Mild Fan General Catalog

CMF

TERAL

Triple e series

60Hz

TERAL INC.

Applications

CMF3-SOB (No.2 to 6)
- For air conditioning, equipment cooling and kitchen exhaust, etc.

CMF3-RS (No.6 1/2 or higher)
- For air conditioning, air supply and exhaust in factories, etc.

CMF3-OB
- For ventilation of heated air drying furnaces, dust collectors and sorting machines, equipment cooling, air supply, exhaust and air conditioning in factories, boiler forced draft fans (FDF), etc.

CMF3-HOH
- For furnaces and boilers forced draft fan (FDF), equipment cooling, etc.

CMFⅡ-VOH
- For dust collectors, paint booth exhaust, etc.

CMFⅡ-MOB
- For dust collector, induction (inducted draft fans, IDF), equipment cooling, dryers, etc.

CMFⅡ-RD
- For air conditioning and ventilation, etc., in building, apartment complexes, hospitals and schools, etc.

Features

CMF3-SOB (No.2 to 6)
- Energy saving fan equipped with top runner (equivalent to IE3) motor
- Lineup including CMF3L that offer superior performance for high air volume applications
  Blowing capacity boosted by around 10% using low-pressure compared with standard models
- Impeller GD2 reduced by around 30% compared with conventional models
- With use of heat-resistant specifications, fan available for gas of Max. 90°C
- Space-saving compared with OB type

CMF3-RS (No.6 1/2 or higher)
- Energy saving fan equipped with top runner (equivalent to IE3) motor
- Achieves high efficiency with high air flow, high pressure fan
  Newly developed impeller ideal for high air flow applications
- Operating noise lowered by between 2 and 7 dB compared with conventional models
- Can be selected with electric motors under 1 rank compared with conventional models
- Approximately 15% lighter than conventional models
- Relative space-saving with straddle mounted type

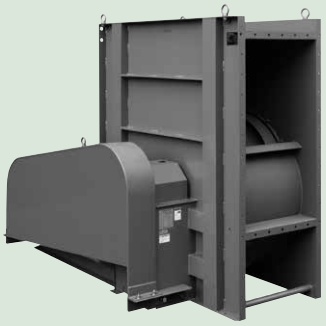
CMF3-OB
- Energy saving fan equipped with top runner (equivalent to IE3) motor
- Lineup including CMF3L that offer superior performance for high air volume applications (No.6 or lower)
  Blowing capacity boosted by around 10% using low-pressure compared with standard models
- Achieves 80% or higher efficiency with high air flow, high pressure fan (No.6 1/2 or higher)
  Can be selected with electric motors under 1 rank compared with conventional models
  In addition, can be selected with electric motors under 1 rank compared with conventional models
- Operating noise lowered by between 6 and 9 dB compared with conventional models
- Impeller GD2 reduced by around 30% compared with conventional models
- Standard specification available for using gas with temperature range of 0 to 90°C
- With use of heat-resistant specifications, fan available for gas of Max. 400°C (No.6 or lower)
  No.6 1/2 or higher available for gas of Max. 350°C

CMF3-HOH
- Energy saving fan equipped with top runner (equivalent to IE3) motor
- Impeller GD2 (inertia mass) reduced by around 28% with series average.
- Motor models added for expanded choice range (Special order model available for gas of Max. 150°C)
- Space-saving

CMFⅡ-VOH
- Space-saving

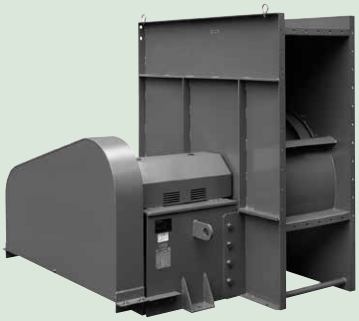
CMFⅡ-MOB
- Low vibration and high durability by direct coupling

CMFⅡ-RD
- Double inlet allows for high air flow and space-saving in vertical direction

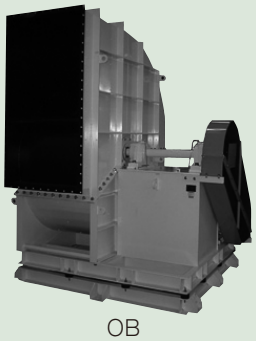


SOB

RS



OB



OB

HOH

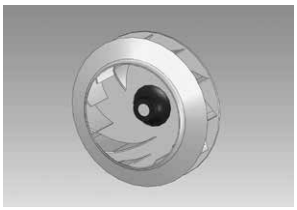
※Please note that the above image is a representative example and may differ partially from the actual device.

■Features

Energy Saving and Low Noise!!

●Contributes to energy conservation.

As fans consume a lot of energy and are important industrial products, fans finished to a high degree of perfection are always in demand. We have now developed the CMF3 series of high performance mild fans, offering low operating noise and vibrations in addition to high efficiency and reduced energy consumption. CMF3 feature 10% higher efficiency than our previous models to reach maximum efficiency of 85%. We hope the series will help customers with their energy-saving efforts.



Lightweight and Compact

Weight reduced by 30%!

We have achieved designs that are 30% lighter and more compact than our previous models.

High Efficiency and Low Noise

The impeller is designed based on the fluid design technologies we have developed over many years as well as cutting-edge fluid analysis and verification performed on actual equipment. In addition to the improved performance, we have also achieved lower operating noise. Operating noise has been reduced by 6dB compared with our previous models.

Safety Considerations

We have introduced quality control based on Section IX of the ASME international standard!

We have accurately calculated and evaluated impeller strength not only according to the base materials but by also analyzing the stress on welded joints and notches.
In addition, we have introduced quality control based on Section IX of the ASME standards for welds to ensure that our products can be used with peace of mind.

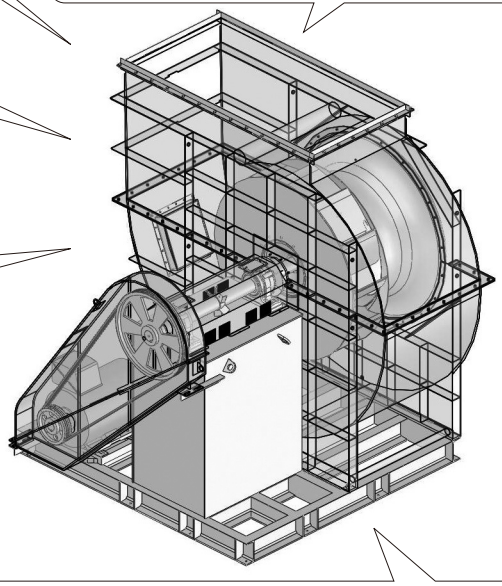
Limit Load Properties

We have developed the ideal impeller with limit load properties that are well suited in the high-pressure zone.

Reduced Inertia Mass

Up to 30% reduction!

We have achieved up to a 30% reduction in impeller inertia mass in the series by taking fluid characteristics as well as start-up performance into account.



Low Vibration

Throughly eliminating causes other than impeller unbalance!

Causes of vibrations in rotating machinery include unbalanced rotating bodies (impellers) and a unique frequency of vibration of the rotating body and bearing stand.
With the introduction of the latest eigenvalue analysis technologies we have used eigenvalues of the rotating body and bearing stand to develop a design that is higher than the maximum rotation frequency.

Patented Impeller with reduced stress concentration on the blades

……Example of Energy conservation Calculation……

Cost reduction of JPY2,793,900 when the total operating power is 1,382kW/h and 10hr/day for 300 days at a plant using nine units.

Example Calculations of Energy Saving Effects

	Previous Model	New Model
Total motor output	1382kW	1243kW
Output reduction	139kW – approx.. 10% reduction	
Operating conditions	10 hours / day, 300 days of operation per year 3,000 hours / year	
Electricity rate (per kWh)	6.7 yen / kWh ※1	
CO_2 emission intensity	0.339kg – CO_2 / kWh ※2	
Annual energy cost savings	2,793,900 yen	
Annual reduction in CO_2 emissions	Approx. 141 tons	

※1 Differs depending on electricity contract
※2 TEPCO' calculation (FY2006)

■Model type description

CMF3 - No.2 - TH - R - SOB - ND - e
① ② ③ ④ ⑤ ⑥ ⑦

①Mild Fan CMF3, CMF3L, CMFII
②Size
③Discharge Direction – TH: Top horizontal, TV: Top vertical, BH: Bottom horizontal, TUS: Top, upper diagonal 45°, BV: Bottom vertical
④Rotating Direction (viewed from motor pulley side) R:Right rotation, L:Left rotation
⑤Transmission Method - HOH-S: Direct driven (horizontal electric motor), VOH: Direct driven (vertical flange mounted motor), SOB:Belt driven (single suction overhang mounted impeller), RS: Belt driven (single suction straddle mounted impeller), OB: Belt driven (single suction overhang mounted impeller), MOB: Direct coupling (single suction overhang mounted impeller), RD: Belt driven (double inlet straddle mounted impeller)
⑥Installation Method – None: Standard (HOH / VOH only), B: Floor Type (SOB, RS, OB, MOB, RD)
A: No common base (SOB, RS, OB, RD), D: Floor type vibration-proof, I: Ceiling mounted vibration-proof, ND: Floor type vibration-proof (with seismic stopper), KI:Ceiling mounted vibration-proof(with seismic stopper), NI:Hanging frame type vibration-proof (with seismic stopper)
⑦Motor efficiency e: Top runner efficiency (equivalent to IE3)

Standard Specifications / Special Specifications / Standard Accessories / Special Accessories

● Standard specification, ◎ Special specification, — Not supported

Model				CMF3-SOB-e CMF3L-SOB-e	CMF3-RS -e	CMF3-OB-e CMF3L-OB-e	CMF3-OB -e	CMF3-HOH-e	CMFⅡ-VOH-e	CMFⅡ-MOB-e	CMFⅡ-RD-e
Size				No.2~6	No.6.5~10	No.2~6	No.6.5~12	No.2~6	No.2~6	No.2~6	No.2~8
Transmission method	Direct-coupled motor (including direct driven type)			—	—	—	—	●	●	●	—
	Belt driven	Single suction straddle mounted impeller		—	●	—	—	—	—	—	—
		Single suction overhang mounted impeller		●	—	●	●	—	—	—	—
		Double suction straddle mounted impeller		—	—	—	—	—	—	—	●
Handling gas temperature	Clean air	0 ~ 40℃		●	●	●	●	●	●	●	●
		41 ~ 90℃		●	—	●	●	●	—	●	—
		91 ~ 200℃		—	—	◎※1	◎※2	◎※3	—	◎※2	—
		201 ~ 250℃		—	—	◎※1	◎※4	—	—	◎※4	—
		251 ~ 350℃			—	◎※5	◎※5	—	—	◎※5	—
Structure	Impeller		Backward curved (Turbo)	●	●	●	●	●	●	●	●
	Bearing		Sealed type bearing	—	—	—	—	—	—	—	—
			Open type bearing	—	—	●	●	—	—	●	—
			Pillow block unit	●	●	—	—	—	—	—	●
	Suction port		Copper sheet winding	—	—	◎	◎	◎	—	◎	—
	Shaft seal		Sheet packing type	—	—	●	●	◎	—	●	—
			Bypass type	—	—	—	—	—	—	—	—
			Labyrinth (sheet packing)	—	—	◎	◎	—	—	◎	—
	Companion flange		Discharge side ※6	●	●	●	●	●	●	●	●
			Suction side ※6	●	●	●	●	●	●	●	●
	Casing	Drain	Socket attachment	●	●	●	●	●	—	●	●
			Socket mounting: with cock/valve	◎	◎	◎	◎	◎	—	◎	◎
		Inspection hole	Tightening by bolts and nuts	◎	◎	●	●	●	●	●	◎
			One-touch type	—	◎	—	◎	—	◎	◎	◎
		Plate thickness change	1 rank UP_ABC plate ※7	—	—	—	—	—	—	—	—
			1 rank UP_C plate only ※7	—	—	—	—	—	—	—	—
		Change to special discharge direction	Bottom Vertical (BV-R/BV-L) Upper diagonal 45° (TUS) Bottom diagonal 45° (BUS)	—	—	—	—	—	—	◎	◎
		Lagging	Nut mounting	—	◎	—	◎	—	—	◎	—
			Main part t=75mm	—	◎	—	◎	—	—	◎	—
		Split casing		—	◎※8	—	◎※8	—	—	◎※9	◎※9
	Bearing guard		Standard (sealed type)	●	●※10	●	●	—	—	●	—
			With inspection hole	◎	—	◎	◎	—	—	◎	—
			With acrylic inspection hole	◎	—	◎	◎	—	—	◎	—
			With one-touch inspection hole	◎	—	◎	◎	—	—	◎	—
	Belt guard		Made of steel plate (without back cover)	●	●	●	●	—	—	—	●
			Sealed type (with back cover)	◎	◎	◎	●	—	—	—	◎
			With rotation speed measuring hole	◎※11	●	◎	●	—	—	—	—
			With inspection hole	◎	◎	◎	●	—	—	—	◎
			With acrylic inspection hole	◎	◎	◎	◎	—	—	—	—
			With one-touch inspection hole	◎	◎	◎	◎	—	—	—	◎
			Front expand metal	◎	◎	◎	◎	—	—	—	●
			Split type	◎	◎	◎	◎	—	—	—	◎
			High safety type	◎	◎	◎	◎	—	—	—	◎
	V-belt		Change to red label	◎	◎	◎	●	—	—	—	◎
			Changed to energy-saving red label	◎	◎	◎	◎	—	—	—	◎
	Motor opposite side ※12			◎	◎	◎	◎	—	—	—	◎
	Lubrication pipes		Pulley side, opposite pulley side	◎	◎	◎	◎	—	—	◎	◎
	Common base		With base seat for post-installed anchor	—	◎	—	◎	◎	—	◎	◎
	Suction wire mesh		Standard material (SS400)	◎	◎	◎	◎	◎	◎	◎	◎
			Made of SUS304	—	—	◎	◎	◎	—	◎	—

※1 "Heat-resistant silver painting, internal clearance C3 bearing (opposite pulley side), with heat radiation vane" as a heat-resistant measure.
※2 "Heat-resistant silver painting, with heat radiation plate" as a heat-resistant measure.
※3 Handling gas temperature: Max. 150°C "with shaft seal"
※4 "Heat-resistant silver painting, with heat radiation vane" as a heat-resistant measure.
※5 "Heat-resistant silver painting, bearing internal clearance C3 (opposite pulley side), with heat radiation vane and cooling vane" as a heat-resistant measures.
※6 SOB/RS/RD types have rivet holes for duct fixing, while OB/HOH/VOH/MOB types do not.
※7 Select a turbo fan (CTF2/3), etc.
※8 The split casing is standard for No. 9 or higher.
※9 Available only for No. 4.5 or higher.
※10 Attached only on the pulley side. "Attached as standard for outdoor use, not for indoor use."
※11 No. 3 and 4 include a rotation speed measuring hole as standard.
※12 Applicable to TV only. Other items need to be considered each time.

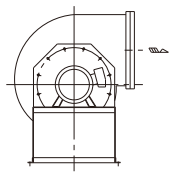
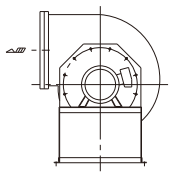
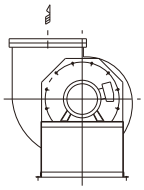
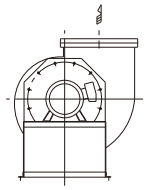
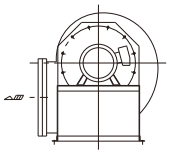
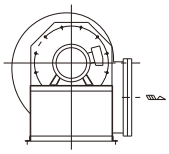
Standard Specifications / Special Specifications / Standard Accessories / Special Accessories

● Standard specification, ◎ Special specification, — Not supported

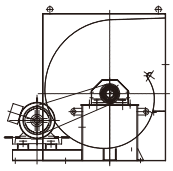
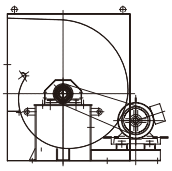
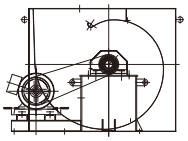
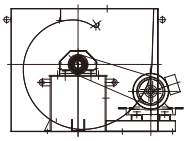
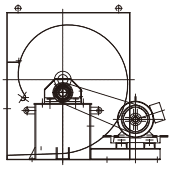
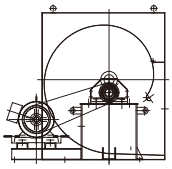
Model		CMF3-SOB-e CMF3L-SOB-e	CMF3-RS -e	CMF3-OB-e CMF3L-OB-e	CMF3-OB -e	CMF3-HOH-e	CMFⅡ-VOH-e	CMFⅡ-MOB-e	CMFⅡ-RD-e
Size		No.2~6	No.6.5~10	No.2~6	No.6.5~12	No.2~6	No.2~6	No.2~6	No.2~8
Material	Casing・impeller :SS400, SPHC, Main shaft :S45C (Motor shaft for HOH/VOH type is made of S35C)	—	—	—	—	—	●	●	●
	Casing : SS400, SPHC, impeller : SPHC, SM570 (High tensile strength steel plate) Main shaft : S45C(Motor shaft of HOH/VOH type is S35C)	●	●	●	●	●	—	—	—
	Casing/impeller/main shaft :SUS304 (※13, ※14)	—	—	◎	◎	◎※15	—	◎	—
	Casing/impeller/main shaft :SUS316 etc. (※13, ※14)	—	—	◎	◎	—	—	◎	—
	SUS304 other than gas-contact part (※13, ※16)	—	—	◎	◎	◎	—	◎	—
	Casing and impeller: steel part: S-TEN (sulfuric acid resistant steel) ※7	—	—	—	—	—	—	—	—
Installation location	Indoors (ambient temperature 0 to 40°C, relative humidity 85% or less)	●	●	●	●	●	●	●	●
	Outdoors (ambient temperature 0 to 40°C, relative humidity 85% or less)	◎	◎	◎	◎	◎	◎	◎	◎
Installation method	Floor type (B)	●	●	●	●	●	—	●	●
	Vibration-proof floor type (D/ND) ※17	◎	◎	◎	◎	◎	—	◎	◎
	Ceiling mounted type (G/I/KI) ※18	◎	—	◎	—	◎	—	—	◎
	Ceiling mounted type with vibration isolator (NI: Vibration-proof hanging frame type) ※17, ※18	◎	—	◎	—	◎	—	—	◎
	Equipment mounting	—	—	—	—	—	●	—	—
Electric motor	Totally-enclosed fan-cooled indoor type 3φ 200V IE3	●	●	●	●	●	●	●	●
	Totally-enclosed fan-cooled outdoor type	◎	◎	◎	◎	◎	◎	◎	◎
	Different voltage	◎	◎	◎	◎	◎	◎	◎	◎
	Increased safety explosion-proof/flameproof	◎	◎	◎	◎	◎	◎	◎	◎
Painting ※19	Painting on the inside and outside surfaces: Polyester resin-based powder coating 7.5BG5/1 5	●	●	●	●	●	●	●	●
	Heat-resistant silver painting	—	—	◎	◎	◎	—	◎	—
	Epoxy resin coating ※20	◎	◎	◎	◎	◎	◎	◎	◎
	PVC coating	◎	◎	◎	◎	◎	◎	◎	◎
	Salt-resistant coating	◎	◎	◎	◎	◎	◎	◎	◎
	Specified paint color	◎	◎	◎	◎	◎	◎	◎	◎
	Common base (B·D base) Hot-dip galvanization (zinc-doped)	◎※21	◎	◎※21	◎※21	◎※21	—	◎	◎

※7 Select turbo fan (CTFⅡ/3), etc.
※13 Parts made of Stainless steel are, in principle, unpainted.
※14 It is also possible to change the material of only specified parts. (e.g. only the impeller is made of SUS316, while the casing and main shaft is made of SUS304.)
※15 Except for main shaft. Available only for HOH-S, and unavailable for HOH-F.
※16 This applies to base, bearing stand, belt guard, bearing guard, and coupling guard. (Depends on the model.)
※17 Available with vibration isolation rubber, spring vibration isolator and earthquake-resistant stopper bolt.
※18 Available only for No. 4 or less.
※19 Motor manufacturer's painting specification is applied to the motor.
※20 Epoxy resin painting is not available for outdoor installation. For outdoor installation, if equivalent corrosion resistance is required, salt-resistant painting can be used.
※21 Hot dip-galvanization is applied to vibration absorber base (D base) only.

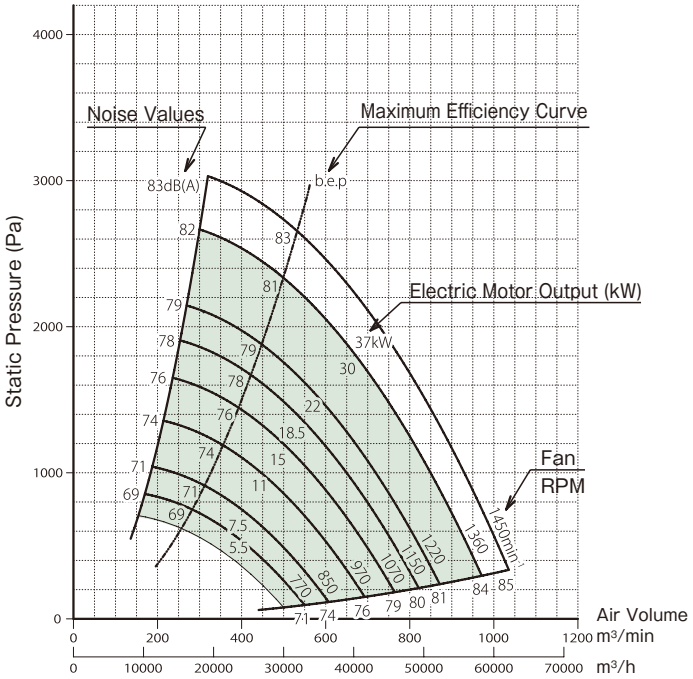
■Discharge Rotation Direction (viewed from electric motor side)

	R (right rotation)	L (left rotation)
1	TH-R (top horizontal discharge) 	TH-L (top horizontal discharge) 
2	TV-R (top vertical discharge) 	TV-L (top vertical discharge) 
3	BH-R (bottom horizontal discharge) 	BH-L (bottom horizontal discharge) 

■Discharge Rotation Direction (viewed from pulley side)

	R (right rotation)	L (left rotation)
1	TH-R (top horizontal discharge) 	TH-L (top horizontal discharge) 
2	TV-R (top vertical discharge) 	TV-L (top vertical discharge) 
3	BH-R (bottom horizontal discharge) 	BH-L (bottom horizontal discharge) 

■How to use selection chart (Example) CMF3-No.6



Fan performance is indicated with figures measured in accordance to JIS B 8330 Testing methods for turbo-fans.
As the performance curves shown in this catalog are all shown under standard conditions (air conditions with temperature of 20℃, absolute pressure of 101.3 kPa, and relative humidity of 65%), when gases temperatures is other than 20℃, please make selections according to the pressures derived from the following formula.

$$P' = P \times \frac{\text{Absolute Temperature} + t}{\text{Absolute temperature} + 20} = P \times \frac{273 + t}{293}$$

Where
P': Static pressure to be applied to the selection chart (static pressure at 20℃) (Pa)
P : Required static pressure at t ℃ (Pa)
t : Suction air temperature (℃)

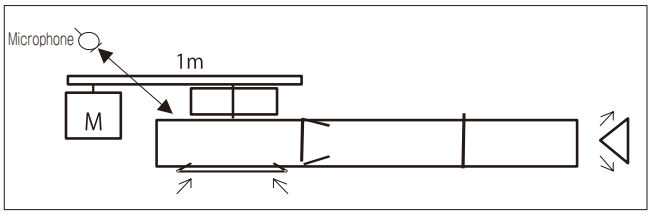
When the suction air temperature drops below 20℃, please make allowances for the electric motor outputs described in the catalog based on "3.5% when 10℃" and "7.5% when 0℃" as a guide.

■Precautions for inverter operation

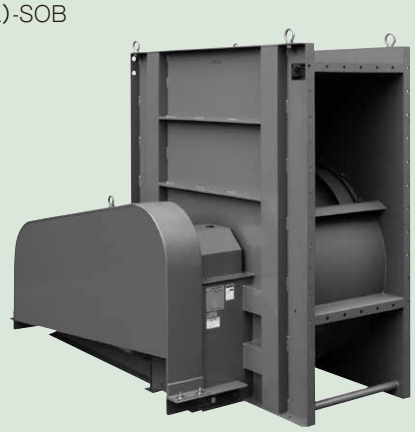
(1)When you use a product with an inverter, please notify us of this fact before placing an order. Inverter operation may not be possible using an electric motor according to standard specifications.
(2)The factory settings of commercial available inverters are not suitable for fans. When using an inverter with the factory settings, abnormal vibrations or fans damage may occur.
Please make sure to reference the following information and configure the inverter settings before operation.
Abnormal operation may be solved by modifying the inverter settings.
<Inverter Setting Values (for reference purposes)>
①Basic Frequency: Set to specification frequency (frequency listed on the nameplate)
②Maximum Frequency: Set to specification frequency (frequency listed on the nameplate)
③Maximum Output Voltage: Set to rated voltage of the electric motor
④Upper Limit Frequency: Set to specification frequency (frequency listed on the face plate)
⑤Lower Limit Frequency: If operated at a frequency lower than 25-30 Hz, the electric motor may not run, may generate heat and inverter output may become unstable.
⑥V/F Characteristics: Set to torque reduced by a factor of 2)
⑦Acceleration / Deceleration Time: Set to 30-40 seconds. If started or stopped in a shorter time, the inverter may trip.
(3)When using with an inverter, please check that there are no abnormalities under any of the frequencies to be used during trial operation. If operated under conditions with abnormal vibrations, fan damage or other issues may occur. To avoid abnormal vibration, make the settings of the inverter to enable the frequency jump function for eigenvalue of the resonance frequency values of the fan, motor, fan + base.

■Noise Values

●Suction end open, discharge connected to duct
●Sound from side at a position one meter away from the main unit
●Displayed on decibel dB (A) scale



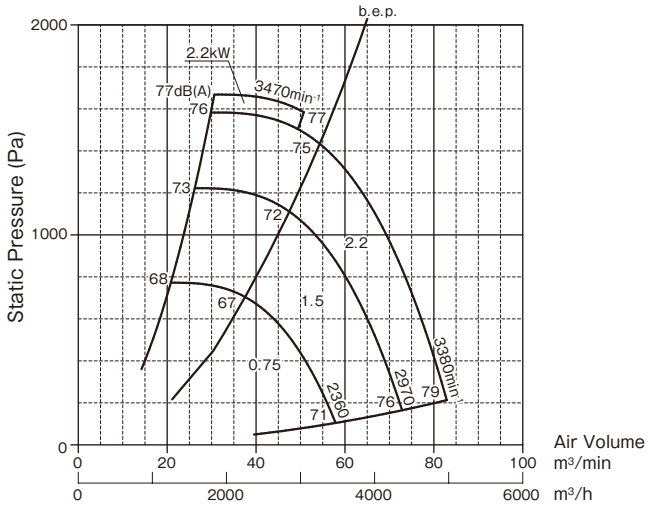
CMF3(L)-SOB



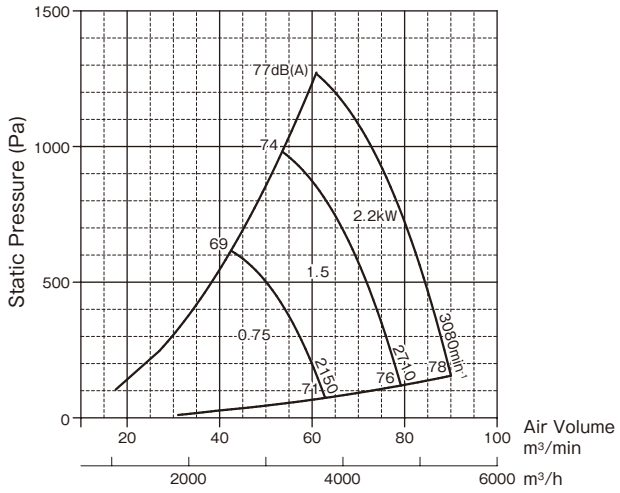
※Please note that the above image is a representative example and may differ partially from the actual device.

■Selection chart

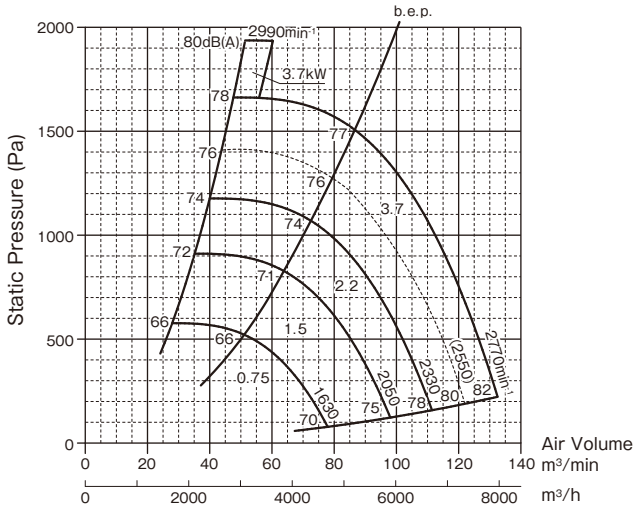
CMF3-No.2



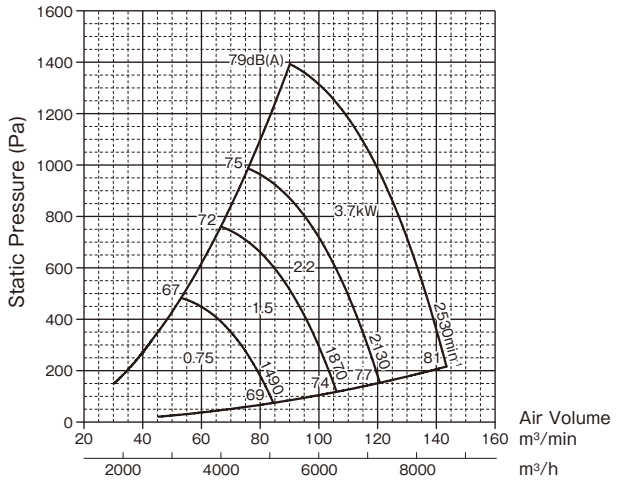
CMF3L-No.2



CMF3-No.2½

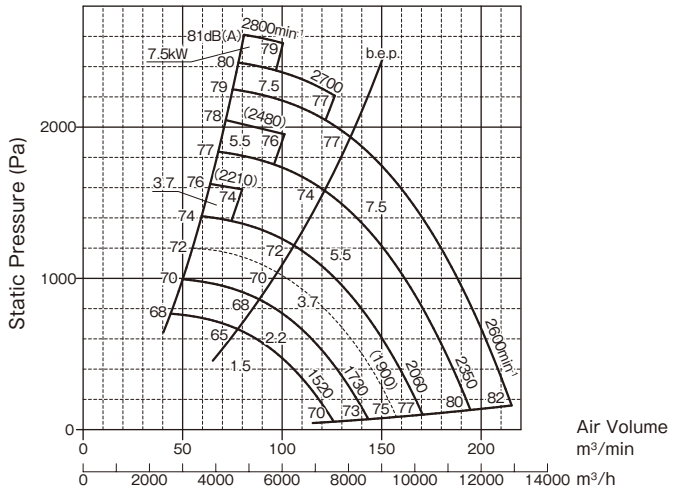


CMF3L-No.2½

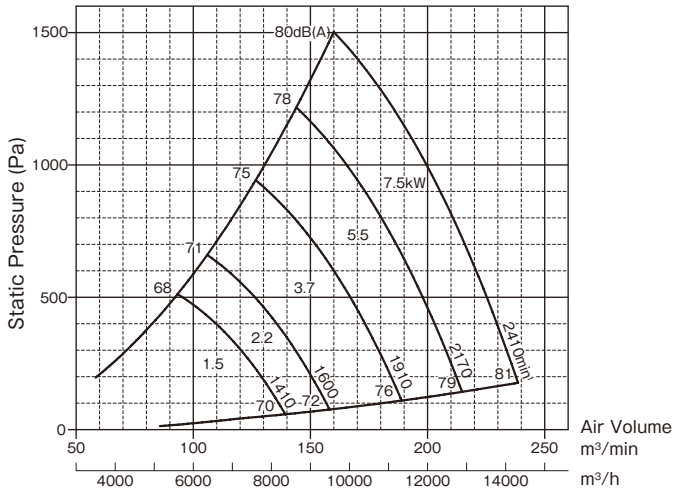


■Selection chart

CMF3-No.3



CMF3L-No.3



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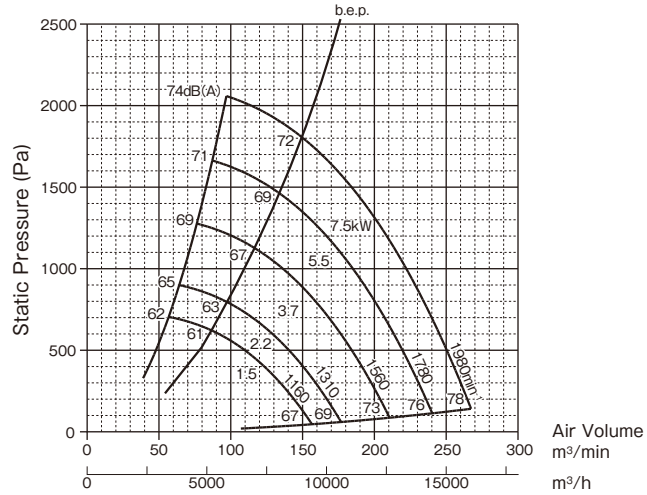
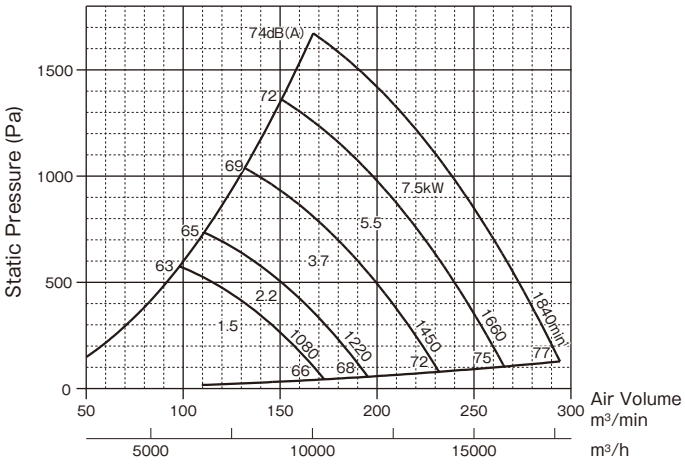


