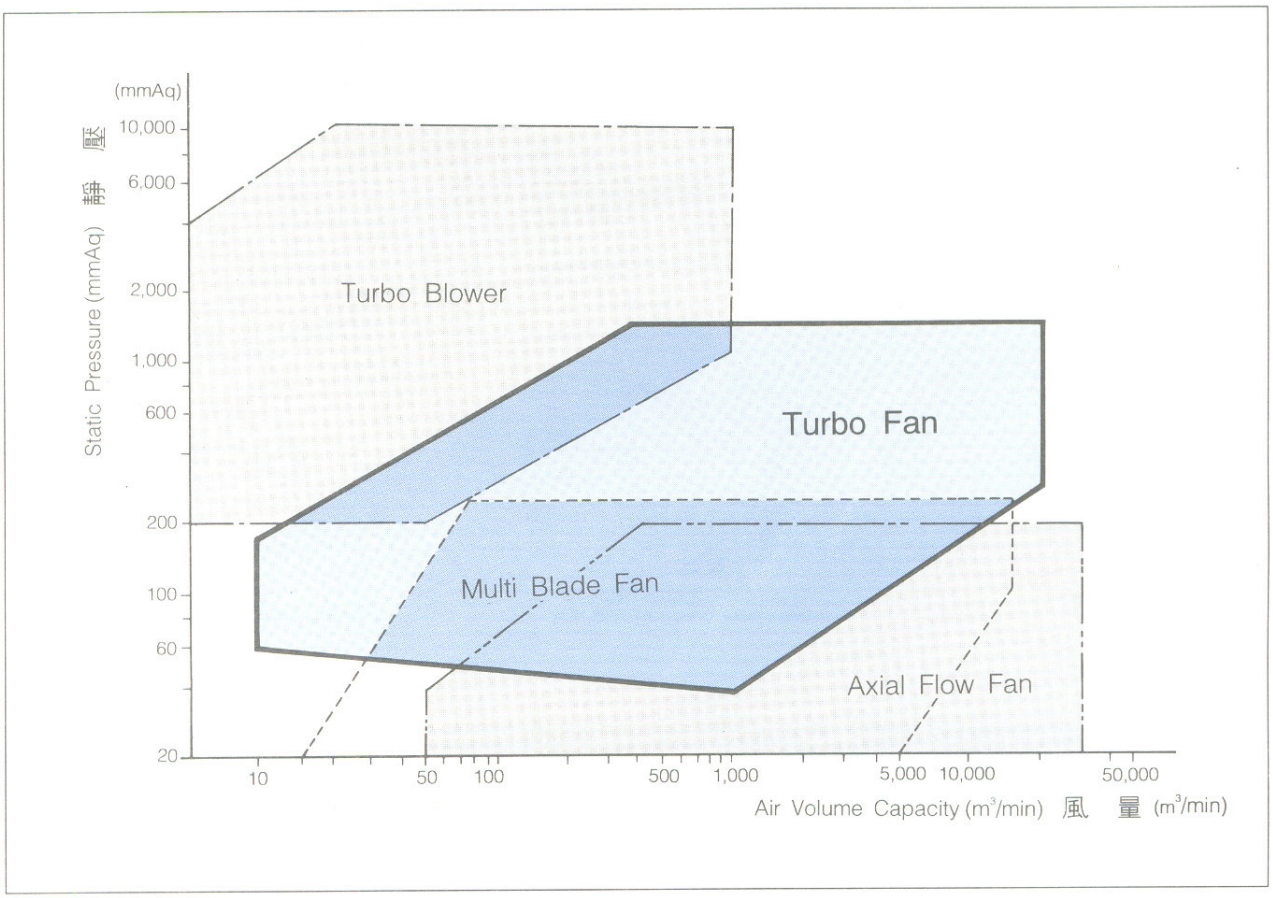
All our fans are custom designed to meet various industrial applications backed by accumulated experiences and know-how in practice, a daily commitment to hard work and excellence that everyone at Yujin shares. All products are factory tested by using an invertor test facility which can accomodate various types of motors.

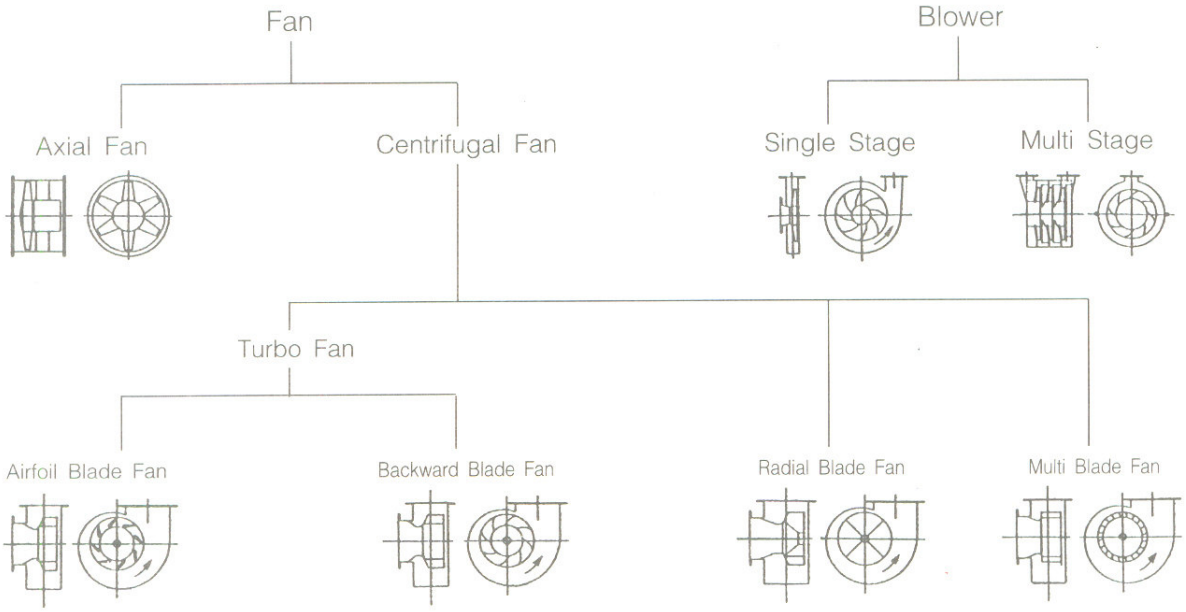
Yujin's quality products and dependable performance are supported by a highly trained staff with a combined experience of several decades in air moving equipment industry.





■ 유진송풍기의 일반적 제작 성능범위 (General Manufacturing & Performance Ranges of Yujin Fan)

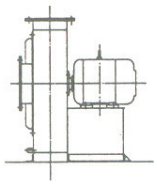




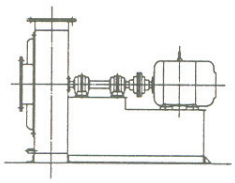
■ 구동방식에 따른 구조 (STANDARD DRIVE ARRANGEMENT)

다음은 각종 구동방식에 따른 유진 원심형 송풍기의 형식 표기방법을 나타냅니다.

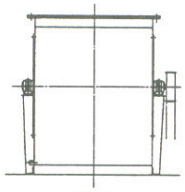
The following symbolic representation denotes Yujin's general fan drive arrangements.



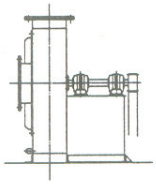
S L
Motor Direct Drive



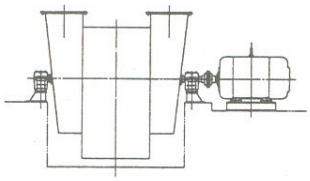
B K
Coupling Direct Drive



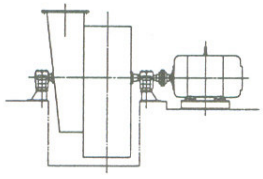
D L
Double Inlet, Double Width,
Belt Drive



B L
Belt Drive



E K
Double Inlet, Double Width,
Coupling Direct Drive with Inlet Box

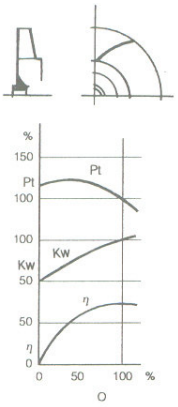
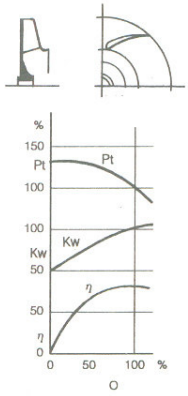
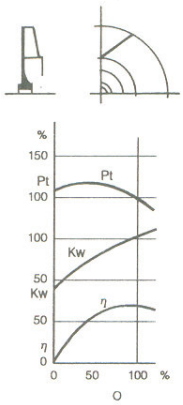
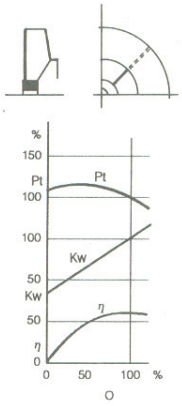
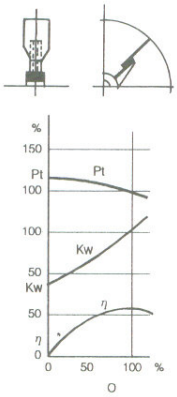


L K
Single Inlet,
Coupling Direct Drive with Inlet Box

■ IMPELLER의 선택 (SELECTION OF IMPELLERS)

송풍기의 회전 부분인 IMPELLER는 가장 중요한 부분으로써 진동없이 실제적으로 가장 높은 공기역학적 성능을 발휘하도록 설계하고 제작되어야 합니다. 이 IMPELLER는 이송하고자 하는 물질의 종류 및 송풍기의 용도상의 목적에 따라 주의깊게 선택되어야 합니다.

The rotating elements of a fan are most important and must be designed amd fabricated to provide the highest practical aerodynamic performance with smooth vibration-free opeeration. The impeller should be carefully chosen in consideration of the fan's application and handling gas or materials.

Y T F	Y F V	Y F A	Y P F	Y P R
				
• Backward Curved Type • For Clean Air or Light Dust	• Airfoil Type • For High Efficiency	• Backward Straight Type • For Light Dust	• Radial Straight Type • Suitable to Adhesive Dust	• Open Material Handling Type • Ideal for Transfering Heavy Dust, Paper Trim, etc.

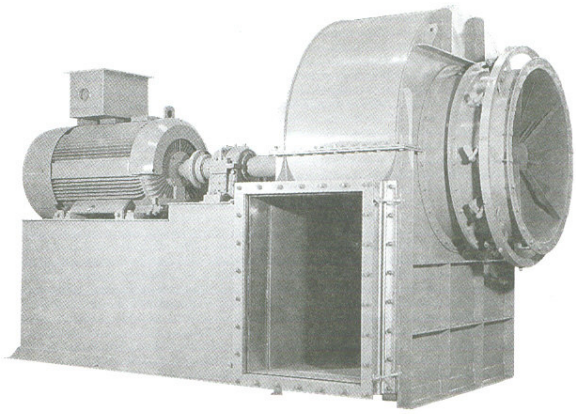
INDUSTRIAL TURBO FANS
···TO MEET ALL INDUSTRIAL REQUIREMENTS

■ 특 징 (DESIGN FEATURES)

● 일반 사항 (GENERAL)

낮은 정압에서 높은 정압의 영역까지 폭넓은 운전 범위를 가지고 있으며, 각 용도에 적합한 BLADE 및 CASING 구조, 재질의 선택을 통하여 일반 공기 이송에서 고온의 FLUE GAS 및 분체 이송까지 폭넓은 용도로 사용할 수 있습니다.

