Rosenberg Reference Code

E D
D R A E 251 - 4 L

Current
D = double inlet
E = single inlet

R = centrifugal fan

A = external rotor motor

E = single phase A.C.
D = three phase A.C.

Impeller diameter
355 = 355mm (14 inches)

Number of poles

L = Larger casing width

Characteristics and Construction

The high efficient centrifugal fans have been specially developed for modern ventilation and air conditioning applications and are ideal for the movement of air and non-aggressive gas and vapours.

They are mainly used in air handling units, hygienic units, clean room filter units.
They find further application in the cooling of electrical motors and generators (e.g. in wind parks), ventilation of switch cabinets, air conditioning (e.g. in trains).

A high power density with a very compact design is provided by the combination of forward curved wheel and external rotor motor.

The following design models are available:

- ERAE/D: single inlet centrifugal fan
- DRAE/D: double inlet centrifugal fan

ERAE/D

compact casing
(single inlet on request)

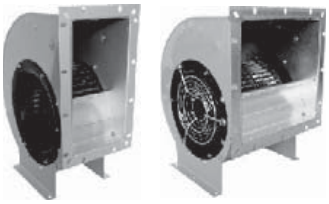
casing with outlet flange

DRAE/D

compact casing

casing with outlet flange

Casings



The casings of the high efficiency centrifugal fans are made of galvanized sheet metal. The side parts are produced with nut sets to fix the mounting brackets, which can be fixed in steps of 90°.
Epoxy coating on request.

ECOFIT series : steel painted black or plastic scroll.

Impellers

The impellers with 38-42 forward curved blades are made of galvanized sheet metal. They are mounted directly to the external rotor motor.

ECOFIT series : galvanised steel or plastic impeller.

The impellers are statically and dynamically balanced together with the external rotor motor according to quality level G2,5 DIN ISO 1940.

Direction of rotation

Direction of rotation for fan types ERA is clockwise viewed from the inlet side, but for fan types DRA it is anti- clockwise viewed from the cable outlet
Caution: Low air volume at wrong direction of spin!

ECOFIT series : direction of rotation is indicated in the catalogue on each datasheet.

Motors

Rosenberg external rotor motors are manufactured in protection class IP54.
ECOFIT external rotor motors are manufactured in protection class IP44 or IP54 for GDF.
The winding insulation corresponds to insulation Class F (UL - approved).
Bearings are deep groove ball type in sealed housing. Special grease lubrication provides maintenance-free operation, low-noise and extended life.

ECOFIT series : ball bearings closed on both sides are used. Special grease lubrication provides maintenance-free operation, low-noise and extended life.

Motor protection

All motors are equipped with thermal contacts, wired in series. Thermal contacts are temperature dependent control elements, sensing the winding temperature of the motor. These contacts protect the motor windings from overload, failure of a mains phase, standstill of the motor and of high temperature rise to the medium ventilated.
In addition to the mounted thermal contacts we recommend the use of our motor protection control units.
Rosenberg also offers 5-step speed controllers, RTE and RTD.
Motors are equipped with the motor protection in connection with thermal contacts. An additional motor protection switch is not required.

Electrical connection

The nominal voltage given on the nameplate provides maximum allowable voltage tolerance of ± 10%. Flying leads are standard.
The connection ends are 10 cm (4 inches) dismantled and equipped with end splices.
Standard cable length is 68 cm (27 inches)
Special cable lengths are available on request.
ECOFIT motors : refer to drawings.

Voltages types

For single phase operation, motors are available for 115V, 208/230V and 277V.
All 230V motors could also be used at 1~230V, 50Hz.
For three phase operation, motors are available for 208V / 230VD // 460V Y.
575V and other special voltages are available on request.

Please reference 60Hz-curves:
- Standard three phase motor can be used at 460V (Star connection) **and** 230V (Delta connection). In Delta connection the motors are also suitable for 208V 3~ power supplies).
- The performance curves show that the 230VD performance is a little less than the 460VY performance.
The standard three phase motors could also be used at 400V Y, 50Hz.

ECOFIT series : for single phase operation, motors are available for 115V, 60Hz. Most of them are usable on 50Hz (refer to drawings).

Speed control

Speed control can be provided for fans that demand optimal adjustment of the operation point. Speed control is obtained by “Voltage Control” and “Frequency Control”, as described below.

Voltage control
The speed control is provided by reduction of the terminal voltage. If the voltage will be reduced the speed of the motor decreases and the air volume flow sinks in proportion with the speed. The matching voltage controllers can be provided on request.

Frequency control
All voltage controllable fans for three-phase power supplies can also be speed controlled by frequency converter from 60Hz downwards. The speed control is realized by reduction of the power supply frequency. At higher frequencies than 60Hz the motor will be thermally overloaded.

With operation of the motors on a frequency controller the maximum speed of voltage increase of 500V /μs must not be exceeded. According to the frequency converter type and the length of the cable between motor and frequency converter additional components must be planned. Please refer to the operation manual of the frequency converter.

Protection against accidental contact

The fans are constructed for installation within applications. We do not include guards of any kind as a part of our standard product offering. Please contact your Rosenberg representative for accessory information.
Before initial operation all required protection components must be installed and connected. Adherence to all electrical and safety codes, including National Electric Codes (NEC), National Fire Protection Association (NFPA) standards and Occupational Safety and Health Act (OSHA) should be followed and are responsibility of the customer. All electrical connections should be performed only by qualified personnel.

Information on safety of machinery

Rosenberg radial fans are usable machines according to the EC Council Directive on Machinery. They are marked with a CE label and delivered with a declaration of conformity.
The dangers of the fan as well as necessary technical measures of safety are judged according to the VDMA standard sheet number 24167: Fans, demands of safety.
The operation manual contains additional measures of safety to be realized on site to make the fan match the EC Council Directive on Machinery 98/37/EC.