CMF3L-No.3½



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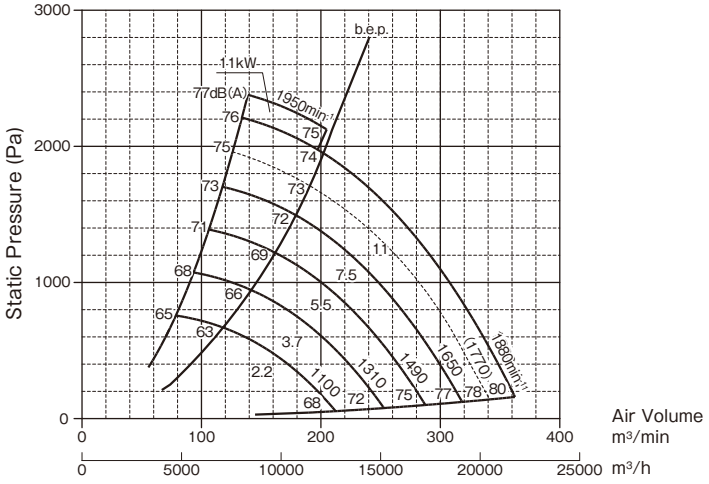
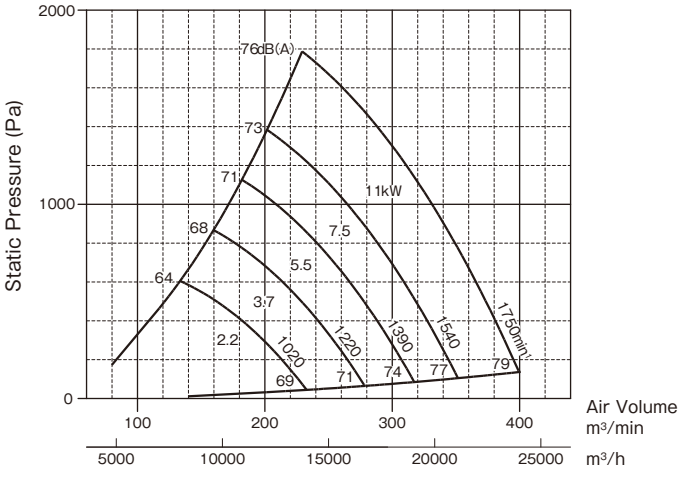
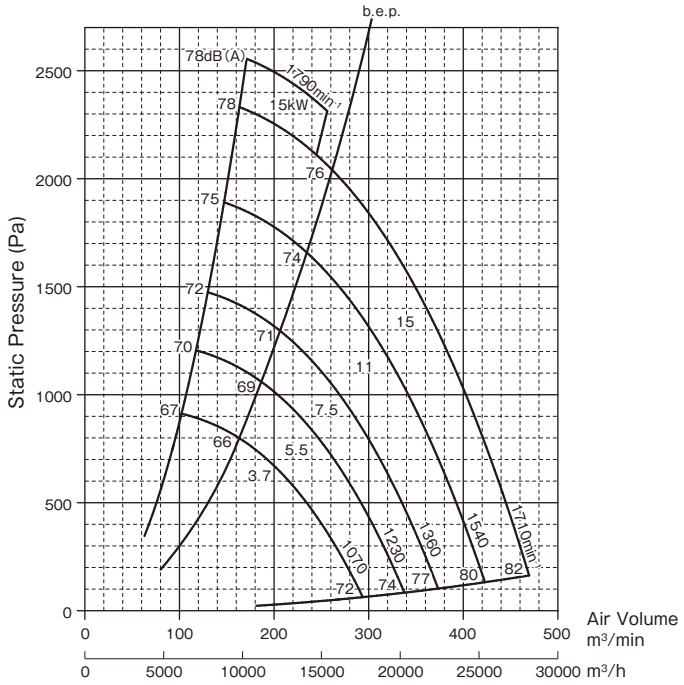


CMF3L-No.4



Selection chart

CMF3-No.4½



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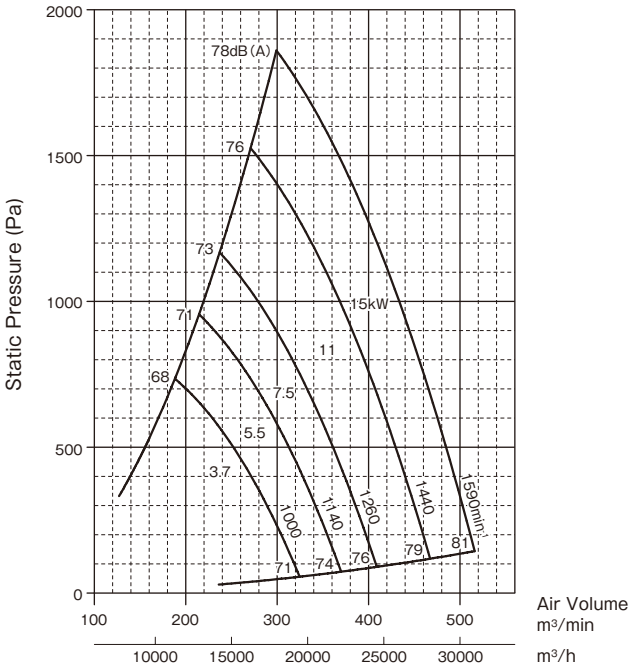

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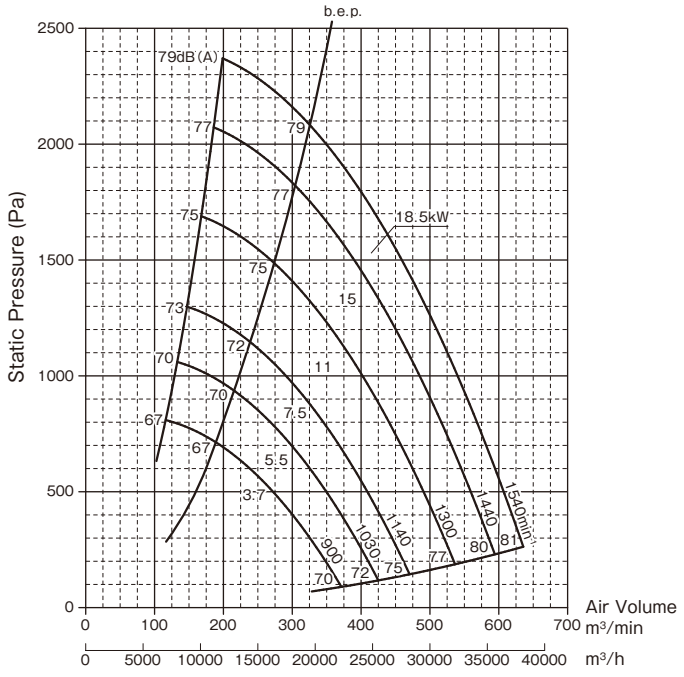
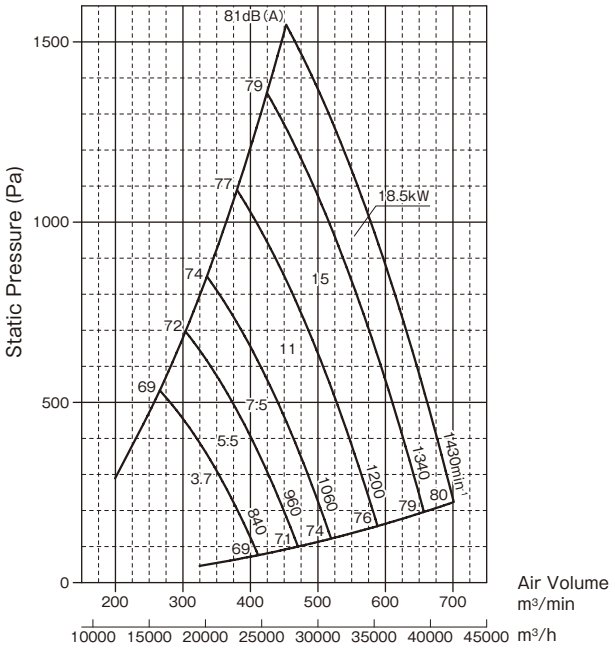
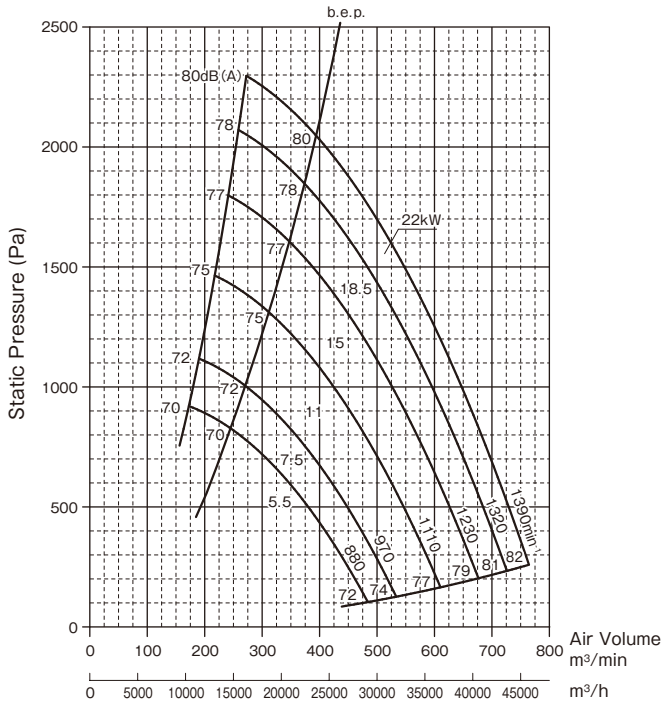


CMF3L-No.5

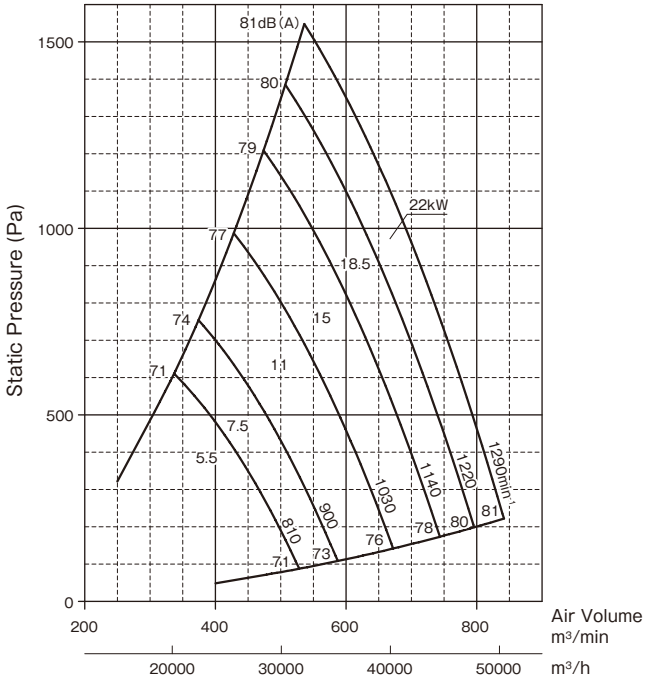


■Selection chart

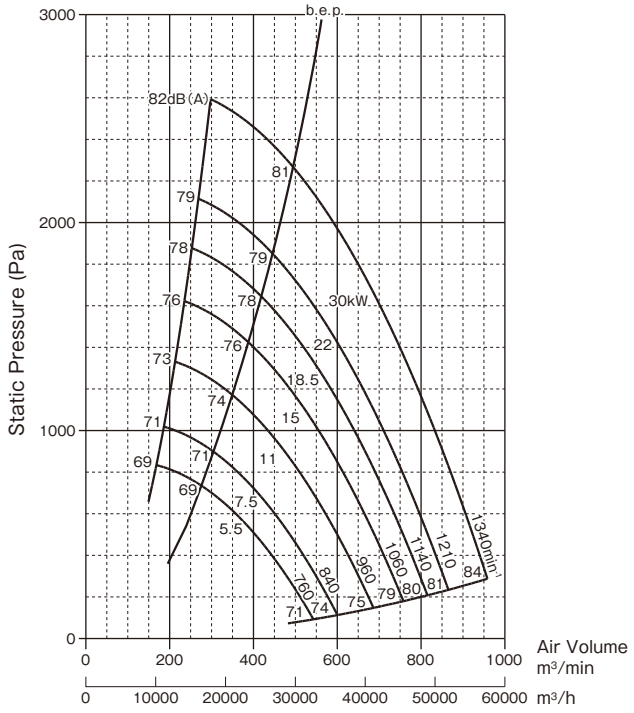
CMF3-No.5½



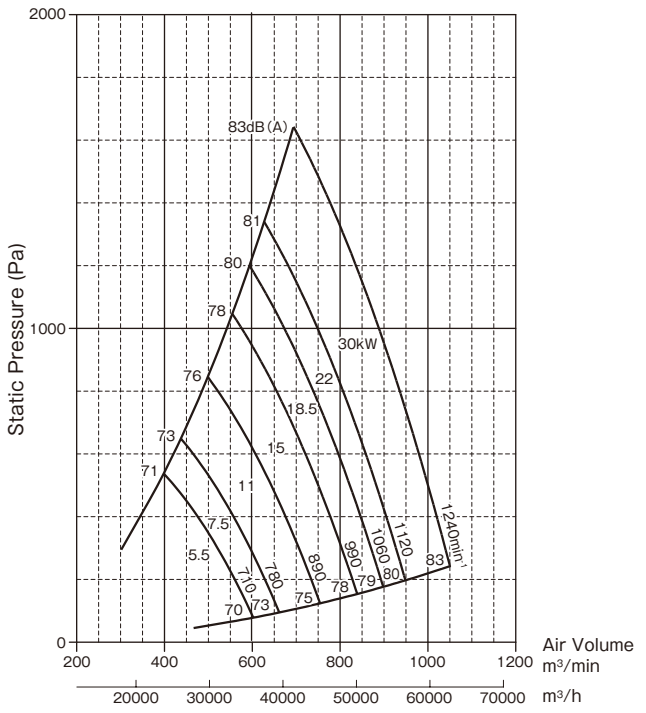
CMF3L-No.5½



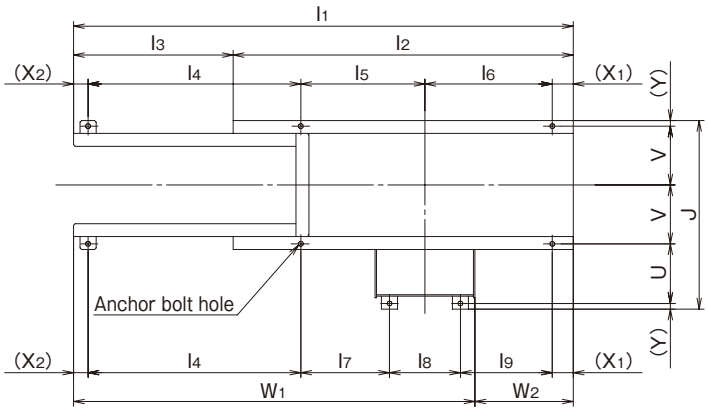
CMF3-No.6

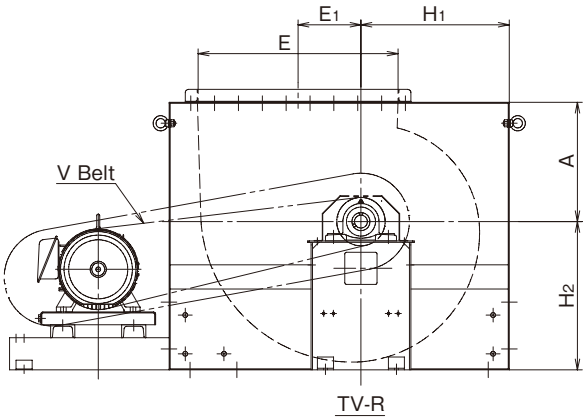


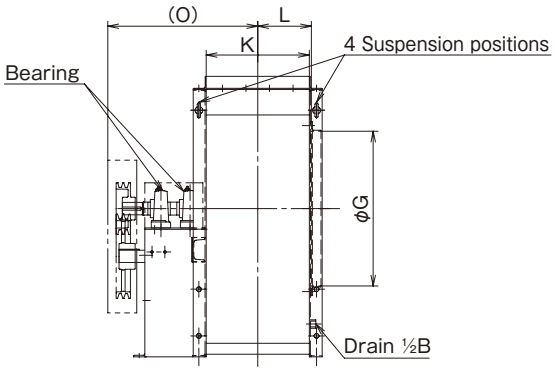
CMF3L-No.6

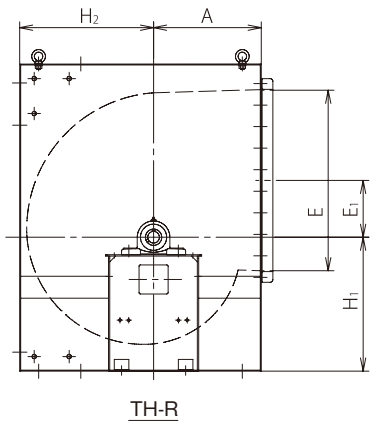


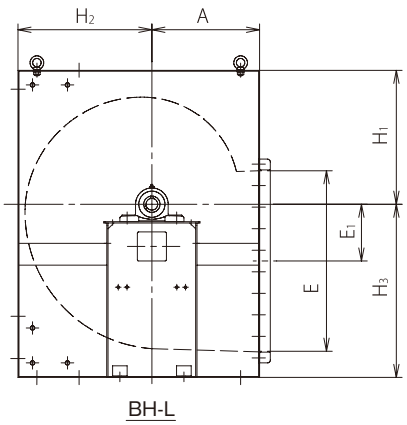
■Assembly drawing (No.2~3, -B)











■Dimensions

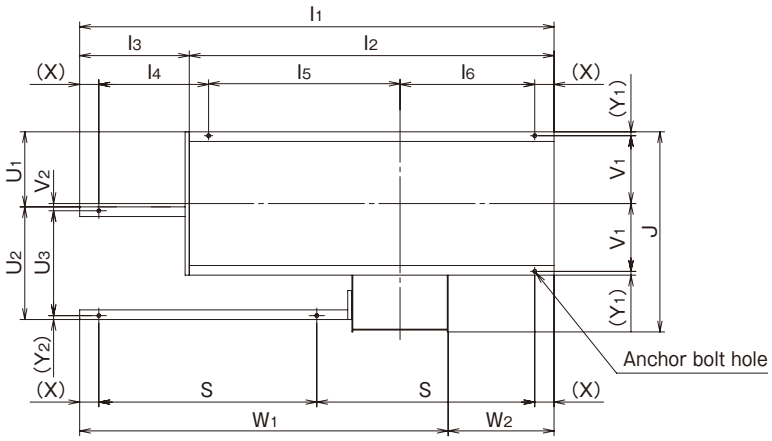
(Unit: mm)

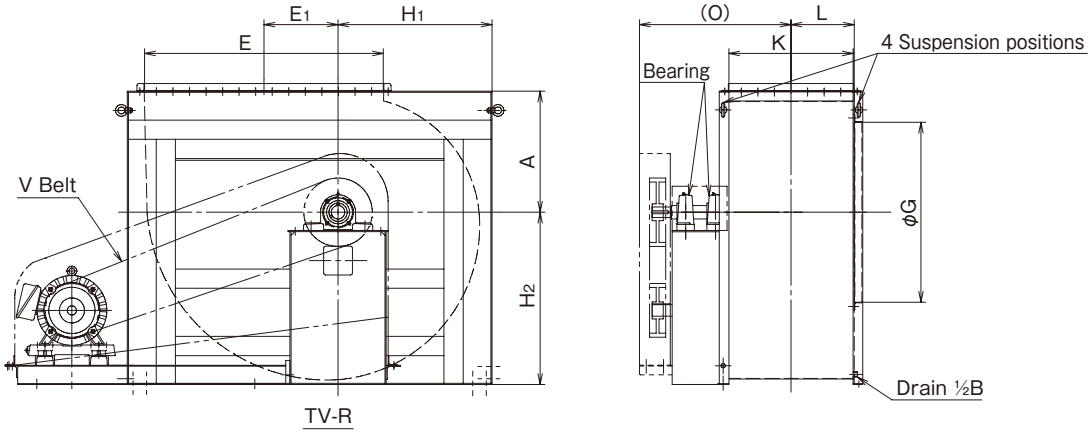
No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (min-1) (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
2	260	132.5	300	300	420	112	323	310	415	210	UCP306	UCP306	3470	2.2 (100L)	87kg
2½	310	157.5	390	390	495	140.5	350	400	515	270	UCP306	UCP306	2990	3.7 (112M)	106kg
3	370	195	460	460	595	166.5	465	480	620	320	UCP308	UCP308	2800	7.5 (132M)	162kg

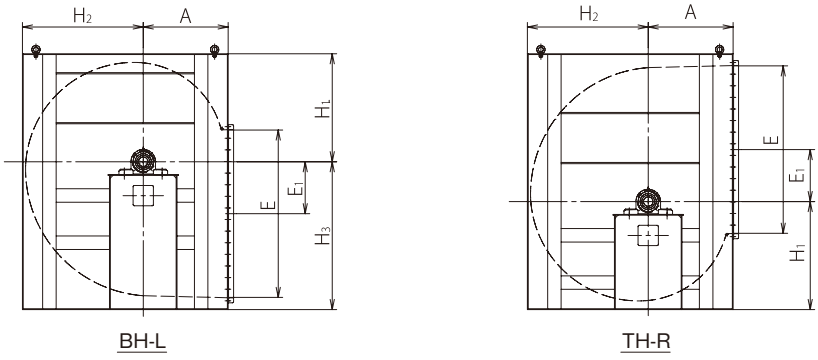
No.	Base																											Anchor bolt hole
	TV-R											TH-R/BH-L											TH-R/TV-R/BH-L						
	l1	l2	l3	l4	l5	l6	l7	l8	l9	W1	W2	l1	l2	l3	l4	l5	l6	l7	l8	l9	W1	W2	J	U	V	X1	X2	Y	
2	1155	720	435	510	300	245	200	200	145	1000	155	995	560	435	510	180	205	80	200	105	880	115	410	140	112.5	55	45	12.5	8×φ12
2½	1330	885	445	580	315	335	215	200	235	1085	245	1145	700	445	580	210	255	110	200	155	980	165	470	140	152.2	55	45	12.5	8×φ12
3	1550	1055	495	660	385	395	275	220	285	1245	305	1325	830	495	660	250	305	140	220	195	1110	215	585	185	182.5	65	45	17.5	8×φ15

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawings for companion flange dimensions.

■Assembly drawing (No.3½~6, -B)







■Dimensions

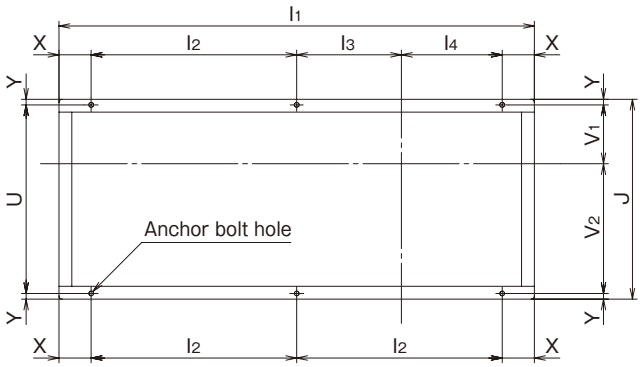
(Unit: mm)

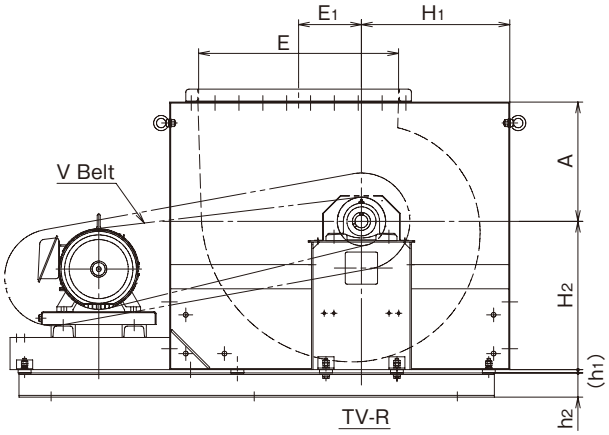
No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
3½	430	227.5	540	540	680	194	546	550	725	375	UCP309	UCP309	2090	7.5 (132M)	204kg
4	500	260	600	600	765	221.5	588	630	830	430	UCP310	UCP310	1950	11 (160M)	248kg
4½	550	292.5	600	675	870	248.5	683	710	930	485	UCP310	UCP310	1790	15 (160L)	401kg
5	575	322.5	670	750	920	276	735	780	1035	540	UCP312	UCP312	1560	18.5 (180M)	490kg
5½	600	355	740	820	1010	301	764	860	1140	590	UCP313	UCP313	1410	22 (180M)	557kg
6	629	385	800	895	1095	328.5	803	935	1240	645	UCP314	UCP314	1360	30 (180L)	639kg

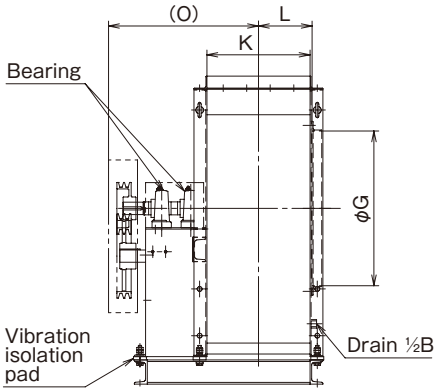
No.	Base																											Anchor bolt hole
	TV-R									TH-R/BH-L										TH-R/TV-R/BH-L									
	I1	I2	I3	I4	I5	I6	W1	W2	S	I1	I2	I3	I4	I5	I6	W1	W2	S	J	U1	U2	U3	V1	V2	X	Y1	Y2	
3½	1720	1220	500	500	615	475	1355	365	795	1470	970	500	500	475	365	1215	255	670	652	292	350	315	210	80	65	(19)	17.5	6×φ15
4	1965	1365	600	600	700	535	1555	410	917.5	1700	1100	600	600	535	435	1390	310	785	722	292	420	385	237.5	52.5	65	(19)	17.5	6×φ15
4½	1970	1470	500	500	770	500	1560	410	885	1725	1225	500	500	575	450	1365	360	762.5	790	240	535	495	272.5	32.5	100	20	20	6×φ19
5	2110	1590	520	520	820	570	1660	450	955	1845	1325	520	520	650	475	1490	355	822.5	870	320	535	495	300	20	100	20	20	6×φ19
5½	2300	1750	550	550	910	640	1800	500	1050	1970	1420	550	550	720	500	1610	360	885	925	375	535	495	325	50	100	20	20	6×φ19
6	2465	1895	570	570	995	700	1915	550	1132.5	2094	1524	570	570	795	529	1715	379	947	990	390	585	545	352.5	37.5	100	20	20	6×φ19

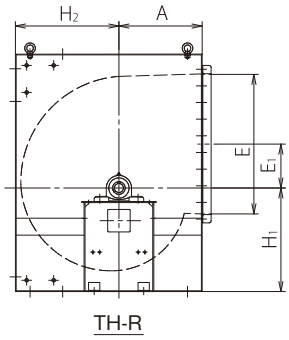
※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawings for companion flange dimensions.

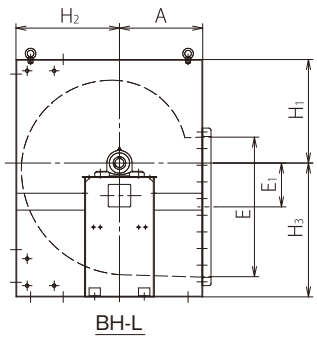
■Assembly drawing (No.2~3, -ND(D))











■Dimensions

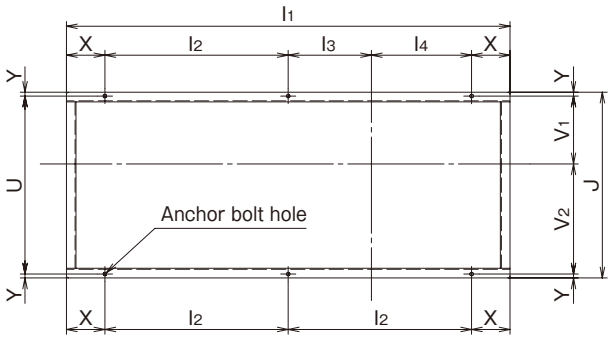
(Unit: mm)

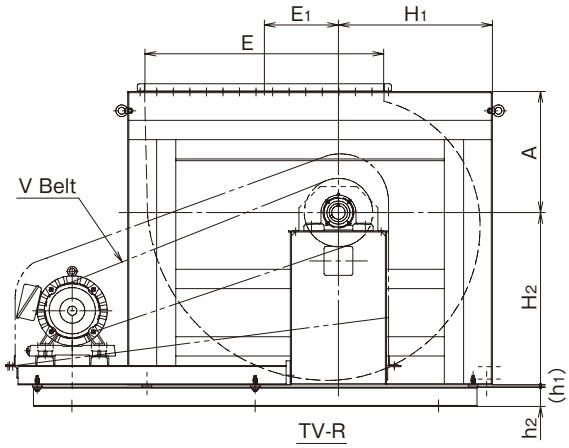
No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (min⁻¹) (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley side	Opposite Pulley Side			
2	260	132.5	300	300	420	112	320	310	415	210	UCP306	UCP306	3470	2.2 (100L)	106kg
2½	310	157.5	390	390	495	140.5	350	400	515	270	UCP306	UCP306	2990	3.7 (112M)	128kg
3	370	195	460	460	595	166.5	474	480	620	320	UCP308	UCP308	2800	7.5 (132M)	189kg

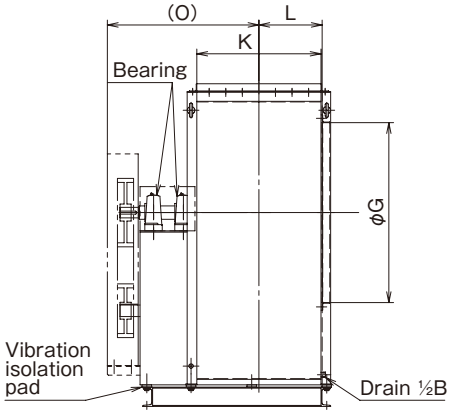
No.	Base																Anchor bolt hole
	TV-R				TH-R/BH-L				TV-R/TH-R/BH-L								
	I1	I2	I3	I4	I1	I2	I3	I4	J	U	V1	V2	X	Y	h1	h2	
2	1090	495	282.5	212.2	930	415	242.5	172.5	420	385	122.5	262.5	50	17.5	16	75	6×φ12
2½	1265	582.5	280	302.5	1080	490	267.5	222.5	480	445	152.5	292.5	50	17.5	16	75	6×φ12
3	1475	637.5	325	312.5	1250	525	302.5	222.5	585	550	182.5	367.5	100	17.5	16	75	6×φ15

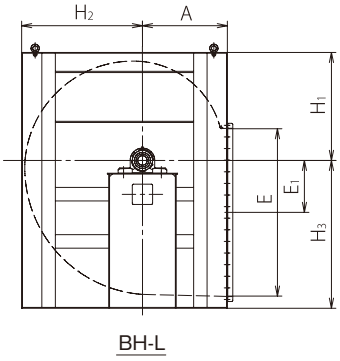
※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawings for companion flange dimensions.

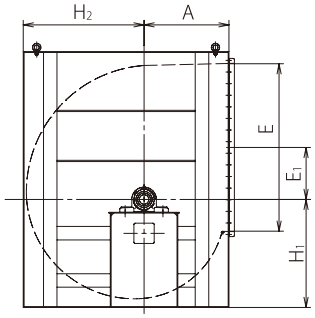
■Assembly drawing (No.3½~6, -ND(D))











■Dimensions

(Unit: mm)

No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
3½	430	227.5	540	540	680	194	546	550	725	375	UCP309	UCP309	2090	7.5 (132M)	234kg
4	500	260	600	600	765	221.5	588	630	830	430	UCP310	UCP310	1950	11 (160M)	280kg
4½	550	292.5	600	675	870	248.5	683	710	930	485	UCP310	UCP310	1790	15 (160L)	448kg
5	575	322.5	670	750	920	276	735	780	1035	540	UCP312	UCP312	1560	18.5 (180M)	541kg
5½	600	355	740	820	1010	301	764	860	1140	590	UCP313	UCP313	1410	22 (180M)	613kg
6	629	385	800	895	1095	328.5	803	935	1240	645	UCP314	UCP314	1360	30 (180L)	699kg

No.	Base																Anchor bolt hole
	TV-R				TH-R/BH-L				TH-R/TV-R/BH-L								
	l1	l2	l3	l4	l1	l2	l3	l4	J	U	V1	V2	X	Y	h1	h2	
3½	1625	712.5	320	392.5	1375	587.5	305	282.5	640	605	210	395	100	17.5	16	75	6×φ15
4	1870	835	382.5	452.5	1605	702.5	350	352.5	710	675	237.5	437.5	100	17.5	16	75	6×φ15
4½	1810	730	385	345	1585	607.5	312.5	295	775	735	272.5	462.5	175	20	18	100	6×φ19
5	1950	800	385	415	1685	667.5	347.5	320	855	815	300	515	175	20	18	100	6×φ19
5½	2140	870	410	460	1810	705	385	320	910	870	325	545	200	20	18	100	6×φ19
6	2305	952.5	432.5	520	1934	767	418	349	975	935	352.5	582.5	200	20	18	100	6×φ19

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Companion Flange Dimensional Drawing

Suction Companion Flange

Fig. 1

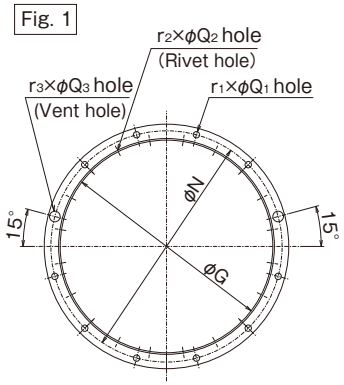
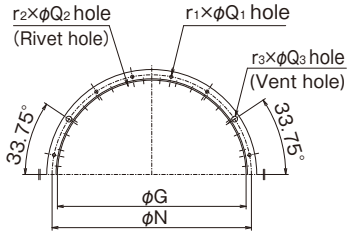


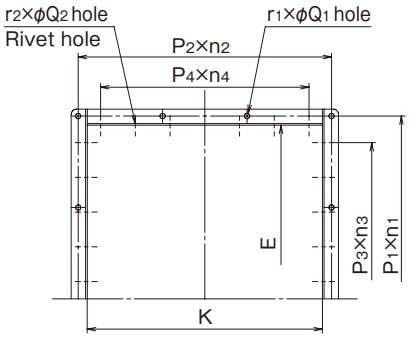
Fig. 2



(Unit: mm)

No.	G	N	r1×Q1	r2×Q2 Rivet hole	r3×Q3 Escape hole	Steel material size	Fig. No.
2	310	350	10×10	16×4.9	2×15	L30×30×3	1
2½	400	435	10×12	20×4.9	2×20	L30×30×3	
3	480	515	10×12	24×4.9	2×20	L30×30×3	
3½	550	590	10×12	28×4.9	2×20	L40×40×3	
4	630	670	12×12	32×4.9	4×20	L40×40×3	2
4½	710	750	12×12	36×4.9	4×20	L40×40×3	
5	780	825	12×12	40×4.9	4×20	L40×40×3	
5½	860	905	12×12	44×4.9	4×20	L40×40×3	
6	935	980	12×12	48×4.9	4×20	L40×40×3	

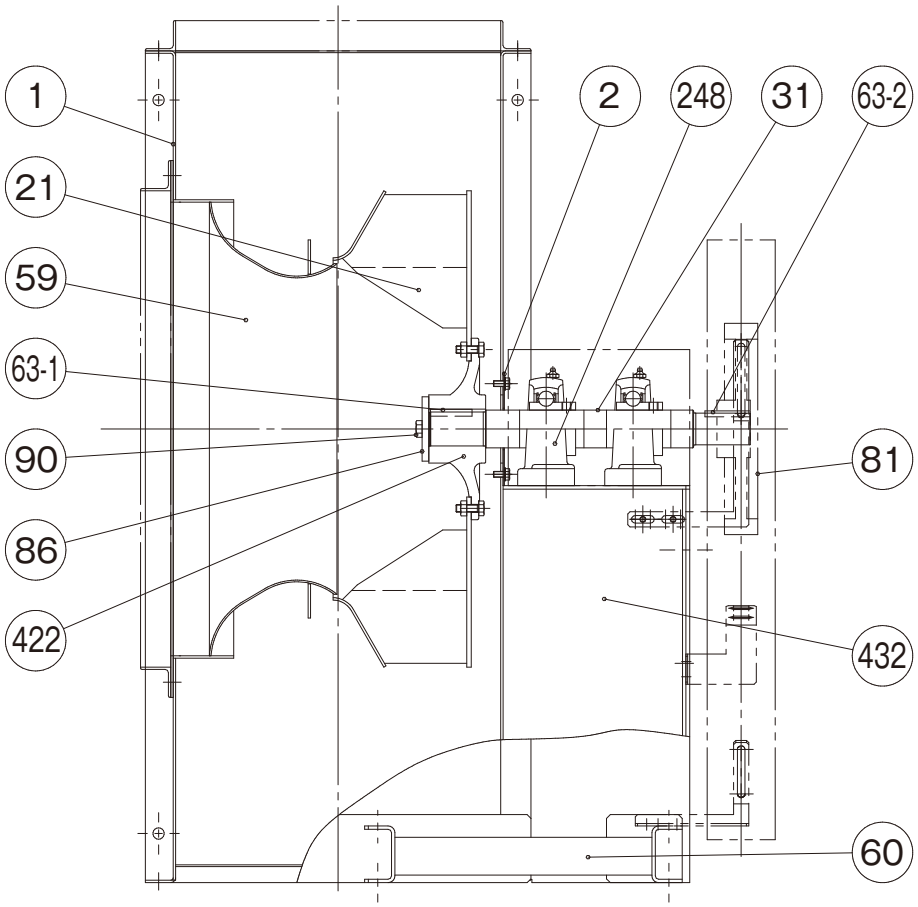
Discharge Companion Flange



(Unit: mm)