Yujin's Turbo Fan has a wide operation range from low to high pressure and can be used to move clean air, flue gas, dust and granular materials through selection of blade, fan arrangement and material.



A Boiler forced draft fan

● 효 율 (EFFICIENCY)

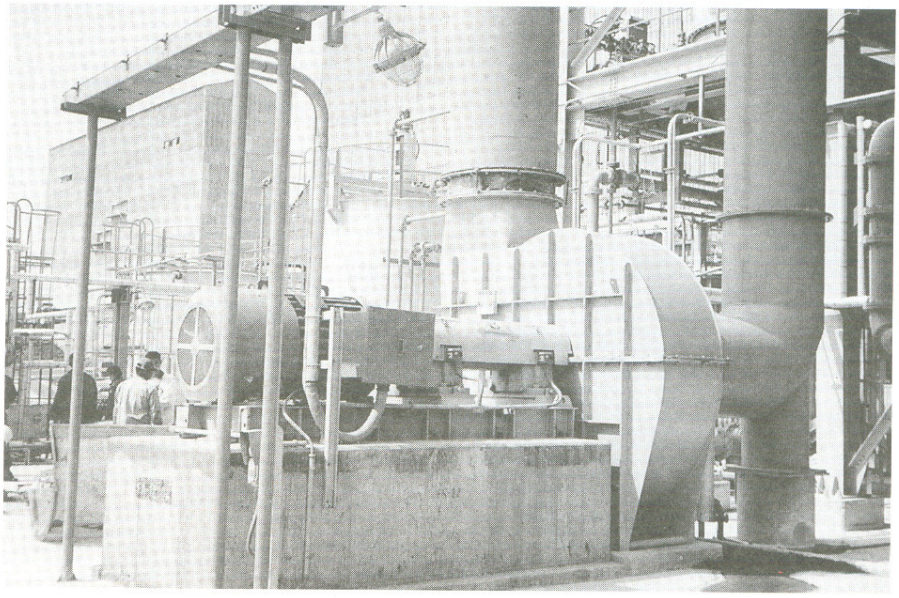
높은 효율은 최적의 선정영역에서 얻어집니다. 송풍기의 성능은 궁극적으로 운전 효율입니다. 고효율은 기계의 내구수명을 통하여 낮은 운전비를 의미합니다. 일반적으로 적정한 압력 유보를 위하여 최고 효율점의 약간 오른쪽으로 선정합니다.

Most important is the sustained high efficiency over the range of optimum selection. The ultimate measure of fan performance is operating efficiency. High efficiency means low operating costs throughout the life of the equipment. Normal selection is slightly to the right of peak efficiency, thereby assuring adequate pressure reserve.

● 동 력 (HORSEPOWER)

후향익 송풍기의 경우 동력 곡선은 최고 효율점에서 부하 변동시 축동력이 안정되는 LIMIT LOAD 특성을 가지고 있습니다. 이는 주어진 속도에서 과부하의 위험 없이 축동력을 근거하여 전동기를 선정할 수 있게 합니다.

Backwardly inclined blading provides non-overloading horsepower characteristics. This permits the selection of motors based on brake horsepower requirements without danger of overloading at that speed.

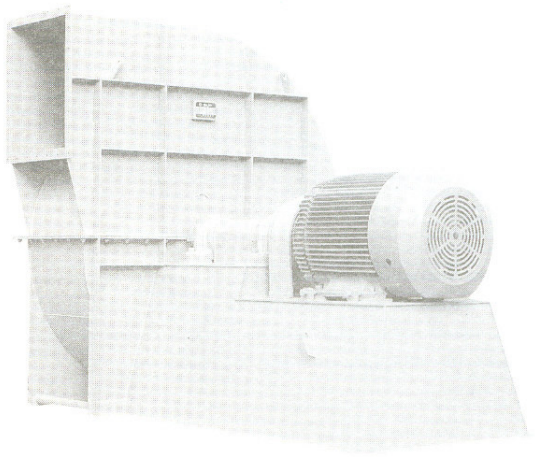


A turbo fan equipped with rubber lined casing and stainless steel impeller.

● 정숙운전 (QUIET OPERATION)

CASING과 IMPELLER의 주의깊은 설계와 더불어 IMPELLER BLADE의 엄밀한 조정을 통하여 난류 발생을 줄임으로써 압력 전환 효율을 증대합니다. 이는 곧 정숙 운전을 실현합니다.

Precise orientation of wheel blades, combined with careful aerodynamic design of wheel and casing, decrease air turbulence and increases pressure conversion efficiency. It leads a quieter operation.



An industrial turbo fan for bag filter

● 후향 날개 (BACKWARD INCLINED BLADE)

▶효율적 경제성을 가진 후향의 IMPELLER DESIGN은 넓은 요구정압 범위에서 대풍량의 이송을 가능.

Efficient economical backwardly inclined impeller design for moving large volumes of air at a wide range of pressure requirements.

▶과부하 방지의 동력 특성

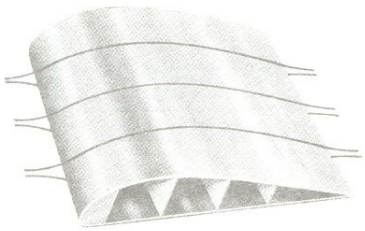
Non-overloading horsepower characteristics.

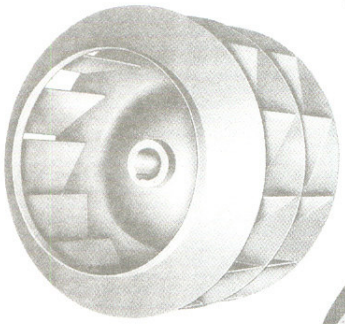
▶SYSTEM 저항의 변동에 따른 풍량 변화를 최소화하여 폭넓은 운전 선정 범위의 실현

Increased stability of operation due to steeply rising pressure curve which minimizes volume variation to changes in system resistance.

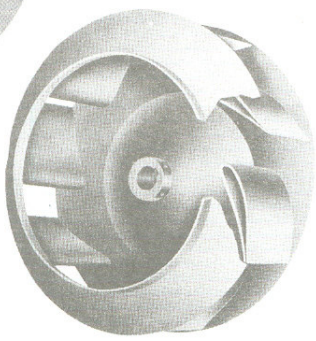
▶적은 양의 DUST가 유입되는 경우, 일반적으로 DUST 고착을 최소화하여 안정적 운전이 가능.

Can be utilized for light dust applications generally without build-up.





A double width double inlet backward inclined blade



A backward inclined airfoil blade

■ 일반적 구조 (FAN CONSTRUCTION)

● CASING

앵글 또는 평철 보강이 이루어진 강재 케이싱은 연속 용접으로 이루어져 있으며 충분한 강성을 지니고 있습니다. 원활한 공기 흐름을 극대화한 흡입콘은 간섭을 최소화하여 유체를 임펠러로 유도합니다.
또한 케이싱은 수평 또는 수직 방향으로 분할되도록 하여 특정한 용도, 또는 설치 요구 조건에 부합되도록 되어 있으며, 토출 방향은 360도 어느 방향으로나 제작 가능하여 배관 작업이 용이합니다.

The heavy sheet steel housing ruggedly braced with steel angles or plat bars is continuously welded to the side sheets, and has enough strength and durability. The airstreamed inlet cone designed for reducing turbulence allows air to move into the impeller without obstruction.
Horizontal or vertical split types are available to meet its application or installation condition. The discharge nozzle can be rotated to any direction for easy piping works.

● BEARINGS

고부하, 그리스주입식, 플러머 블럭 베어링 하우징을 표준으로 사용하여 기동마찰의 최소화, 간편한 보수 및 장기간 고장 없는 수명을 가집니다. 고온용 송풍기의 경우 오일 배스 타입 베어링 하우징을 사용하며 냉각수 배관을 위한 플러그가 부착됩니다.

Heavy duty, grease lubricated, anti-friction bearings are standard. Minimum starting friction and simple maintenance make them ideal for long trouble-free fan life. Oil bath bearing housing attached plug for cooling water piping is also available for high temperature fans.

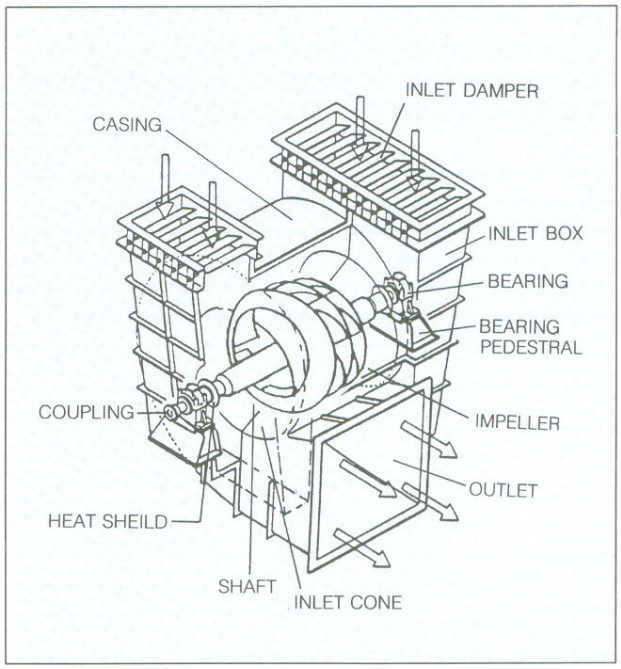
일반적으로 고속 회전의 경우는 볼베어링, 고부하 저속 회전의 경우는 로울러베어링이 사용됩니다.

Generally, ball bearings are used for high speeds, and roller bearings for heavy loads and at slower speeds.

● SHAFT

축은 탄소강 (대형 송풍기의 경우는 단조강)을 사용하며 주의 깊게 정밀 가공, 연마됩니다. 모든 축은 충분한 강성을 가지도록 하며, 1차 위험 속도 아래에서 운전되도록 설계되어 집니다.

Shafts are fabricated from medium carbon steel,(larger fans utilize forged shafts) and all are carefully turned, ground and polished to size. All shafts are correctly designed to give safe deflection and operate well below the first critical speeds.



General Construction of Double Inlet, Double Width Fan with Inlet Box

■ SPECIAL FEATURES

● 고온용 송풍기 (HIGH TEMPERATURE FANS)

일반적 구조의 송풍기는 약 200℃까지의 온도에서 사용할 수 있습니다. 알맞은 송풍기의 형태, 특별한 구조, 최대 운전 속도등은 고온의 기체를 이송시 중요한 고려사항들 입니다.

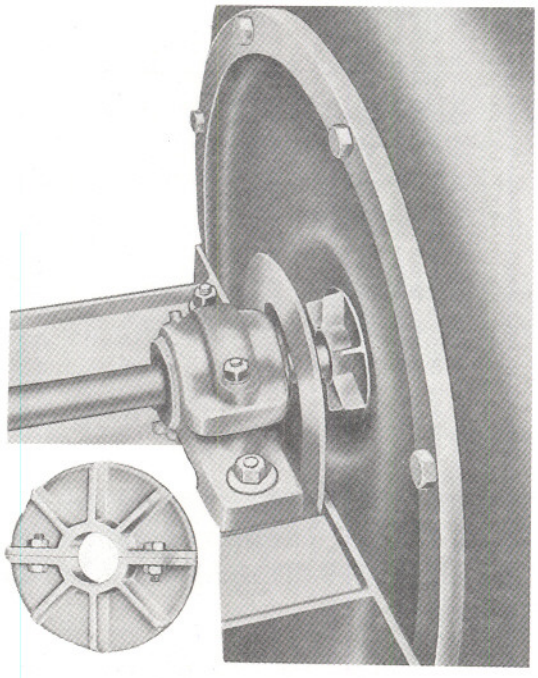
Standard fans can be used for temperatures up to 200℃. The correct fan arrangement, special construction, and limitations placed upon the maximum operation speeds, are important considerations that must be taken into account when elevated temperatures are involved.