Advantages of Rosenberg high efficient centrifugal fans:

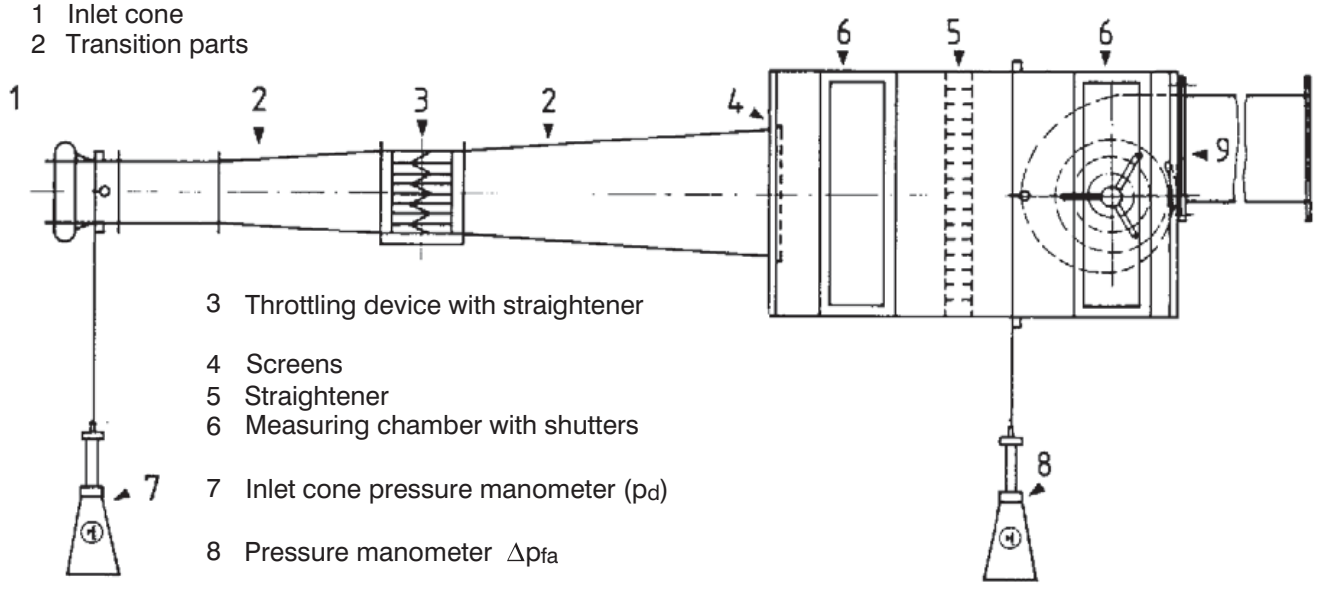
- Compact and space saving design with external rotor motor drive and high performance forward curved impeller
- Low for maintenance direct drive fans (no belt wear or belt replacement necessary)
- Various control possibilities
- Customers requirements can be met without problems
- Easy installation in any position
- Extremely low starting currents
- Motor protection through thermal contacts in motor winding

Air Performance Curves

The air performance curves have been established using the inlet test method in the test chamber as shown below according to German standard DIN 24163. They are valid for air with a density of 0.075#/ft³ with a temperature of 68°F. The performance curves were made in mounting position A (free inlet, free outlet) and show the pressure increase, available on inlet side, p_{fa} as a function of the volume.

Test chamber

1 Inlet cone
2 Transition parts



3 Throttling device with straightener

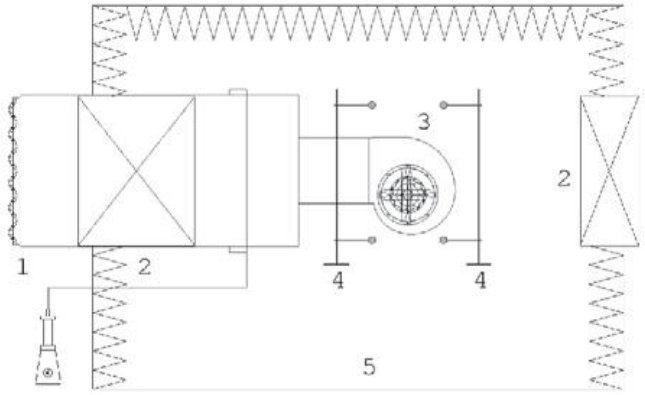
4 Screens
5 Straightener
6 Measuring chamber with shutters

7 Inlet cone pressure manometer (p_d)

8 Pressure manometer Δp_{fa}

Noise levels

The tests and their performance curves were made according to DIN 45635, part 38, according to the envelope surface method, after collection several test points by a cube shaped test area.



1 shutter door
2 sound attenuator
3 test sample
4 measurement arrangement
5 acoustic measuring room with reflecting floor

The characteristic diagram shows the "A" decibel Sound Power level $L_{W(A)}$,. This corresponds to the free-outlet sound power level $L_{W(A)6}$.

The free inlet sound power level $L_{W(A)5}$ can be obtained by the relative sound power level or according to following calculation:

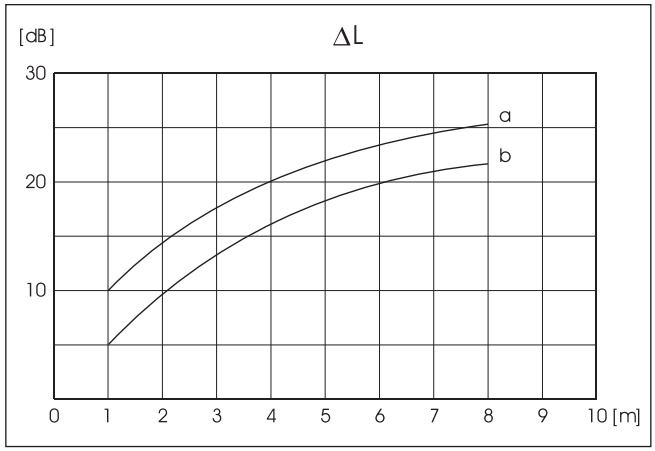
$L_{W(A)5} = L_{W(A)} - 3$ dB(A)

For the exact determination of the sound protection measures the sound power level of the octave bands are important.