No.	E	K	P1 × n1	P2 × n2	P3 × n3 Rivet hole pitch	P4 × n4 Rivet hole pitch	r1 × Q1	r2 × Q2 Rivet hole	Steel material size
2	415	210	90 × 5	82 ×3	62× 6	62× 2	16×10	20×4.9	L30×30×3
2½	515	270	92 × 6	76.5×4	58× 8	58× 4	20×10	28×4.9	L30×30×3
3	620	320	74 × 9	73 ×5	63× 9	63× 4	28×12	30×4.9	L40×40×3
3½	725	375	77 ×10	84 ×5	62×11	62× 5	30×12	36×4.9	L40×40×3
4	830	430	87.5×10	95 ×5	64×12	64× 6	30×12	40×4.9	L40×40×3
4½	930	485	97.5×10	88.5×6	62×14	62× 7	32×12	46×4.9	L40×40×3
5	1035	540	98 ×11	97.5×6	62×16	62× 8	34×12	52×4.9	L40×40×3
5½	1140	590	91 ×13	91 ×7	60×18	60× 9	40×12	58×4.9	L40×40×3
6	1240	645	86 ×15	86 ×8	60×20	60×10	46×15	64×4.9	L40×40×3

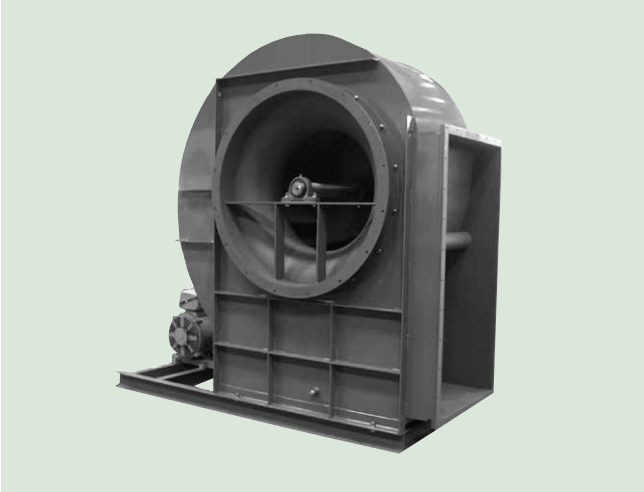
■Internal structure drawing



Code	Part name	Qty	Material
1	Casing	1	SPHC · SS400
21	Impeller	1	SPHC · SM570
422	Impeller Boss	1	FCD450
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWCH
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC

Code	Part name	Qty	Material
31	Shaft	1	S45C
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
432	Bearing base	1	SPHC
60	Common Base	1	SPHC · SS400
2	Casing Cover	1	SPHC

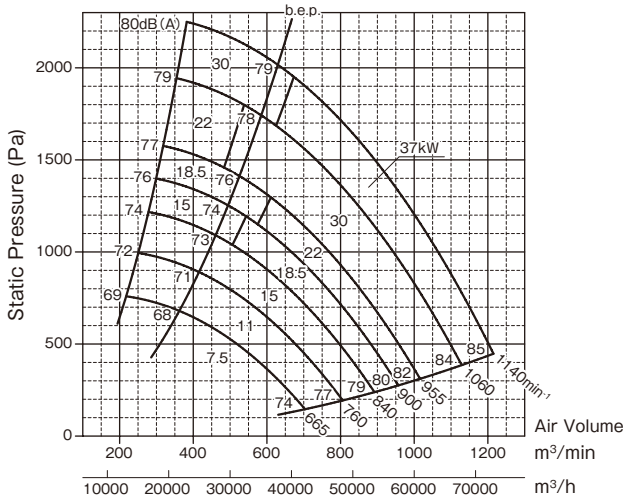
Code	Part name	Qty	Material	No.2	No.2½	No.3	No.3½	No.4	No.4½	No.5	No.5½	No.6
248	Pillow Block	2	SUJ	UCP306	UCP306	UCP308	UCP309	UCP310	UCP310	UCP312	UCP313	UCP314



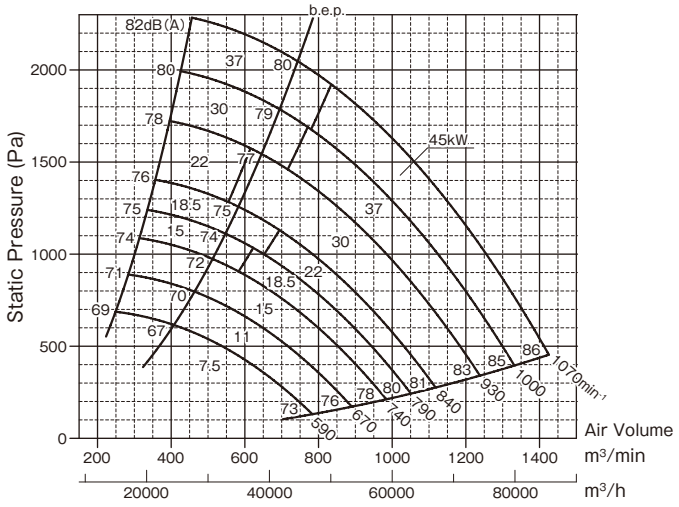
※Please note that the above image is a representative example and may differ partially from the actual device.

■Selection chart

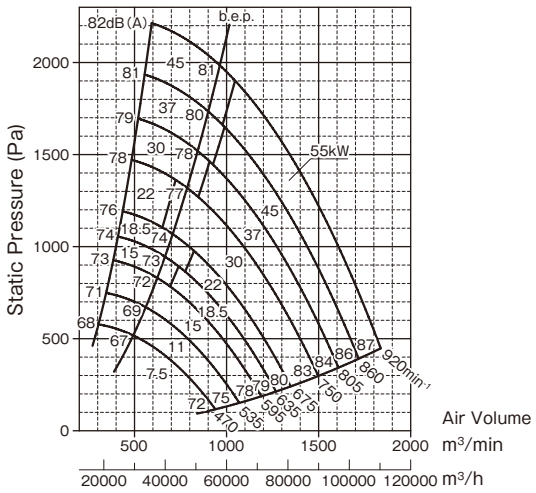
No.6½



No.7



No.8



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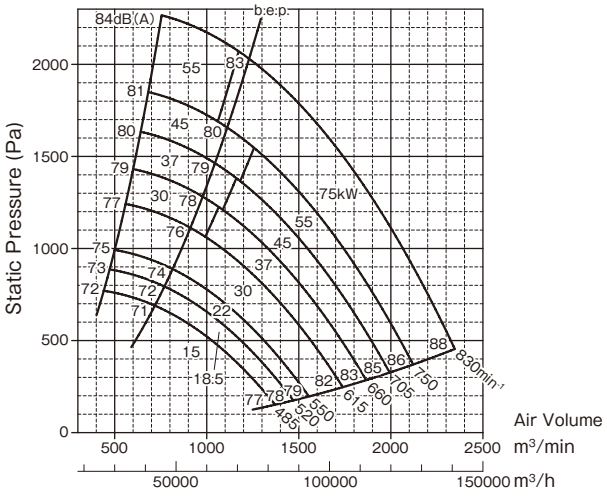
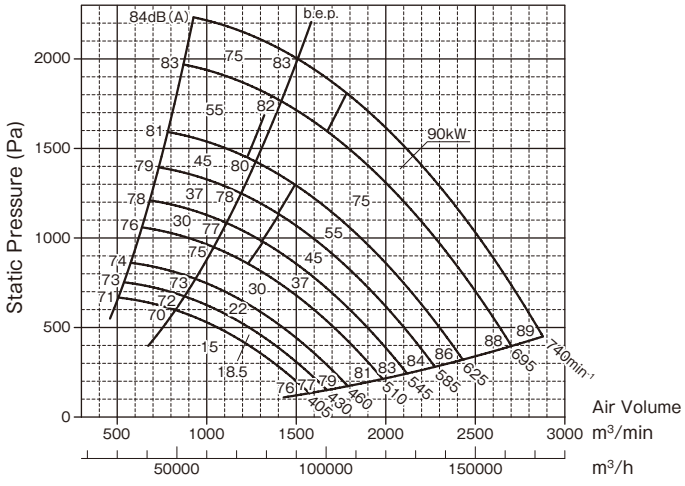
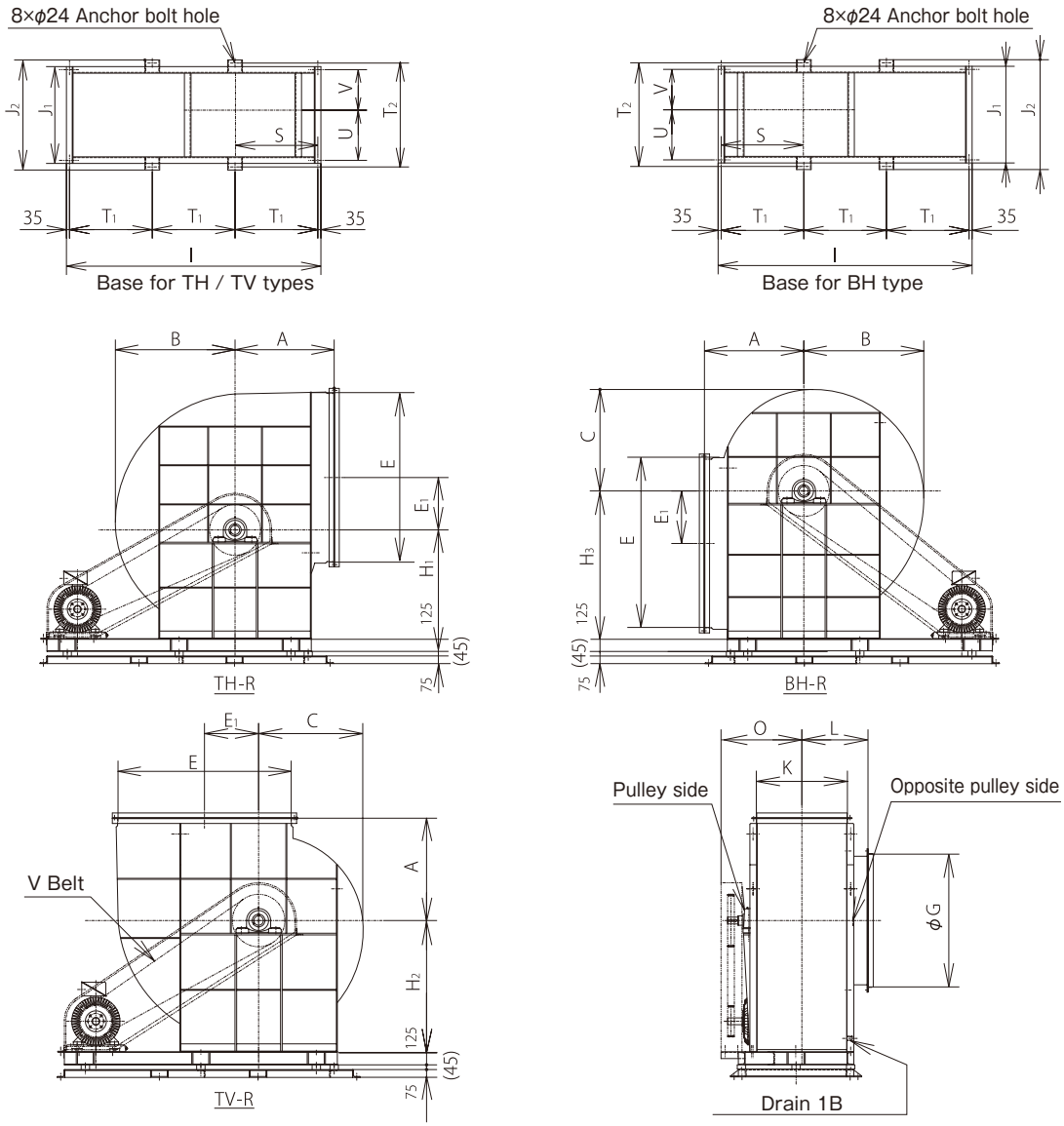


No.10



■Assembly drawing (No.6½~8)



※The drawing shows D installation method (floor type vibration-proof). B type (with common base) has only the common base, and does not include a vibration isolation base.

■Dimensions

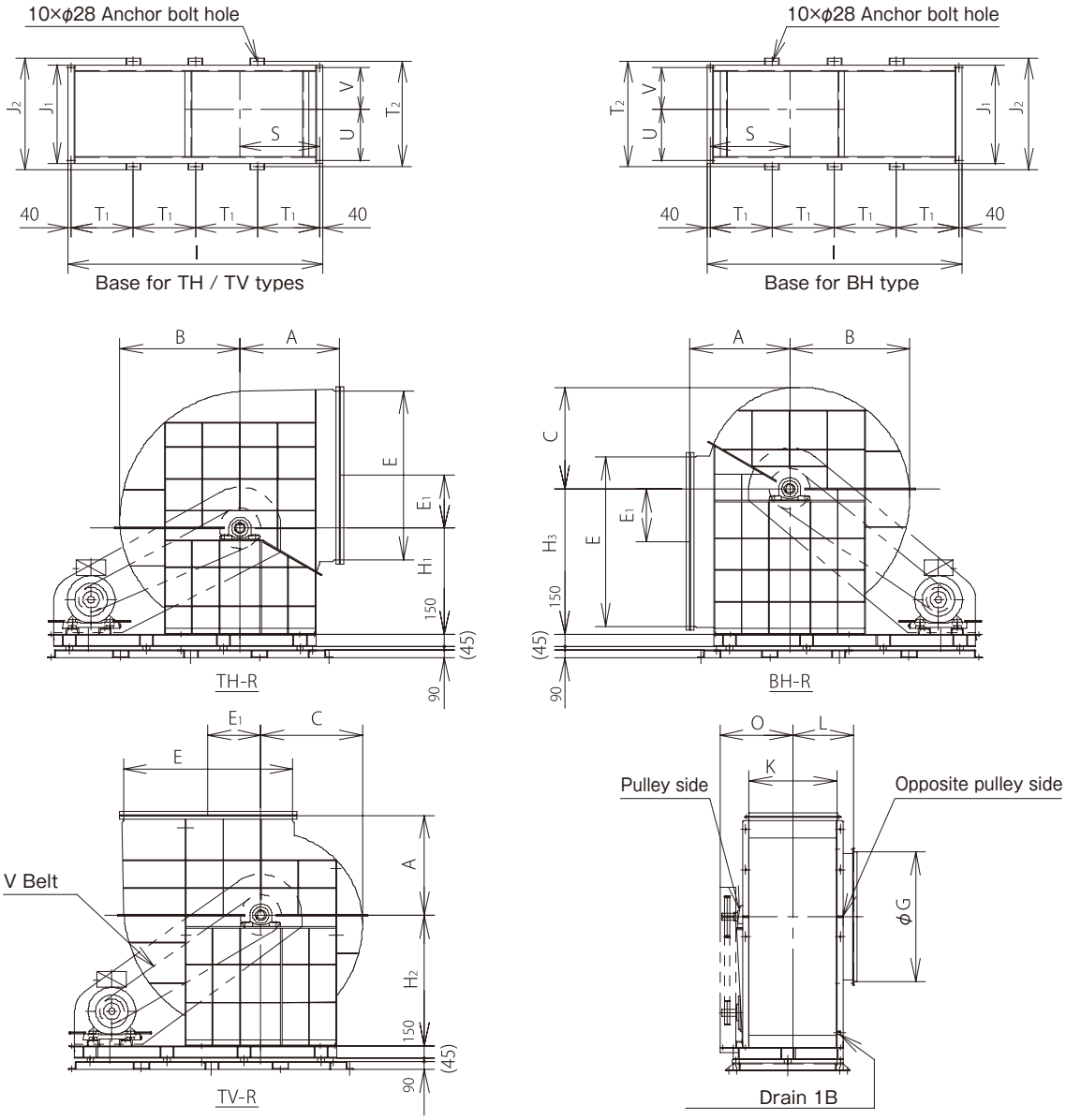
(Unit: mm)

No.	Main Unit									Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)
	A	B	C	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
6½	790	1005	815	420	840	1020	1170	550	690	1030	1345	700	UCP315	UCP213	1120/1140	37 (200L)	900kg
7	855	1080	875	450	935	1090	1260	575	720	1105	1450	750	UCP316	UCP214	1050/1070	45 (200L)	1050kg
8	975	1235	1000	515.5	1070	1250	1450	630	770	1265	1655	860	UCP318	UCP214	920/920	55 (225S)	1300kg

No.	Base							
	I	J1	J2	S	T1	T2	U	V
6½	2530	940	1090	775	820	1020	490	380
7	2620	990	1140	815	850	1070	515	405
8	2890	1100	1250	935	940	1180	570	460

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Split type casing is also available.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Assembly drawing (No.9~10)



※The drawing shows D installation method (floor type vibration-proof). B type (with common base) has only the common base, and does not include a vibration isolation base.

■Dimensions

(Unit: mm)

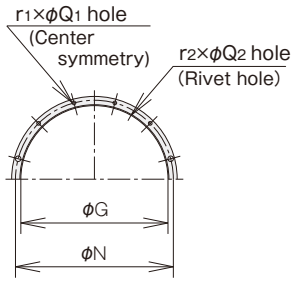
No.	Main Unit									Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)
	A	B	C	E_1	H_1	H_2	H_3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
9	1100	1330	1120	580.5	1200	1450	1700	683	870	1425	1860	965	UCP319	UCP317	830	75(250S)	1900kg
10	1220	1470	1240	645	1300	1600	1780	738	920	1580	2070	1075	UCP320	UCP318	740	90(250M)	2300kg

No.	Base							
	I	J_1	J_2	S	T_1	T_2	U	V
9	3280	1235	1415	990	800	1335	637.5	517.5
10	3480	1345	1525	1090	850	1445	692.5	572.5

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Split type casing is also available.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Companion Flange Dimensional Drawing

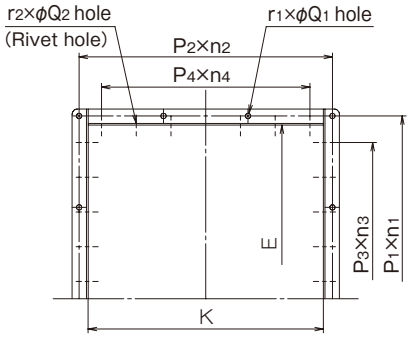
Suction Companion Flange



(Unit: mm)

No.	G	N	r1 × Q1	r2 × Q2 Rivet hole	Steel material size
6½	1030	1090	16×15	52×4.9	L50×50×4
7	1105	1165	16×15	56×4.9	L50×50×4
8	1265	1325	16×15	64×4.9	L50×50×4
9	1425	1485	20×15	72×4.9	L50×50×4
10	1580	1640	20×15	80×4.9	L50×50×4

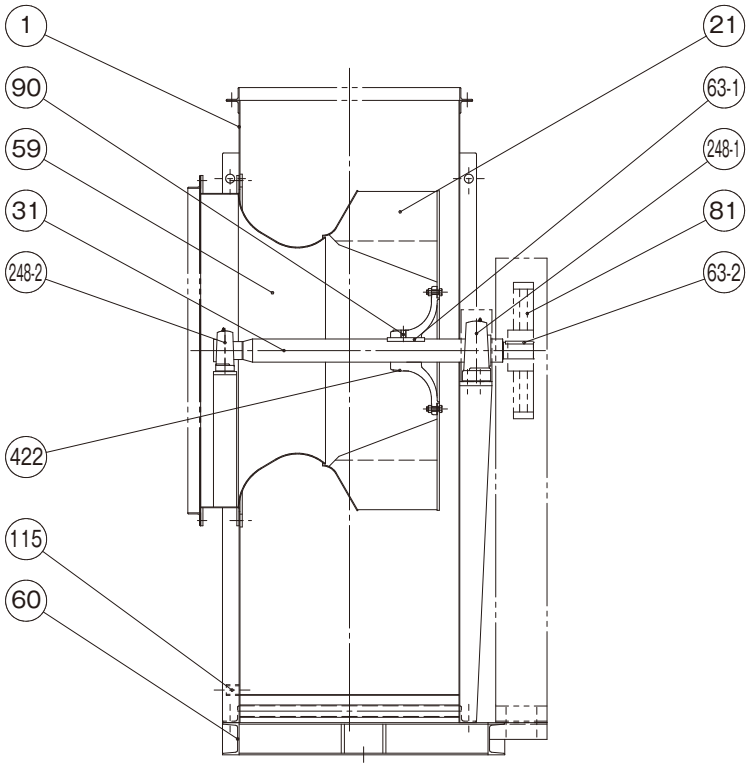
Discharge Companion Flange



(Unit: mm)

No.	E	K	P1 × n1	P2 × n2	P3 × n3 Rivet hole pitch	P4 × n4 Rivet hole pitch	r1 × Q1	r2 × Q2 Rivet hole	Steel material size
6½	1345	700	175 × 8	152×5	62×21	62×10	26×15	66×4.9	L50×50×4
7	1450	750	168 × 9	162×5	64×22	64×11	28×15	70×4.9	L50×50×4
8	1655	860	171 ×10	153×6	62×26	62×13	32×15	82×4.9	L50×50×4
9	1860	965	160 ×12	170×6	65×28	65×14	36×15	88×4.9	L50×50×4
10	2070	1075	177.5×12	162×7	63×32	63×16	38×15	100×4.9	L50×50×4

■Internal structure drawing

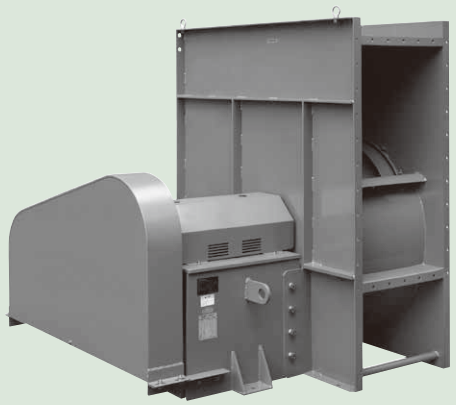


Code	Part name	Qty	Material
1	Casing	1	SPHC · SS400
21	Impeller	1	SM（JFE-HITEN590SA）
422	Impeller Boss	1	FCD450 (FCD400)
90	Impeller Tap Bolt	2	SS400
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC · SS400

Code	Part name	Qty	Material
31	Shaft	1	S45C
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
60	Common Base	1	SS400
115	Drain	1	SS400

Code	Part name	Qty	Material	No.6½	No.7	No.8	No.9	No.10
248-1	Pillow Block	1	SUJ	UCP315	UCP316	UCP318	UCP319	UCP320
248-2	Pillow Block	1	SUJ	UCP213	UCP214	UCP214	UCP317	UCP318

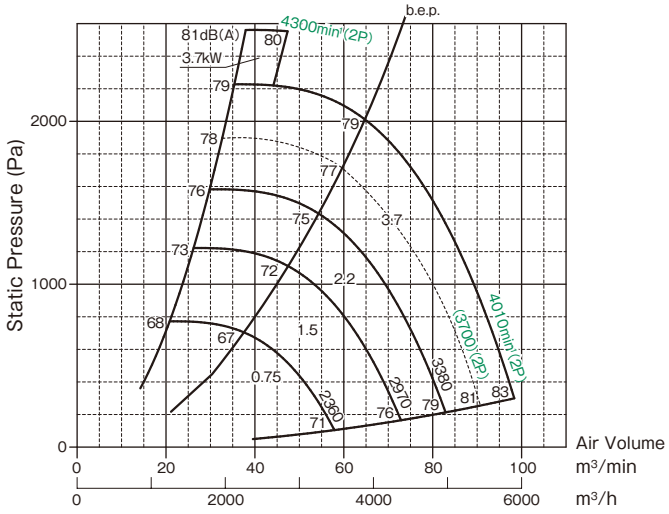
CMF3(L)-OB



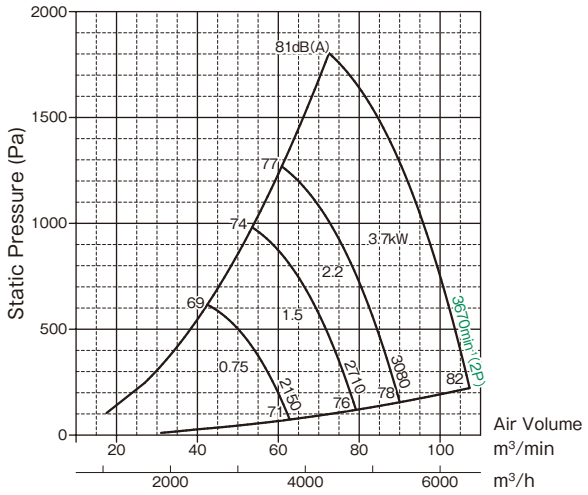
※Please note that the above image is a representative example and may differ partially from the actual device.

Selection chart ※Rates of rotation indicated in green are for two poles.

CMF3-No.2



CMF3L-No.2



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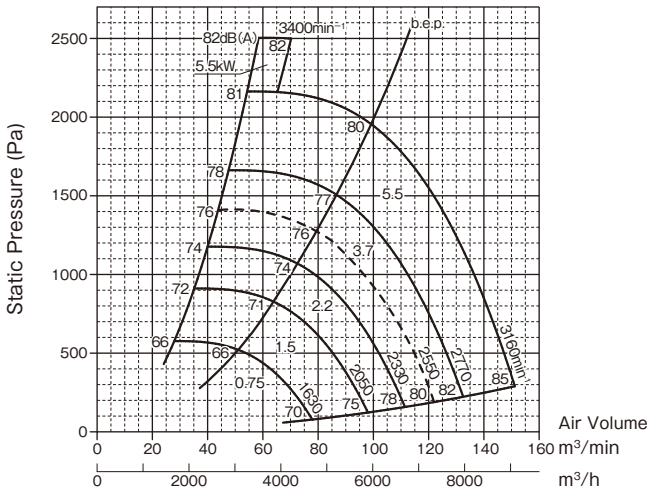

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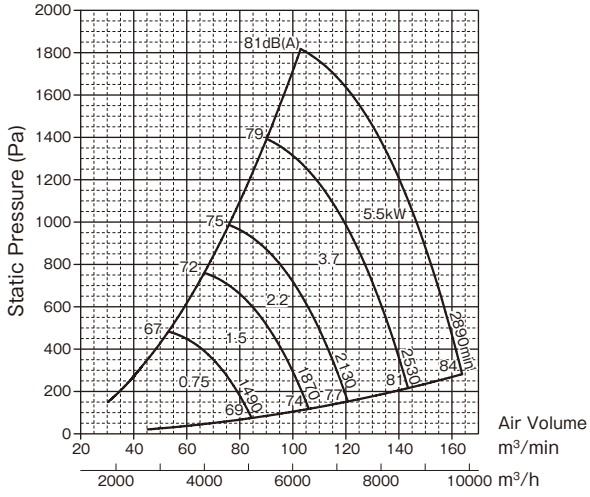
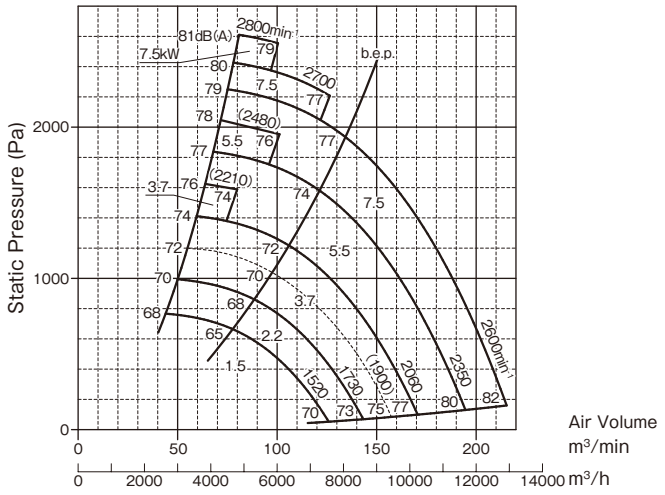


■Selection chart

CMF3-No.3



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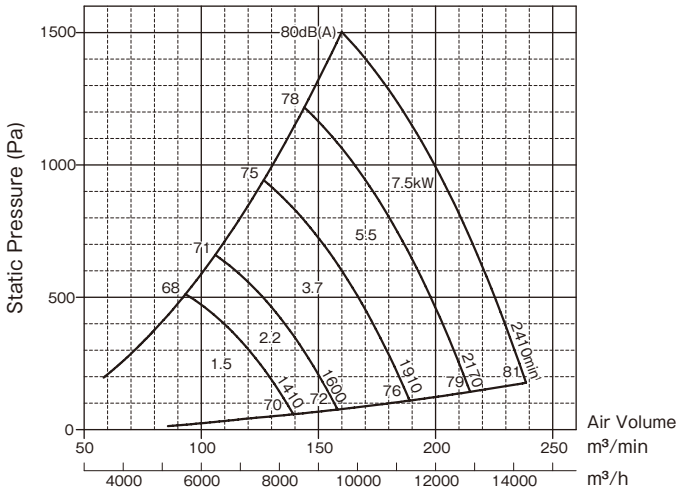

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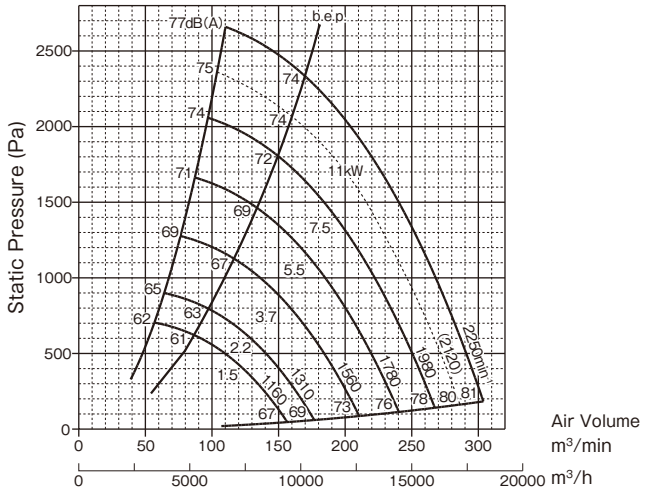

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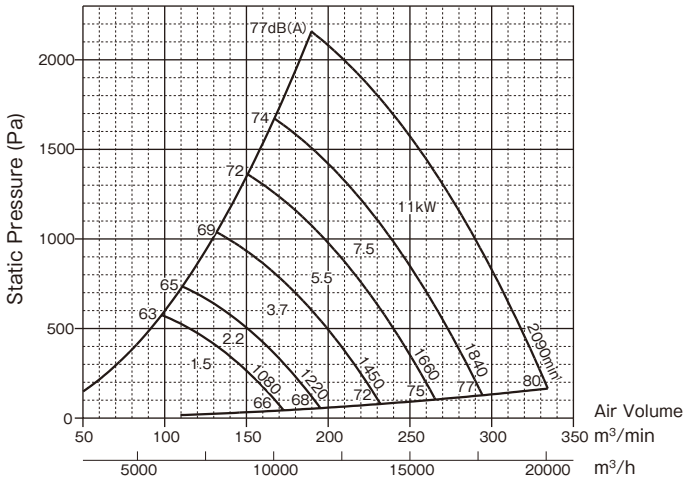

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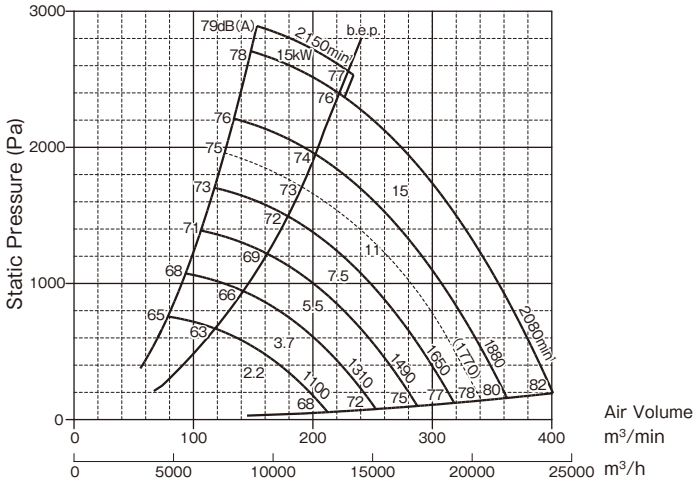

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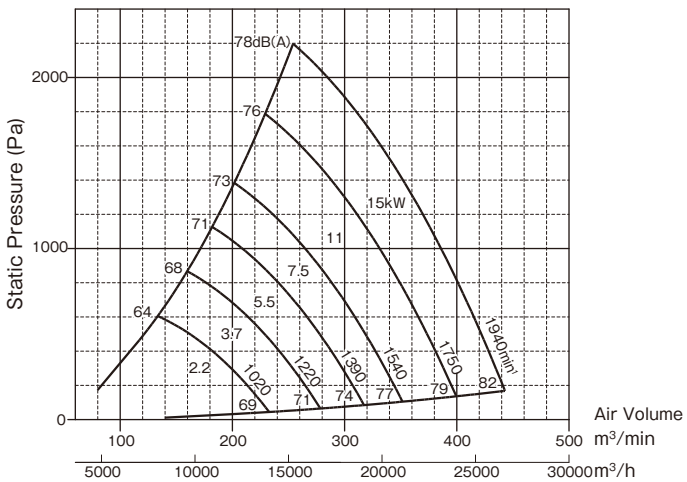

■Selection chart

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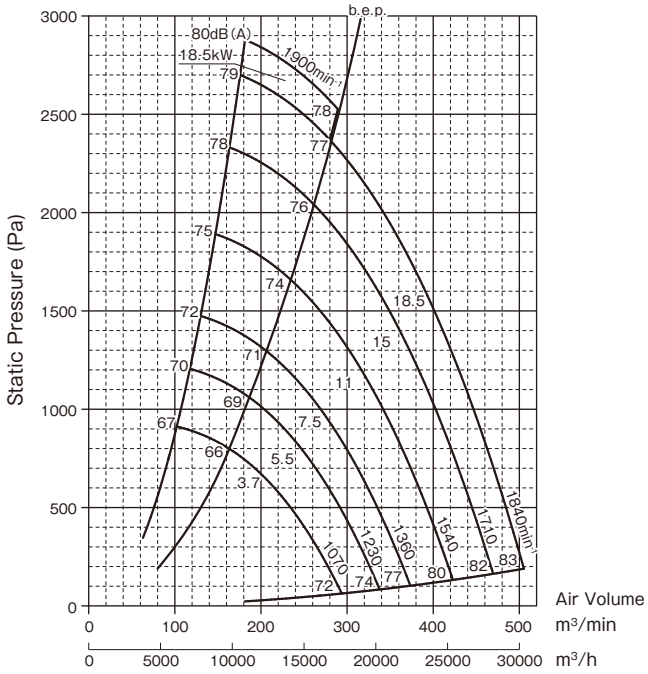