특히 대형 송풍기의 경우, 임펠러 허브와 축사이의 온도 팽창율은 안정적 운전을 위해 주의깊게 고려되어야 하며, 축방향의 팽창을 고려하여 베어링은 고정 및 자유측으로 이루어져야 합니다.

Particularly with larger fans, the rates of expansion of the wheel hub and shaft must be carefully reviewed to insure continued trouble-free operation. To permit axial shaft expansion due to high temperature operation, the bearings are provided with fixed and floating features.

고온용 송풍기는 특수설계로서 냉각용 디스크와 가드, 수냉식 배관을 갖춘 베어링 자켓 및 온도를 고려한 케이싱 구조를 갖습니다.
고온용 송풍기는 공정이 정지된 후 송풍기 케이싱내의 온도가 약 65℃이하로 떨어질때까지 운전을 하여 임펠러, 축에 변형이 일어나지 않도록 해야 합니다.

A shaft cooling wheel and guard, bearing housing with water jacket, plus other fan modifications are made.
As a precautionary measure, the fan should operate after process is shut down until the temperature within the fan casing is 65℃. Inasmuch as, the shaft cooling wheel offers no bearing protection when the fan is not in operation.



Cooling Wheel and Guard

● 특수 도장 및 재질 (PROTECTIVE COATINGS & SPECIAL METALS)

산업용 송풍기의 경우, 부식성 가스나 마모성이 강한 분체의 이송등에 사용됩니다. 따라서 기계의 오랜 수명과 보전비용을 줄이기 위하여 특수 도장이나 재질을 고려할 수 있습니다. 이러한 용도를 위하여 에폭시나 기타 특수 도료를 적용할 수 있습니다.

Many industrial fan applications involve the handling of corrosive fumes or abrasive materials. For such duties, the use of special protective coatings or metals is often justified by longer fan life and reduced maintenance costs.

강한 부식성에 대비하여 천연 또는 특수 합성고무를 이용하여 케이싱 내부에 코팅하는 방법을 적용할수도 있습니다.

Various types of protective coatings are used. Special rubber covered fans are also available with either natural and synthetic rubber.

특수 도장을 적용하여도 만족스럽지 못한 결과를 얻는 경우, 특수 재질을 선택 적용할 수 있습니다. 이러한 경우, 스태인레스스틸 또는 각종 합금강이 각 용도에 맞추어 케이싱, 임펠러 또는 샤프트에 선택적으로 고려될 수 있습니다.

Fans constructed of special metals such as stainless steel or special alloys are used in applications where a standard fan with a special coating will not give satisfactory results.

● 불꽃발생 방지 송풍기 (SPARK RESISTANT FANS)

폭발성 가스를 취급하는 경우 송풍기는 이에 대비한 구조를 갖도록해야 합니다. 미국 AMCA의 규격에 의한 구조는 다음과 같습니다.

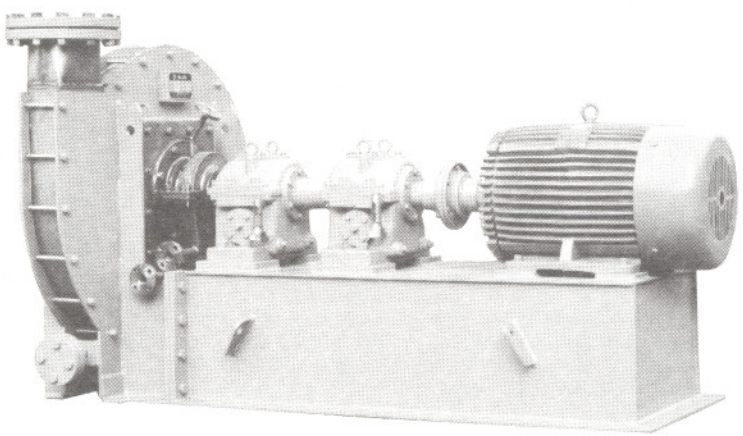
Type A … 모든 가스 접촉부에 비철금속재 사용.
Type B … 임펠러와 케이싱의 축 관통부에 비철금속재 사용.
Type C … 샤프트의 편심에 의한 두 철금속 부품의 마찰을 방지하기 위해 비철금속재 사용.

송풍기는 전기적으로 접지되어야 하며, 방폭형 전동기 정전기 방지 벨트등이 부가적으로 적용될 수 있습니다.

Industial Fans must be built of non-ferrous metals to meet the AMCA Standards of spark-resistant construction as defined below:

Type A … all parts of fan exposed to the air stream to be built of non-ferrous materials.
Type B … non-ferrous wheel and rubbing where shaft projects through the fan casing.
Type C … non-ferrous inserts to prevent rubbing of two ferrous parts due to shift of shaft on wheel.

Fans must be installed with all fan parts electrically grounded. Explosion-proof motors and static resistant belts may also be required by the application.



A Cl_2 gas transferring blower made of titanum casing and impeller with special labyrinth shaft seal

■ 표준공기상태 이외의 송풍기 성능 보정 (CORRECTION OF FAN PERFORMANCE FOR OTHER THAN STANDARD AIR CONDITIONS)

다음 기본 공식은 주어진 설계 사양에 대하여 성능 변화의 관계를 보여줍니다. 즉, 취급공기나 기체가 표준상태가 아닐 경우, 즉, 기압 760mmHg, 온도 20℃의 공기 (비중량 1.205kg/m³) 또는 기존의 시스템에서 송풍기 성능을 변화시켜야 하는 경우, 다음의 공식을 이용하여 각 변수들의 상관관계를 이해하는 것이 필요합니다.
단, 아래의 공식은 기존 덕트시스템이 변화하지 않는 것을 전제로 적용됩니다.

The following basic fan laws relate performance variables for any fan of a given design. An understanding of the relationships is necessary to select fans when they are handling air or gas which is different than standard, e.g., 100% Air, 20℃, 760mmHg of Atmospheric pressure with 1.205kg/m³ of specific weight or when fan performance adjustments must be made on existing system. Both of these laws, including the above apply to a given unchanged dust system.

1. 기체 비중량이 변화하는 경우 (GAS SPECIFIC WEIGHT VARIABLE - CONSTANT SPEED)

■흡입 기체가 대기압이외의 경우 (When gas is not under atmospheric pressure)

$$\text{Pressure} = \text{Pressure}_1 \times \frac{760}{P_{abs}}, \quad L_1 = L \times \frac{P_{abs}}{760}$$

■흡입 공기가 20°C이외의 경우 (When gas is not at 20°C)

$$\text{Pressure} = \text{Pressure}_1 \times \frac{T + 273}{293}, \quad L_1 = L \times \frac{293}{T + 273}$$

■흡입 가스가 공기 이외의 경우 (When gas has the different specific weight from that of air)

$$\text{Pressure} = \text{Pressure}_1 \times \frac{1.205}{\gamma}, \quad L_1 = L \times \frac{\gamma}{1.205}$$

■상기 경우가 중복되는 경우 (When gas is under the above two conditions)

$$\text{Pressure} = \text{Pressure}_1 \times \frac{760}{P_{abs}} \times \frac{T + 273}{293} \times \frac{1.205}{\gamma}$$

$$L_1 = L \times \frac{P_{abs}}{760} \times \frac{T + 293}{T + 273} \times \frac{\gamma}{1.205}$$

■상기 경우, 풍량은 변화하지 않음. (Gas volume, m³/min remains unchanged.)

Where,	Pressure	: 760mmHg, 20°C의 공기로 환산한 풍압	Static Pressure of Standard Air at 20°C, 760mmHg
	Pressure_1	: 사용상태의 풍압	Pressure at Actual Condition
	P_{abs}	: 가스의 절대 압력	Absolute Pressure of Gas
	T	: 가스의 온도	Actual Temperature
	γ	: 가스의 비중량	Specific Weight of Gas
	L	: 선정도표에 의한 전동기 출력	Motor Power from Selection Table
	L_1	: 소요 전동기 출력	Required Motor Power

2. 회전수 변화에 따른 성능의 예측 (SPEED VARIABLE - CONSTANT AIR DENSITY)

■풍 량 (Volume, CMM) ..... 회전수에 비례 (Varies directly as the ratio of the speeds.)

$$CMM_2 = CMM_1 \times \frac{RPM_1}{RPM_2}$$

■풍 압 (Pressure) ..... 회전수 제곱에 비례 (Varies directly as the square of the speeds ratio.)

$$Pressure_2 = Pressure_1 \times \left(\frac{RPM_1}{RPM_2}\right)^2$$

■소요 동력 (Brake Horsepower) ..... 회전수 세제곱에 비례 (Varies directly as the cube of the speed ratio.)

$$BHP_2 = BHP_1 \times \left(\frac{RPM_1}{RPM_2}\right)^3$$

■비 속 도 (SPECIFIC SPEED)

송풍기에서 비속도(Ns)는 특성, 형식, Impeller 선정, 동일 송풍기 기종 상호간의 비교를 하는데 꼭 필요한 수치입니다.

일반적으로, 풍량이 많고 압력이 낮으면 Ns가 커지며 Impeller 외경에 대하여 출구폭이 넓어지며, 압력이 높고 풍량이 적으면 Ns가 작아지며 Impeller 외경에 대하여 출구폭이 좁아집니다.

비속도는 다음의 식으로 구합니다.

Specific speed, Ns is an important factor in selecting an impeller type and comparing its fan characteristics.

Generally, when the air volume is increased and the pressure is decreased, Ns will become greater, and the exit opening of the blade will be wider. By the same token, when the air volume is decreased, the pressure increased, the opposite will result.

$$Ns = \frac{N \times Q^{\frac{1}{2}}}{H^{\frac{3}{4}}}, \quad \text{Where}$$

Ns : Specific Speed
N : Revolution (rpm)
Q : Air Volume (m^3/min)
H : Head (m)

아래 표, Table 1. 에서 비속도를 간단히 구할 수 있으며, Table 2. 는 Impeller 모양 및 효율의 개략치를 보여줍니다.

Specific speed is calculated by the above equation or can simply be obtained from the following chart, Table 1.