$L_{Woct} = L_{W(A)} + L_{wrel}$

DRAE ; DRAD	$L_{WA_{rel}}$ A-weighted at V = 0,5 * V_{max}							
fM [Hz]	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	**Hz**
Outlet side 4-pole	-21	-13	-8	-4	-7	-8	-15	dB
Inlet side 4-pole	-18	-13	-10	-5	-4	-10	-16	dB

ERAE ; ERAD	$L_{WA_{rel}}$ A-weighted at V = 0,5 * V_{max}							
fM [Hz]	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	**Hz**
Outlet side 4-pole	-23	-10	-8	-4	-7	-9	-16	dB
Inlet side 4-pole	-19	-11	-11	-5	-5	-8	-14	dB



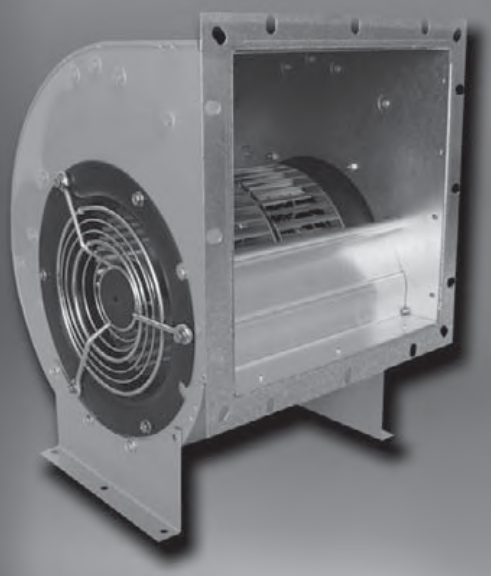
The expected sound pressure level on the outlet side can only be approximately determined as the ambient influences can lead to strong deviations.

$L_{P(A)} = L_{W(A)} - D L$

a= without reflections
b= with reflections

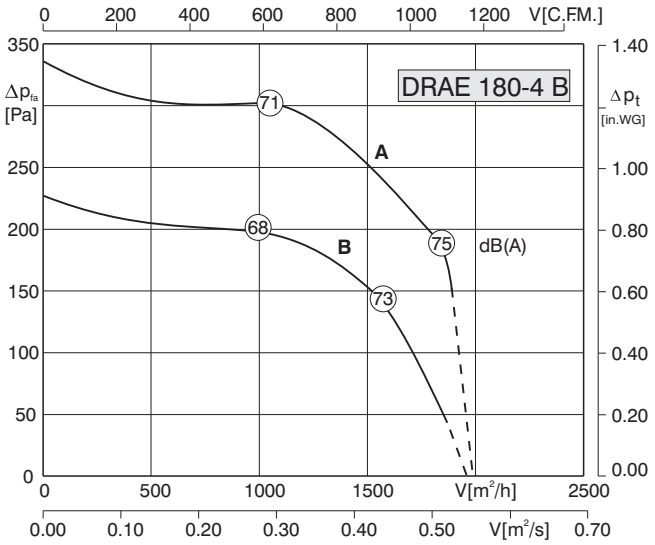
High Efficiency Radial Fans

with forward curved radial impellers



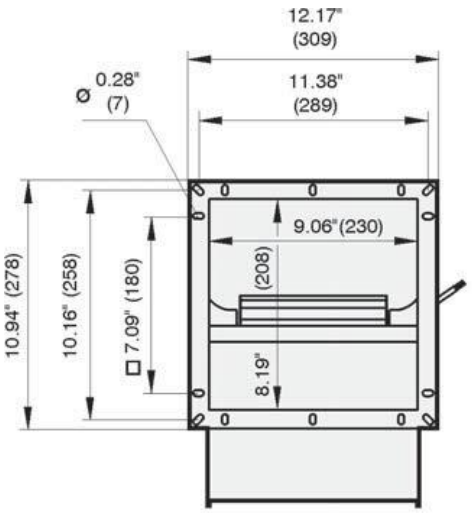
Advantages:

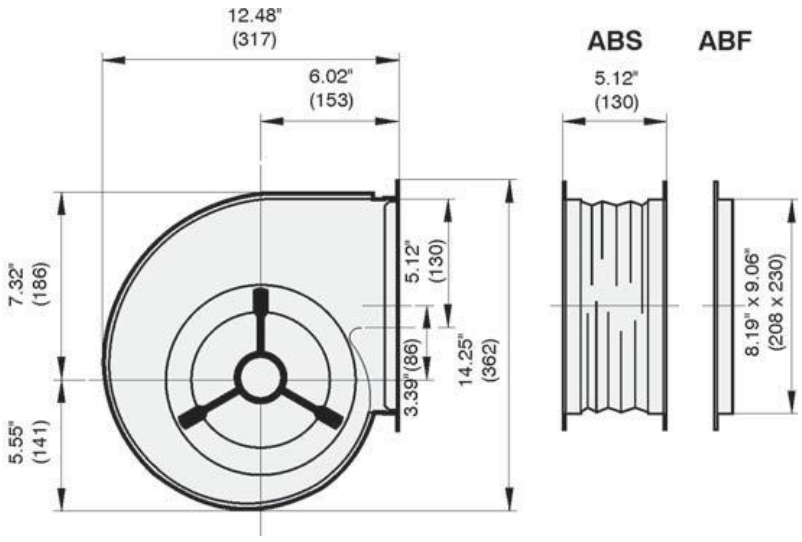
- **The speed is 0-100% adjustable using auto transformers or electronic control**
- **Easy air volume adjustments via a large range of control products based on pressure and temperature**
- **Compact and space saving design**
- **Easy installation in many positions**
- **Extremely low starting currents**
- **Motor protection by thermal contacts in motor windings**

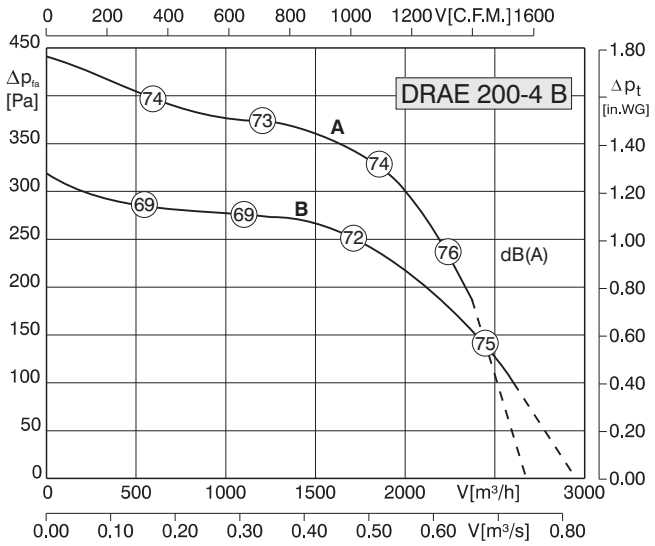


- compact and space saving design
- 100% speed controllable through auto transformers
- Motor protection through thermal contacts as standard

Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 180-4 B	1~120	60	A	0.46	4.00	1420	122	50	24	-	1.8	54	01.025	9.5
DRAE 180-4 B	1~230	60	A	0.46	2.00	1420	122	50	6	-	1.8	54	01.025	9.5
DRAE 180-4 B	1~230	50	B	0.42	1.90	1250	122	50	6	21	2.0	54	01.025	9.5







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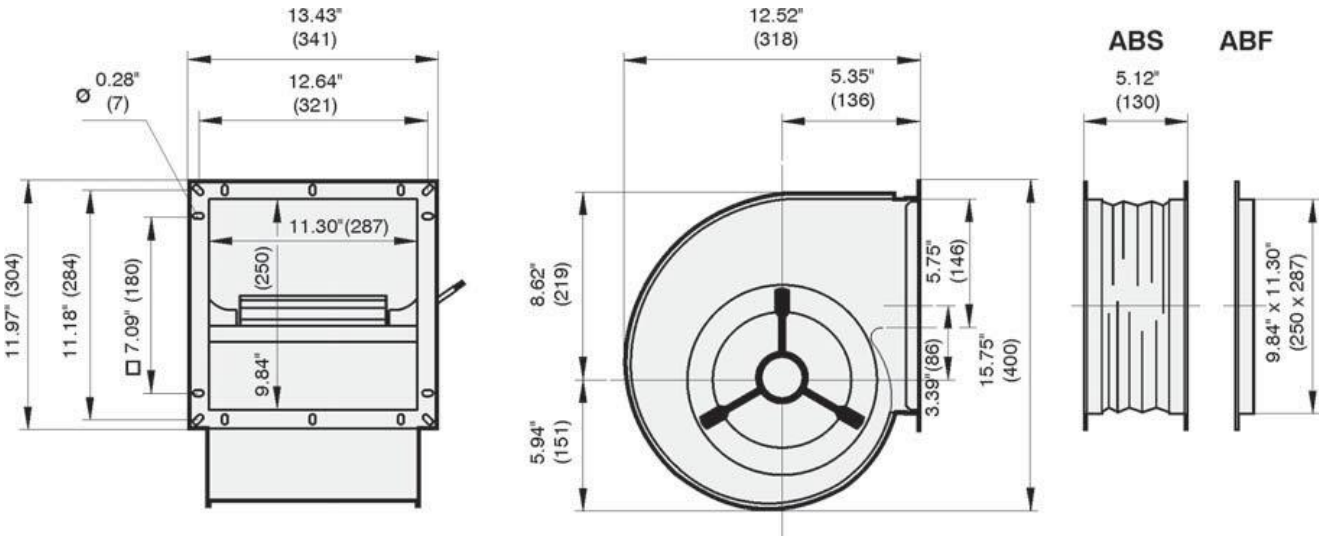
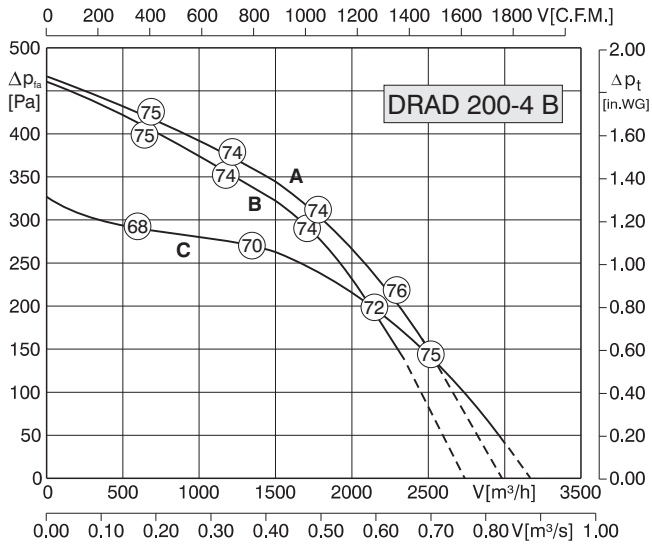
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 200-4 B	1~120	60	A	0.62	5.40	1350	122	50	40	-	1.5	54	01.025	13
DRAE 200-4 B	1~230	60	A	0.62	2.70	1350	122	50	10	-	1.5	54	01.025	13
DRAE 200-4 B	1~230	50	B	0.52	2.30	1250	122	50	10	2.0	1.8	54	01.025	13





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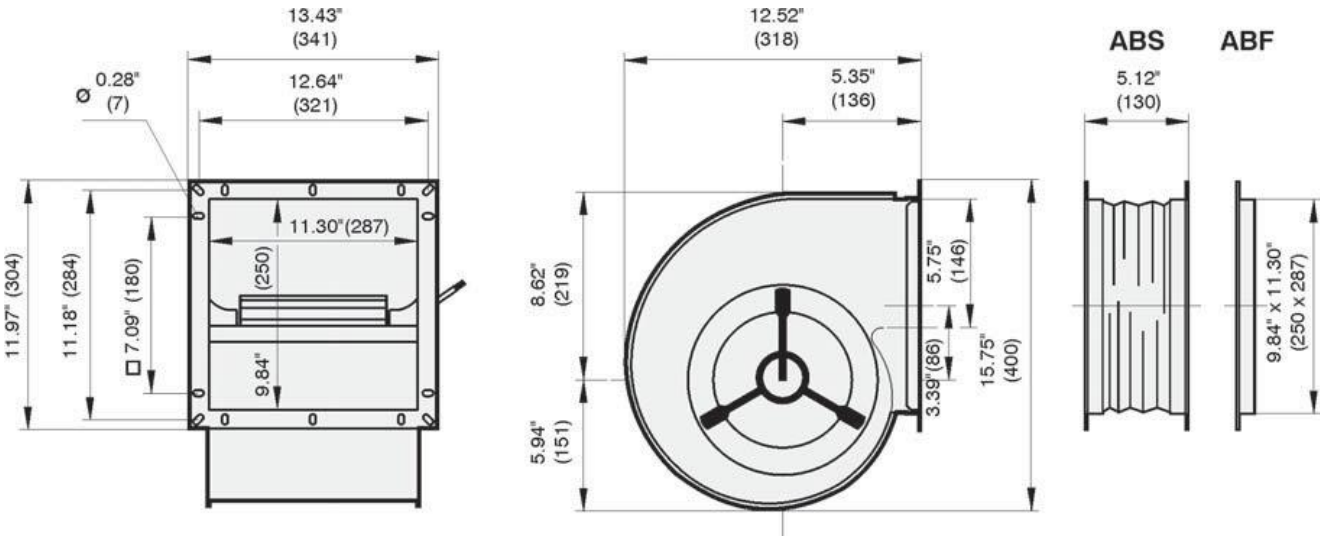
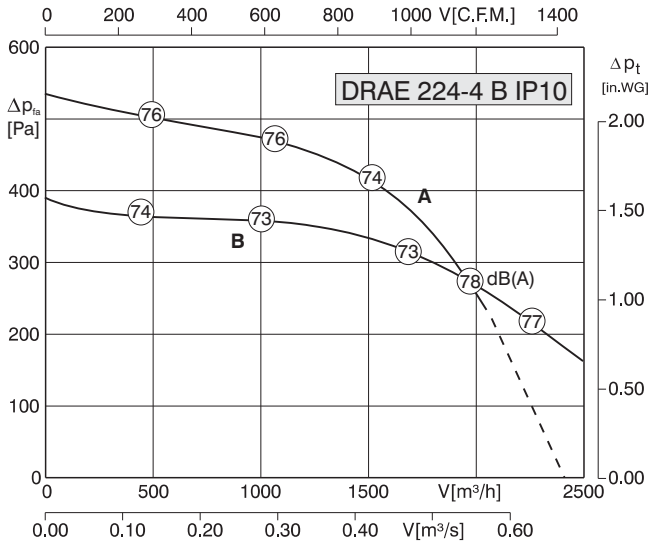
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 200-4 B	3~460Y	60	A	0.62	0.98	1470	104	40	-	-	2.3	54	01.005	11
DRAD 200-4 B	3~230D	60	B	0.57	1.65	1400	104	40	-	-	2.3	54	01.006	11
DRAD 200-4 B	3~400Y	50	C	0.56	0.98	1170	104	40	-	-	2.4	54	01.005	11