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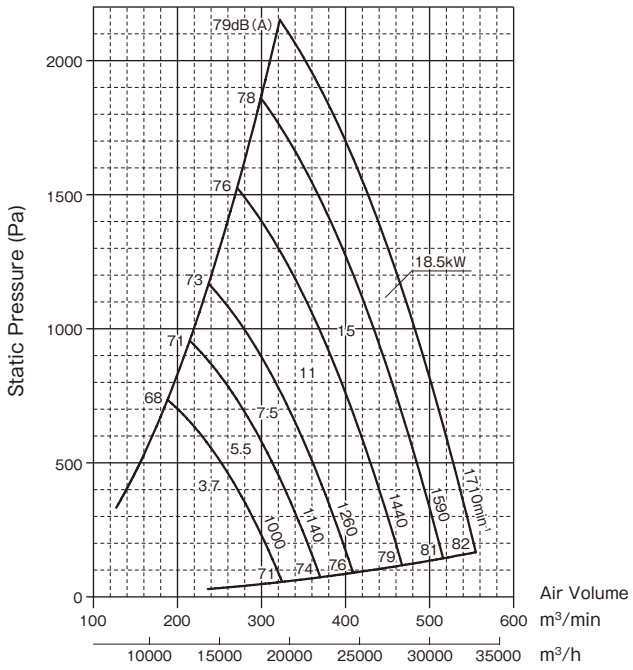

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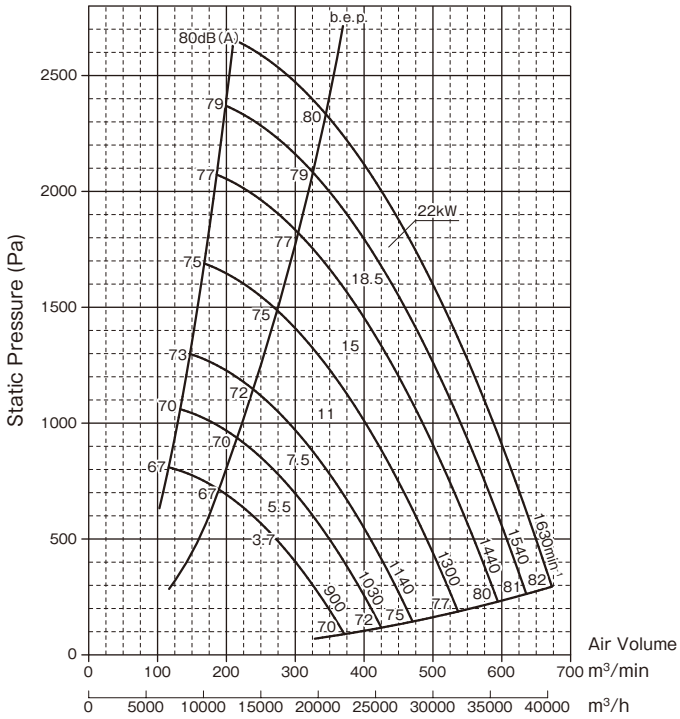

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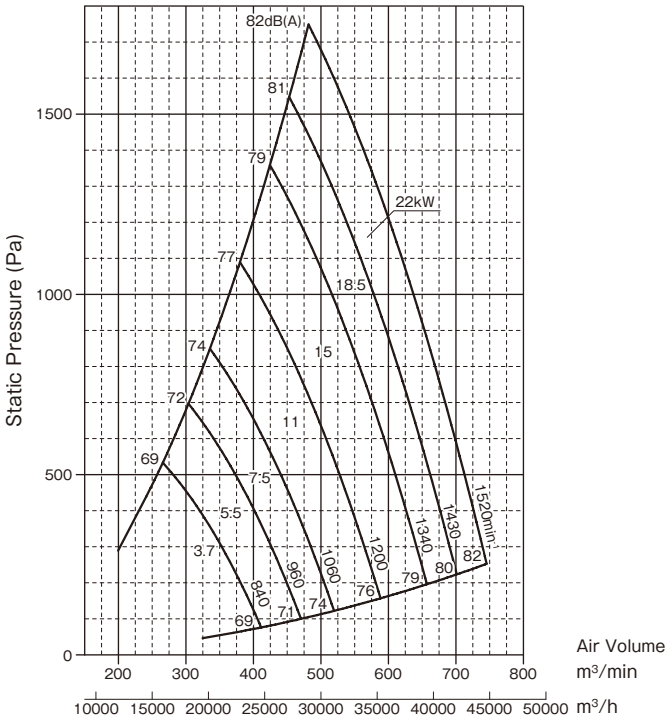

■Selection chart

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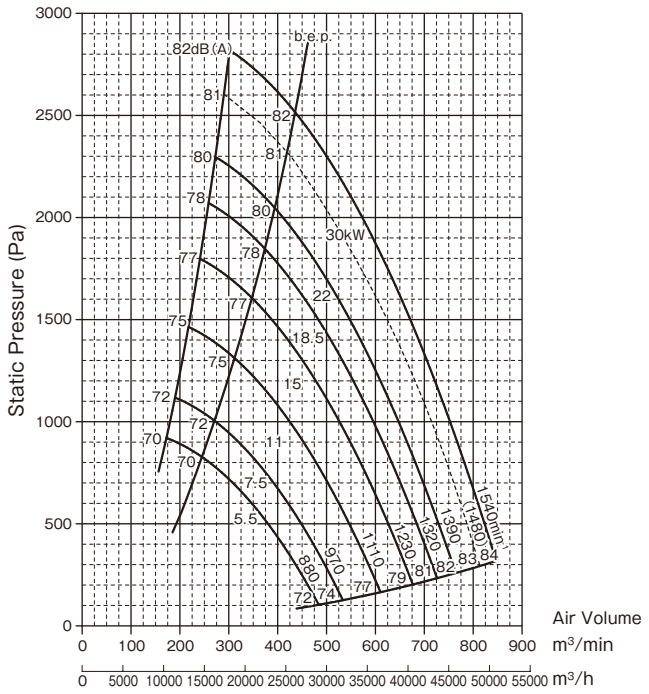

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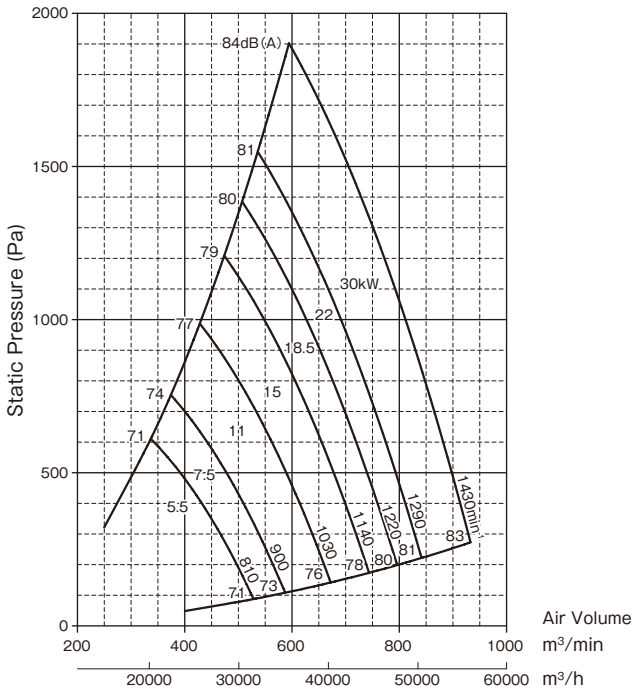

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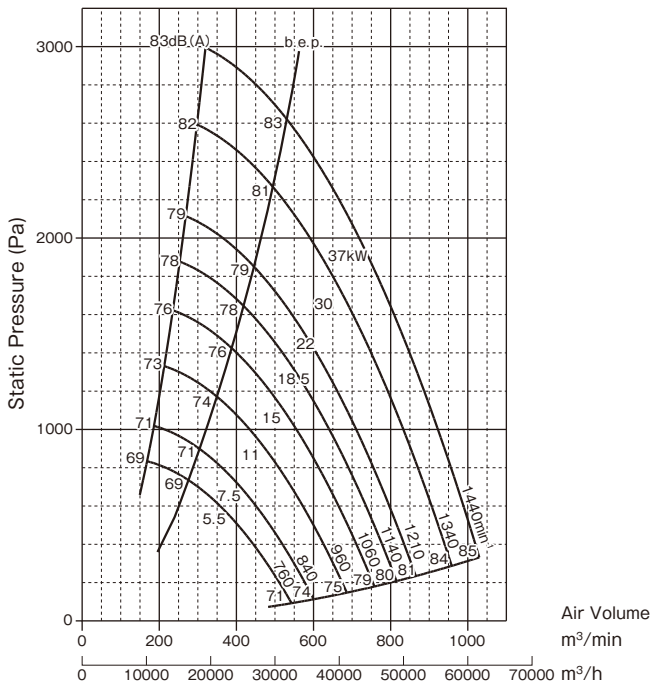

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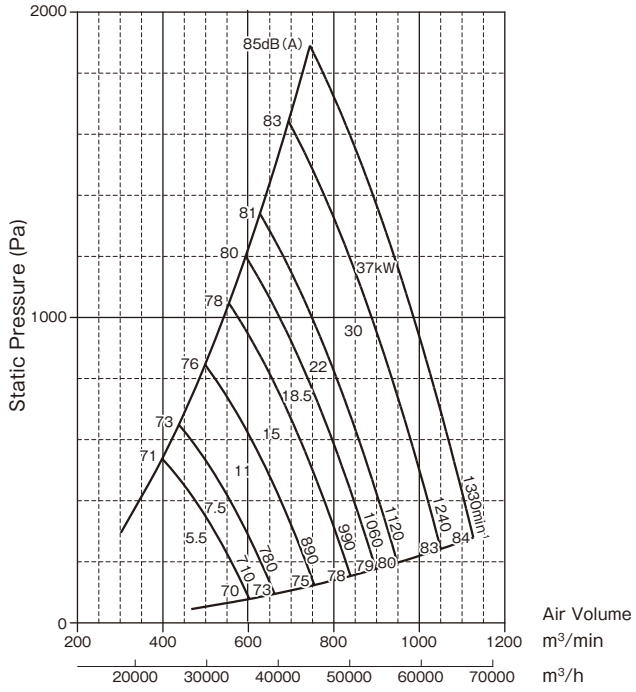
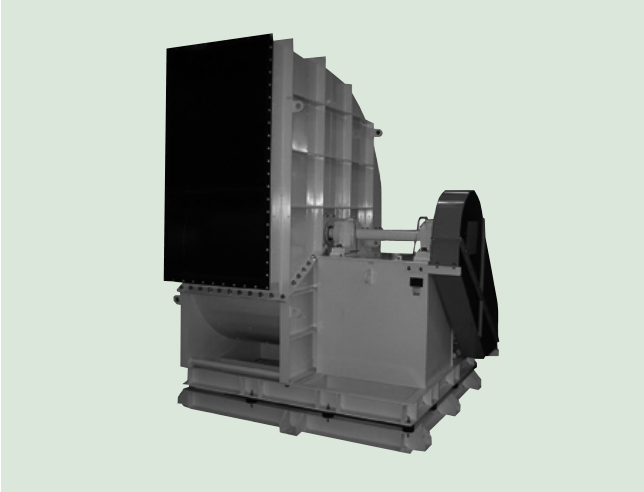
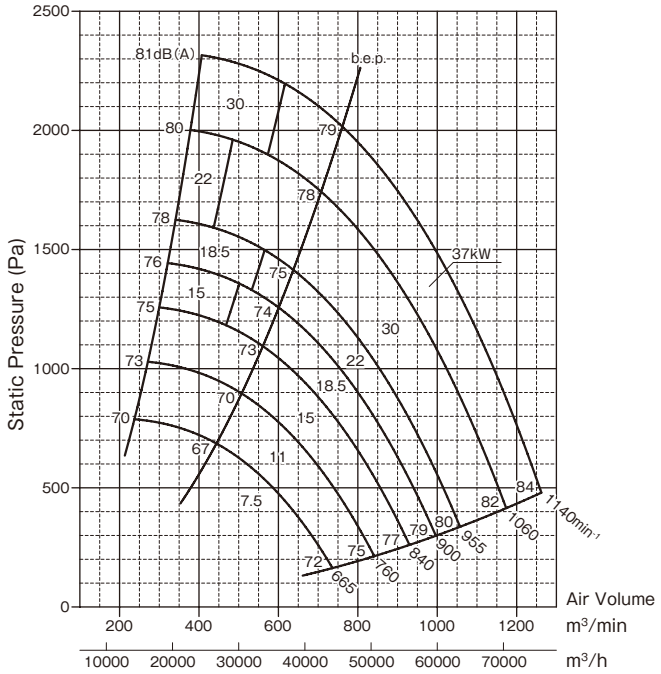




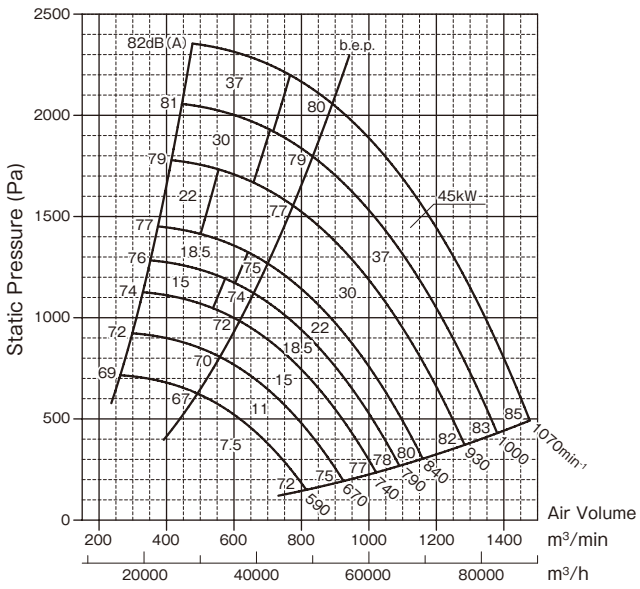
※Please note that the above image is a representative example and may differ partially from the actual device.

■Selection chart

No.6½



No.7



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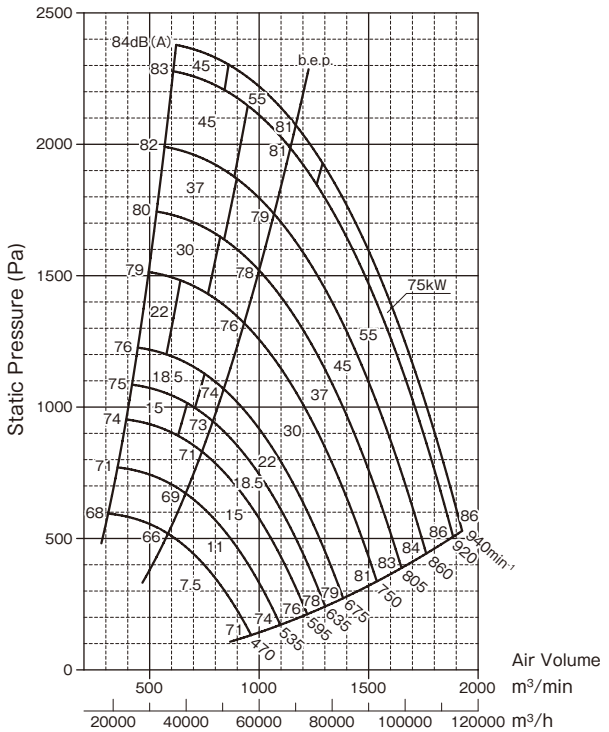
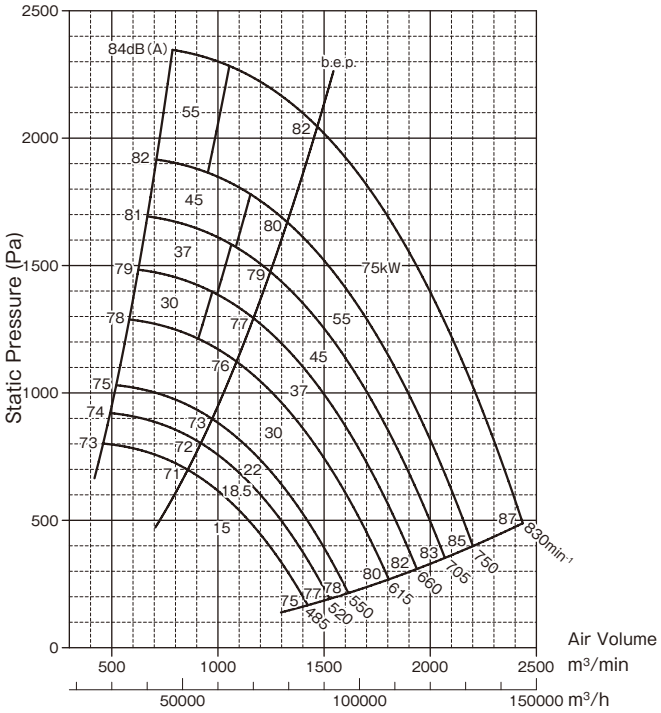


■Selection chart

※Rotational speeds indicated in white text on a green background are for 6 poles.

No.9



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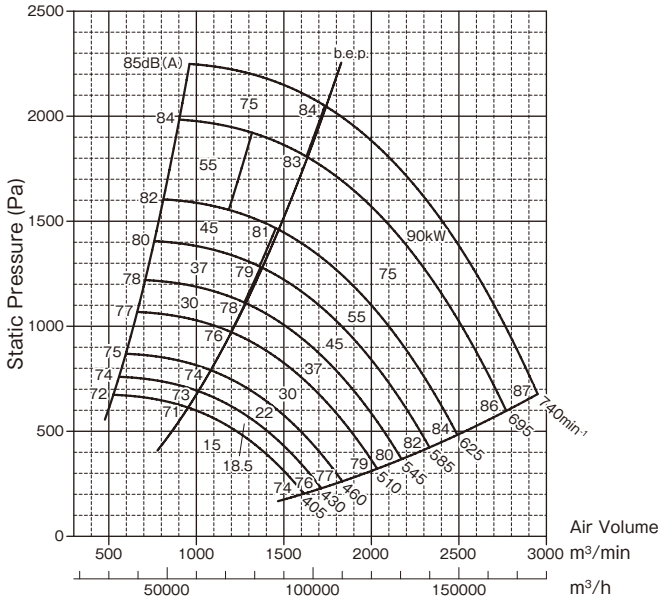

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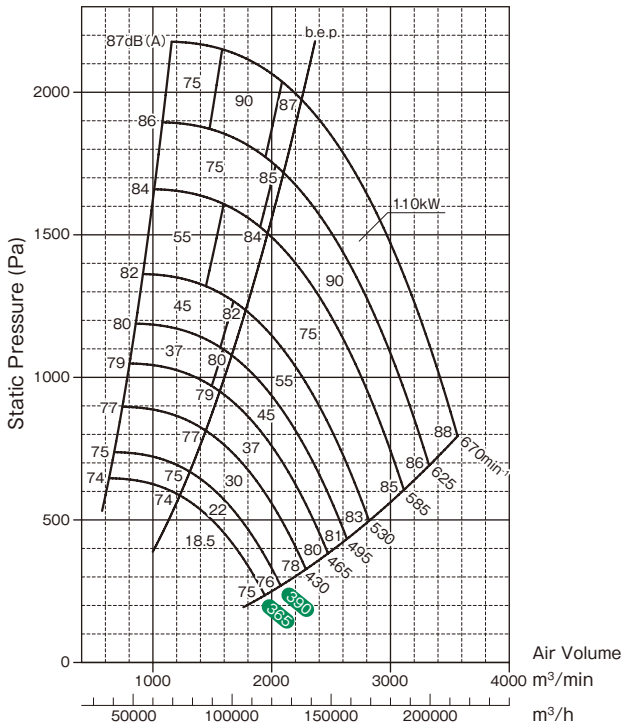

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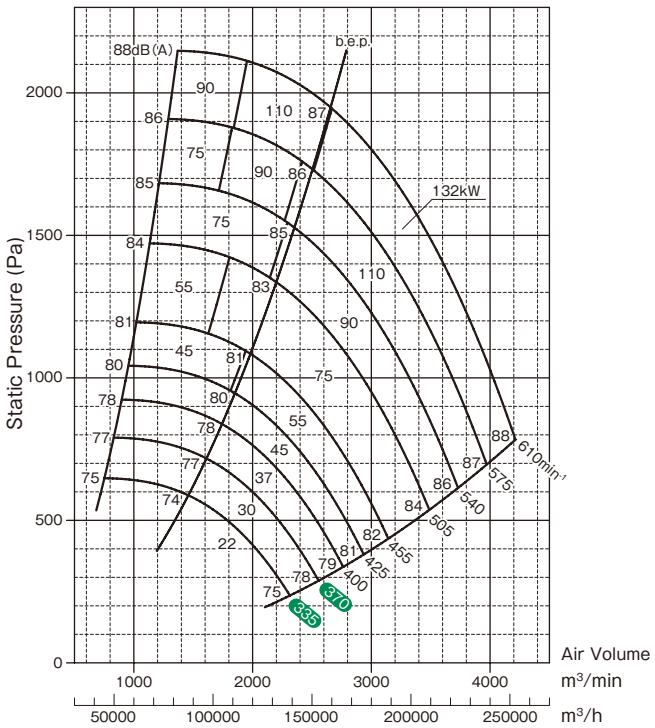
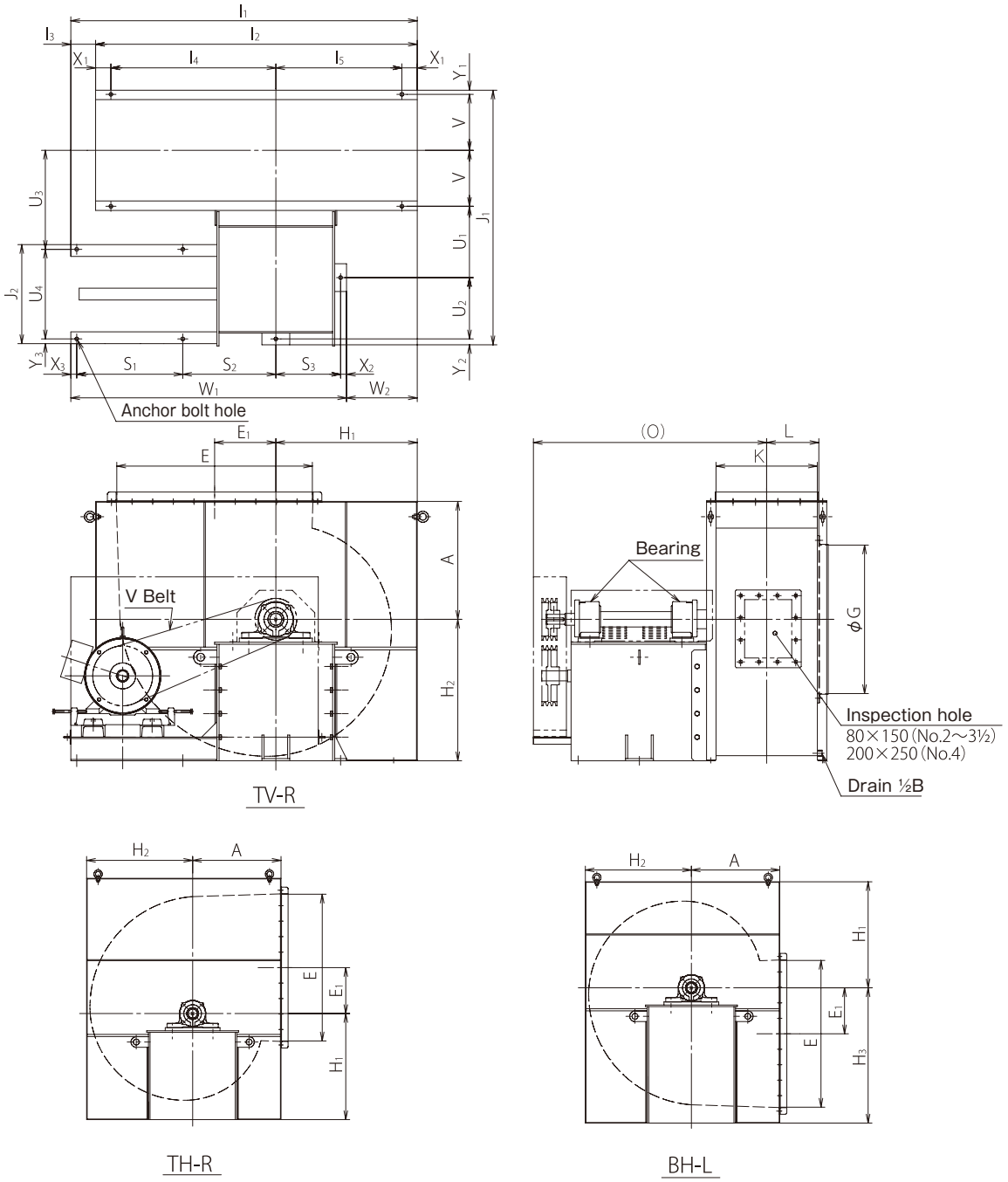


■Assembly drawing (No.2~4, -B type)



■Dimensions

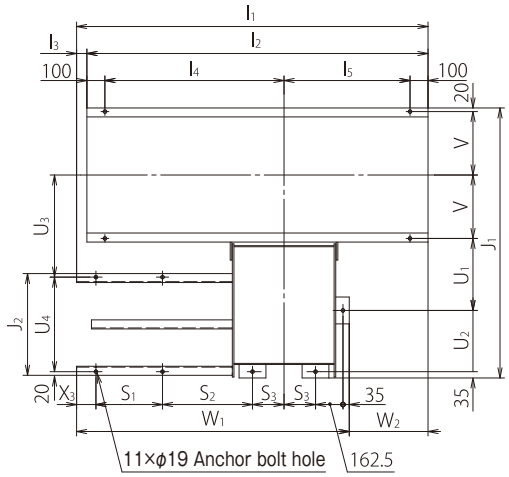
(Unit: mm)

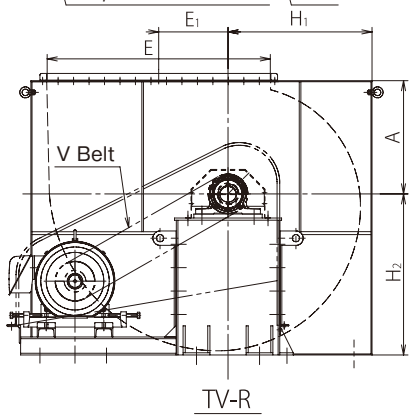
No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)	Base TV-R					
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side				I1	I2	I3	I4	I5	W2
2	260	132.5	300	300	420	112	669	310	415	210	6307	6210	4300	3.7(112M)	121kg	857.5	720	137.5	365	245	82.5
2½	310	157.5	390	390	495	140.5	720	400	515	270	6308	6211	3400	5.5(132S)	162kg	997.5	885	112.5	440	335	172.5
3	370	195	460	460	595	166.5	884	480	620	320	6309	6212	2800	7.5(132M)	251kg	1277.5	1055	222.5	530	395	170
3½	430	227.5	540	540	680	194	916	550	725	375	6310	6213	2370	11(160M)	349kg	1410	1220	190	615	475	250
4	500	260	600	600	765	221.5	1009	630	830	430	6311	6214	2150	15(160L)	405kg	1470	1365	105	700	535	300

No.	Base																								Anchor bolt hole
	TH-R/BH-L						TH-R/TV-R/BH-L																		
	I1	I2	I3	I4	I5	W2	J1	J2	S1	S2	S3	U1	U2	U3	U4	V	W1	X1	X2	X3	Y1	Y2	Y3	
2	817.5	560	257.5	245	205	42.5	675	257.5	310	230	200	225	170	295	222.5	122.5	775	55	17.5	17.5	12.5	17.5	17.5	10×φ12
2½	917.5	700	217.5	335	255	92.5	735	307.5	360	230	200	205	190	275	272.5	152.5	825	55	17.5	17.5	12.5	17.5	17.5	10×φ12
3	1187.5	830	357.5	395	305	80	915	330	455	345	265	272.5	230	390	295	182.5	1107.5	65	25	17.5	17.5	25	17.5	10×φ15
3½	1300	970	330	475	365	140	972	380	455	395	265	272.5	230	372.5	340	210	1160	65	25	20	(19)	25	20	10×φ15
4	1370	1100	270	535	435	200	1087	420	455	395	275	302.5	260	420	380	237.5	1170	65	25	20	(19)	25	20	10×φ15

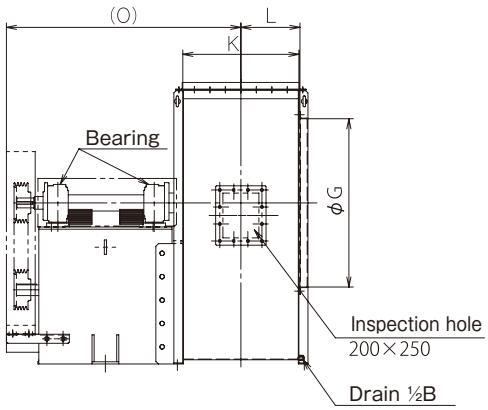
※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

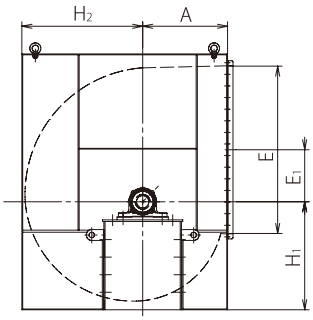
■Assembly drawing (No.4½~6, -B type)



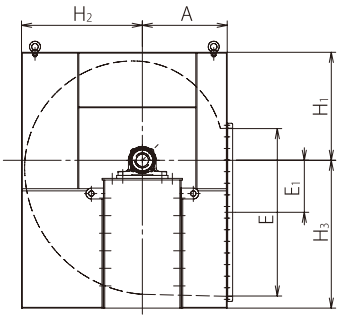


TV-R





TH-R



BH-L

■Dimensions

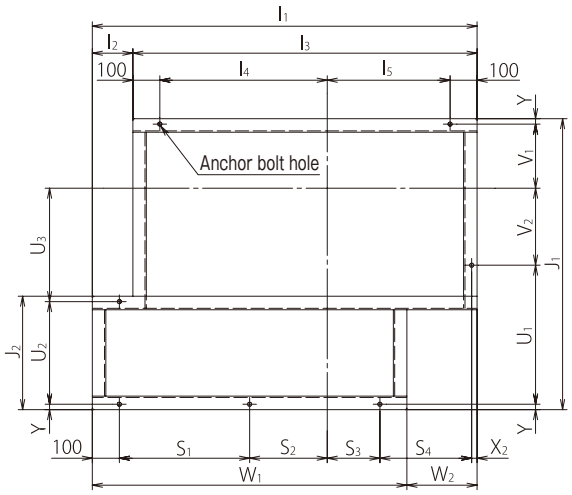
(Unit: mm)

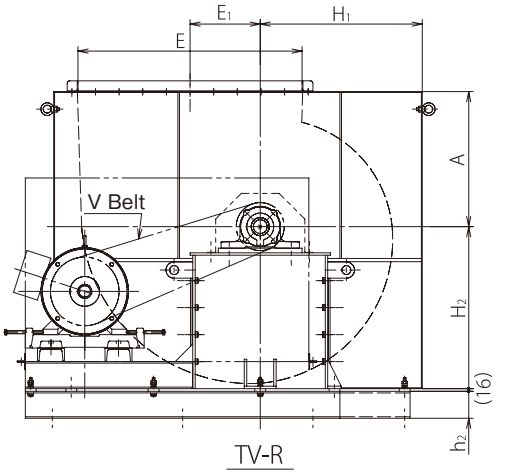
No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)	Base TV-R					
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side				I1	I2	I3	I4	I5	W2
4½	550	292.5	600	675	870	248.5	1072	710	930	485	6312	6215	1920	18.5(180M)	543kg	1580	1470	110	770	500	275
5	575	322.5	670	750	920	276	1174	780	1035	540	6313	6216	1650	22(180M)	635kg	1670	1590	80	820	570	325
5½	600	355	740	820	1010	301	1199	860	1140	590	6314	6217	1560	30(180L)	722kg	1740	1750	-10	910	640	395
6	629	385	800	895	1095	328.5	1332	935	1240	645	6316	6219	1450	37(200L)	873kg	1952.5	1895	57.5	995	700	437.5

No.	Base																	
	TH-R/BH-L						TH-R/TV-R/BH-L											
	I1	I2	I3	I4	I5	W2	J1	J2	S1	S2	S3	U1	U2	U3	U4	V	W1	X3
4½	1530	1225	305	575	450	225	1165	420	290	455	127.5	305	260	457.5	380	272.5	1305	107.5
5	1575	1325	250	650	475	230	1290	420	320	425	147.5	340	295	555	380	300	1345	107.5
5½	1600	1420	180	720	500	255	1340	460	350	425	147.5	340	295	540	420	325	1345	77.5
6	1781.5	1524	257.5	795	529	266.5	1500	565	370	510	165	400	340	567.5	525	352.5	1515	107.5

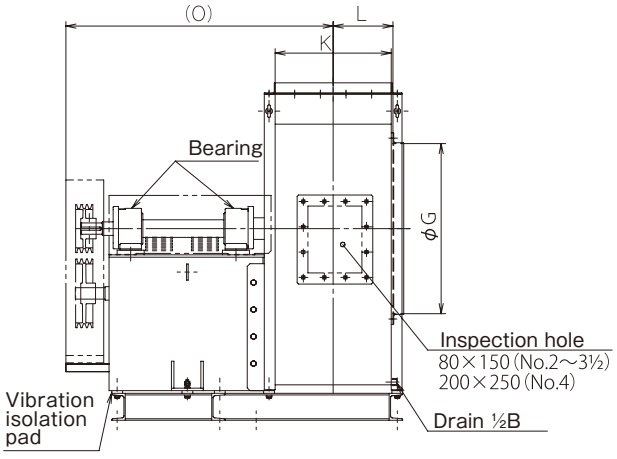
※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

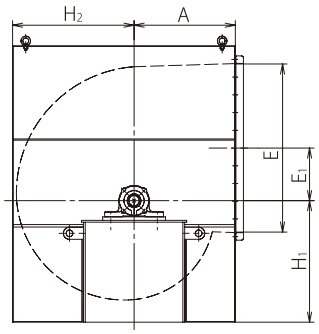
■Assembly drawing (No.2~4, -ND(D)type)



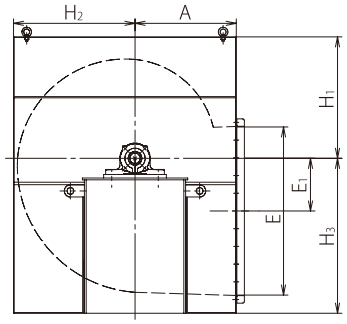


TV-R





TH-R



BH-L

■Dimensions

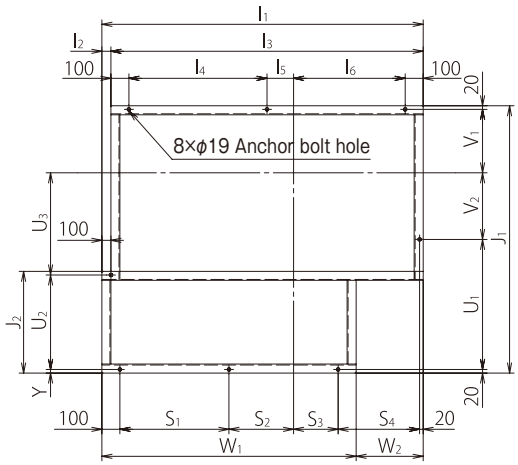
(Unit: mm)