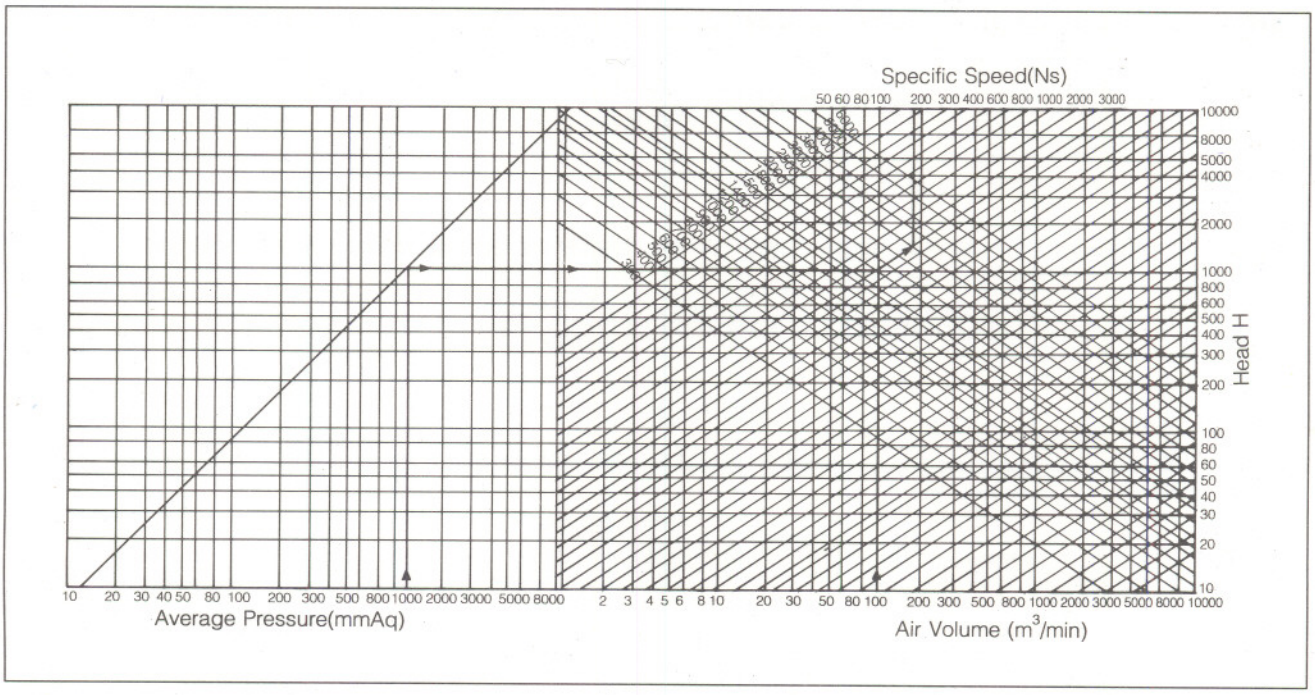


Table 1. Specific speed, Ns

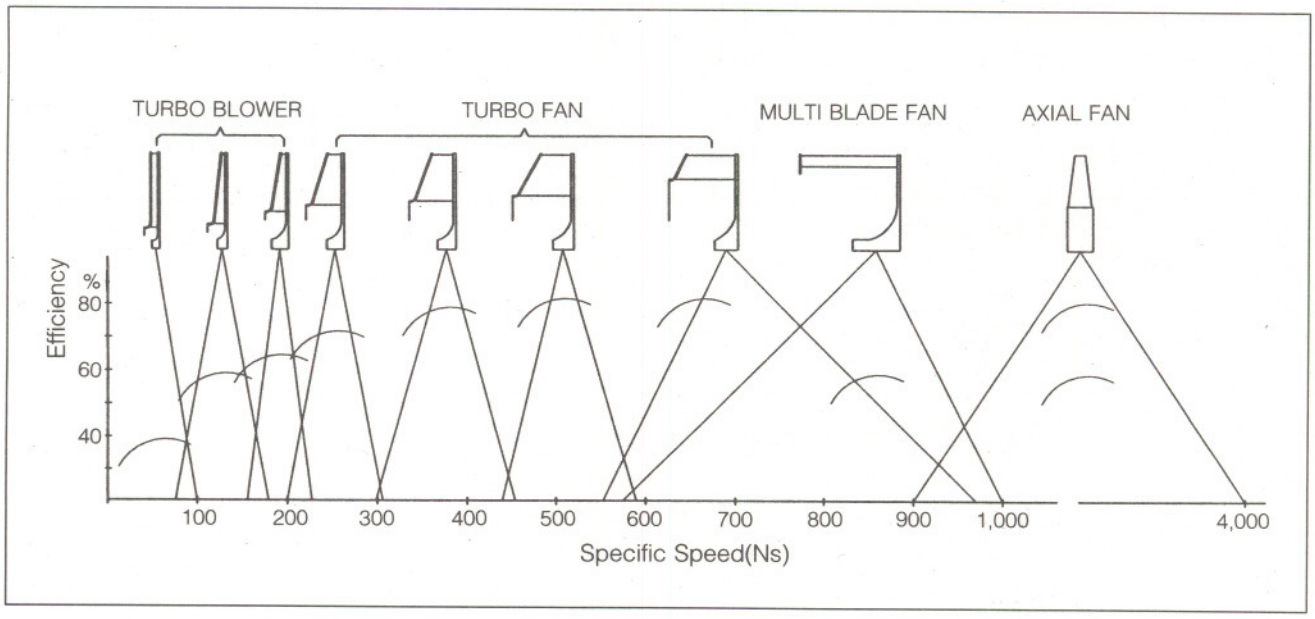
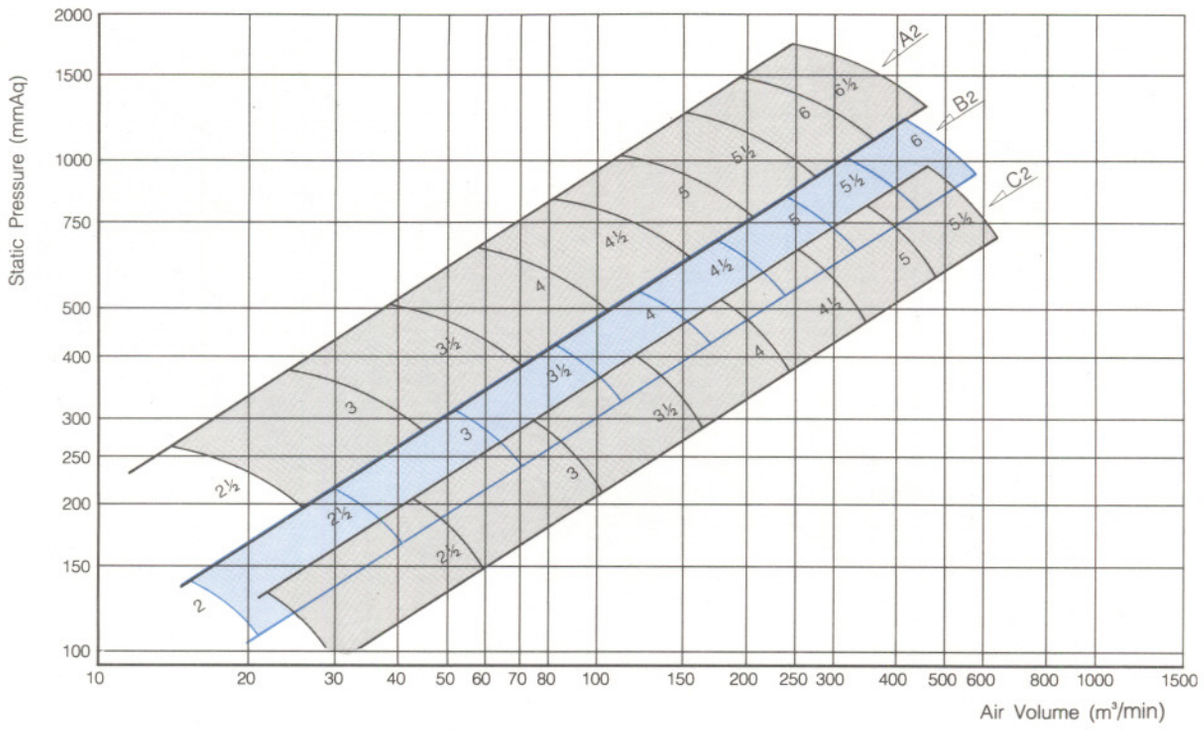


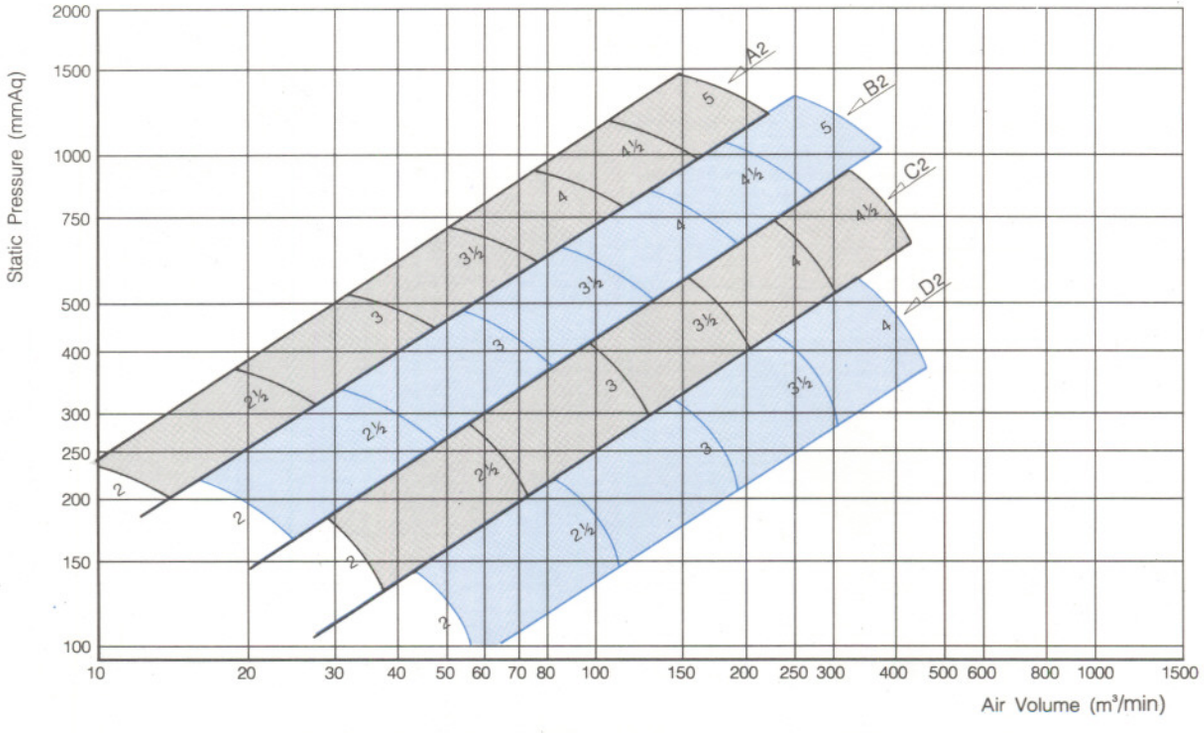
Table 2. Specific speed and normal efficiency by the impeller configuration