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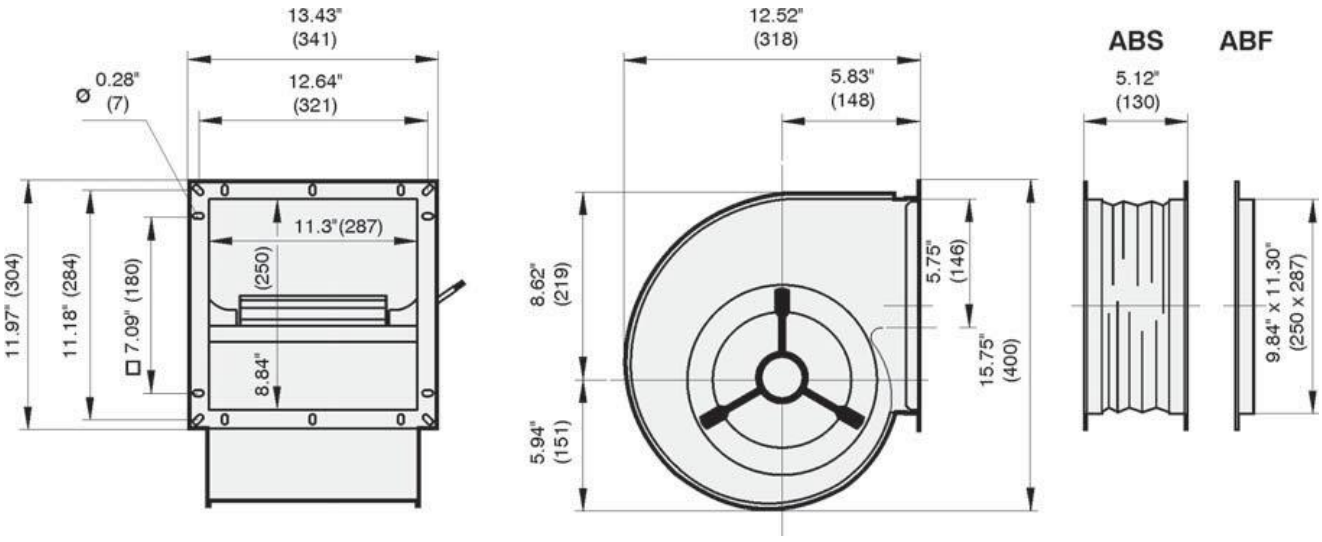
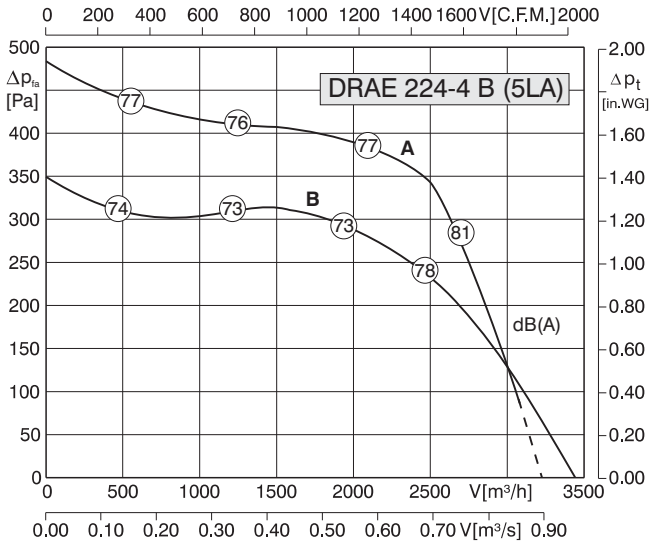
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 224 B (IP10)-4	1~120	60	A	0.68	5.80	1200	122	50	40	-	1.5	54	01.025	13.5
DRAE 224 B (IP10)-4	1~230	60	A	0.68	2.90	1200	122	50	10	-	1.5	54	01.025	13.5
DRAE 224 B (IP10)-4	1~230	50	B	0.57	2.50	1250	122	50	10	2	1.8	54	01.025	13.5