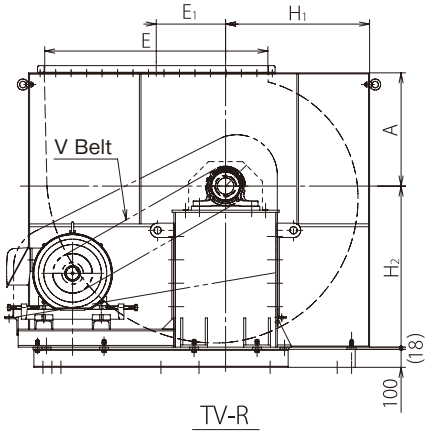
No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)	Base TV-R						
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side				I1	I2	I3	I4	I5	S4	W2
2	260	132.5	300	300	420	112	669	310	415	210	6307	6210	4300	3.7(112M)	143kg	820	175	645	282.5	162.5	127.5	45
2½	310	157.5	390	390	495	140.5	720	400	515	270	6308	6211	3400	5.5(132S)	187kg	960	150	810	357.5	252.5	217.5	135
3	370	195	460	460	595	166.5	884	480	620	320	6309	6212	2800	7.5(132M)	283kg	1230	270	960	447.5	312.5	212.5	130
3½	430	227.5	540	540	680	194	916	550	725	375	6310	6213	2370	11(160M)	385kg	1365	235	1130	535	395	290	210
4	500	260	600	600	765	221.5	1009	630	830	430	6311	6214	2150	15(160L)	456kg	1425	150	1275	620	455	340	260

No.	Base TH-R/BH-L							Base TH-R/TV-R/BH-L														Anchor bolt hole
	I1	I2	I3	I4	I5	S4	W2	J1	J2	S1	S2	S3	U1	U2	U3	V1	V2	W1	X2	Y	h2	
2	780	295	485	162.5	122.5	87.5	5	675	257.5	457.5	—	117.5	320	222.5	295	122.5	197.5	775	17.5	17.5	75	6×φ12
2½	880	255	625	252.5	172.5	137.5	55	735	307.5	507.5	—	117.5	350	272.5	275	152.5	197.5	825	17.5	17.5	75	6×φ12
3	1140	405	735	312.5	222.5	122.5	40	902.5	330	450	267.5	182.5	435	295	390	182.5	250	1100	17.5	17.5	75	7×φ15
3½	1255	375	880	395	285	180	100	962.5	380	477.5	292.5	185	462.5	340	372.5	210	250	1155	20	20	100	7×φ15
4	1325	315	1010	455	355	240	160	1077.5	420	482.5	287.5	195	515	380	420	237.5	285	1165	20	20	100	7×φ15

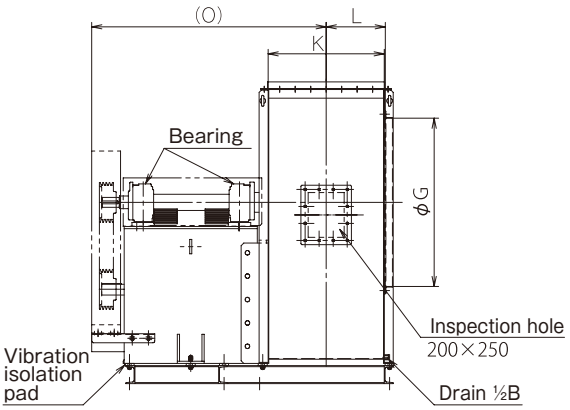
※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

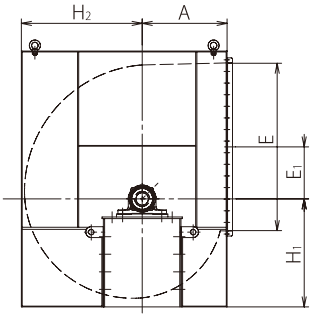
■Assembly drawing (No.4½~6, -ND(D)type)



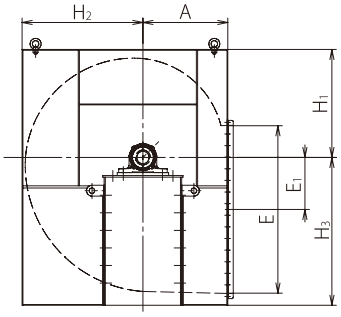


TV-R





TH-R



BH-L

■Dimensions

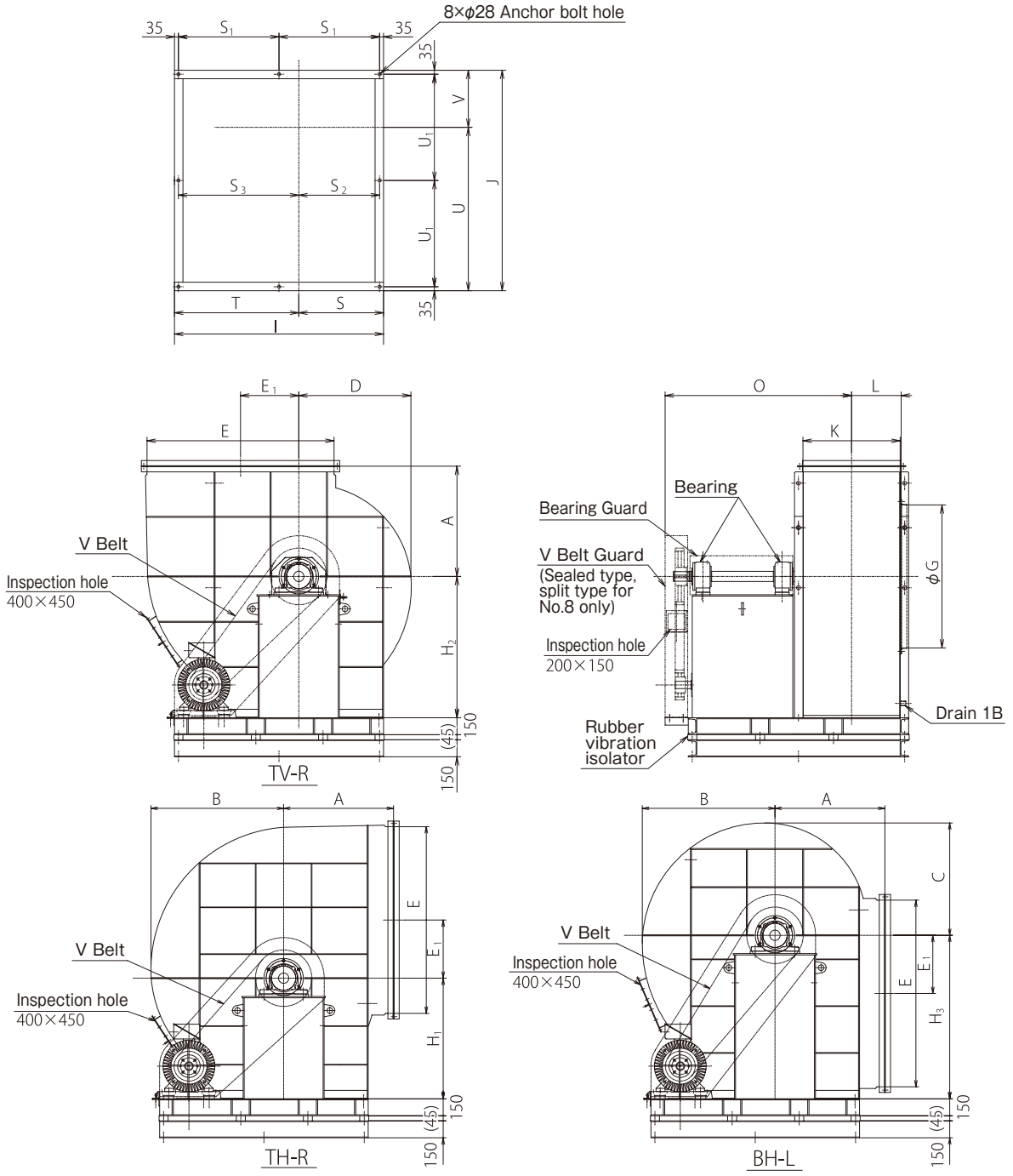
(Unit: mm)

No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (Excluding Motor and Pulley)	Base TV-R								
	A	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side				I1	I2	I3	I4	I5	I6	S4	W2	X3
4½	550	292.5	600	675	870	248.5	1072	710	930	485	6312	6215	1900	18.5(180M)	597kg	1412.5	102.5	1310	555	135	420	290	210	100
5	575	322.5	670	750	920	276	1174	780	1035	540	6313	6216	1650	22(180M)	693kg	1502.5	72.5	1430	615	125	490	340	260	50
5½	600	355	740	820	1010	301	1199	860	1140	590	6314	6217	1560	30(180L)	783kg	1602.5	12.5	1590	695	135	560	410	330	30
6	629	385	800	895	1095	328.5	1332	935	1240	645	6316	6219	1450	37(200L)	940kg	1785	50	1735	767.5	147.5	620	452.5	372.5	50

No.	Base																		
	TH-R/BH-L								TH-R/TV-R/BH-L										
	I1	I2	I3	I4	I5	I6	S4	W2	J1	J2	S1	S2	S3	U1	U2	U3	V1	V2	W1
4½	1362.5	297.5	1065	432.5	62.5	370	240	160	1150	420	501	291.5	210	555	380	457.5	272.5	282.5	1202.5
5	1407.5	242.5	1165	482.5	87.5	395	245	165	1275	420	521	291.5	230	600	380	555	300	335	1242.5
5½	1462.5	202.5	1260	530	110	420	270	190	1325	460	536	306.5	230	600	420	540	325	360	1272.5
6	1614	250	1364	582	133	449	281.5	201.5	1485	565	606	359	247.5	700	525	567.5	352.5	392.5	1412.5

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Assembly drawing (No.6½~8)



※The drawing shows D installation method (floor type vibration-proof). B type (with common base) has only the common base, and does not include a vibration isolation base.

■Dimensions

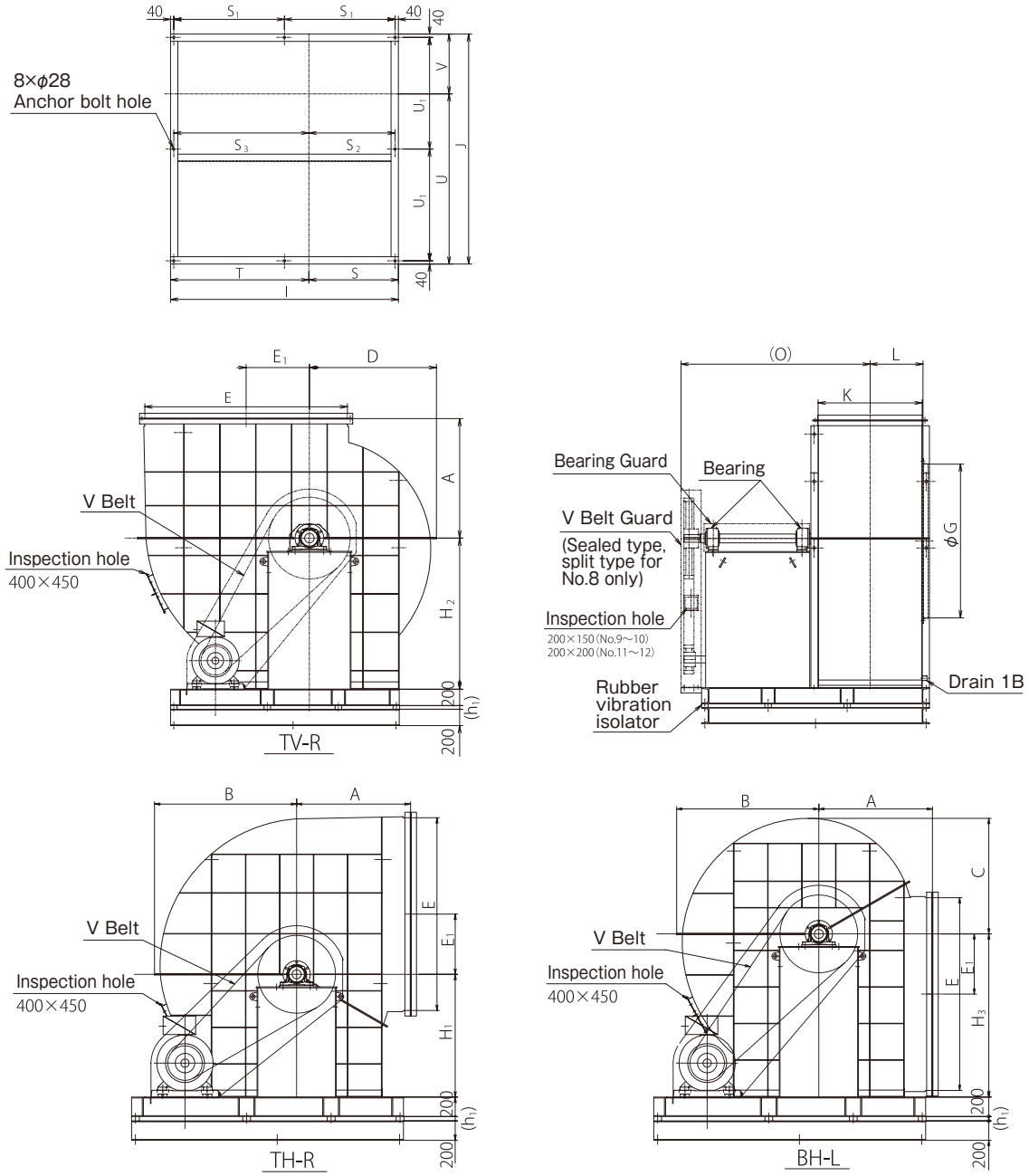
(Unit: mm)

No.	Main Unit										Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (min⁻¹) (50/60Hz)	Electric Motor Output (kW)	Approximate Weight (Excluding Motor and Pulley)
	A	B	C	D	E1	H1	H2	H3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
6½	790	1005	815	870	420	840	1020	1170	360	1480	1030	1345	700	1318K		1120/1140	7.5~37	1470kg
7	855	1080	875	935	450	935	1090	1260	385	1510	1105	1450	750	1318K		1050/1070	7.5~45	1580kg
8	975	1235	1000	1055	515.5	1070	1250	1450	440	1660	1265	1655	860	1320K		940/940	7.5~75	1980kg

No.	Base									
	I	J	S	S1	S2	S3	T	U	U1	V
6½	1635	1690	625	782.5	590	975	1010	1265	810	425
7	1685	1740	675	807.5	640	975	1010	1290	835	450
8	1850	1950	750	890	715	1065	1100	1445	940	505

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Split type casing is also available.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Assembly drawing (No.9~12)



※The drawing shows D installation method (floor type vibration-proof). B type (with common base) has only the common base, and does not include a vibration isolation base.

■Dimensions

(Unit: mm)

No.	Main Unit										Suction Companion Flange	Discharge Companion Flange		Bearing		Max. Rotational Speed (min⁻¹) (50/60Hz)	Electric Motor Output (kW)	Approximate Weight (Excluding Motor and Pulley)
	A	B	C	D	E_1	H_1	H_2	H_3	L	O	G	E	K	Pulley Side	Opposite Pulley Side			
9	1100	1400	1120	1200	580.5	1200	1450	1700	492	1900	1425	1860	965	22224K		830	15~75	3100kg
10	1220	1550	1240	1320	645	1300	1600	1780	547	2050	1580	2070	1075	22224K		740	15~90	3600kg
11	1340	1690	1370	1440	710	1450	1700	1930	600	2250	1740	2275	1180	22224K		670	18.5~110	4400kg
12	1460	1830	1490	1560	774.5	1580	1850	2100	655	2400	1905	2480	1290	22224K		610	22~132	5200kg

No.	Base										
	I	J	S	S_1	S_2	S_3	T	U	U_1	V	h_1
9	2395	2200	825	1157.5	785	1530	1570	1627.5	1060	572.5	45
10	2575	2410	925	1247.5	885	1610	1650	1782.5	1165	627.5	45
11	2700	2615	1000	1310	960	1660	1700	1935	1267.5	680	55
12	2800	2825	1100	1360	1060	1660	1700	2090	1372.5	735	55

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Split type casing is used for delivery.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Companion Flange Dimensional Drawing

Suction Companion Flange

Fig. 1

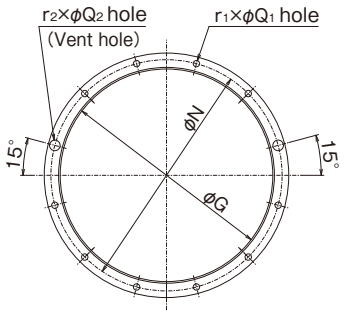


Fig. 2

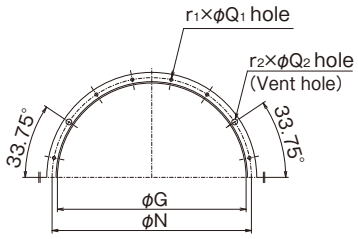


Fig. 3

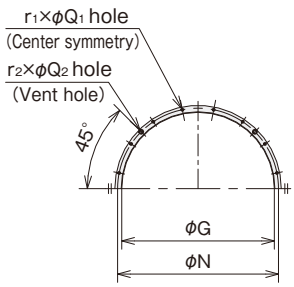
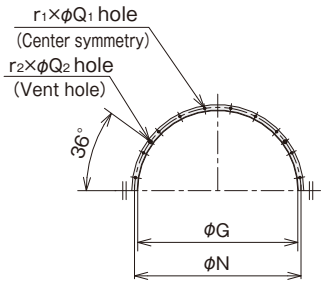


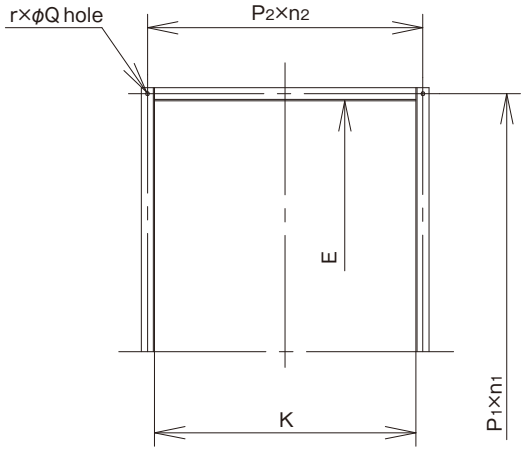
Fig. 4



(Unit: mm)

No.	G	N	r1×Q1	r2×Q2 Vent hole	Steel material size	Fig. No.
2	310	350	10×10	2×15	L30×30×3	1
2½	400	435	10×12	2×20	L30×30×3	
3	480	515	10×12	2×20	L30×30×3	
3½	550	590	10×12	2×20	L40×40×3	
4	630	670	12×12	4×20	L40×40×3	2
4½	710	750	12×12	4×20	L40×40×3	
5	780	825	12×12	4×20	L40×40×3	
5½	860	905	12×12	4×20	L40×40×3	
6	935	980	12×12	4×20	L40×40×3	
6½	1030	1090	16×15	4×30	L50×50×4	3
7	1105	1165	16×15	4×30	L50×50×4	
8	1265	1325	16×15	4×30	L50×50×4	
9	1425	1485	20×15	4×30	L50×50×4	4
10	1580	1640	20×15	4×30	L50×50×4	
11	1740	1810	20×19	4×36	L65×65×6	
12	1905	1975	20×19	4×36	L65×65×6	

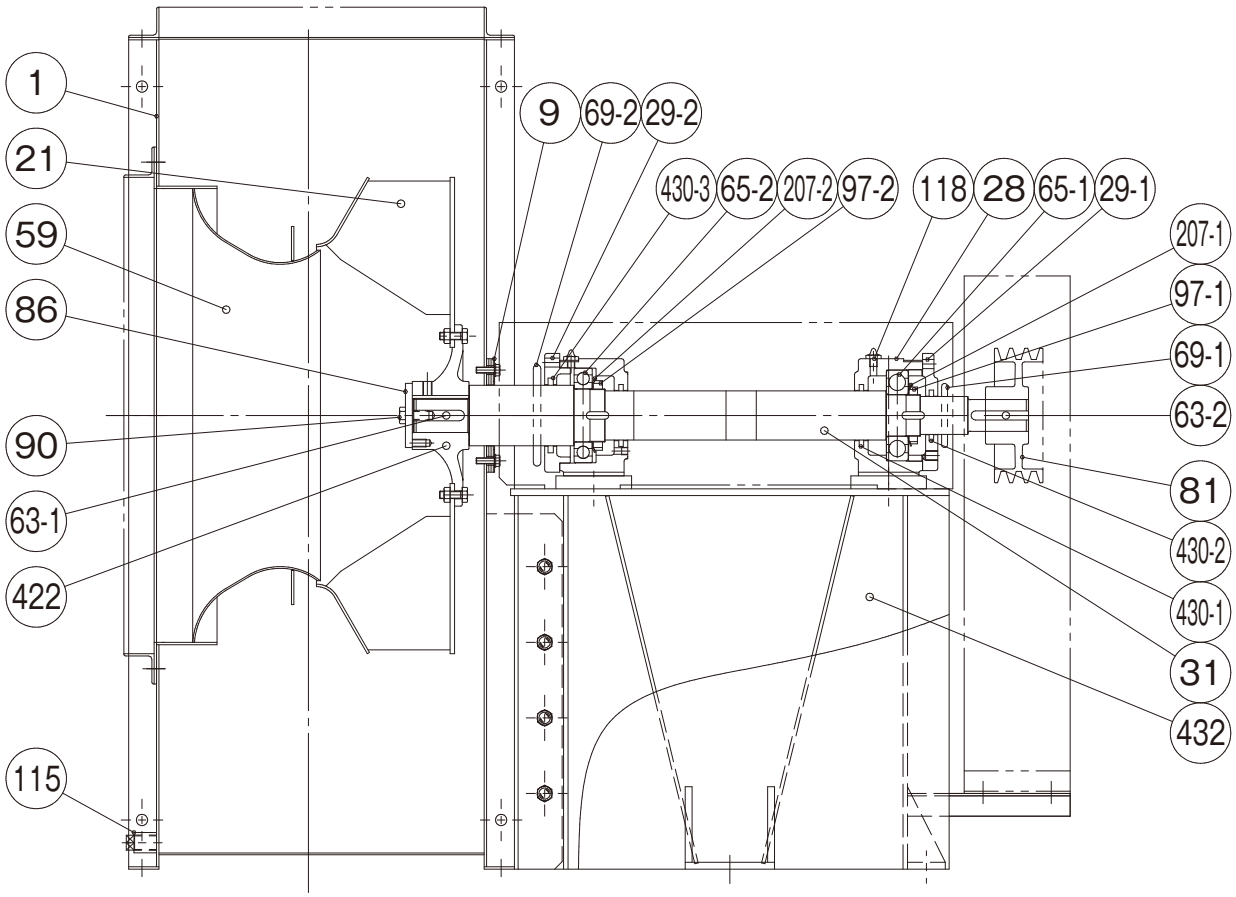
Discharge Companion Flange



(Unit: mm)

No.	E	K	P1 × n1	P2 × n2	r × Q	Steel material size
2	415	210	90 × 5	82 ×3	16×10	L30×30×3
2½	515	270	92 × 6	76.5×4	20×10	L30×30×3
3	620	320	74 × 9	73 ×5	28×12	L40×40×3
3½	725	375	77 ×10	84 ×5	30×12	L40×40×3
4	830	430	87.5×10	95 ×5	30×12	L40×40×3
4½	930	485	97.5×10	88.5×6	32×12	L40×40×3
5	1035	540	98 ×11	97.5×6	34×12	L40×40×3
5½	1140	590	91 ×13	91 ×7	40×12	L40×40×3
6	1240	645	86 ×15	86 ×8	46×15	L40×40×3
6½	1345	700	175 × 8	152 ×5	26×15	L50×50×4
7	1450	750	168 × 9	162 ×5	28×15	L50×50×4
8	1655	860	171 ×10	153 ×6	32×15	L50×50×4
9	1860	965	160 ×12	170 ×6	36×15	L50×50×4
10	2070	1075	177.5×12	162 ×7	38×15	L50×50×4
11	2275	1180	167.5×14	178 ×7	42×19	L65×65×6
12	2480	1290	170 ×15	170 ×8	46×19	L65×65×6

■Internal structure drawing



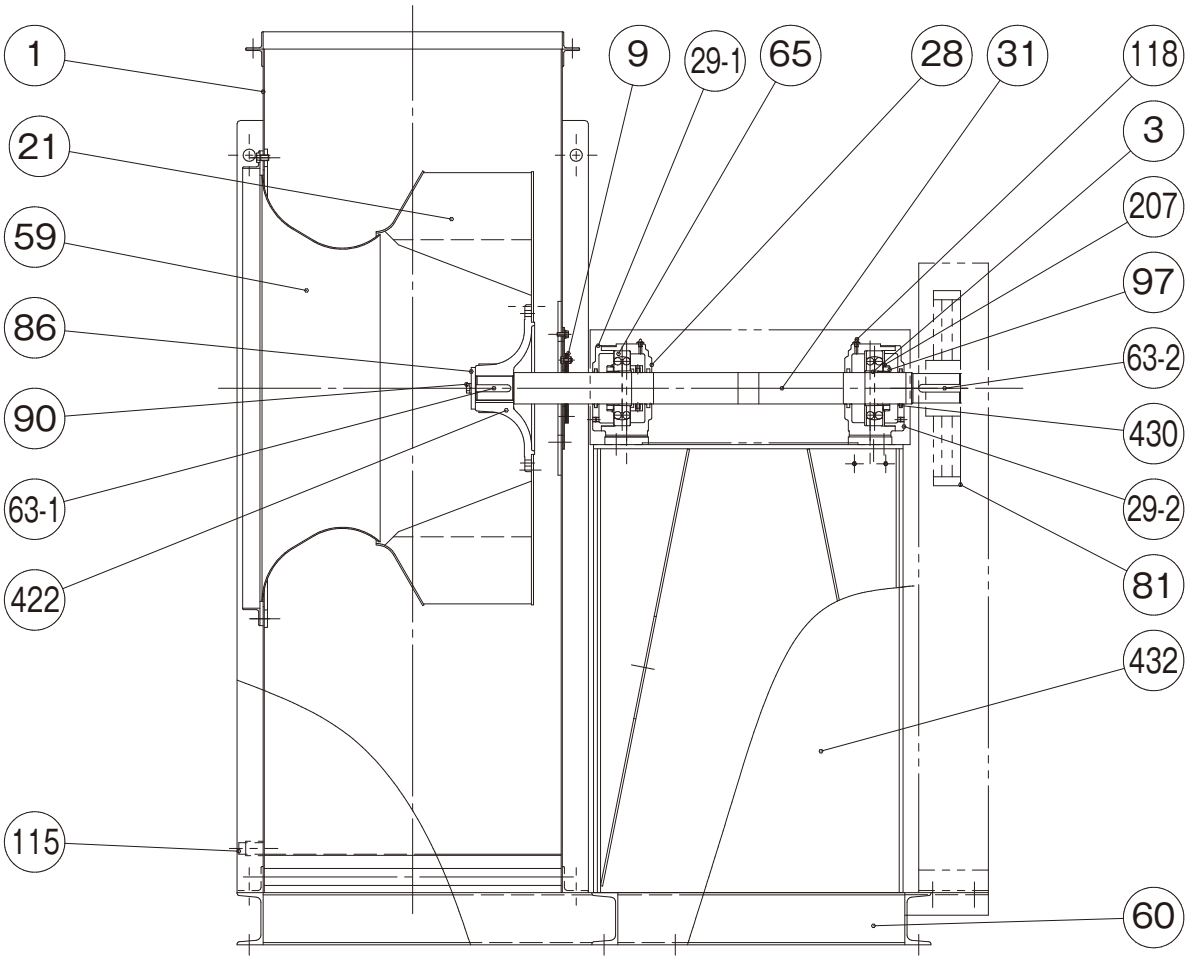
Code	Part name	Qty	Material
1	Casing	1	SPHC · SS400
21	Impeller	1	SPHC · SM570
422	Impeller Boss	1	FCD450
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWCH
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC
31	Shaft	1	S45C
28	Bearing Case	2	FC200

Code	Part name	Qty	Material
29-1	Bearing Cap A	1	FC200
29-2	Bearing Cap C	1	FC200
118	Grease Nipple	2	C3604B
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
432	Bearing base	1	SPHC · SS400
115	Drain	1	SS400
9	Shaft Seal		

Code	Part name	Qty	Material	No.2	No.2½	No.3	No.3½	No.4	No.4½	No.5	No.5½	No.6
65-1	Ball Bearing	1	SUJ	6307	6308	6309	6310	6311	6312	6313	6314	6316
65-2	Ball Bearing	1	SUJ	6210	6211	6212	6213	6214	6215	6216	6217	6219
97-1	Bearing Nut	1	SS400	AN07	AN08	AN09	AN10	AN11	AN12	AN13	AN14	AN16
97-2	Bearing Nut	1	SS400	AN10	AN11	AN12	AN13	AN14	AN15	AN16	AN17	AN19
207-1	Bearing Washer	1	SS400	AW07	AW08	AW09	AW10	AW11	AW12	AW13	AW14	AW16
207-2	Bearing Washer	1	SS400	AW10	AW11	AW12	AW13	AW14	AW15	AW16	AW17	AW19
430-1	Felt Ring	2	FELT	Fi10	Fi11	Fi12	Fi13	Fi15	Fi16.5	Fi17.5	Fi18.5	Fi20.5
430-2	Felt Ring	1	FELT	Fi07	Fi08	Fi09	Fi10	Fi11	Fi12	Fi13	Fi15	Fi16
430-3	Felt Ring	1	FELT	Fi13	Fi15	Fi16	Fi17	Fi18	Fi19	Fi20	Fi21	Fi24
69-1	Deflector	1	CR	P30	P35	P40	P45	P50	P55	P60	P65	P70
69-2	Deflector	1	CR	P60	P65	P70	P75	P80	P85	P90	P95	P110

Codes 69-1 and 69-2 are only included with outdoor specifications.

■Internal structure drawing（No.6½~8）



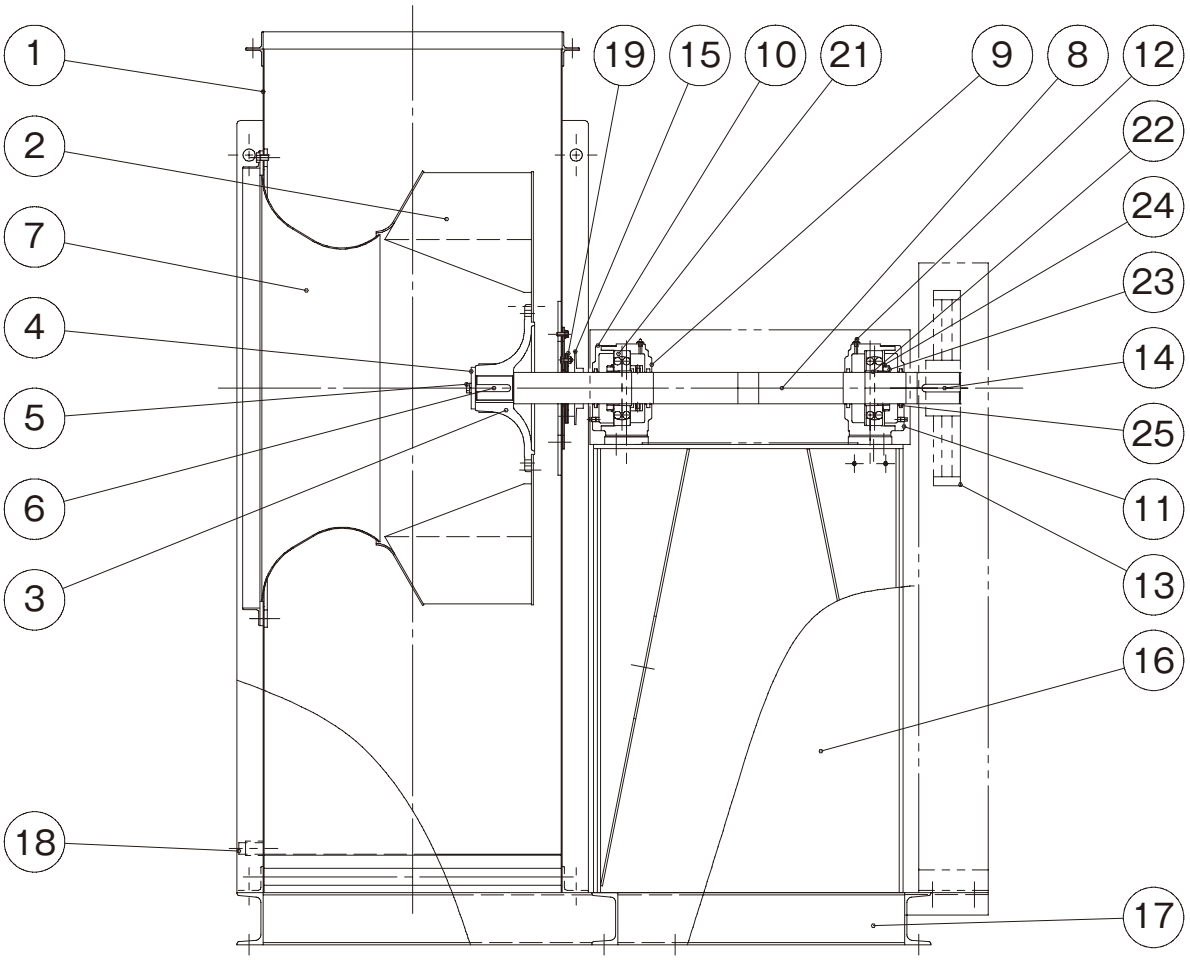
Code	Part name	Qty	Material
1	Casing	1	SPHC・SS400
21	Impeller	1	SM（JFE-HITEN590SA）
422	Impeller Boss	1	FCD450 (FCD400)
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWCH
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC・SS400
31	Shaft	1	S45C
28	Bearing Case	2	FC200

Code	Part name	Qty	Material
29-1	Bearing Cap A	1	FC200
29-2	Bearing Cap C	1	FC200
118	Grease Nipple	2	C3604B
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
432	Bearing base	1	SPHC・SS400
60	Common Base	1	SS400
115	Drain	1	SS400
9	Shaft Seal	1	

Code	Part name	Qty	Material	No.6½	No.7	No.8
65	Bearing	2	SUJ2	1318K	1318K	1320K
3	Adapter	2	SS400	H318X	H318X	H320X
97	Bearing Nut	2	SS400	AN18	AN18	AN20
207	Bearing Washer	2	SS400	AW18	AW18	AW20
430	Felt Ring	4	FELT	Fi18	Fi18	Fi20

※Applies to air temperatures of 0 - 90°C.