■ SELECTION CHART FOR YTF-BK SERIES

50 HZ - 2P

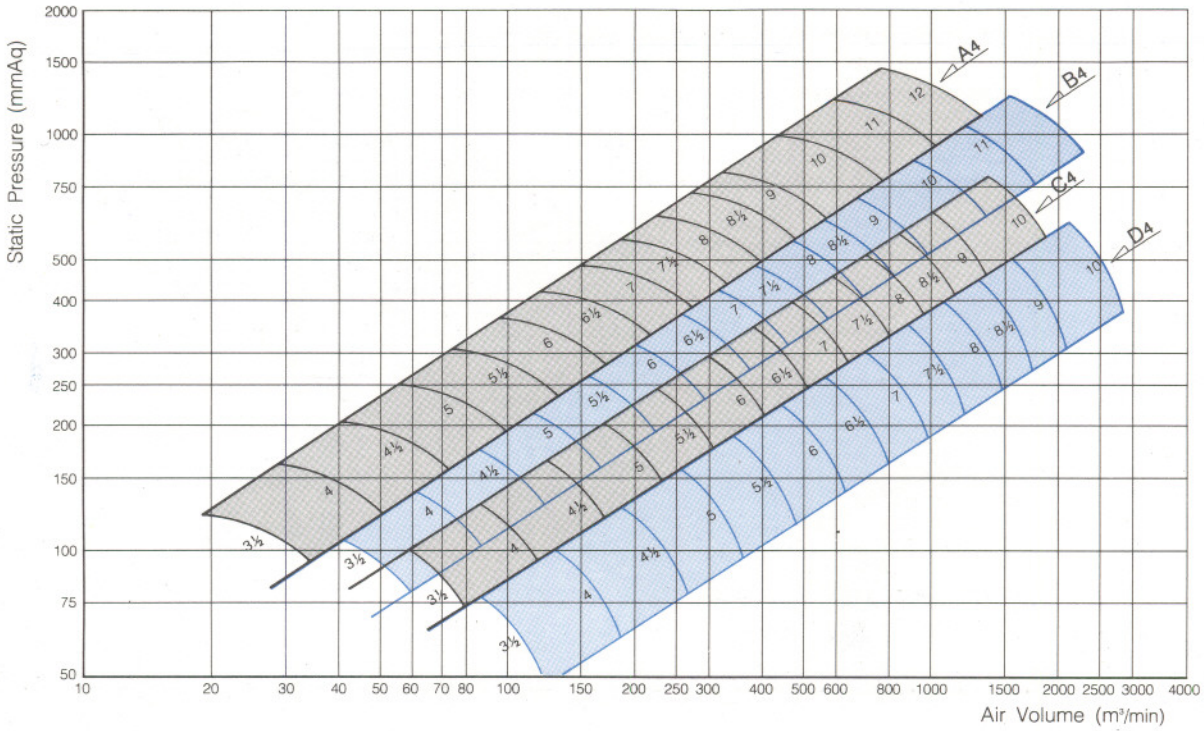


60 HZ - 2P

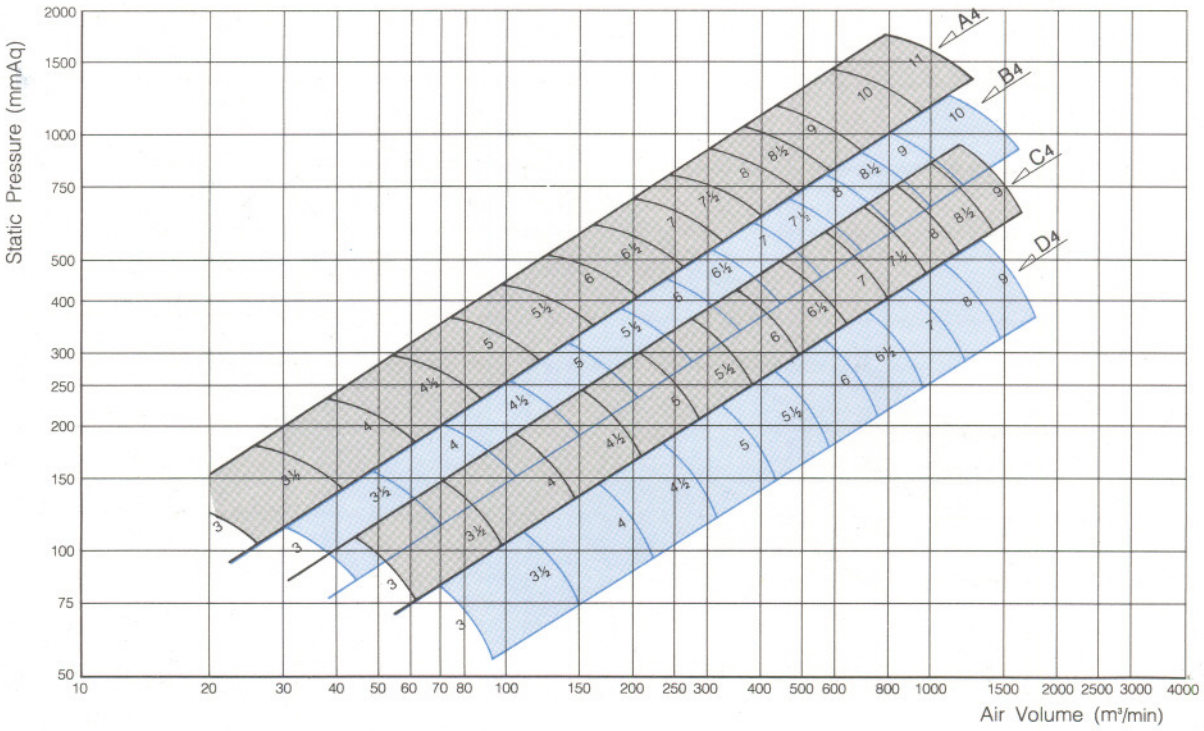


* 상기 도표는 20℃ 표준공기상태를 기준으로 작성되었습니다.

50 HZ - 4P

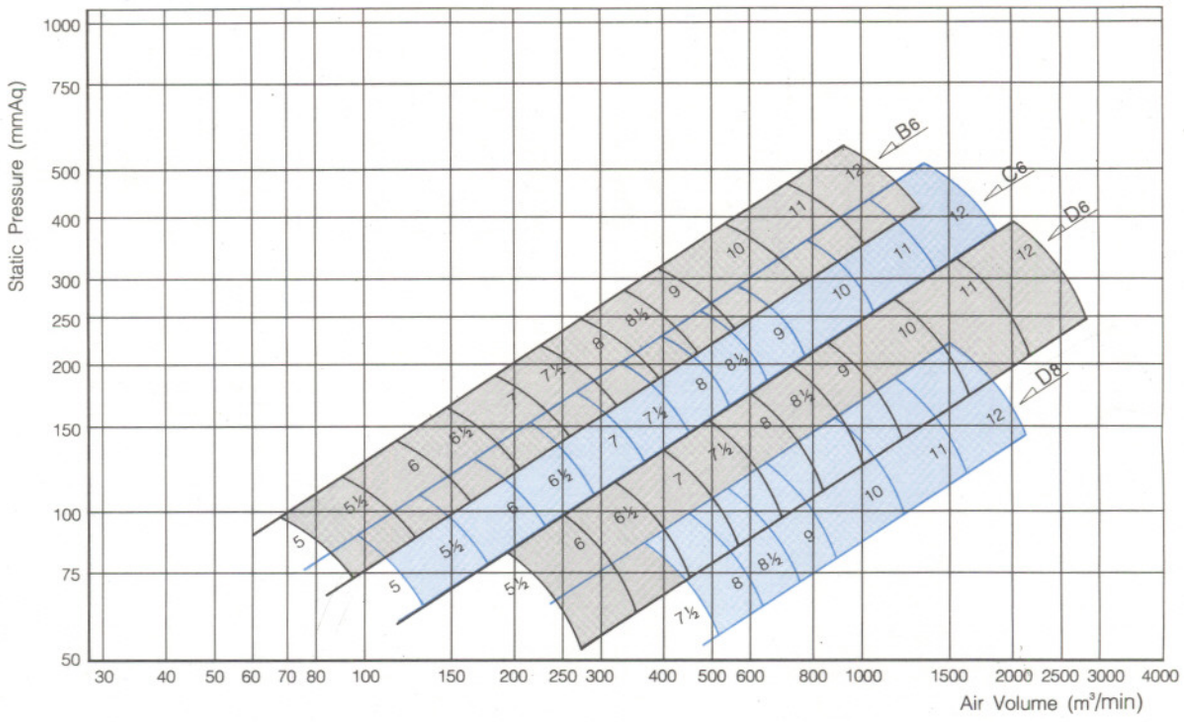


60 HZ - 4P

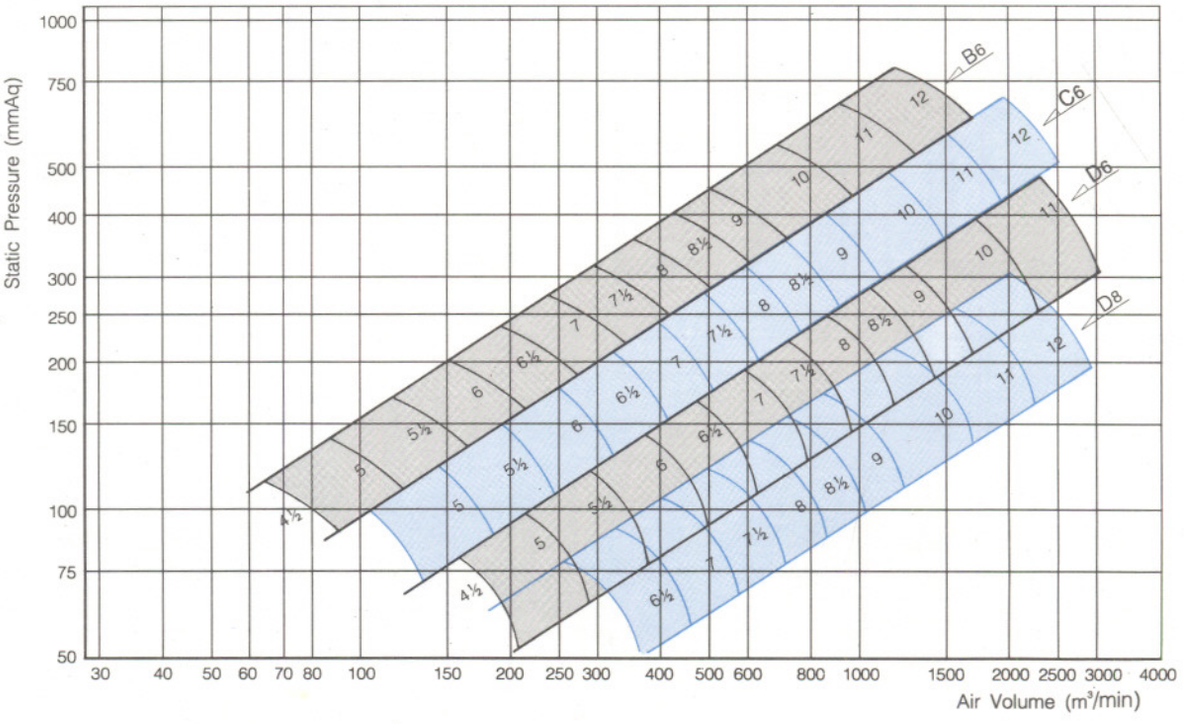


* The chart is based on the standard air conditions, e.g., 100% air at 20℃, 760mmHg of atmospheric pressure with 1.205kg/m^3 of specific weight.