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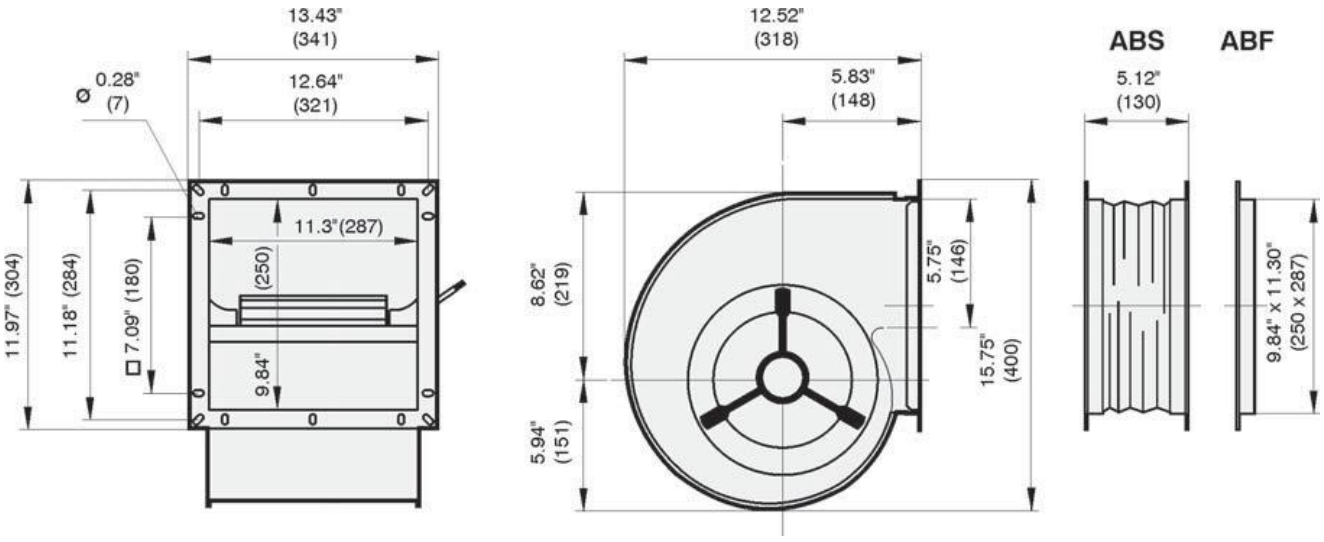
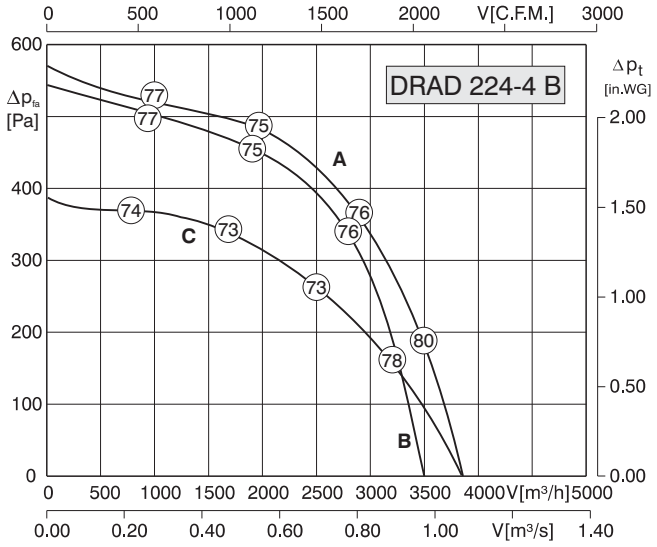
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 224-4 B (5LA)	1~115	60	A	1.30	11	1240	104	40	50	-	1.6	54	01.025	16
DRAE 224-4 B (5LA)	1~230	60	A	1.30	5.50	1240	104	40	14	-	1.6	54	01.025	16
DRAE 224-4 B (5LA)	1~230	50	B	1.10	4.70	1140	140	60	14	20	1.8	54	01.025	16





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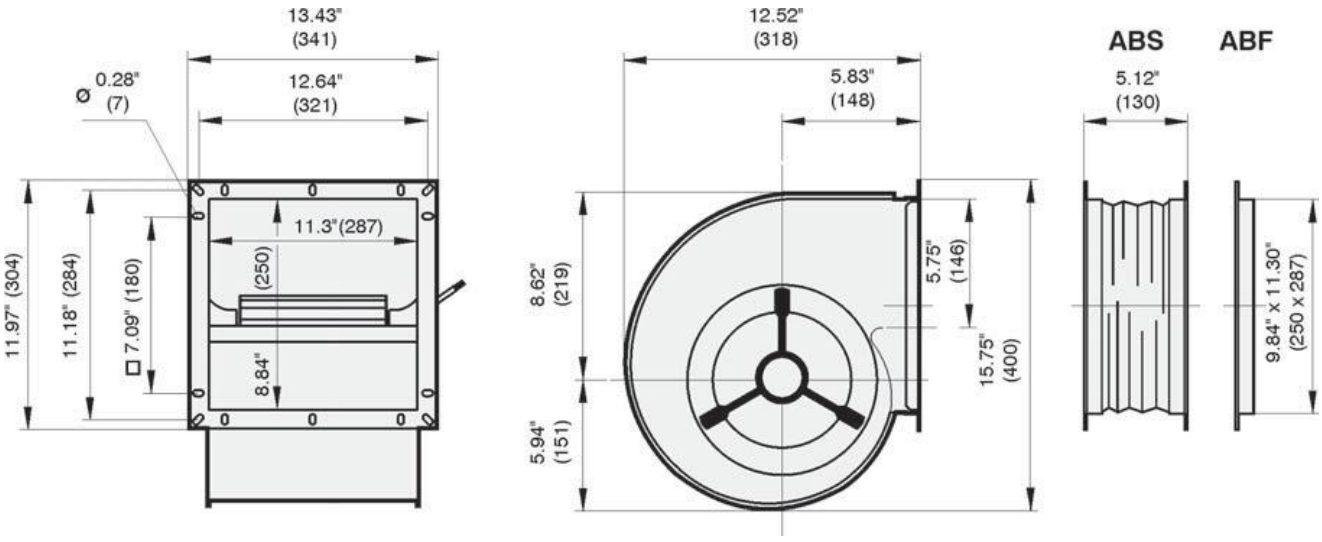
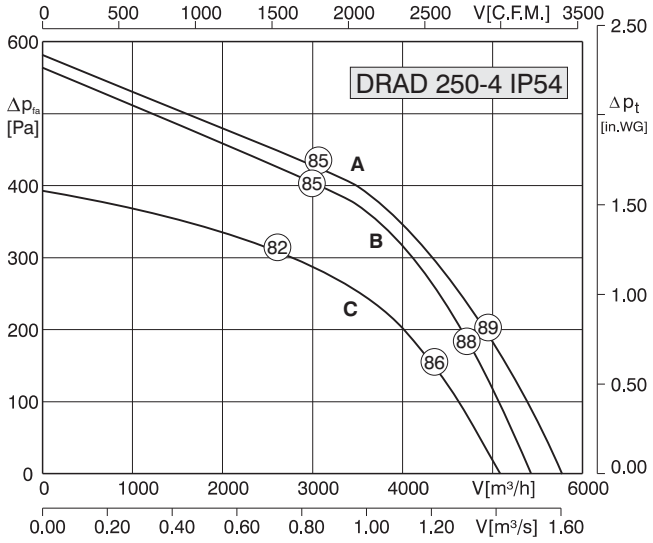
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	ℹ [kg]
DRAD 224-4 B	3~460Y	60	A	0.92	1.45	1515	104	40	-	-	2.6	54	01.005	14
DRAD 224-4 B	3~230D	60	B	0.83	2.45	1380	104	40	-	-	2.6	54	01.006	14
DRAD 224-4 B	3~400Y	50	C	0.87	1.50	1210	104	40	-	-	2.5	54	01.005	14