■Internal structure drawing (No.6½~8)



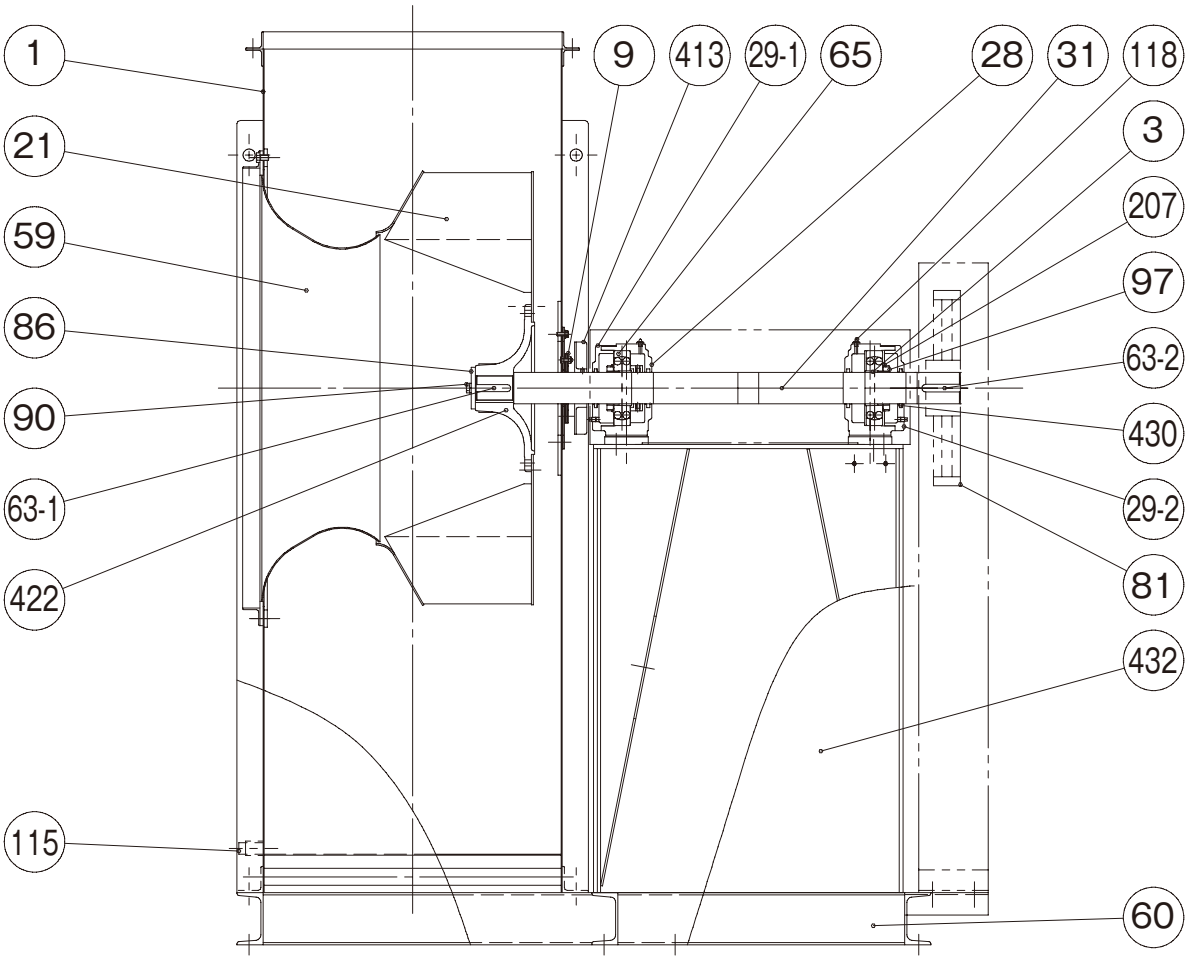
Code	Part name	Qty	Material
1	Casing	1	SPHC · SS400
2	Impeller	1	SM (JFE-HITEN590SA)
3	Impeller Boss	1	FCD450 (FCD400)
4	Impeller retaining washer	1	SS400
5	Impeller Tap Bolt	1	SWCH
6	Impeller Key	1	S45C
7	Suction opening	1	SPHC · SS400
8	Main Shaft	1	S45C
9	Bearing Case	2	FC200
10	Bearing Cap A	1	FC200

Code	Part name	Qty	Material
11	Bearing Cap C	1	FC200
12	Grease Nipple	2	C3604B
13	V Pulley	1	FC200
14	V Pulley Key	1	S45C
15	Heat-radiating plate	1	FC200
16	Bearing base	1	SPHC · SS400
17	Common Base	1	SS400
18	Drain	1	SS400
19	Shaft Seal	1	

Code	Part name	Qty	Material	No.6½	No.7	No.8
21	Bearing	2	SUJ2	1318K	1318K	1320K
22	Adapter	2	SS400	H318X	H318X	H320X
23	Bearing Nut	2	SS400	AN18	AN18	AN20
24	Bearing Washer	2	SS400	AW18	AW18	AW20
25	Felt Ring	4	FELT	Fi18	Fi18	Fi20

※Applies to air temperatures of 91 - 200°C.

■Internal structure drawing（No.6½~8）



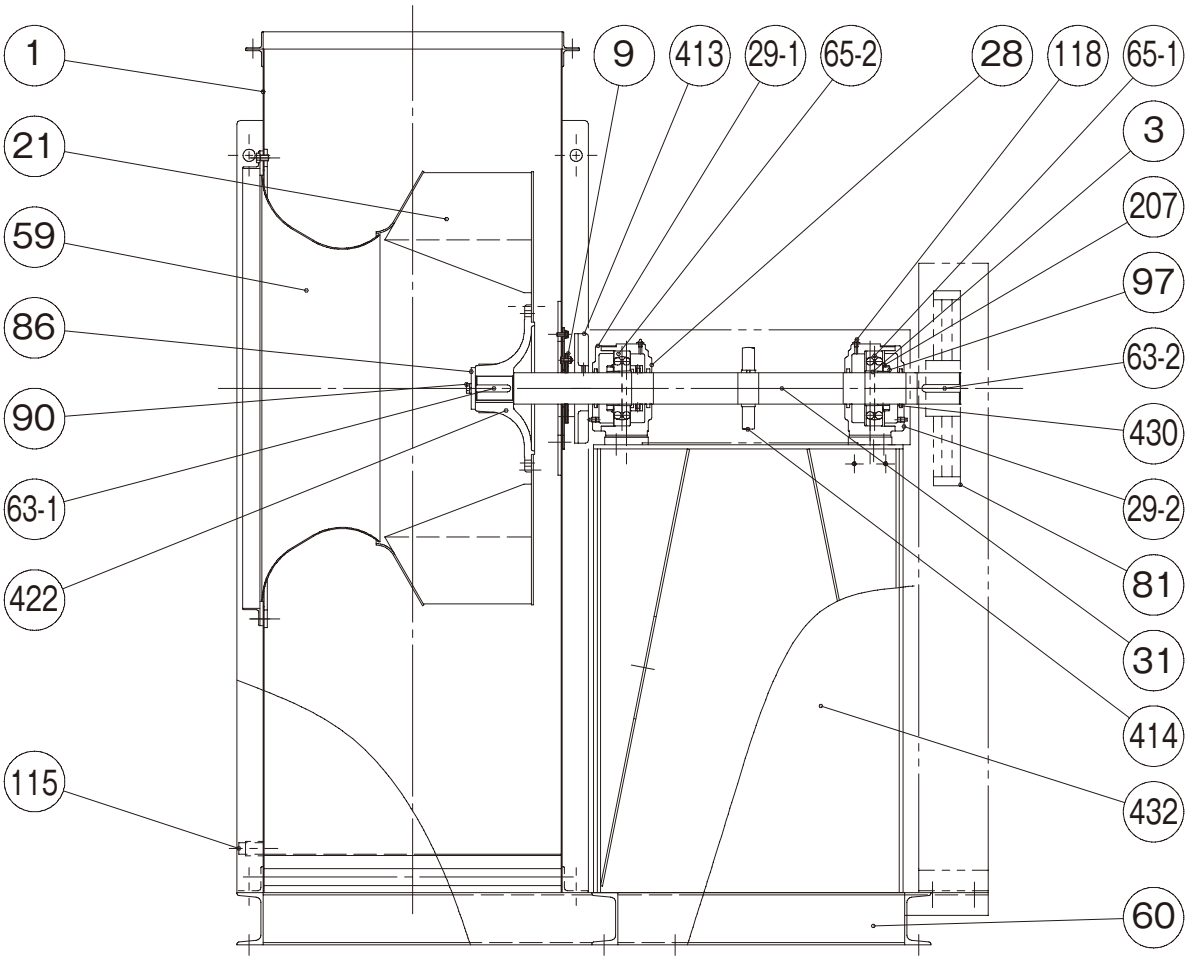
Code	Part name	Qty	Material
1	Casing	1	SPHC・SS400
21	Impeller	1	SM（JFE-HITEN590SA）
422	Impeller Boss	1	FCD450 (FCD400)
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWCH
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC・SS400
31	Shaft	1	S45C
28	Bearing Case	2	FC200
29-1	Bearing Cap A	1	FC200

Code	Part name	Qty	Material
29-2	Bearing Cap C	1	FC200
118	Grease Nipple	2	C3604B
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
413	Heat-radiating plate	1	AC3A-F
432	Bearing base	1	SPHC・SS400
60	Common Base	1	SS400
115	Drain	1	SS400
9	Shaft Seal	1	

Code	Part name	Qty	Material	No.6½	No.7	No.8
65	Bearing	2	SUJ2	1318K	1318K	1320K
3	Adapter	2	SS400	H318X	H318X	H320X
97	Bearing Nut	2	SS400	AN18	AN18	AN20
207	Bearing Washer	2	SS400	AW18	AW18	AW20
430	Felt Ring	4	FELT	Fi18	Fi18	Fi20

※Applies to air temperatures of 201 - 250°C.

■Internal structure drawing (No.6½~8)



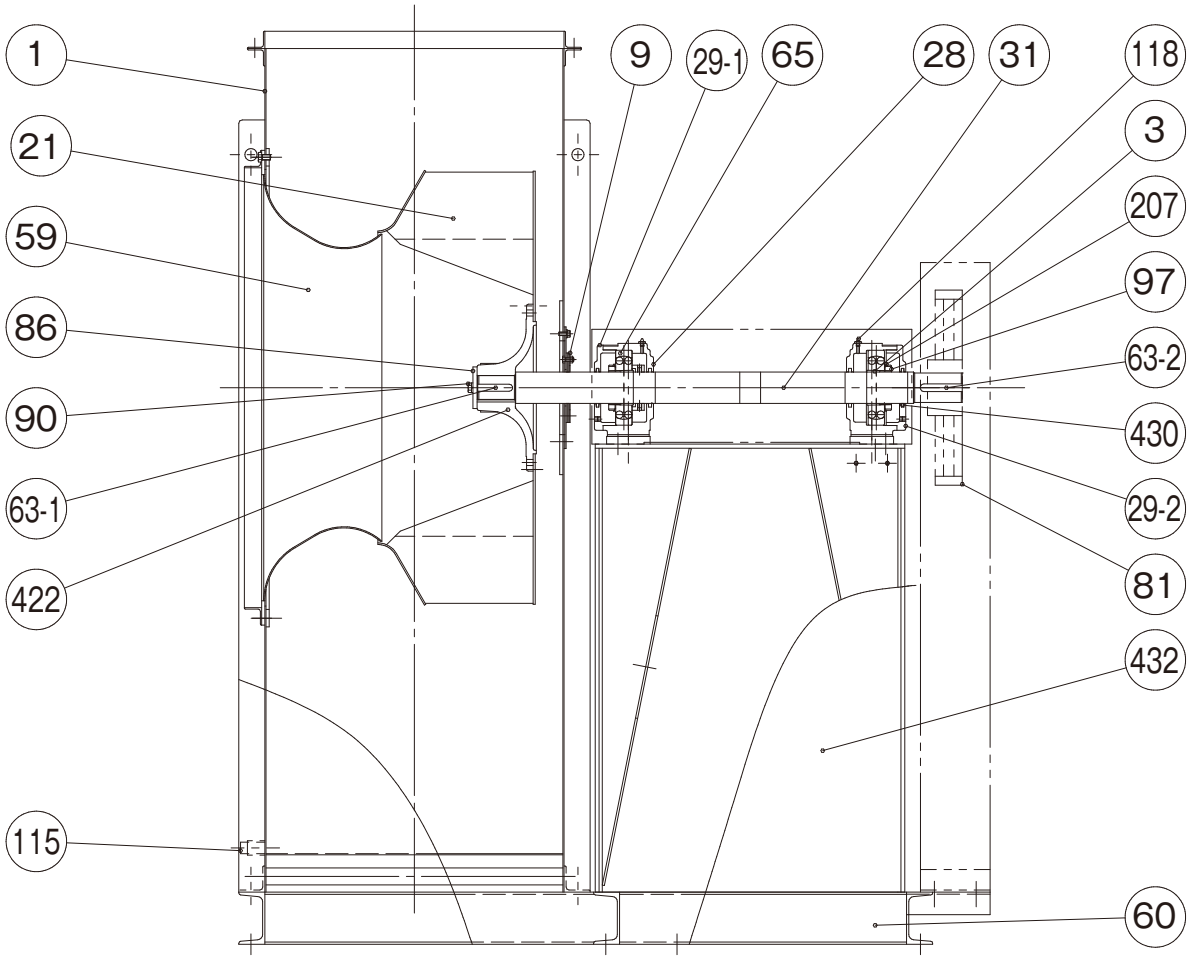
Code	Part name	Qty	Material
1	Casing	1	SPHC · SS400
21	Impeller	1	SM (JFE-HITEN590SA)
422	Impeller Boss	1	FCD450 (FCD400)
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWCH
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC · SS400
31	Shaft	1	S45C
28	Bearing Case	2	FC200
29-1	Bearing Cap A	1	FC200

Code	Part name	Qty	Material
29-2	Bearing Cap C	1	FC200
118	Grease Nipple	2	C3604B
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
413	Heat-radiating fin	1	AC3A-F
414	Cooling fin	1	SS400
432	Bearing base	1	SPHC · SS400
60	Common Base	1	SS400
115	Drain	1	SS400
9	Shaft Seal	1	

Code	Part name	Qty	Material	No.6½	No.7	No.8
65-1	Bearing	1	SUJ2	1318K	1318K	1320K
65-2	Bearing	1	SUJ2	1318KC3	1318KC3	1320KC3
3	Adapter	2	SS400	H318X	H318X	H320X
97	Bearing Nut	2	SS400	AN18	AN18	AN20
207	Bearing Washer	2	SS400	AW18	AW18	AW20
430	Felt Ring	4	FELT	Fi18	Fi18	Fi20

※Applies to air temperatures of 251 - 350°C.

■Internal structure drawing（No.9~12）



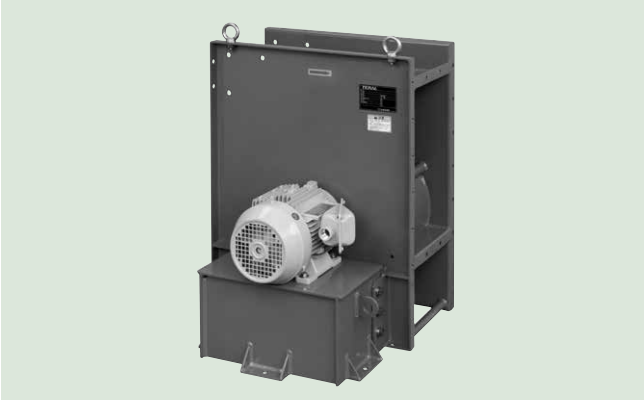
Code	Part name	Qty	Material
1	Casing	1	SPHC・SS400
21	Impeller	1	SM（JFE-HITEN590SA）
422	Impeller Boss	1	FCD450
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWCH
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHC・SS400
31	Shaft	1	S45C
28	Bearing Case	2	FC200

Code	Part name	Qty	Material
29-1	Bearing Cap A	1	FC200
29-2	Bearing Cap C	1	FC200
118	Grease Nipple	2	C3604B
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
432	Bearing base	1	SPHC・SS400
60	Common Base	1	SS400
115	Drain	1	SS400
9	Shaft Seal	1	

Code	Part name	Qty	Material	No.9	No.10	No.11	No.12
65	Bearing	2	SUJ2	22224K	22224K	22224K	22224K
3	Adapter	2	SS400	H3124X	H3124X	H3124X	H3124X
97	Bearing Nut	2	SS400	AN24	AN24	AN24	AN24
207	Bearing Washer	2	SS400	AW24	AW24	AW24	AW24
430	Felt Ring	4	FELT	Fi24	Fi24	Fi24	Fi24

Single inlet direct driven with horizontal electric motor

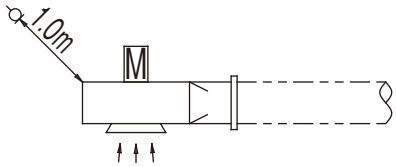
CMF3-HOH



※Please note that the above image is a representative example and may differ partially from the actual device.

■Noise Measurement Values

The noise values in the selection chart represent ambient noise values in dB (A) from one meter away from the main unit.
Noise values indicate values at the maximum efficiency point.

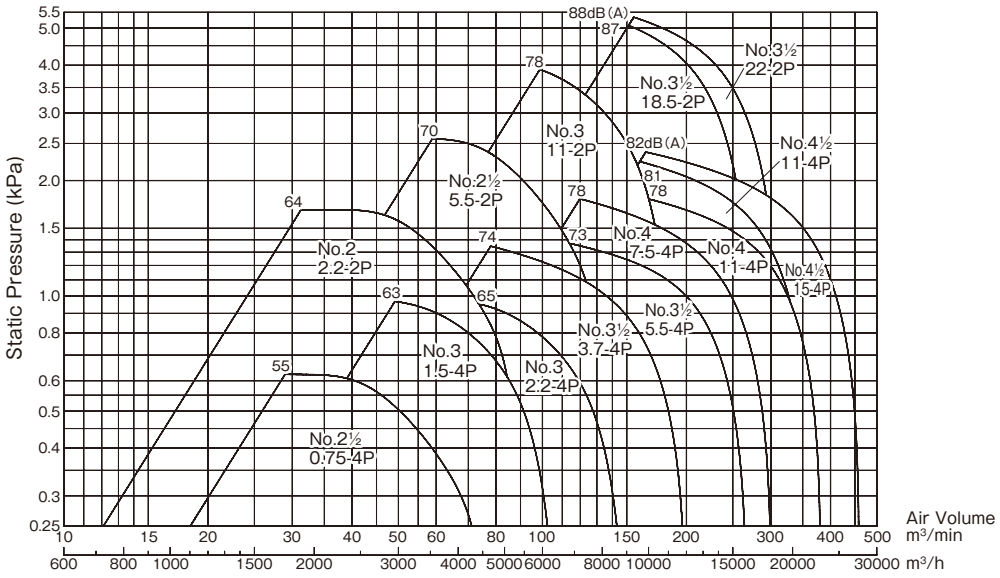


■Selection chart

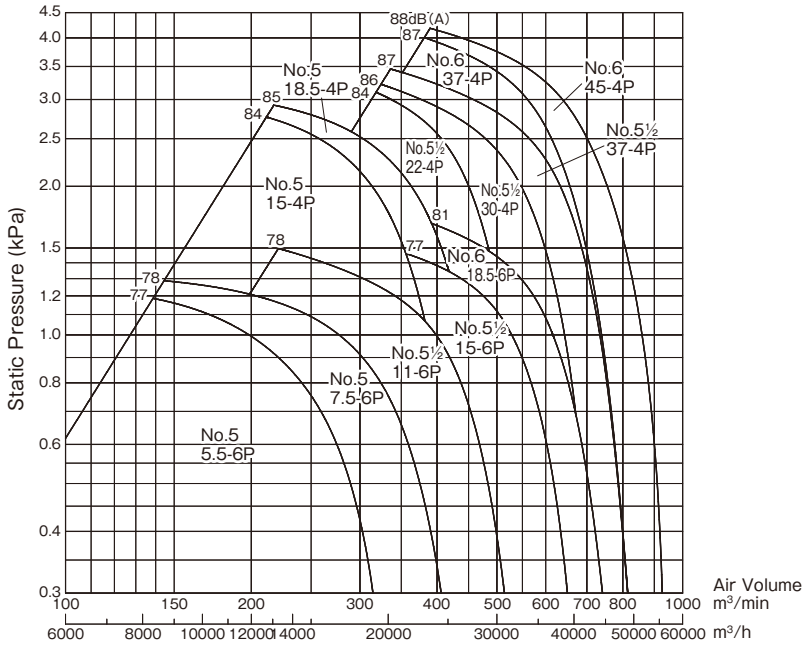
■ **Display Example**

No.6 37 - 4P
Size Output (kW) No. of Poles

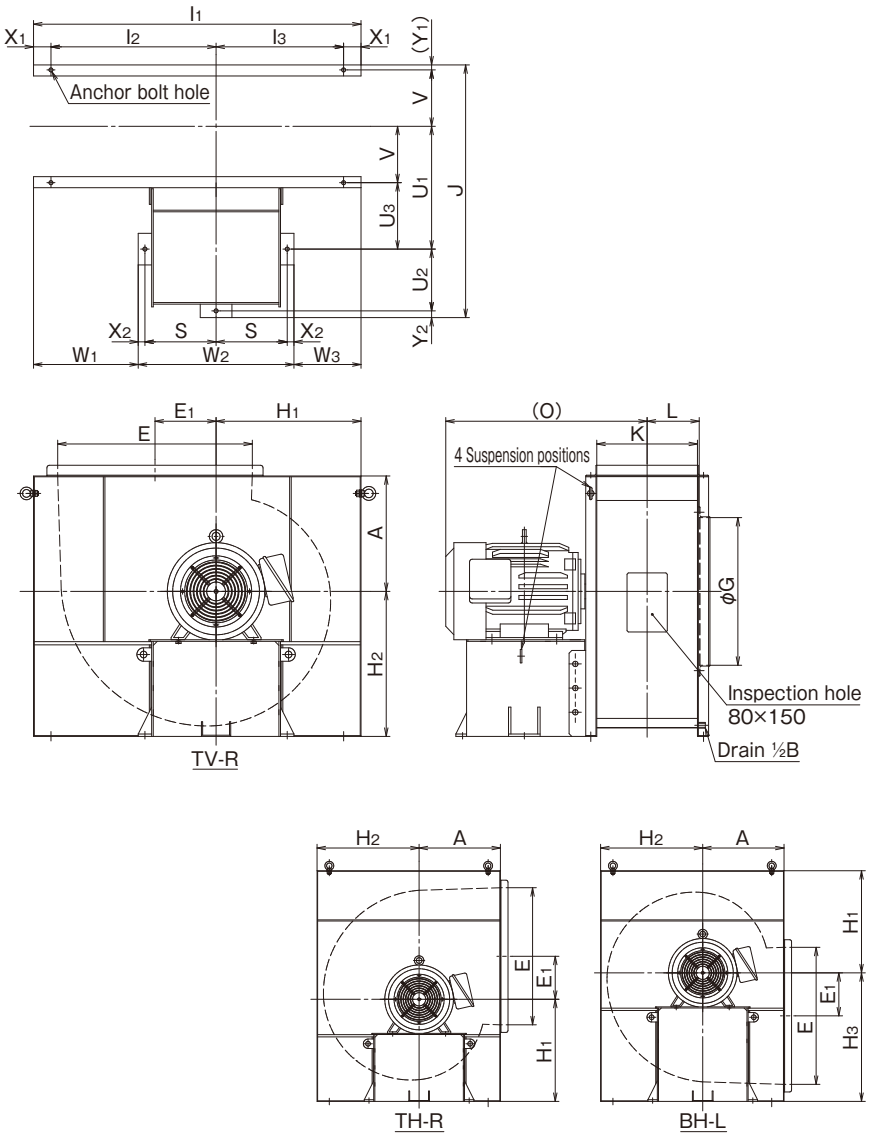
●CMF3-No.2~4½-HOH（2P, 4P）



●CMF3-No.5~6-HOH（4P, 6P）



■Assembly drawing (No.2~3½)



■Dimensions

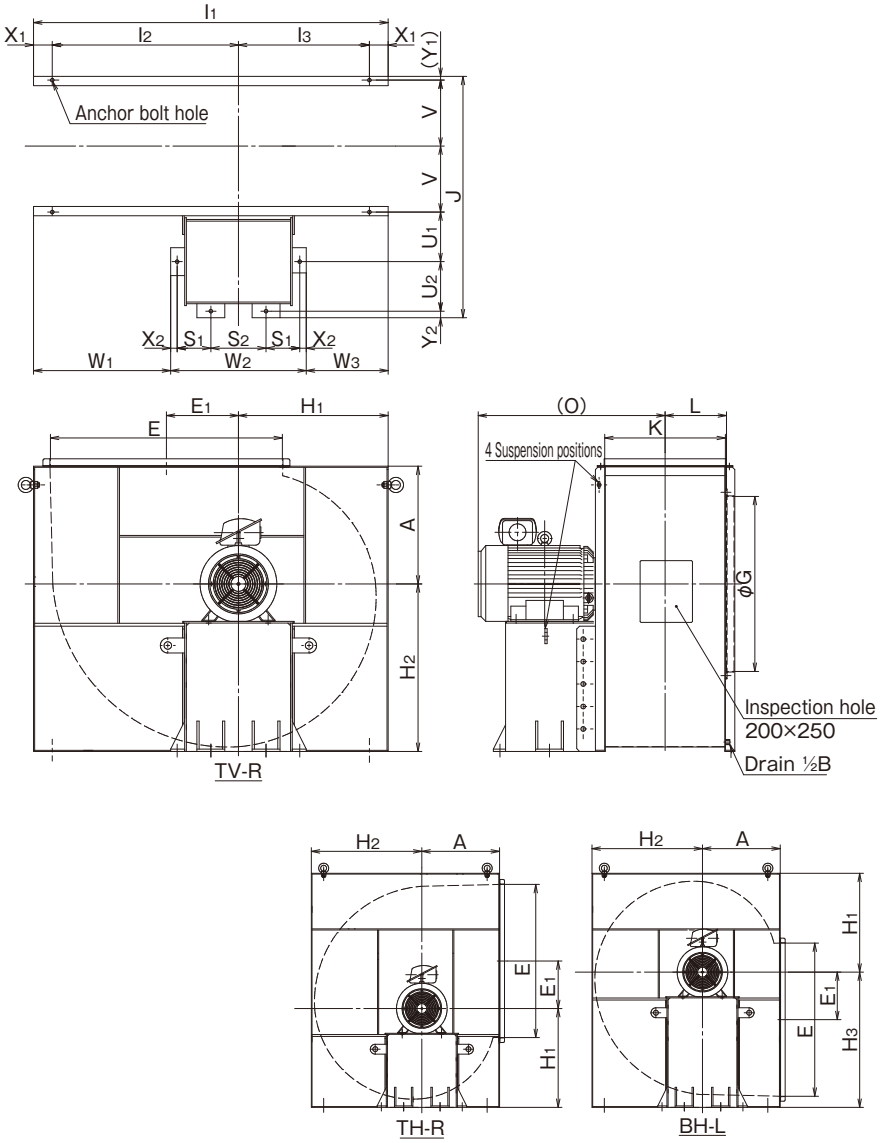
(Unit: mm)

No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Maximum Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.) (50/60Hz)	Approximate Weight (excluding motor)
	A	E1	H1	H2	H3	L	O	G	E	K			
2	260	132.5	300	300	420	112	411	310	415	210	2870/3440	1.5(90L)/2.2(90L)	73kg
2½	310	157.5	390	390	495	140.5	550	400	515	270	2910/3490	3.7(112M)/5.5(132S)	95kg
3	370	195	460	460	595	166.5	714	480	620	320	2920/3500	7.5(132S)/11(160M)	148kg
3½	430	227.5	540	540	680	194	799	550	725	375	2920/3500	15(160M)/22(180M)	198kg

No.	Base																					
	TV-R					TH-R/BH-L					TV-R/TH-R/BH-L											Anchor bolt hole
	I1	I2	I3	W1	W3	I1	I2	I3	W1	W3	J	S	V	U1	U2	U3	W2	X1	X2	Y1	Y2	
2	720	365	245	202.5	82.5	560	245	205	82.5	42.5	500	200	122.5	247.5	100	—	435	55	17.5	12.5	17.5	5×φ12
2½	885	440	335	277.5	172.5	700	335	255	172.5	92.5	620	200	152.5	277.5	160	—	435	55	17.5	12.5	17.5	5×φ12
3	1055	530	395	305	170	830	395	305	170	80	785	265	182.5	362.5	197.5	—	580	65	25	17.5	25	5×φ15
3½	1220	615	475	390	250	970	475	365	250	140	942	265	210	457.5	230	247.5	580	65	25	19	25	7×φ15

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Dimensions in parentheses vary depending on motors.
※If you use the fan with an inverter, make the settings of the inverter to enable the frequency jump function for eigenvalue of the resonance frequency values of the fan, motor, fan + base, and other parts to avoid abnormal vibration.
※Please be carful if a thermal overload relay is used, tripping may occur during starting due to the starting performance of the fan.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Assembly drawing (No.4~6)



■Dimensions

(Unit: mm)

No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Maximum Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.) (50/60Hz)	Approximate Weight (excluding motor)
	A	E1	H1	H2	H3	L	O	G	E	K			
4	500	260	600	600	765	221.5	735	630	830	430	1430/1730	5.5(132S)/11(160M)	288kg
4½	550	292.5	600	675	870	248.5	797	710	930	485	1440/1730	11(160M)/15(160L)	384kg
5	575	322.5	670	750	920	276	881	780	1035	540	1430/1750	15(160L)/18.5(180M)	447kg
5½	600	355	740	820	1010	301	1018	860	1140	590	1460/1760	30(180L)/37(200L)	532kg
6	629	385	800	895	1095	328.5	1039	935	1240	645	1460/1760	37(200L)/45(200L)	608kg

No.	Base																					Anchor bolt hole
	TV-R					TH-R/BH-L					TV-R/TH-R/BH-L											
	I1	I2	I3	W1	W3	I1	I2	I3	W1	W3	J	S1	S2	V	U1	U2	W2	X1	X2	Y1	Y2	
4	1365	700	535	465	300	1100	535	435	300	200	927	180	190	237.5	207.5	200	600	65	25	19	25	8×φ15
4½	1470	770	500	545	275	1225	575	450	350	225	1050	175	230	272.5	235	215	650	100	35	20	35	8×φ19
5	1590	820	570	575	325	1325	650	475	405	230	1105	180	260	300	235	215	690	100	35	20	35	8×φ19
5½	1750	910	640	665	395	1420	720	500	475	255	1235	180	260	325	265	265	690	100	35	20	35	8×φ19
6	1895	995	700	732.5	437.5	1524	795	529	532.5	266.5	1290	180	295	352.5	265	265	725	100	35	20	35	8×φ19

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Dimensions in parentheses vary depending on motors.
※If you use the fan with an inverter, make the settings of the inverter to enable the frequency jump function for eigenvalue of the resonance frequency values of the fan, motor, fan + base, and other parts to avoid abnormal vibration.
※Please be carful if a thermal overload relay is used, tripping may occur during starting due to the starting performance of the fan.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Assembly drawing (No.2~3, -ND(D))

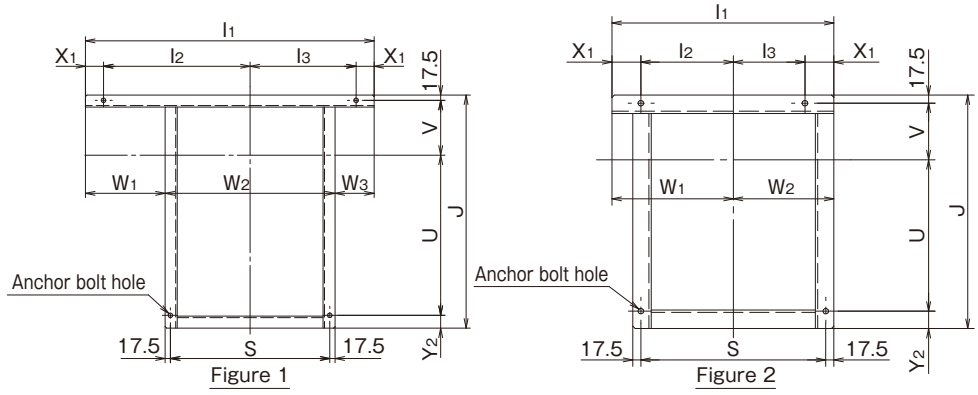
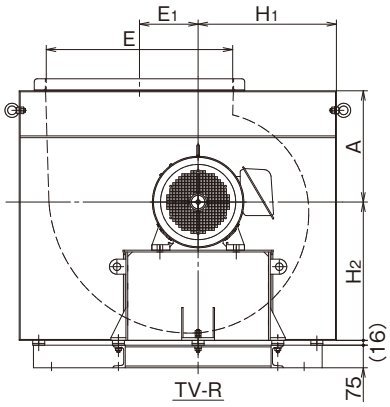
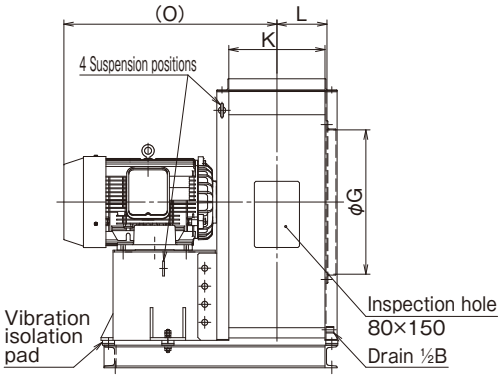


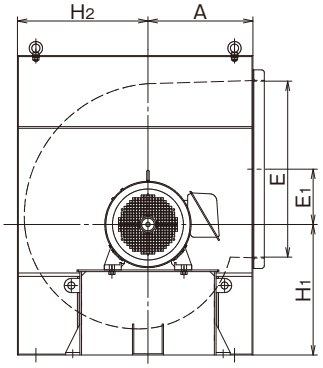
Figure 1

Figure 2

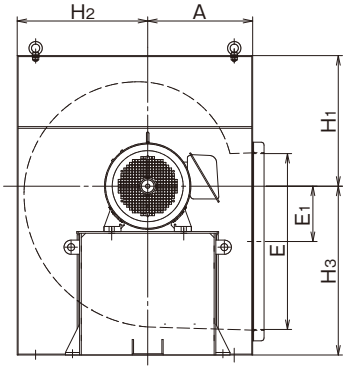


TV-R





TH-R



BH-L

■Dimensions

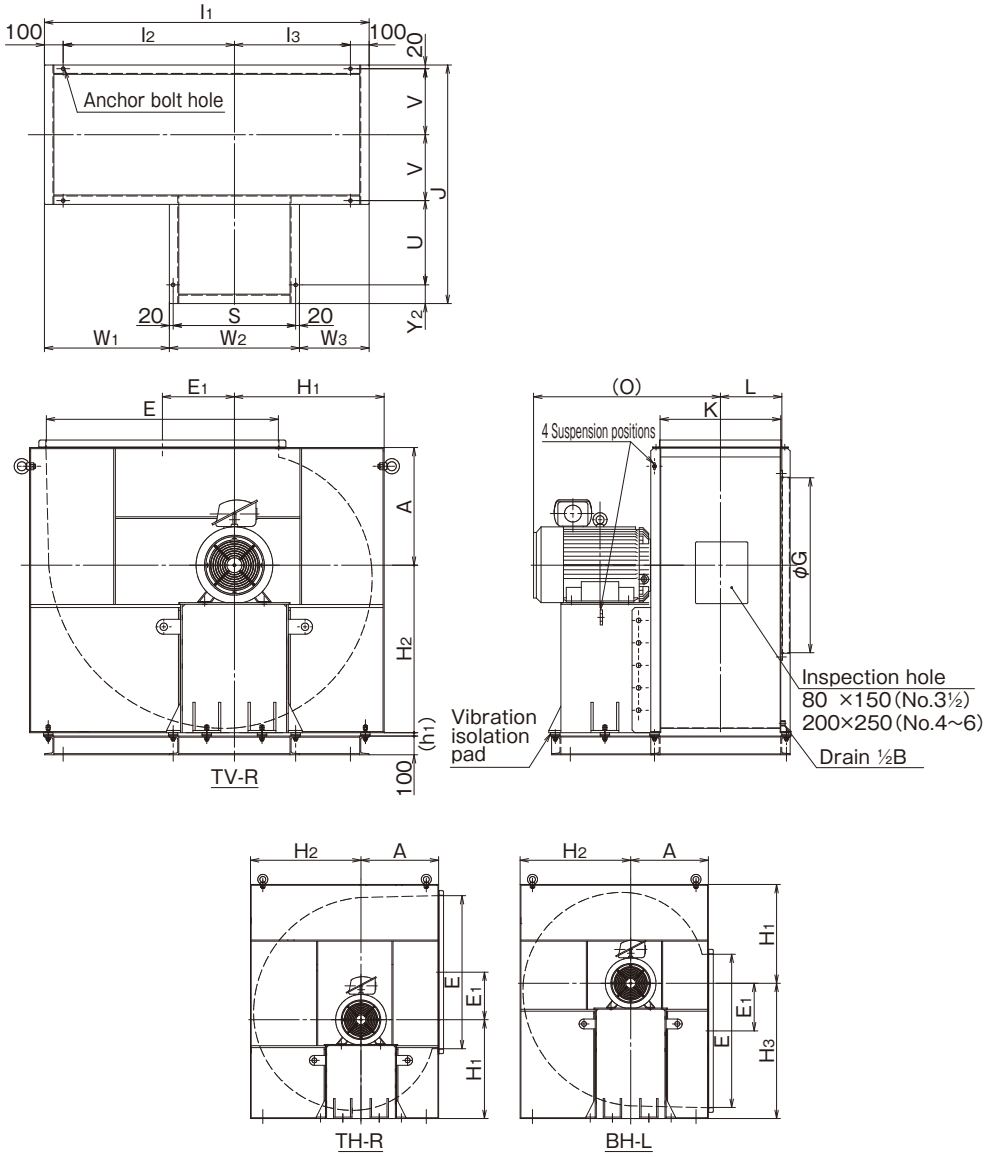
(Unit: mm)