50 HZ - 6P, 8P

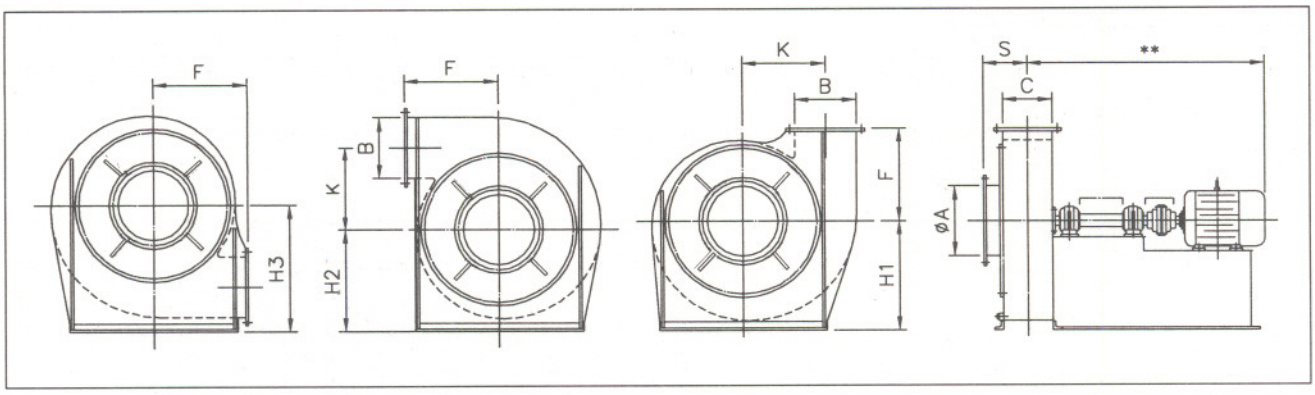


60 HZ - 6P, 8P

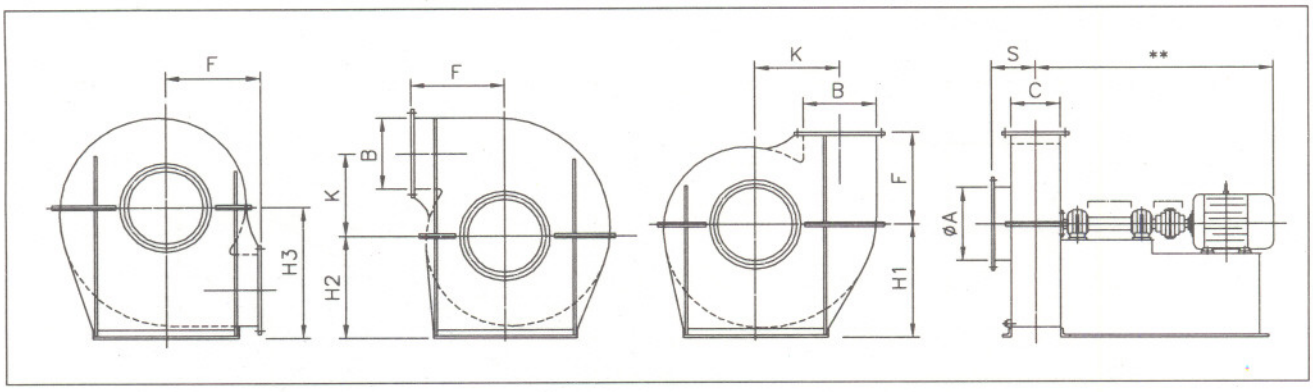


* 상기 도표는 20℃ 표준공기상태를 기준으로 작성되었습니다.

■ YTF – BK – A type



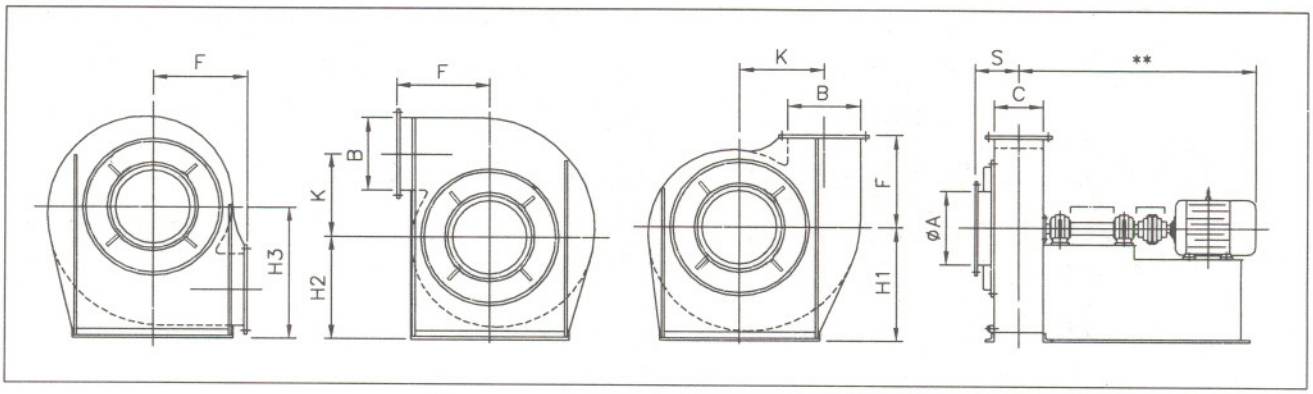
	A	B	C	H1	H2	H3	F	K	S
YTF-BK-2.0	150	140	110	300	250	350	210	190	100
YTF-BK-2.5	200	180	140	350	300	450	270	235	130
YTF-BK-3.0	250	210	170	400	360	500	320	280	150
YTF-BK-3.5	300	250	200	450	410	600	370	330	170
YTF-BK-4.0	300	280	220	510	460	650	420	375	200
YTF-BK-4.5	350	320	250	570	520	700	480	420	220
YTF-BK-5.0	400	350	280	640	580	800	530	470	250
YTF-BK-5.5	450	390	310	700	650	850	580	515	270
YTF-BK-6.0	450	420	330	750	700	950	630	560	300
YTF-BK-6.5	500	460	360	810	750	1000	690	610	320



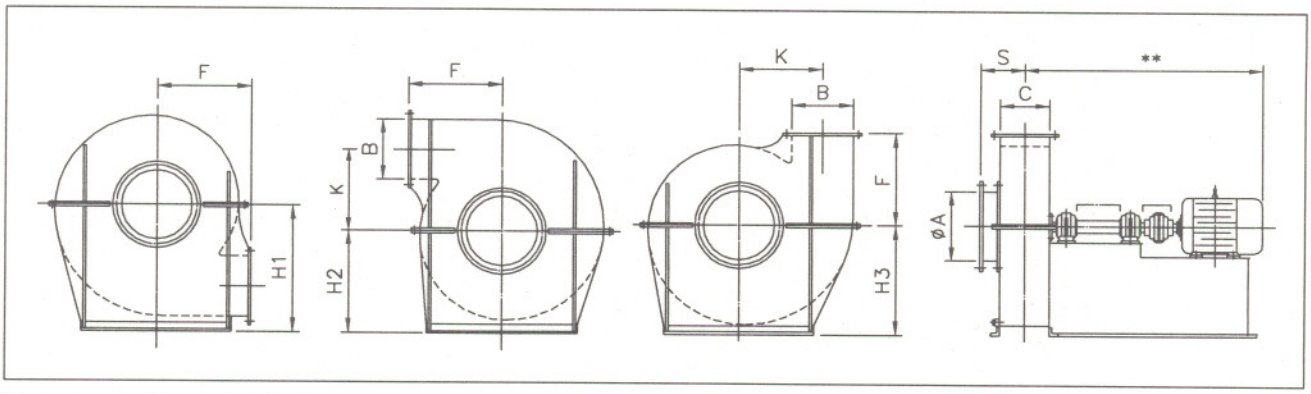
	A	B	C	H1	H2	H3	F	K	S
YTF-BK-7.0	550	490	390	870	800	1050	740	655	350
YTF-BK-7.5	600	530	420	930	850	1150	790	705	370
YTF-BK-8.0	650	560	440	1000	900	1200	840	750	390
YTF-BK-8.5	700	600	470	1050	950	1300	900	795	420
YTF-BK-9.0	800	630	500	1100	1000	1400	950	845	440
YTF-BK-10.0	850	700	550	1200	1100	1500	1050	935	490
YTF-BK-11.0	900	770	610	1300	1200	1600	1160	1030	540

1) The marked dimension **shall be determined by the dimension of the motor.
2) The dimensions are subject to change due to increase in performance and/or customer's request.

■ YTF – BK – B type



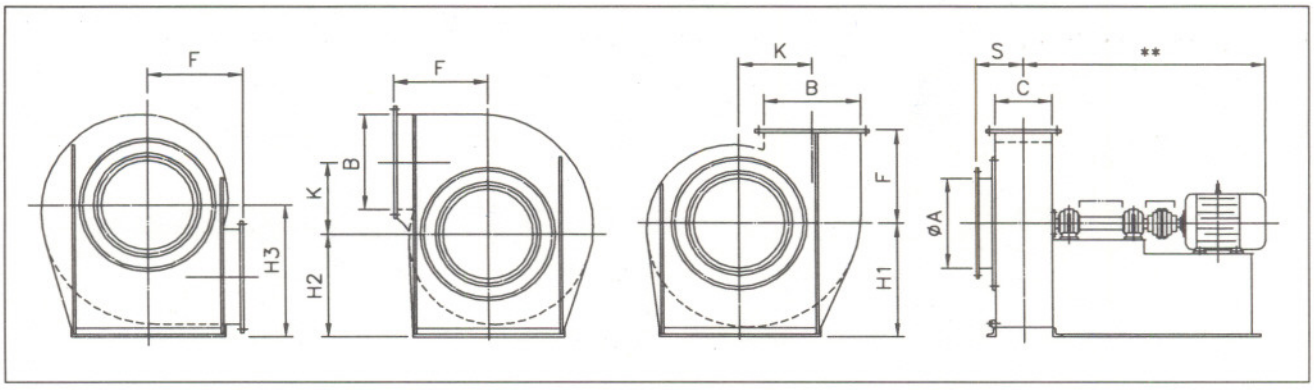
	A	B	C	H1	H2	H3	F	K	S
YTF-BK-2.0	200	180	150	300	300	400	240	210	130
YTF-BK-2.5	250	230	190	370	350	500	300	260	160
YTF-BK-3.0	300	270	230	450	400	550	350	310	190
YTF-BK-3.5	350	320	270	500	450	650	410	370	220
YTF-BK-4.0	400	360	300	570	500	700	470	420	260
YTF-BK-4.5	450	410	340	650	550	800	530	470	290
YTF-BK-5.0	500	450	380	730	630	900	590	420	320
YTF-BK-5.5	550	500	420	800	700	950	650	570	350
YTF-BK-6.0	600	540	450	850	750	1050	710	620	380
YTF-BK-6.5	650	590	490	920	800	1100	760	680	410



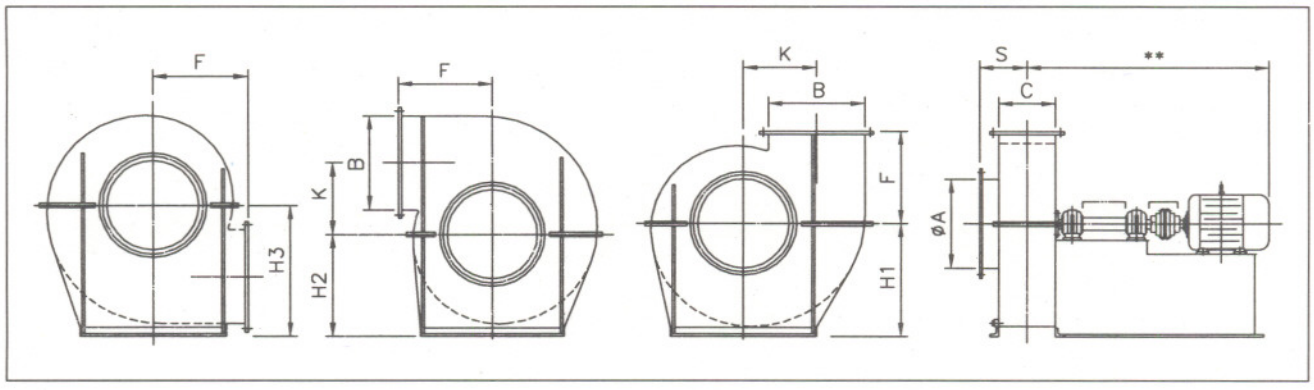
	A	B	C	H1	H2	H3	F	K	S
YTF-BK-7.0	700	630	530	980	850	1200	820	725	440
YTF-BK-7.5	750	680	570	1050	900	1250	880	775	480
YTF-BK-8.0	800	720	600	1120	1000	1350	940	830	510
YTF-BK-8.5	850	770	640	1190	1050	1400	1000	880	540
YTF-BK-9.0	900	810	680	1250	1100	1500	1050	930	570
YTF-BK-10.0	1000	900	750	1380	1200	1650	1170	1035	630
YTF-BK-11.0	1100	990	830	1500	1300	1800	1290	1140	700
YTF-BK-12.0	1200	1080	900	1650	1450	1950	1400	1245	760

1) **표시부 칫수는 사용전동기 칫수에 따라 결정됩니다.
2) 상기 촌법은 성능향상 또는 주문주의 요구에 의하여 변경될 수 있습니다.