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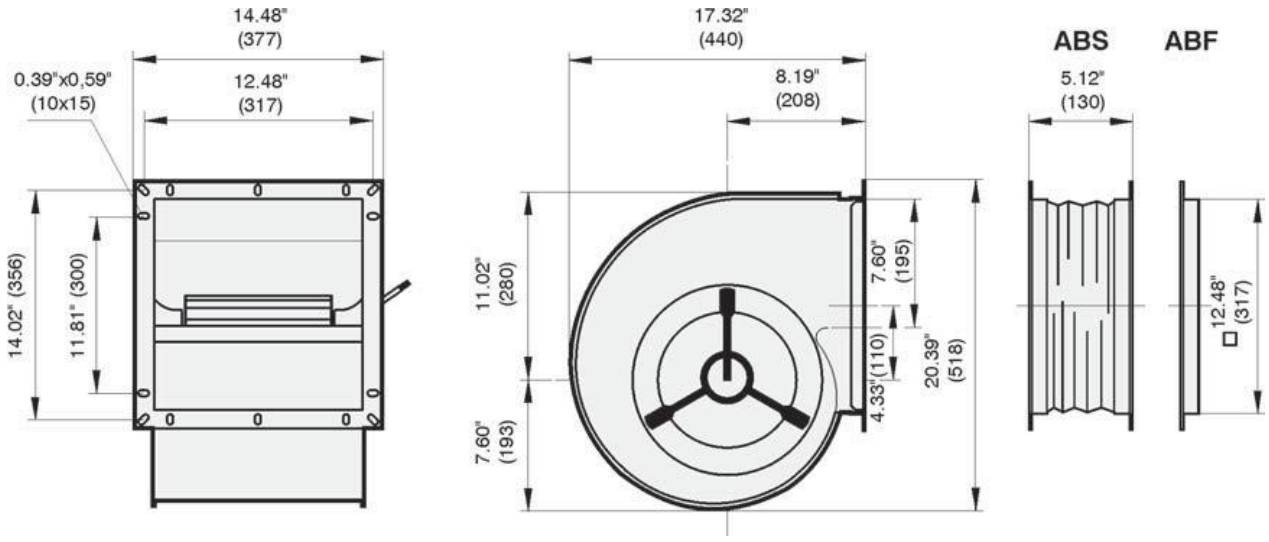
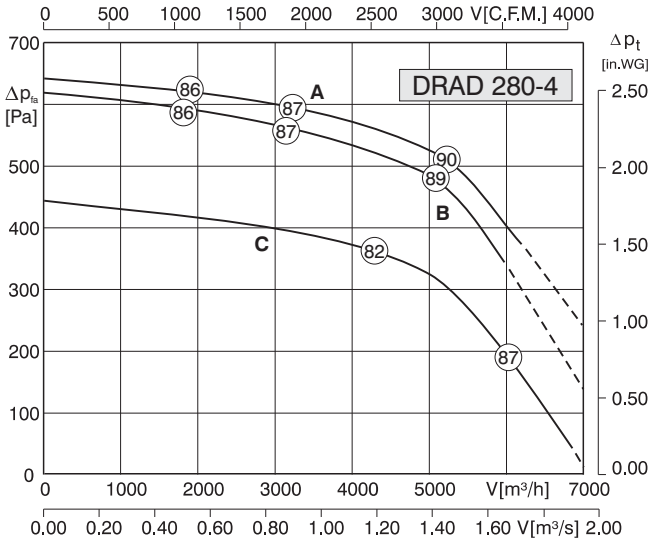
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [μF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 250-4 IP54	3~460Y	60	A	1.50	2.60	1550	122	50	-	-	2.9	54	01.005	29
DRAD 250-4 IP54	3~230D	60	B	1.40	2.40	1480	122	50	-	-	2.9	54	01.006	29
DRAD 250-4 IP54	3~400Y	50	C	1.60	2.95	1200	140	60	-	-	2.5	54	01.005	29