No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Maximum Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.) (50/60Hz)	Approximate Weight (excluding motor)	Base TV-R						
	A	E1	H1	H2	H3	L	O	G	E	K				Diagram	I1	I2	I3	W1	W3	X1
2	260	132.5	300	300	420	112	411	310	415	210	2870/3440	1.5(90L)/2.2(90L)	86kg	1	645	320	200	165	45	62.5
2½	310	157.5	390	390	495	140.5	550	400	515	270	2910/3490	3.7(112M)/5.5(132S)	109kg	1	810	397.5	292.5	240	135	60
3	370	195	460	460	595	166.5	714	480	620	320	2920/3500	7.5(132S)/11(160M)	167kg	1	960	487.5	352.5	265	130	60

No.	Base														
	TH-R/BH-L							TV-R/TH-R/BH-L						Anchor bolt hole	Stopper bolt
	Diagram	I1	I2	I3	W1	W3	X1	J	S	U	V	W2	Y2		
2	2	480	200	155	45	—	62.5	505	400	327.5	122.5	435	37.5	4×φ12	5×M8
2½	1	625	280	200	135	55	72.5	625	400	417.5	152.5	435	37.5	4×φ12	5×M8
3	1	735	355	265	130	40	57.5	775	530	532.5	182.5	565	42.5	4×φ15	5×M10

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Dimensions in parentheses vary depending on motors.
※If you use the fan with an inverter, make the settings of the inverter to enable the frequency jump function for eigenvalue of the resonance frequency values of the fan, motor, fan + base, and other parts to avoid abnormal vibration.
※Please be carful if a thermal overload relay is used, tripping may occur during starting due to the starting performance of the fan.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Assembly drawing (No.3½~6, -ND(D))



■Dimensions

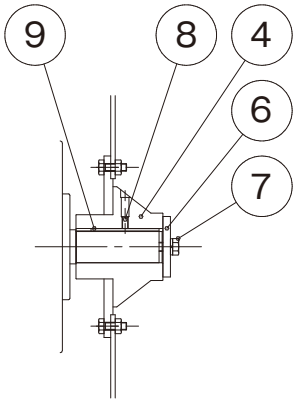
(Unit: mm)

No.	Main Unit							Suction Companion Flange	Discharge Companion Flange		Maximum Rotational Speed (50/60Hz)	Max. Motor Output (kW) (max. frame no.)	Approximate Weight (excluding motor)	Base TV-R				
	A	E1	H1	H2	H3	L	O	G	E	K				I1	I2	I3	W1	W3
3½	430	227.5	540	540	680	194	799	550	725	375	2920/3500	15(160M)/22(180M)	235kg	1130	535	395	350	210
4	500	260	600	600	765	221.5	735	630	830	430	1430/1730	5.5(132S)/11(160M)	328kg	1275	620	455	425	260
4½	550	292.5	600	675	870	248.5	797	710	930	485	1430/1730	11(160M)/15(160L)	427kg	1310	690	420	480	210
5	575	322.5	670	750	920	276	881	780	1035	540	1430/1750	15(160L)/18.5(180M)	494kg	1430	740	490	510	260
5½	600	355	740	820	1010	301	1018	860	1140	590	1460/1760	30(180L)/37(200L)	584kg	1590	830	560	600	330
6	629	385	800	895	1095	328.5	1039	935	1240	645	1460/1760	37(200L)/45(200L)	662kg	1735	915	620	667.5	372.5

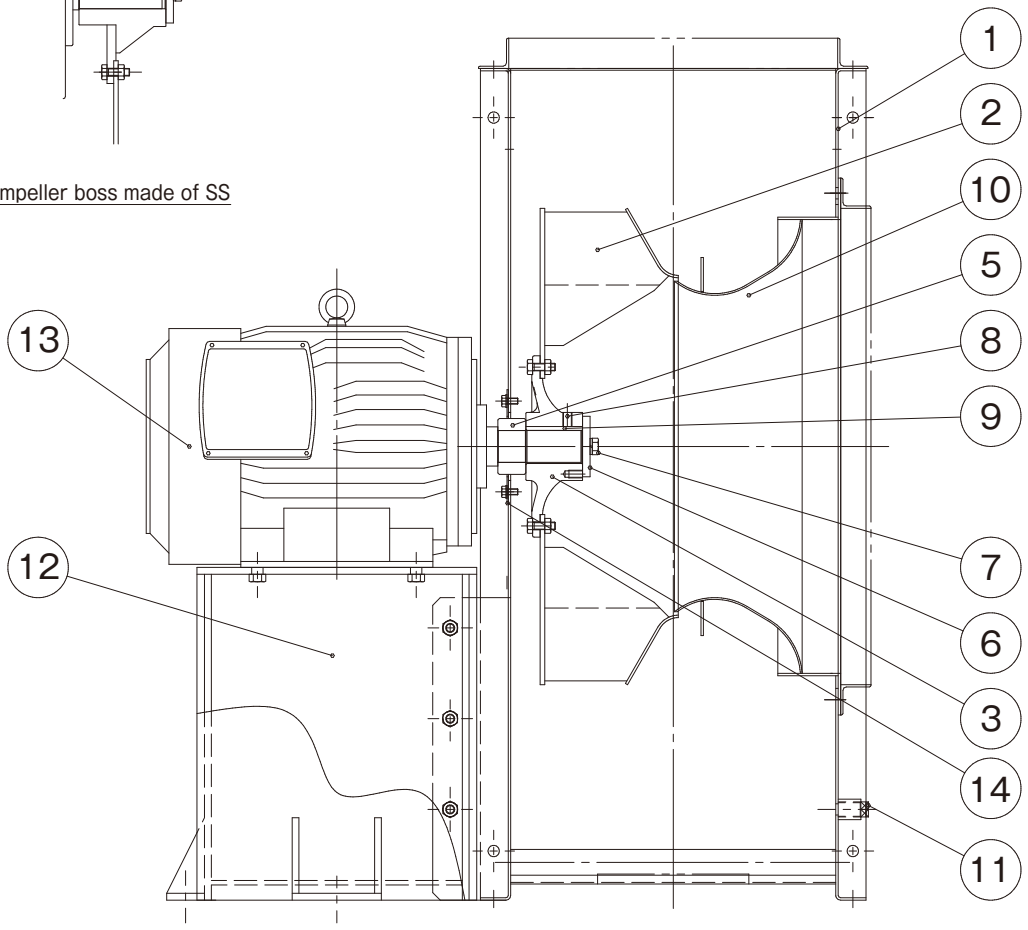
No.	Base													
	TH-R/BH-L					TV-R/TH-R/BH-L							Anchor bolt hole	Stopper bolt
	I1	I2	I3	W1	W3	J	S	U	V	W2	Y2	h1		
3½	880	425	315	210	100	940	530	450	210	570	50	16	6×φ15	7×M10
4	1010	455	355	260	160	920	550	375	237.5	590	50	16	6×φ15	8×M10
4½	1065	495	370	285	160	1035	580	420	272.5	620	50	18	6×φ19	8×M12
5	1165	570	395	340	165	1090	620	370	300	660	100	18	6×φ19	8×M12
5½	1260	640	420	410	190	1220	620	450	325	660	100	18	6×φ19	8×M12
6	1364	715	449	467.5	201.5	1275	655	450	352.5	695	100	18	6×φ19	9×M12

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Dimensions in parentheses vary depending on motors.
※If you use the fan with an inverter, make the settings of the inverter to enable the frequency jump function for eigenvalue of the resonance frequency values of the fan, motor, fan + base, and other parts to avoid abnormal vibration.
※Please be careful if a thermal overload relay is used, tripping may occur during starting due to the starting performance of the fan.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Internal structure drawing



For impeller boss made of SS

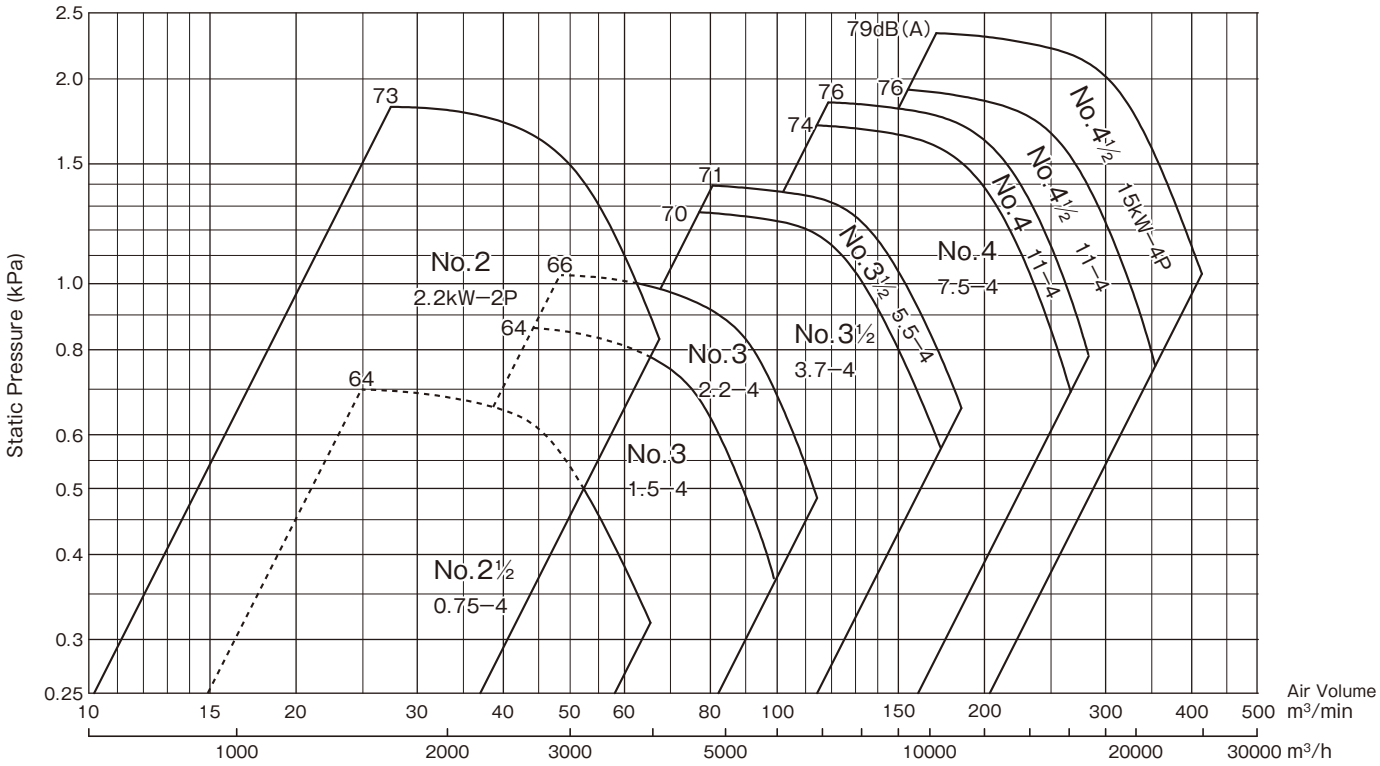


Code	Part name	Qty	Material
1	Casing	1	SPHC+SS400
2	Impeller	1	SPHC+SM570
3	Impeller Boss A	1	FCD450
4	Impeller Boss B	1	SS400
5	Spacer	1	SS400
6	Impeller retaining washer	1	SS400
7	Impeller Tap Bolt	1	SWCH

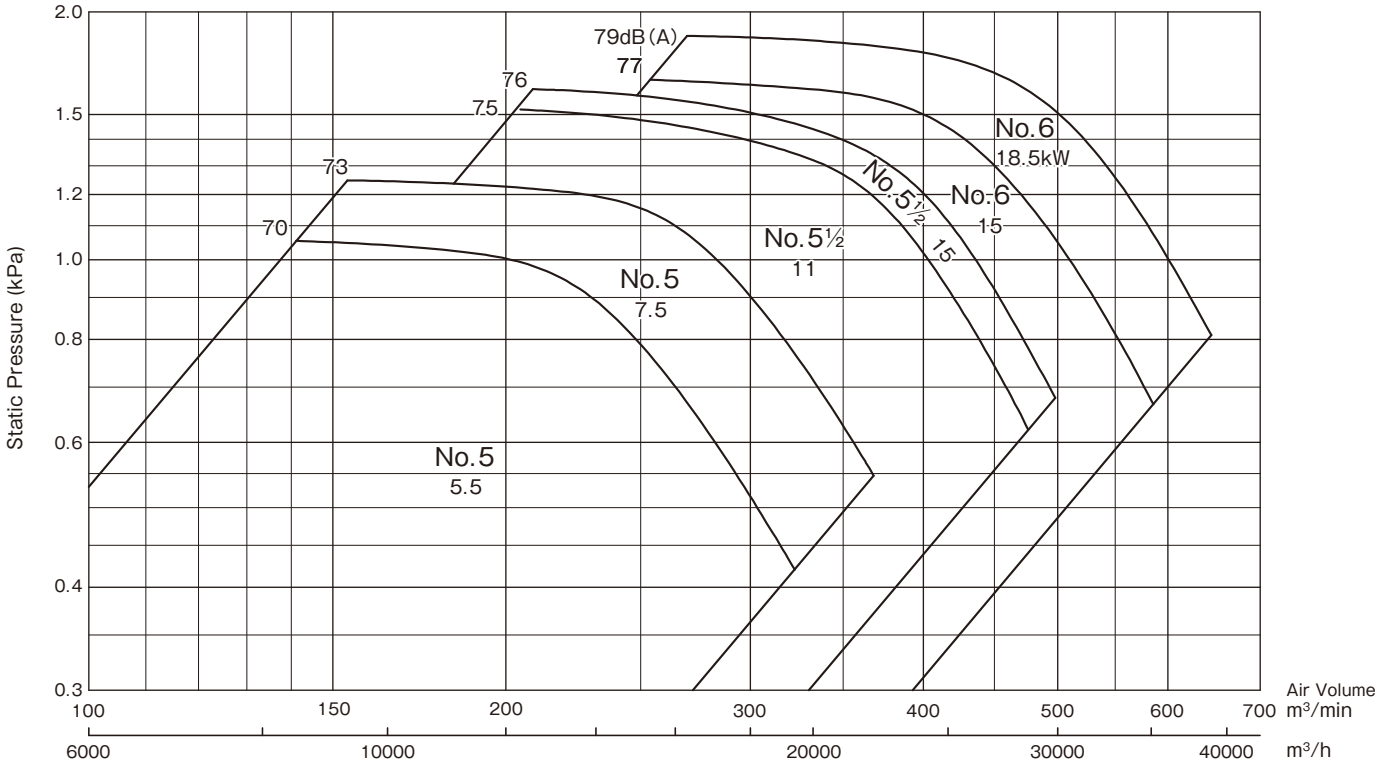
Code	Part name	Qty	Material
8	Hexagonal Socket Bolt	1	SCM435
9	Impeller Key	1	S45C
10	Suction opening	1	SPHC+SS400
11	Drain	1	SS400
12	Electric Motor Base	1	SPHC+SS400
13	Electric Motor	1	
14	Casing Cover	1	SPHC

■Selection chart

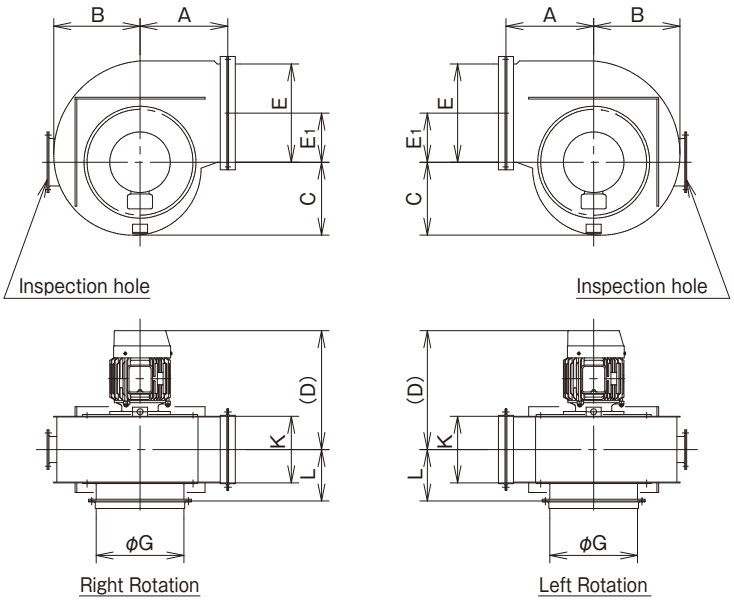
●2P, 4P



●6P



■Assembly drawing



■Dimensions

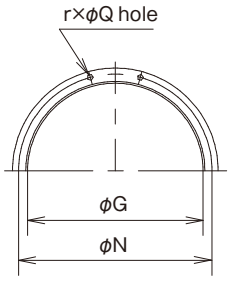
(Unit: mm)

No.	Main Unit						Suction Companion Flange	Discharge Companion Flange		Inspection hole	Motor Output (kW) x No. of Poles (P)		Approximate Weight (excluding motor)
	A	B	C	D	E_1	L	G	E	K		50Hz	60Hz	
2	290	285	245	405	162.5	170	290	325	220	150×80	1.5×2	2.2×2	40kg
2½	330	355	300	500	202.5	228	380	405	275	150×80	2.2·3.7×2	0.75×4	65kg
3	390	425	360	505	242.5	255	450	485	330	150×80	0.75·1.5×4	1.5·2.2×4	95kg
3½	440	495	415	605	285	283	520	570	385	150×80	2.2·3.7×4	3.7·5.5×4	135kg
4	510	560	475	735	325	310	600	650	440	200×250	3.7·5.5×4	7.5·11×4	210kg
4½	550	630	530	805	365	338	670	730	495	200×250	7.5·11×4	11·15×4	265kg
5	590	700	590	835	407.5	375	750	815	550	200×250	11·15×4	5.5·7.5×6	345kg
5½	650	770	645	930	447.5	403	820	895	605	200×250	22·30×4	11·15×6	410kg
6	700	835	705	1045	487.5	430	900	975	660	200×250	30·37×4	15·18.5×6	470kg

※Dimensions in parentheses vary depending on motors.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

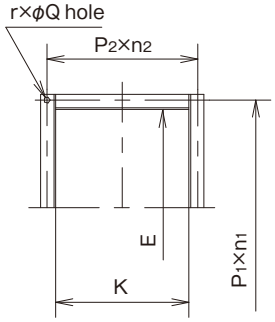
■Companion Flange Dimensional Drawing

Suction Companion Flange



No.	G	N	r × Q	Steel material size
2	290	320	12×10	L25×25×3
2½	380	415	12×12	L30×30×3
3	450	485	12×12	L30×30×3
3½	520	565	16×15	L40×40×5
4	600	645	16×15	L40×40×5
4½	670	715	16×15	L40×40×5
5	750	795	16×15	L40×40×5
5½	820	865	16×15	L40×40×5
6	900	945	16×15	L40×40×5

Discharge Companion Flange



No.	E	K	$P_1 \times n_1$	$P_2 \times n_2$	r × Q	Steel material size
2	325	220	89 ×4	83×3	14×10	L25×25×3
2½	405	275	87 ×5	76×4	18×10	L25×25×3
3	485	330	87 ×6	73×5	22×12	L30×30×3
3½	570	385	75.5×8	84×5	26×12	L30×30×3
4	650	440	87 ×8	97×5	26×12	L40×40×5
4½	730	495	97 ×8	90×6	28×12	L40×40×5
5	815	550	86 ×10	99×6	32×12	L40×40×5
5½	895	605	94 ×10	93×7	34×12	L40×40×5
6	975	660	85 ×12	88×8	40×15	L40×40×5

■Internal structure drawing

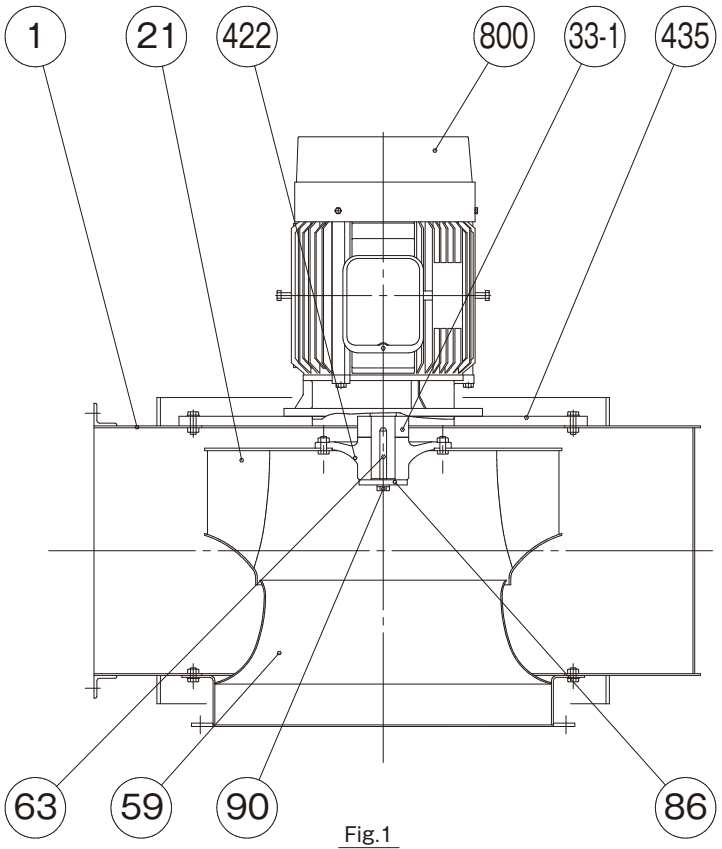


Fig.1

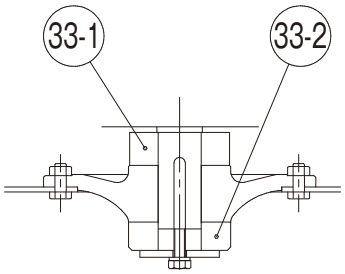


Fig.2

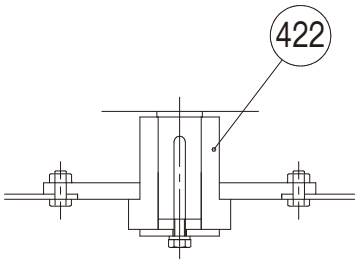


Fig.3

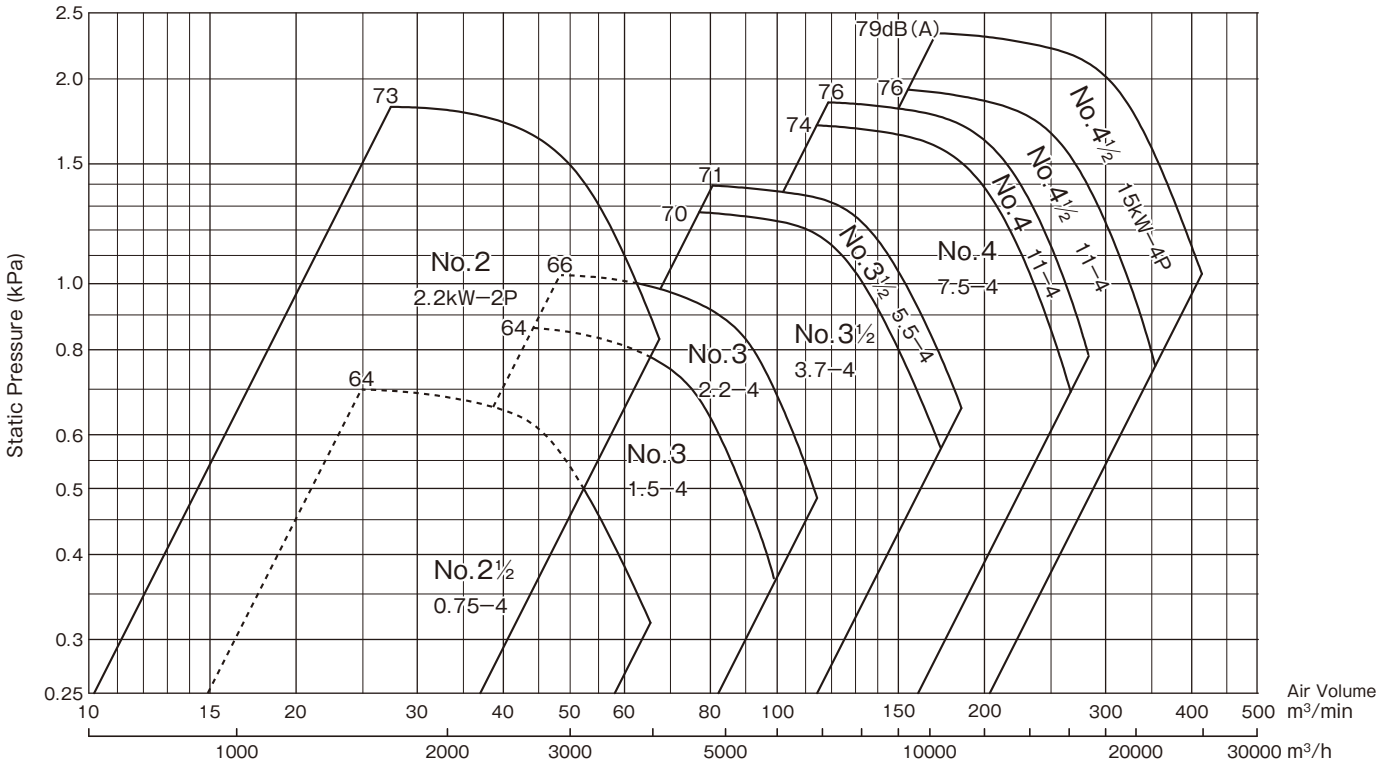
Code	Part name	Qty	Material
1	Casing	1	SS400
21	Impeller	1	SS400
422	Impeller Boss	1	FCD400
63	Impeller Key	1	S45C
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SS400

Code	Part name	Qty	Material
59	Suction opening	1	SS400
435	Electric Motor Base Plate	1	SS400
33-1	Spacer	1	SS400
33-2	Spacer	1	SS400
800	Electric Motor	1	

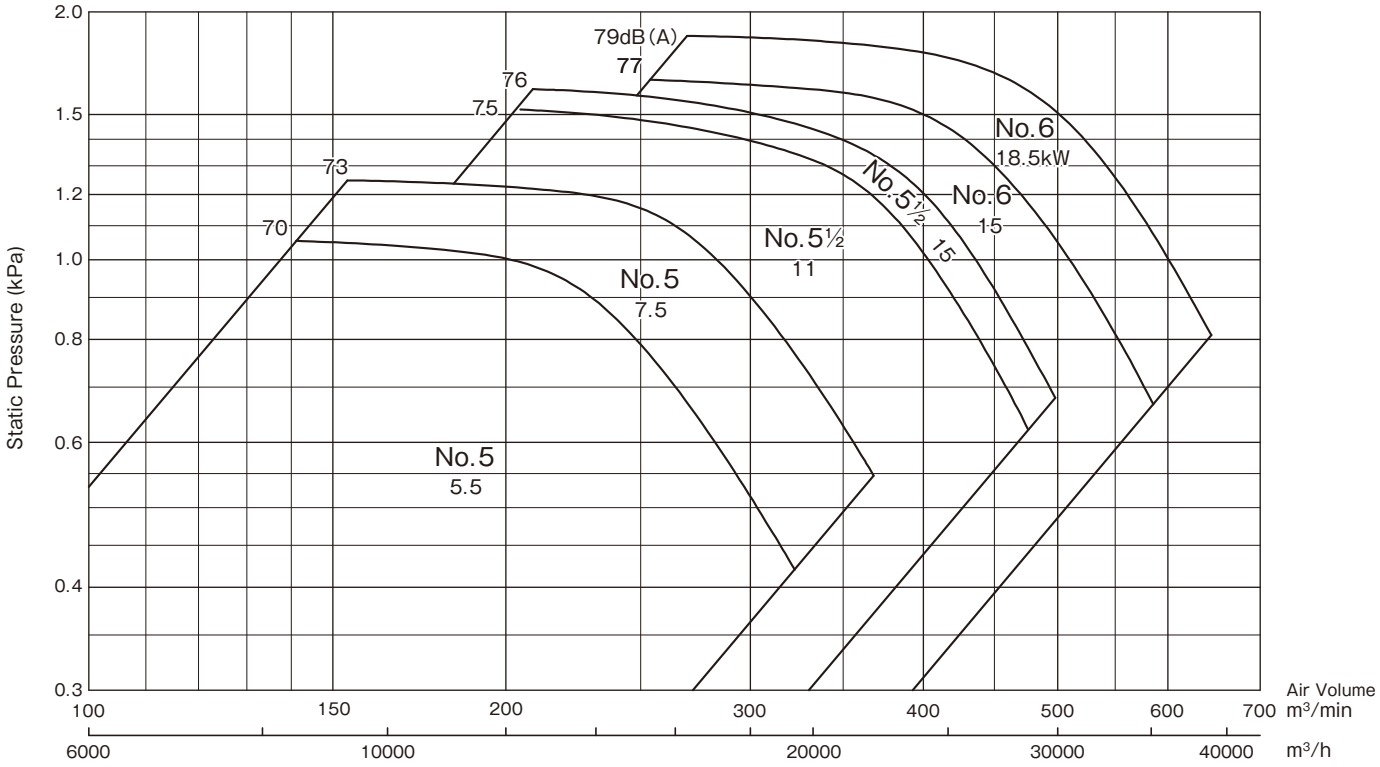
Boss Shape - Electric Motor											
No.	Electric Motor		Fig.	No.	Electric Motor		Fig.	No.	Electric Motor		Fig.
2	1.5kW	2P	3	4	3.7kW	4P	3	5½	11kW	6P	1
	2.2kW	2P	3		5.5kW	4P	1		15kW	6P	1
2½	0.75kW	4P	3		7.5kW	4P	1		18.5 · 22kW	4P	1
	2.2kW	2P	3		11kW	4P	2		30kW	4P	1
	3.7kW	2P	3	4½	7.5kW	4P	1	6	15kW	6P	1
3	0.75kW	4P	3		11kW	4P	2		18.5kW	6P	1
	1.5kW	4P	3		15kW	4P	2		30kW	4P	1
	2.2kW	4P	3	5	5.5kW	6P	3		37kW	4P	2
3½	2.2kW	4P	3		7.5kW	6P	1				
	3.7kW	4P	3		11kW	4P	1				
	5.5kW	4P	1		15kW	4P	1				

■Selection chart

●2P, 4P



●6P



■Assembly drawing

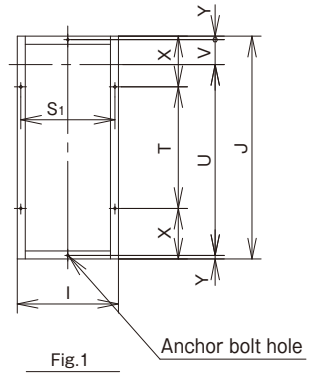


Fig.1

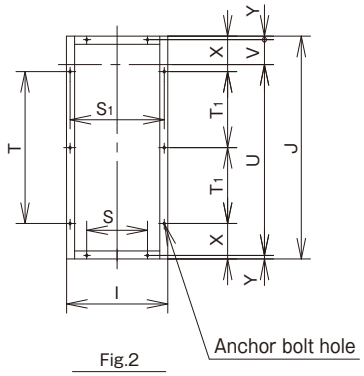
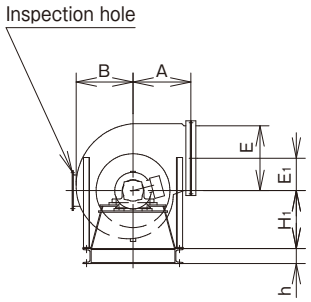
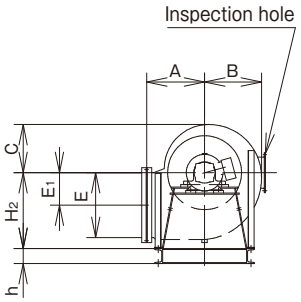


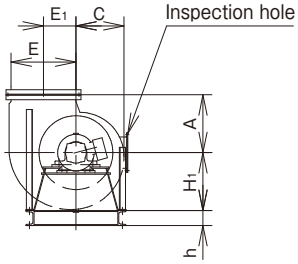
Fig.2



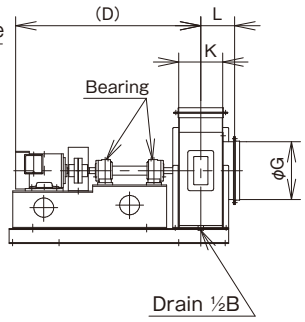
TH-R



BH-R



TV-R



■Dimensions

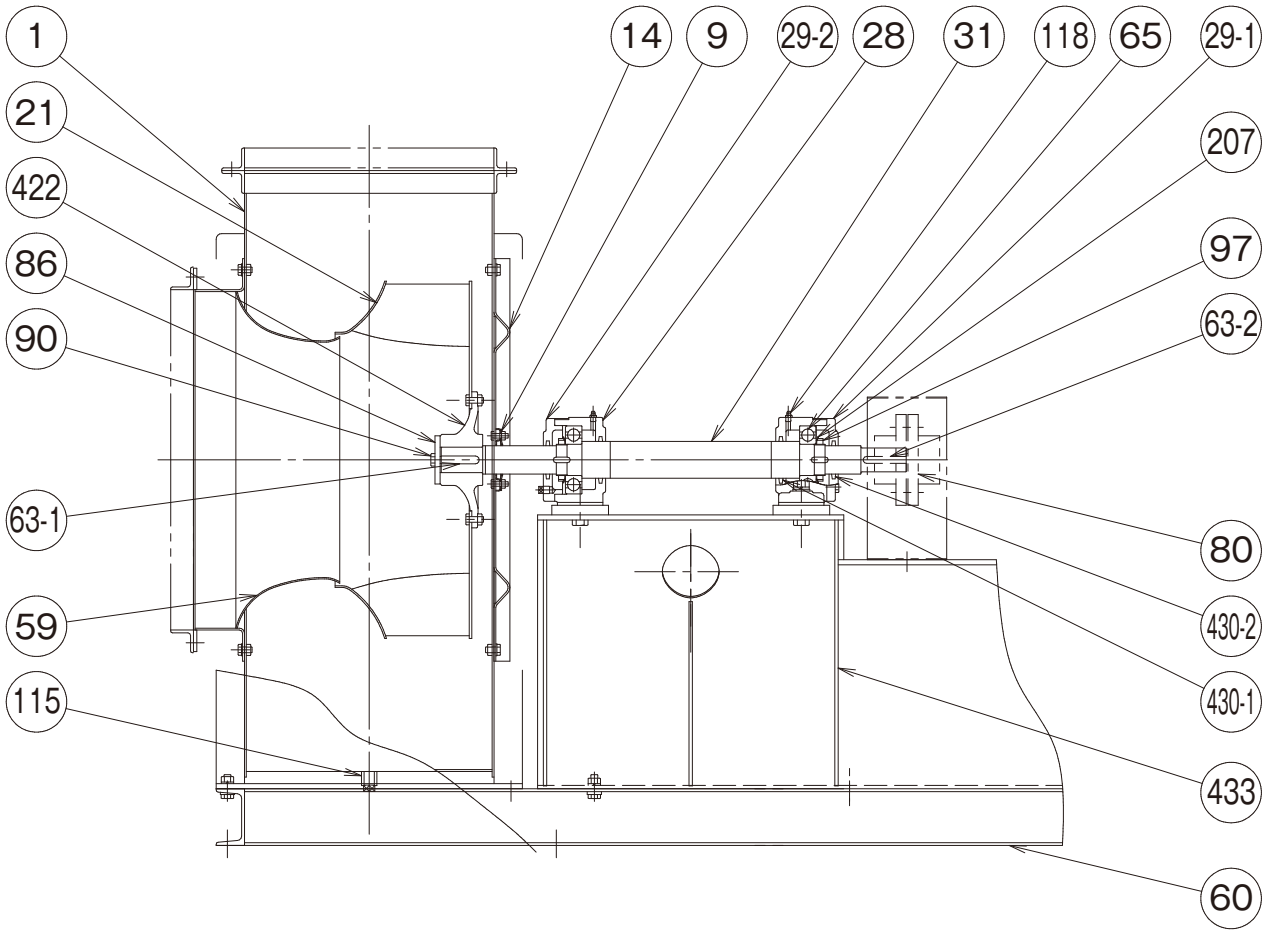
(Unit: mm)