■ YTF – BK – C type



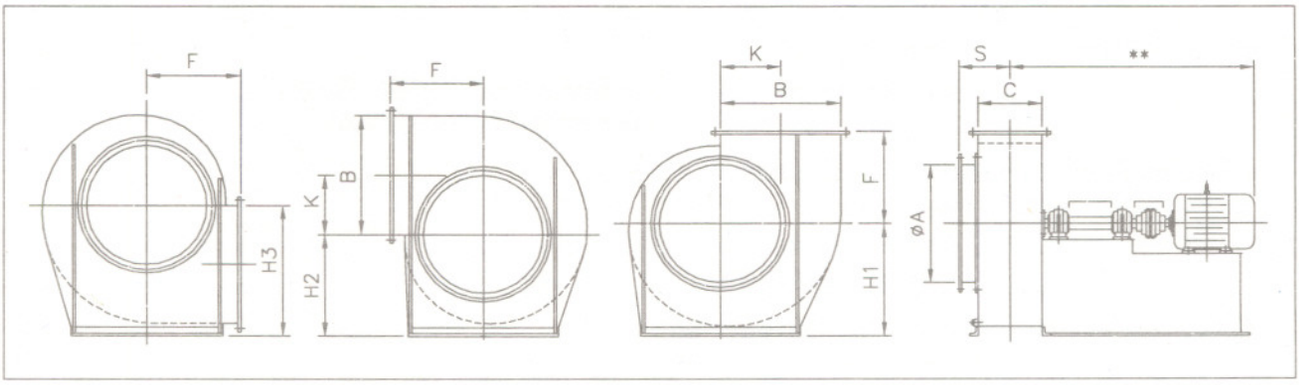
	A	B	C	H1	H2	H3	F	K	S
YTF-BK-2.0	250	240	180	300	300	400	270	180	140
YTF-BK-2.5	300	300	230	370	350	500	300	230	170
YTF-BK-3.0	350	360	270	450	400	550	350	270	210
YTF-BK-3.5	400	420	320	500	450	650	410	320	240
YTF-BK-4.0	450	480	360	570	500	700	470	360	280
YTF-BK-4.5	550	540	410	650	550	800	530	410	310
YTF-BK-5.0	600	600	450	730	630	900	590	450	350
YTF-BK-5.5	650	660	500	800	700	950	650	500	380
YTF-BK-6.0	700	720	540	850	750	1050	710	540	410
YTF-BK-6.5	750	780	590	920	800	1100	760	590	440



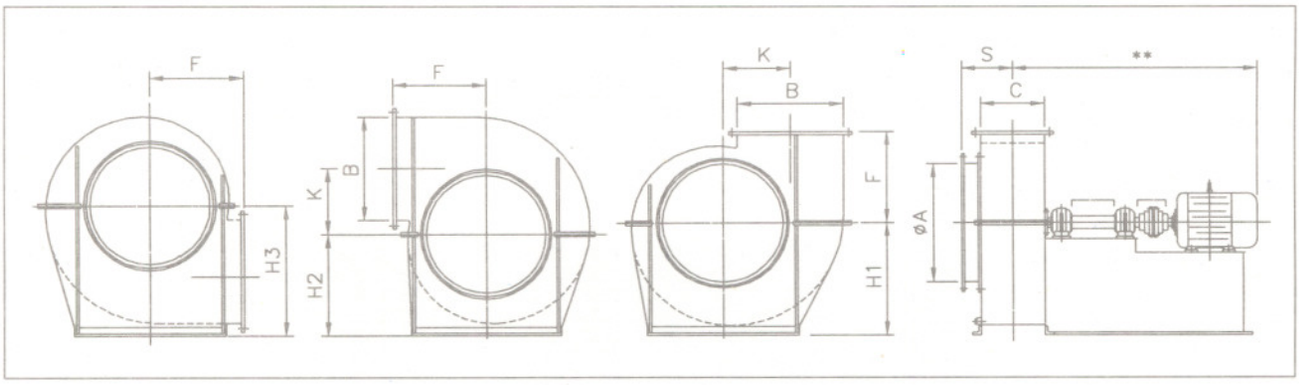
	A	B	C	H1	H2	H3	F	K	S
YTF-BK-7.0	850	840	630	980	850	1200	820	630	480
YTF-BK-7.5	900	900	680	1050	900	1250	880	680	510
YTF-BK-8.0	950	960	720	1120	1000	1350	940	720	540
YTF-BK-8.5	1000	1020	770	1190	1050	1400	1000	770	580
YTF-BK-9.0	1050	1080	810	1250	1100	1500	1050	810	610
YTF-BK-10.0	1200	1200	900	1380	1200	1650	1170	900	680
YTF-BK-11.0	1300	1320	990	1500	1300	1800	1290	990	750
YTF-BK-12.0	1450	1420	1080	1650	1450	1950	1400	1080	810

1) The marked dimension **shall be determined by the dimension of the motor.
2) The dimensions are subject to change due to increase in performance and/or customer's request.

■ YTF – BK – D type



	A	B	C	H1	H2	H3	F	K	S
YTF-BK-2.0	300	330	210	330	300	450	240	180	150
YTF-BK-2.5	400	420	270	400	350	550	300	230	190
YTF-BK-3.0	450	500	320	480	450	600	350	270	230
YTF-BK-3.5	550	580	370	550	500	700	410	320	260
YTF-BK-4.0	600	660	420	620	550	800	470	360	300
YTF-BK-4.5	700	750	480	700	600	850	530	410	340
YTF-BK-5.0	750	830	530	800	700	950	590	450	390
YTF-BK-5.5	850	910	580	850	750	1050	650	500	410
YTF-BK-6.0	950	990	630	920	800	1150	710	570	450
YTF-BK-6.5	1000	1080	690	1000	850	1200	760	590	490

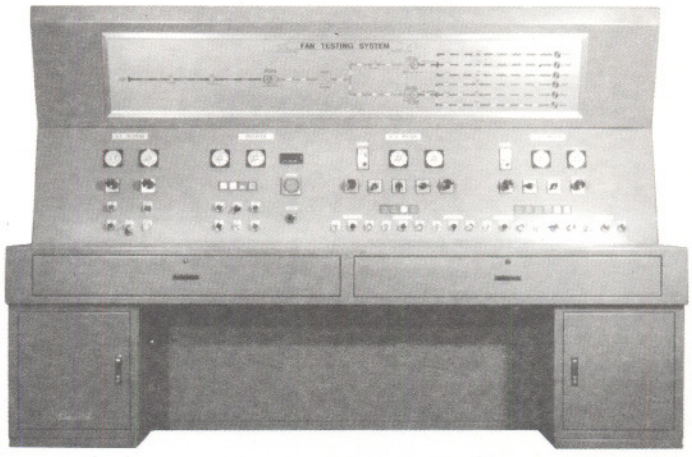


	A	B	C	H1	H2	H3	F	K	S
YTF-BK-7.0	1000	1050	740	1050	950	1300	820	580	520
YTF-BK-7.5	1150	1130	790	1150	1000	1400	880	620	560
YTF-BK-8.0	1250	1200	840	1200	1050	1500	940	660	600
YTF-BK-8.5	1300	1280	900	1300	1100	1550	1000	705	640
YTF-BK-9.0	1400	1350	950	1350	1150	1650	1050	815	670
YTF-BK-10.0	1550	1500	1050	1650	1300	1800	1170	900	750
YTF-BK-11.0	1700	1650	1160	1800	1450	1950	1290	995	820
YTF-BK-12.0	1850	1800	1260	2000	1650	2150	1400	1080	900

1) **표시부 칫수는 사용전동기 칫수에 따라 결정됩니다.
2) 상기 촌법은 성능향상 또는 주문주의 요구에 의하여 변경될 수 있습니다.

■ 송풍기 시험 설비 (FAN TESTING FACILITY)

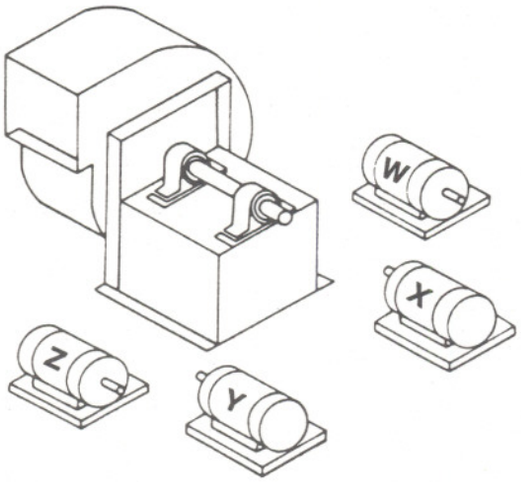
- **Power Source** 1000KVA
  Inverter System 750KVA (6600V, 4160V, 3300V)
  500KVA (440V, 380V, 220V)
- **Electric Power Measuring Equipments**
  Watt-Meter
  Ammeter
  Voltage Meter and etc.
- **Air Volume and Pressure Measuring Devices**
  Pitot Tubes
  U-type Manometer
  Inclined Manometer
- **Measuring Devices for Mechanical Running**
  Tachometer
  Vibration Meter
  Sound Level Meter
  Temperature Gage and Recorder
  Dynamic Balancing Machine
- **Test Ducts** 24 Sets Up to ϕ 2000A
- **Field Test Devices**
  Anemomaster
  Potable Field Balancer
  Potable Vibration Analyser
  Black Light
- **Application Code for Fan Testing**
  KS B6311 & KS B6350 (JIS B8330 & JIS B8340)



Yujin's Inverter Controlled Fan Testing Board

AMCA STANDARD ARRANGEMENTS AND DISCHARGES

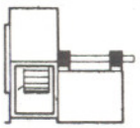
MOTOR POSITION, BELT DRIVE



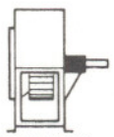
Lostion of motor is determined by facing the drive side of fan and designating the motor positions by letters W, X, Y, or Z as the case may be.

ARRANGEMENTS OF DRIVE FOR CENTRIFUGAL FANS

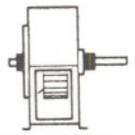
The following tables illustrate designations for fan drive operation adopted by the Air Movement and Control Association.



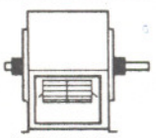
ARR. 1 SWSI
For belt drive or direct connection. Wheel overhung. Two bearings on base.



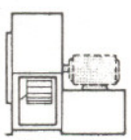
ARR. 2 SWSI
For belt drive or direct connection. Wheel overhung. Bearings in bracket supported by fan housing.



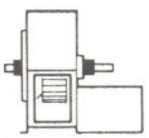
ARR. 3 SWSI
For belt drive or direct connection. One bearing on each side and supported by fan housing. Net recommended in sizes 27-inch diameter wheel and smaller.



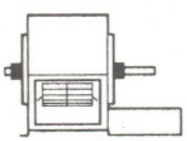
ARR. 3 DWDI
For belt drive or direct connection. One bearing on each side and supported by fan housing.



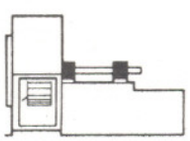
ARR. 4 SWSI
For direct connection. Wheel overhung on prime mover. shaft. No bearings on fan. Prime mover mounted on base integrally attached to fan housing.



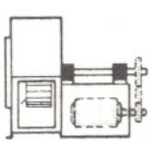
ARR. 7 SWSI
For direct connection. Arrangement 3 plus base for prime mover. Not recommended in sizes 27-inch diameter wheel and smaller.



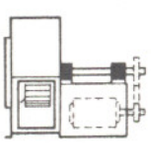
ARR. 7 DWDI
For direct connection. Arrangement 3 plus base for prime mover.



ARR. 8 SWSI
For direct connection. Arrangement 1 plus extended base for prime mover.



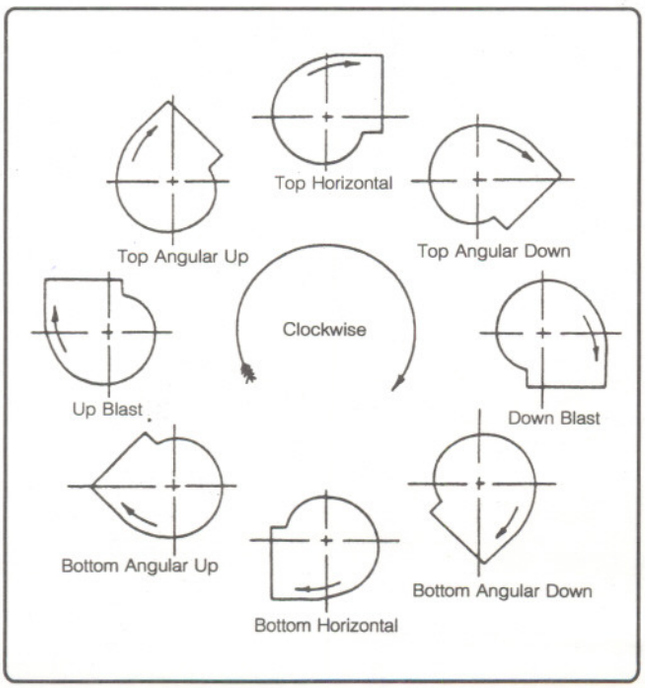
ARR. 9 SWSI
For belt drive. Wheel overhung, two bearings, with prime mover outside base

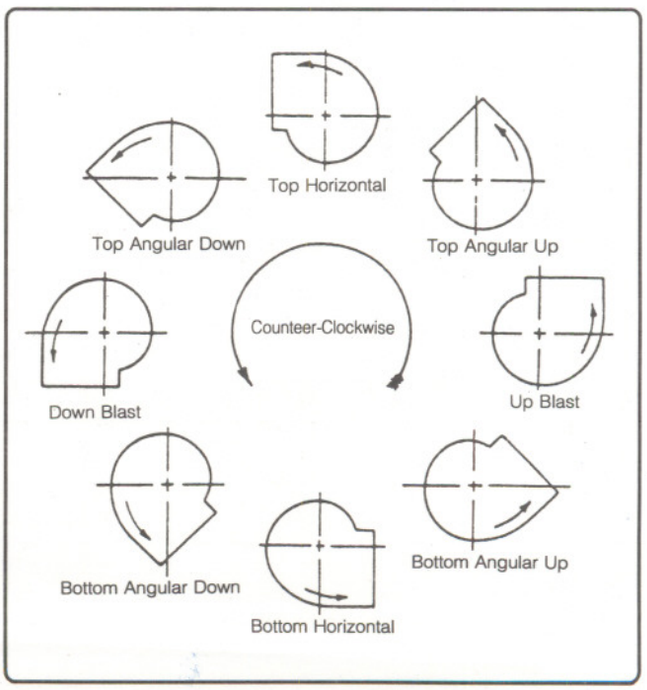


ARR. 9 SWSI
For belt drive. Wheel overhung, two bearings, with prime mover outside base

DESIGNATION FOR DIRECTION OF ROTATION AND DISCHARGE

Direction of Rotation is determined from drive side for either single or double width, or single or double inlet fans.
(The driving side of a single inlet fan is considered to be the side opposite the inlet regardless of actual location of the drive.)
For fan inverted for ceiling suspension, Direction of Rotation and Discharge is determined when fan is resting on floor.





Conversion Table of Unit

Pressure

Pa	mbar	atm	kg/cm^2	mmH_2O	mmHg	Torr	lb/in^2
1	0.01	9.86923×10^{-6}	1.01972×10^{-5}	0.101972	7.50062×10^{-3}	7.50062×10^{-3}	1.450×10^{-4}
100	1	9.86933×10^{-4}	1.01972×10^{-3}	10.1972	0.750062	0.750062	0.0145
101325	1013.25	1	1.0332	10332	760	760	14.696
98066.5	980.665	0.96784	1	10000	735.559	735.559	14.223
9.80665	9.80665×10^{-2}	9.67841×10^{-5}	1×10^{-4}	1	0.07355	0.07355	1.4223×10^{-3}
133.322	1.33322	1.31579×10^{-3}	1.35951×10^{-3}	13.5951	1	1	1.934×10^{-2}
6894.9	68.949	0.06805	0.07031	703.1	51.679	51.679	1

Flow Rate

m^3/s	m^3/min	m^3/h	ft^3/min
1	60	3600	0.5886
1/60	1	60	35.3165
1/3600	1/60	1	2118.99
4.719×10^{-4}	0.02832	1.6989	1

Mass Flow Rate

kg/s	t/h	lb/s
1	3.6	2.20462
0.27778	1	0.612395
0.453592	1.63293	1

Density

g/cm^3	kg/m^3	lb/in^3	lb/ft^3
1	1000	0.03613	62.4283
0.001	1	3.613×10^{-5}	0.06243
27.6797	27679.7	1	1728
0.01602	16.0184	5.787×10^{-4}	1

Viscosity

Pa·s	cP	P
1	1000	10
0.001	1	0.01
0.1	100	1

Stress

Pa	N/mm^2	kg/mm^2	kg/cm^2
1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
1×10^{6}	1	1.01972×10^{-1}	10.1972
9.80665×10^{6}	9.80665	1	100
9.80665×10^{4}	9.80665×10^{-2}	0.01	1

Kinematic Viscosity

m^3/s	cSt	St
1	1×10^{6}	1×10^{4}
1×10^{-6}	1	0.01
1×10^{-4}	100	1

Power

kW	PS	HP	kg.m/s
1	1.3596	1.3405	101.97
0.7355	1	0.9859	75
0.746	1.0143	1	76.07
0.009807	0.01333	0.01315	1

Lenghth

mm	cm	m	in	ft	yd
1	0.1	0.001	0.03937	3.281×10^{-3}	1.0936×10^{-3}
10	1	0.01	0.3937	0.032808	0.010936
1000	100	1	39.37	3.2808	1.0936
25.4	2.54	0.0254	1	0.0833	0.02778
304.8	30.48	0.3048	12	1	0.3333
914.4	91.44	0.9144	36	3	1

Moment of Inertia

WK^2 or WR^2 J ($kg\text{-}m^2$)	WK^2 or WR^2 ($lb\cdot ft^2$)	GD^2($kg\text{-}m^2$)
1	23.73	4
0.04214	1	0.168563
0.25	5.93	1

Temperature

°C = 5 / 9 (°F − 32)
°F = 32 + (9 / 5 × °C)

Yujin Engineering & Mfg. Co., Ltd.

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TEL. +82.2.752.1511 FAX. +82.2.757.5759 e-mail yujine@unitel.co.kr

SUBMITTAL INFORMATION SHEET

SENDER		DATE	
COMPANY		SERVICE	
TEL. NO.		ITEM NO.	
FAX. NO.		Q'TY	

PERFORMANCE DATA

GAS CONDITION		VOLUME	m^3/min
KIND		STATIC PRESSURE INLET	mmAq
COMPOSITION		OUTLET	mmAq
TEMPERATURE	℃	TOTAL	mmAq
SPECIFIC W/T	Kg/m^3	NOISE LEVEL	dBA
DUST CONTENT	mg/m^3		

OPERATION CONDITION ☐ 24HRS CONTINUOUS ☐ OTHERS ( )

INSTALLATION ☐ INDOOR ☐ OUTDOOR

FAN CONSTRUCTION

FAN TYPE
- ☐ TURBO FAN
- ☐ AIRFOIL FAN
- ☐ PLATE FAN
- ☐ MULTI-BLADE FAN
- ☐ AXIAL FAN
- ☐ OTHER ( )

MATERIAL
- CASING ☐ SS400 ☐
- IMPELLER ☐ SS400 ☐
- SHAFT ☐ SM45C ☐

SHAFT SEAL :

FAN ARRANGEMENT ☐ SINGLE INLET ☐ DOUBLE INLET ☐ INLET BOX
☐ V-BELT ☐ COUPLING ☐ MOTOR DIRECT
☐ AMCA ARRNAGEMENT NO.

ACCESSORY TABLE

☐ DAMPER	☐ INLET	☐ OUTLET	☐ MATING FLANGE	☐ YUJIN STANDARD
☐ VANE CONTROL				☐ OTHERS ( )
☐ DAMPER ACTUATOR ( )			☐ DRAINAGE	
☐ FLEXIBLE JOINT	☐ INLET	☐ OUTLET	☐ MANHOLE	
VIBRATION ISOLATOR	☐ RUBBER	☐ SPRING	☐ ANCHOR BOLT/NUT	
☐ SILENCER	☐ INLET	☐ OUTLET	☐ SAFETY COVERS	
☐ INLET FILTER			☐ OTHERS	
☐ CASING LAGGING				

MOTOR

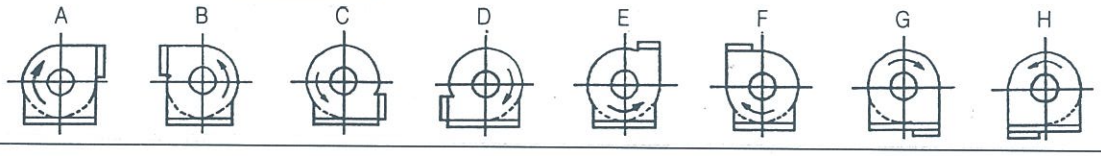
FURNISHED BY ☐ YUJIN ☐ PURCHASER MAKER :

TYPE ☐ TEFC ☐ EXPLOSION PROOF (CLASS)

SPECIFICATION : VOLTAGE : V, FREQUENCY : Hz, INSULATION CLASS :

ACCESSORIES :

NOZZLE ORIENTATION VIEWED FROM SUCTION SIDE



REMARKS

\YUJIN\SPEC.HWP ＊＊＊PLEASE SEND THIS FORM TO YUJIN SALES DIV. AT FAX : +82.2.757.5759 : ＊＊＊

Major Products

- Turbo Fan
- Turbo Blower
- Airfoil Fan
- Radial Plate Fan
- Axial Fan
- Jet Fan
- Multi Blade Fan
- Multi Stage Turbo Blower
- Roof Ventilator

株式會社 唯 進 技 研 社

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