No.	Main Unit								Suction Companion Flange	Discharge Companion Flange		Inspection hole	Bearing	Motor Output (kW) x No. of Poles (P)		Approximate Weight (excluding motor)
	A	B	C	D	E1	H1	H2	L	G	E	K			50Hz	60Hz	
2	290	285	245	945	162.5	290	380	170	290	325	220	150×80	6307	1.5×2	2.2×2	140kg
2½	330	355	300	1070	202.5	365	460	228	380	405	275	150×80	6308	2.2·3.7×2	0.75×4	180kg
3	390	425	360	1150	242.5	440	550	255	450	485	330	150×80	6309	0.75·1.5×4	1.5·2.2×4	265kg
3½	440	495	415	1310	285	510	645	283	520	570	385	150×80	6310	2.2·3.7×4	3.7·5.5×4	360kg
4	510	560	475	1530	325	580	730	310	600	650	440	200×250	6311	3.7·5.5×4	7.5·11×4	520kg
4½	550	630	530	1650	365	650	820	338	670	730	495	200×250	6312	7.5·11×4	11·15×4	650kg
5	590	700	590	1750	407.5	720	900	375	750	815	550	200×250	6313	11·15×4	5.5·7.5×6	800kg
5½	650	770	645	1910	447.5	790	980	403	820	895	605	200×250	6314	22·30×4	11·15×6	1150kg
6	700	835	705	2140	487.5	860	1060	430	900	975	660	200×250	6316	30·37×4	15·18.5×6	1370kg

No.	Base												
	Fig.No	I	J	S	S1	T	T1	X	U	V	Y	h	Anchor bolt hole
2	1	500	1100	—	465	600	—	250	942.5	122.5	17.5	75	6×φ15
2½		585	1220	—	550	720	—	250	1035	150	17.5	75	6×φ15
3	2	680	1320	480	640	520	—	400	1095	185	20	100	8×φ19
3½		780	1550	530	740	750	—	400	1297.5	212.5	20	100	8×φ19
4		900	1720	600	860	—	510	350	1430	250	20	100	10×φ19
4½		990	1880	690	930	—	590	350	1552.5	267.5	30	125	10×φ24
5		1070	2050	720	1010	—	675	350	1695	295	30	125	10×φ24
5½		1180	2150	830	1120	—	675	400	1767.5	322.5	30	125	10×φ24
6		1280	2400	880	1220	—	800	400	1990	350	30	125	10×φ24

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※(D) dimensions vary depending on the electric motor.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

■Internal structure drawing



Code	Part name	Qty	Material
1	Casing	1	SPHC · SS400
21	Impeller	1	SS400
422	Impeller Boss	1	FCD400
86	Impeller retaining washer	1	SS400
90	Impeller Tap Bolt	1	SWRM
63-1	Impeller Key	1	S45C
59	Suction opening	1	SPHE · SS400
14	Casing Cover	1	SPHC
31	Shaft	1	S45C
28	Bearing Case	2	FC200

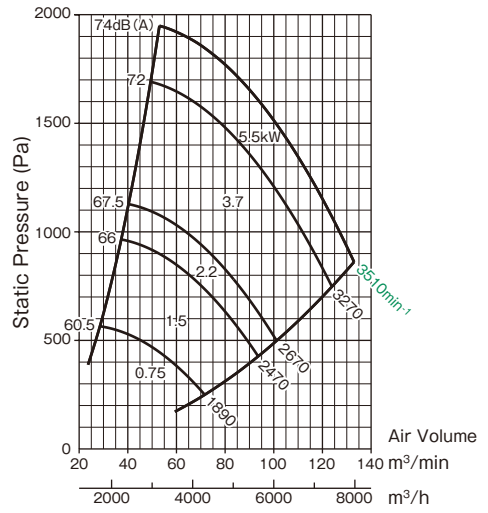
Code	Part name	Qty	Material
29-1	Bearing Cap A	1	FC200
29-2	Bearing Cap C	1	FC200
118	Grease Nipple	2	C3604B
80	Cap Ring	1	
63-2	Cap Ring Key	1	S45C
433	Bearing Electric Motor Base	1	SS400
60	Common Base	1	SS400
115	Drain	1	SS400
9	Shaft Seal	1	

Code	Part name	Qty	Material	No.2	No.2½	No.3	No.3½	No.4	No.4½	No.5	No.5½	No.6
65	Ball Bearing	2	SUJ	6307	6308	6309	6310	6311	6312	6313	6314	6316
97	Bearing Nut	2	SS400	AN07	AN08	AN09	AN10	AN11	AN12	AN13	AN14	AN16
207	Bearing Washer	2	SS400	AW07	AW08	AW09	AW10	AW11	AW12	AW13	AW14	AW16
430-1	Felt Ring	2	FELT	Fi10	Fi11	Fi12	Fi13	Fi15	Fi16	Fi17	Fi18	Fi20
430-2	Felt Ring	2	FELT	Fi7	Fi8	Fi9	Fi10	Fi11	Fi12	Fi13	Fi15	Fi16

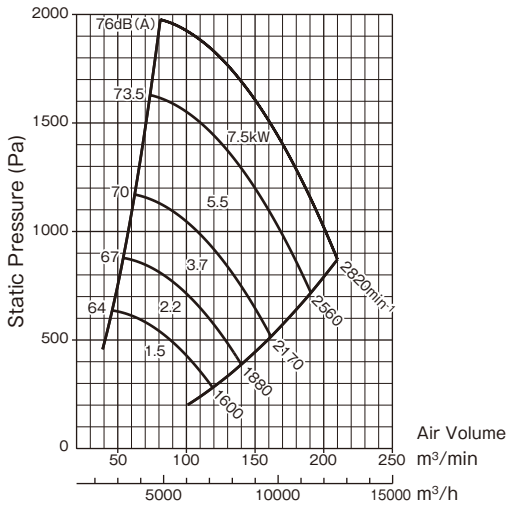
■Selection chart

※Rotational speeds indicated in green text are for 2 poles.

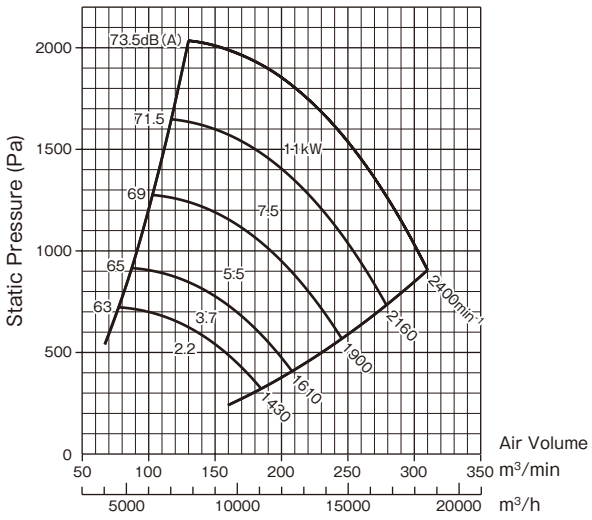
No.2



No.2½



No.3



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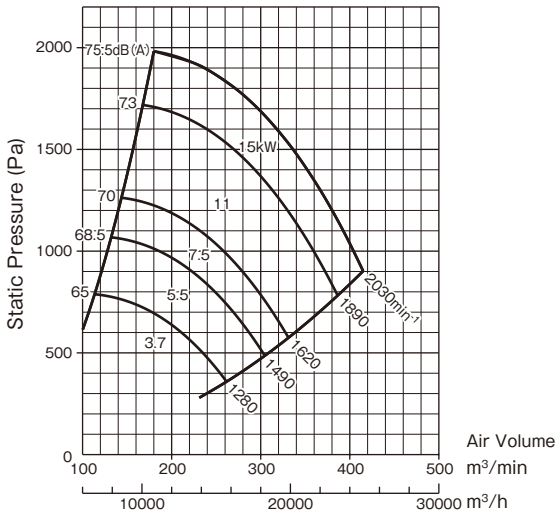
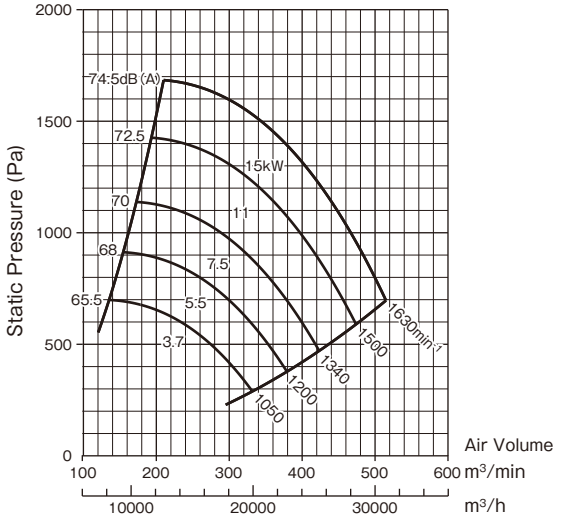
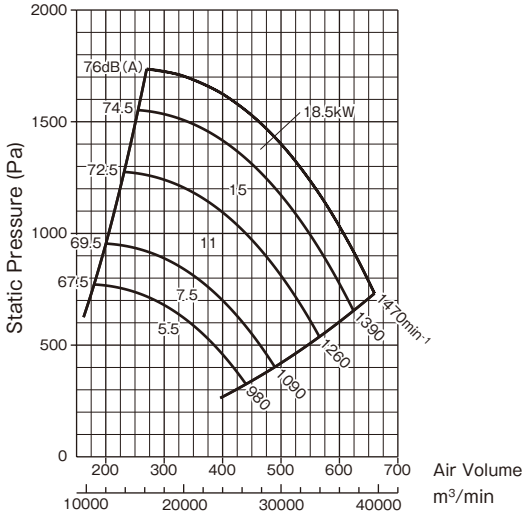


No.4

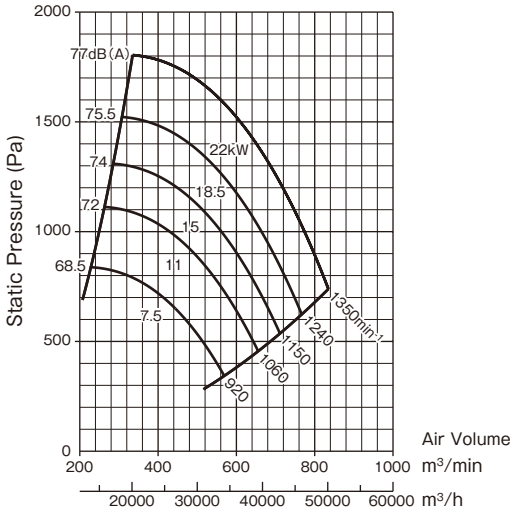


No.4½

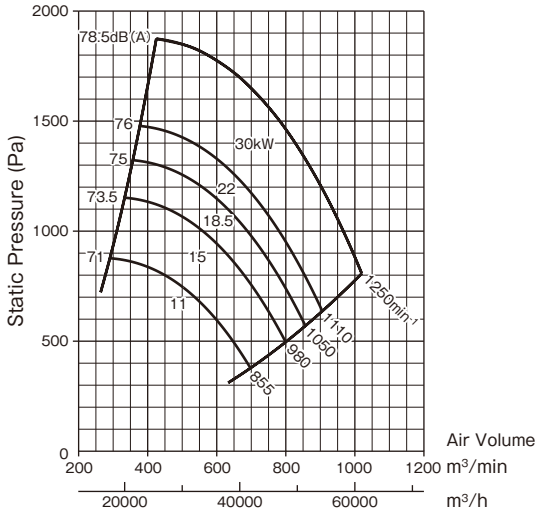


■Selection chart

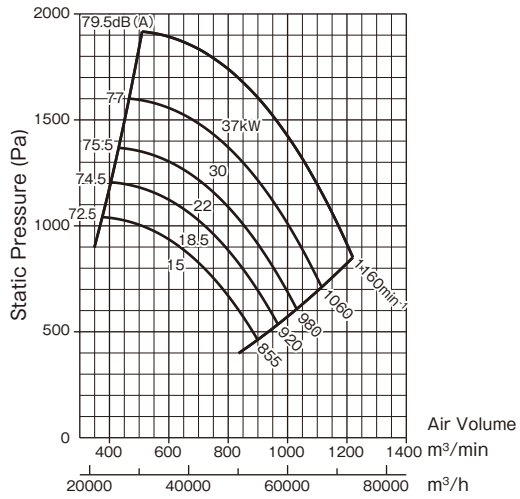
No.5



No.5½



No.6



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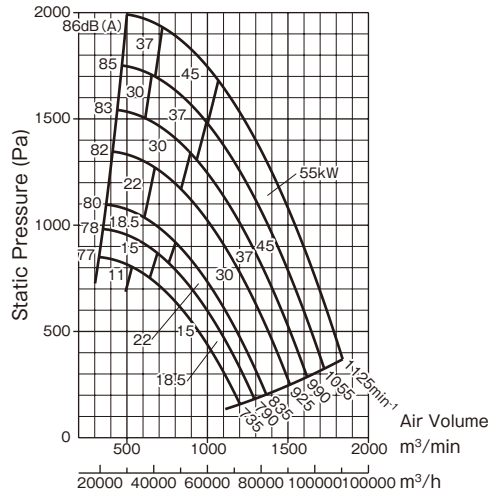

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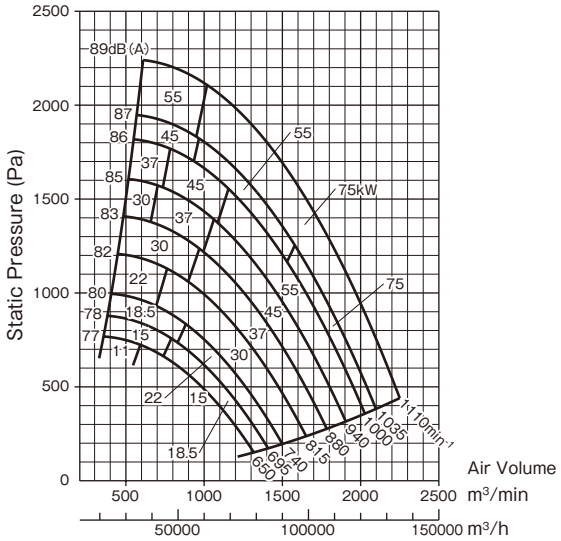

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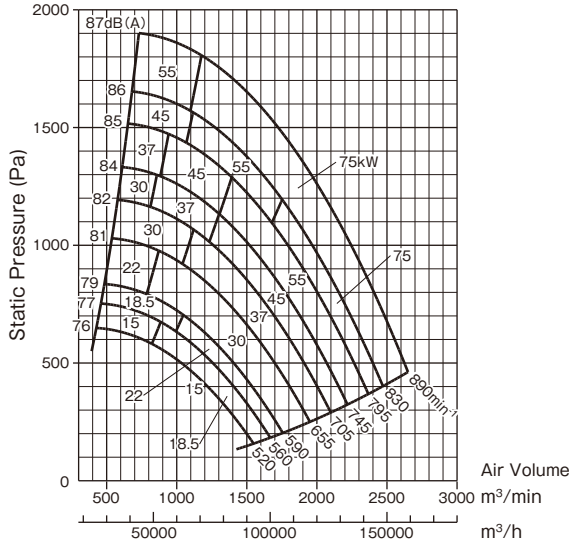
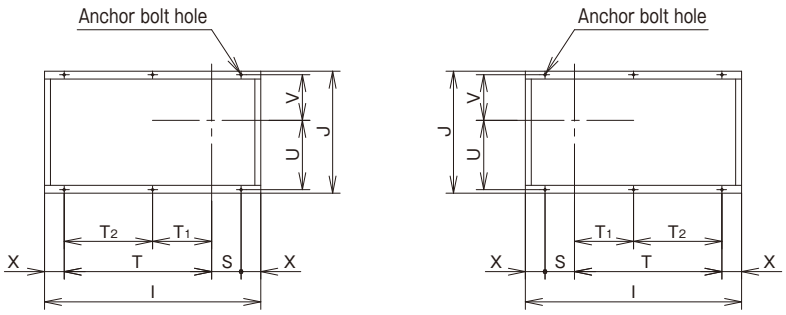
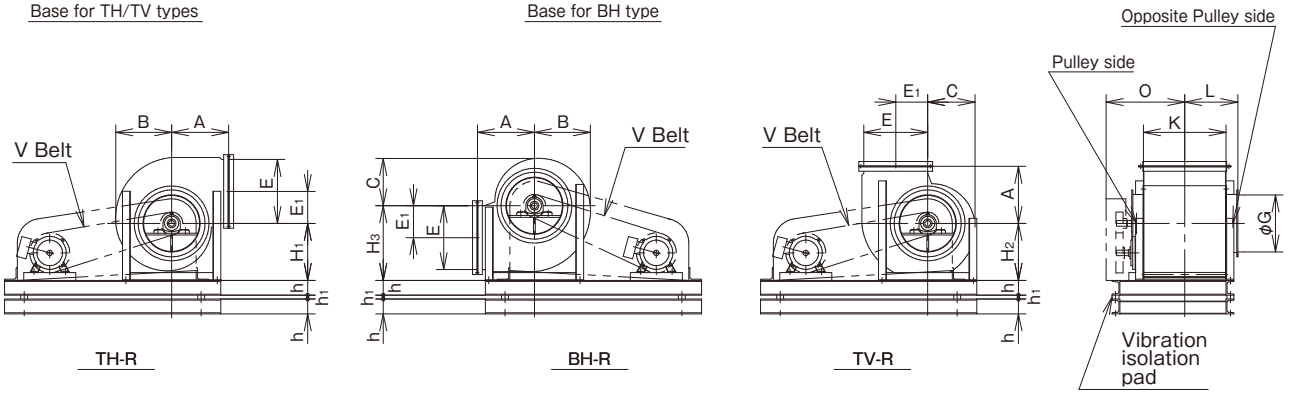


■Assembly drawing（No.2~4）





■Dimensions

(Unit: mm)

No.	Main Unit										Discharge Companion Flange		Bearing		Maximum Rotational Speed	Max. Electric Motor		Approximate Weight (excluding motor)
	A	B	C	E_1	G	H_1	H_2	H_3	L	O	E	K	Pulley side	Opposite Pulley side		Output	Frame No.	
2	290	285	245	162.5	290	290	290	380	270	430	325	420	UCP306	UCP204	3570min^{-1}	5.5kW	132S	135kg
2½	330	355	300	202.5	380	365	365	460	360	530	405	540	UCP307	UCP205	2820min^{-1}	7.5kW	132M	195kg
3	390	425	360	242.5	450	380	440	550	415	595	485	650	UCP308	UCP206	2400min^{-1}	11kW	160M	265kg
3½	440	495	415	285	520	440	510	645	468	670	570	755	UCP309	UCP207	2050min^{-1}	15kW	160L	375kg
4	510	560	475	325	600	490	580	730	515	700	650	850	UCP310	UCP208	1640min^{-1}	15kW	160L	500kg

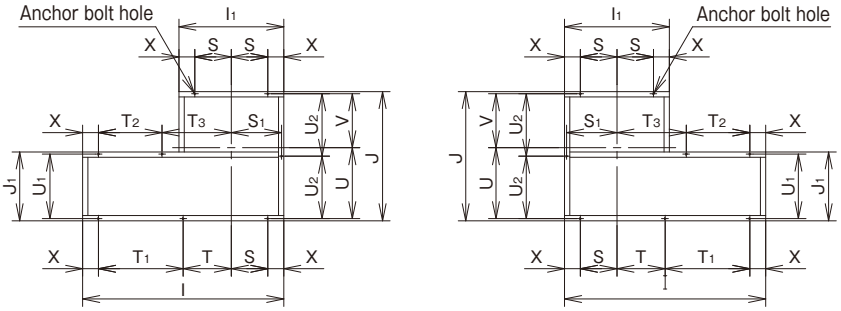
No.	Base											
	I	J	S	T	T_1	T_2	U	V	X	h	h_1	Anchor bolt hole
2	1100	620	150	750	—	—	352.5	232.5	100	75	18	4-φ15
2½	1250	770	192.5	857.5	—	—	442.5	292.5	100	75	18	4-φ15
3	1500	890	190	1010	—	—	507.5	347.5	150	75	27	4-φ15
3½	1600	1020	240	—	410	650	572.5	407.5	150	100	27	6-φ19
4	1750	1100	300	—	425	725	605	455	150	100	27	6-φ19

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

If a thermal relay is used as an overload protection device for the products with the size and motor output shown in the right table, tripping may occur during starting due to the starting performance of the fan. Please use the delayed thermal relay.

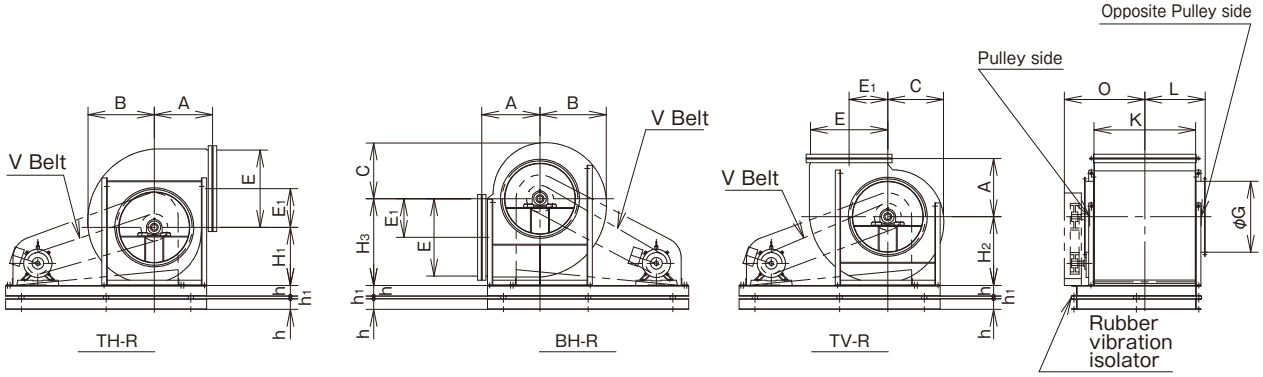
50 Hz	No.3	2.2kW	60 Hz	No.3	2.2kW
	No.3½	3.7kW、5.5kW		No.3½	3.7kW
	No.4	3.7kW、5.5kW		No.4	3.7kW、5.5kW

■Assembly drawing (No.4½~6)



Base for TH/TV types

Base for BH type



■Dimensions

(Unit: mm)

No.	Main Unit										Discharge Companion Flange		Bearing		Maximum Rotational Speed	Max. Motor Output		Approximate Weight (excluding motor)
	A	B	C	E1	G	H1	H2	H3	L	O	E	K	Pulley side	Opposite Pulley side		Output	Frame No.	
4½	550	630	530	365	670	550	650	820	570	785	730	960	UCP311	UCP209	1470min-1	18.5kW	180M	630kg
5	590	700	590	407.5	750	610	720	900	633	865	815	1065	UCP312	UCP210	1350min-1	22kW	180M	790kg
5½	650	770	645	447.5	820	665	790	980	688	915	895	1175	UCP313	UCP211	1250min-1	30kW	180L	1000kg
6	700	835	705	487.5	900	730	860	1060	743	970	975	1285	UCP314	UCP212	1160min-1	37kW	200L	1135kg

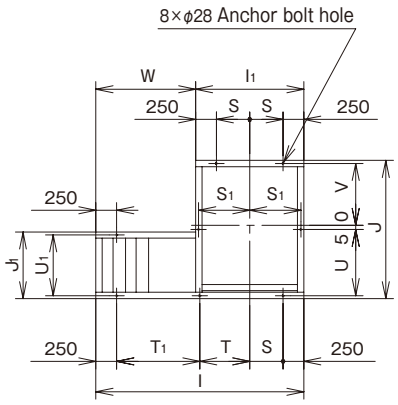
No.	Base																	
	I	I1	J	J1	S	S1	T	T1	T2	T3	U	U1	U2	V	X	h	h1	Anchor bolt hole
4½	1900	990	1220	650	345	475	455	800	600	655	670	610	590	510	150	100	27	8-φ19
5	2000	1070	1350	650	360	515	465	825	600	690	747.5	610	655	562.5	175	100	27	8-φ19
5½	2150	1180	1480	700	415	560	485	900	650	735	797.5	640	710	622.5	175	125	34	8-φ24
6	2300	1280	1590	750	465	610	510	975	700	785	852.5	690	765	677.5	175	125	34	8-φ24

※TV-L, TH-L and BH-R types that are different in discharge direction are also available as a standard.
※Refer to the companion flange dimensional drawing for companion flange dimensions.

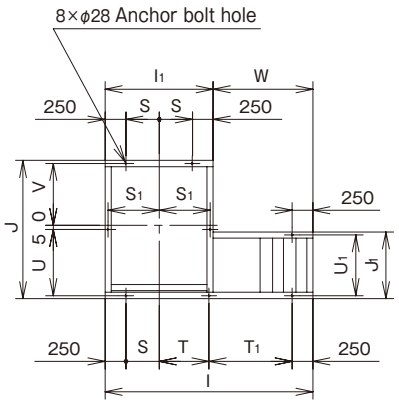
If a thermal relay is used as an overload protection device for the products with the size and motor output shown in the right table, tripping may occur during starting due to the starting performance of the fan. Therefore, please use the delayed thermal relay.

50 Hz	No.4½	5.5kW、7.5kW	60 Hz	No.4½	5.5kW、7.5kW
	No.5	7.5kW、11kW		No.5	7.5kW、11kW
	No.5½	11kW		No.5½	11kW
	No.6	—		No.6	11kW

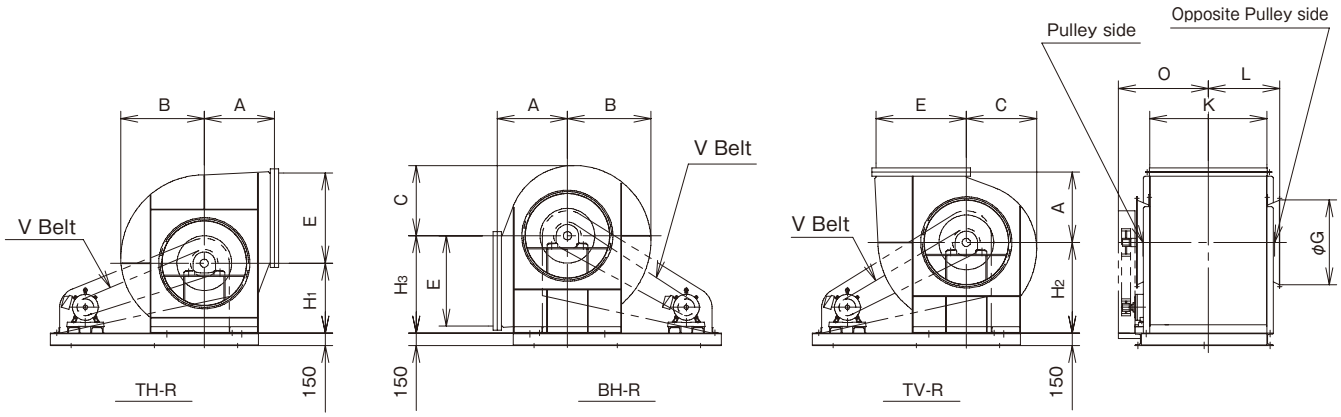
■Assembly drawing (No.6½~8)



Base for TH /TV types



Base for BH type



■Dimensions

(Unit: mm)

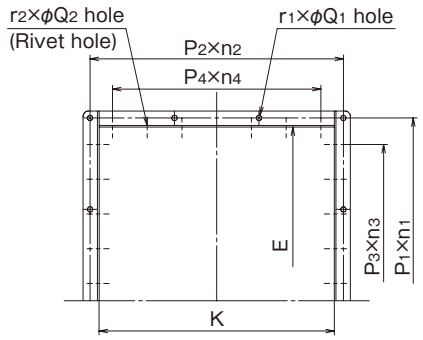
No.	Main Unit									Discharge Companion Flange		Bearing		Maximum Rotational Speed	Max. Motor Output		Approximate Weight (excluding motor)
	A	B	C	G	H1	H2	H3	L	O	E	K	Pulley side	Opposite Pulley side		Output	Frame No.	
6½	845	1003	841	1020	840	1090	1170	860	1080	1085	1410	UCP320	UCP316	990min-1	37kW	200L	1900kg
7	915	1082	907	1100	935	1090	1260	910	1170	1170	1510	UCP322	UCP318	880min-1	37kW	200L	2150kg
8	1040	1231	1031	1250	1070	1250	1450	1070	1310	1340	1730	UCP324	UCP320	830min-1	75kW	250S	2750kg

No.	Base											
	I	I1	J	J1	S	S1	T	T1	U	U1	V	W
6½	2500	1300	1660	800	400	615	600	1000	795	730	745	1200
7	2700	1420	1800	900	460	675	640	1100	885	830	795	1280
8	3000	1500	2050	1000	500	715	750	1250	1025	930	905	1500

Note) If a thermal relay is used as an overload protection device, tripping may occur during starting due to the starting performance of the fan. Therefore, please use the delayed thermal relay.

■Companion Flange Dimensional Drawing

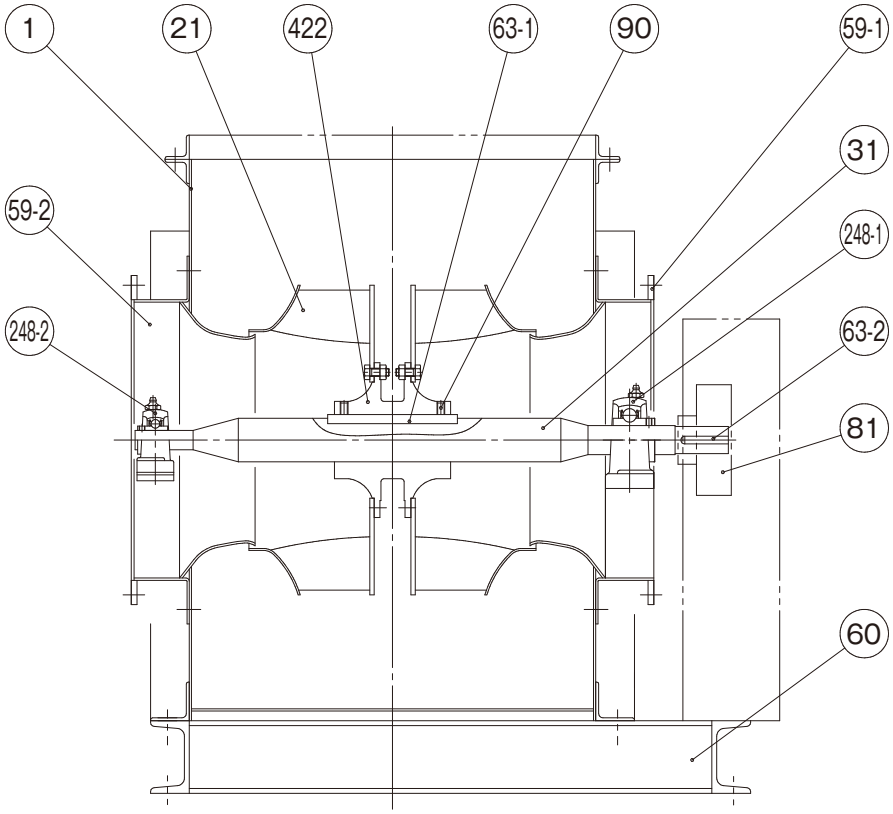
Discharge Companion Flange



(Unit: mm)

No.	E	K	$P_1 \times n_1$	$P_2 \times n_2$	$P_3 \times n_3$ (Rivet hole pitch)	$P_4 \times n_4$ (Rivet hole pitch)	$r_1 \times Q_1$	$r_2 \times Q_2$ (Rivet hole)	Steel material size
2	325	420	89 ×4	90 ×5	62× 4	62× 6	18×10	24×4.9	L25×25×3
2½	405	540	87 ×5	95 ×6	60× 6	60× 8	22×10	32×4.9	L25×25×3
3	485	650	87 ×6	98 ×7	65× 7	65× 9	26×12	36×4.9	L30×30×3
3½	570	755	75.5×8	99 ×8	65× 8	65×11	32×12	42×4.9	L30×30×3
4	650	850	87 ×8	89.5×10	65× 9	65×12	36×12	46×4.9	L40×40×5
4½	730	960	97 ×8	84 ×12	65×10	65×14	40×12	52×4.9	L40×40×5
5	815	1065	86 ×10	92.5×12	65×12	65×15	44×12	58×4.9	L40×40×5
5½	895	1175	94 ×10	94 ×13	65×13	65×17	46×12	64×4.9	L40×40×5
6	975	1285	85 ×12	95 ×14	65×14	65×19	52×15	70×4.9	L40×40×5
6½	1085	1410	142 ×8	147 ×10	64×16	64×21	36×15	78×4.9	L50×50×4
7	1170	1510	157 ×7	174 ×9	64×17	64×23	32×15	84×4.9	L50×50×6
8	1340	1730	176 ×8	180 ×10	62×21	62×27	36×19	100×4.9	L65×65×6

■Internal structure drawing（No.2~6）



Code	Part name	Qty	Material
1	Casing	1	SPHC・SS400
21	Impeller	1	SS400
422	Impeller Boss	1	FCD400
90	Impeller retaining washer	1	SS400
63-1	Impeller Key	1	S45C
59-1	Suction Vent	1	SPHC・SS400

Code	Part name	Qty	Material
59-2	Suction opening	1	SPHC・SS400
31	Shaft	1	S45C
81	V Pulley	1	FC200
63-2	V Pulley Key	1	S45C
60	Common Base	1	SS400

Code	Part name	Qty	Material	No.2	No.2½	No.3	No.3½	No.4	No.4½	No.5	No.5½	No.6
248-1	Pillow Block	1	SUJ	UCP306	UCP307	UCP308	UCP309	UCP310	UCP311	UCP312	UCP313	UCP314
248-2	Pillow Block	1	SUJ	UCP204	UCP205	UCP206	UCP207	UCP208	UCP209	UCP210	UCP211	UCP212

MEMO

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