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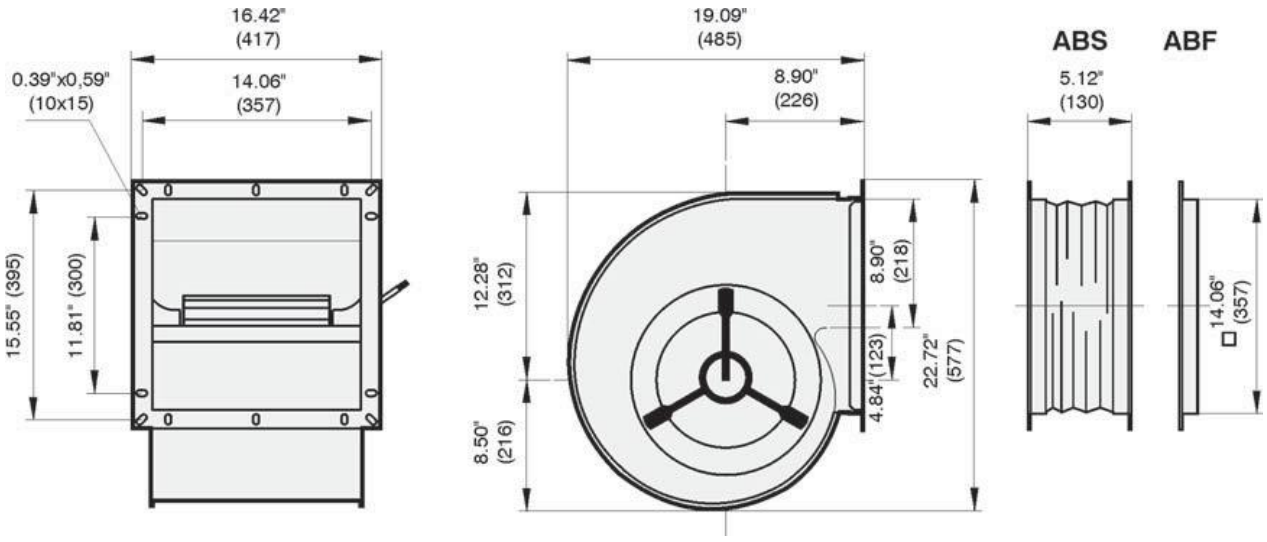
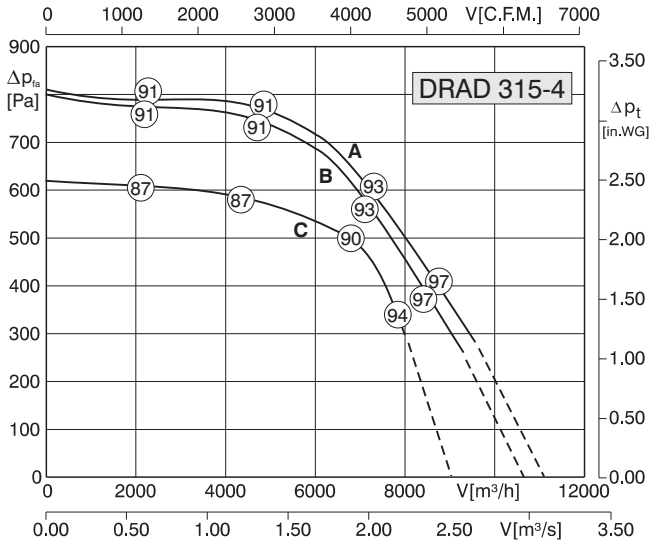
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 280-4	3~460Y	60	A	3.20	4.50	1530	122	50	-	13	3.5	54	01.005	40
DRAD 280-4	3~230D	60	B	3.00	8.20	1440	122	50	-	8	3.5	54	01.006	40
DRAD 280-4	3~400Y	50	C	2.70	4.30	1250	140	60	-	8	5.0	54	01.005	40





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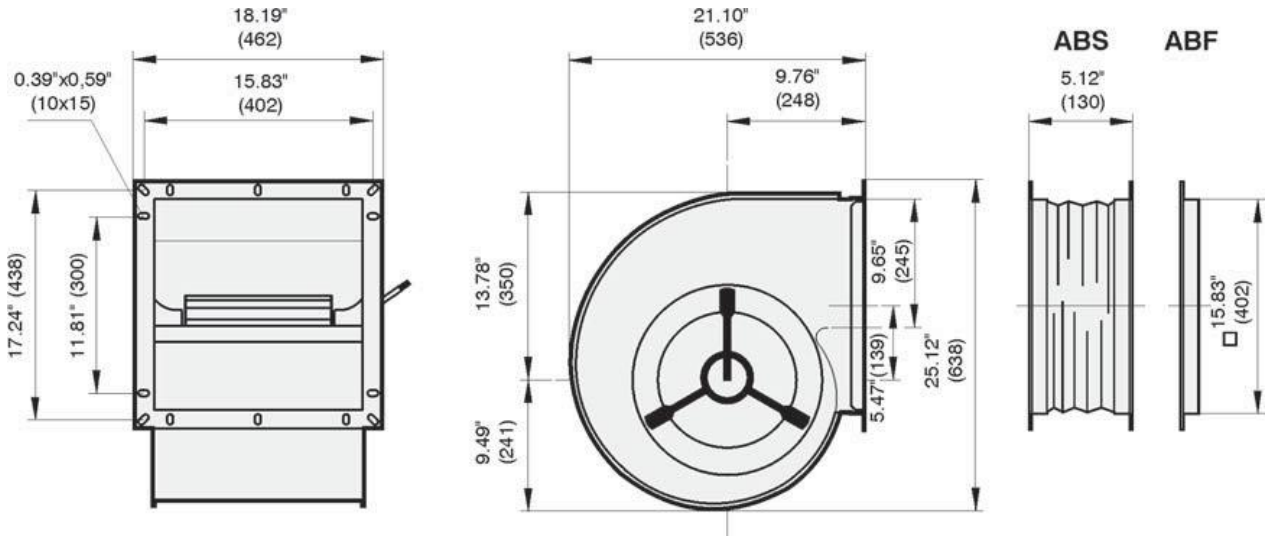
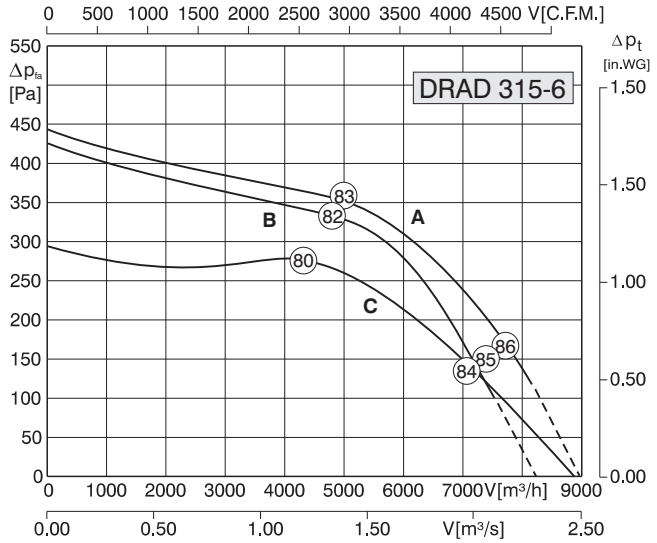
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	⊠	[kg]
DRAD 315-4	3~460Y	60	A	6.20	9.70	1630	122	50	-	10	4.5	54	01.005	60
DRAD 315-4	3~230D	60	B	5.80	17.0	1570	122	50	-	8	4.5	54	01.006	60
DRAD 315-4	3~400Y	50	C	4.50	8.70	1370	140	60	-	-	4.3	54	01.005	60





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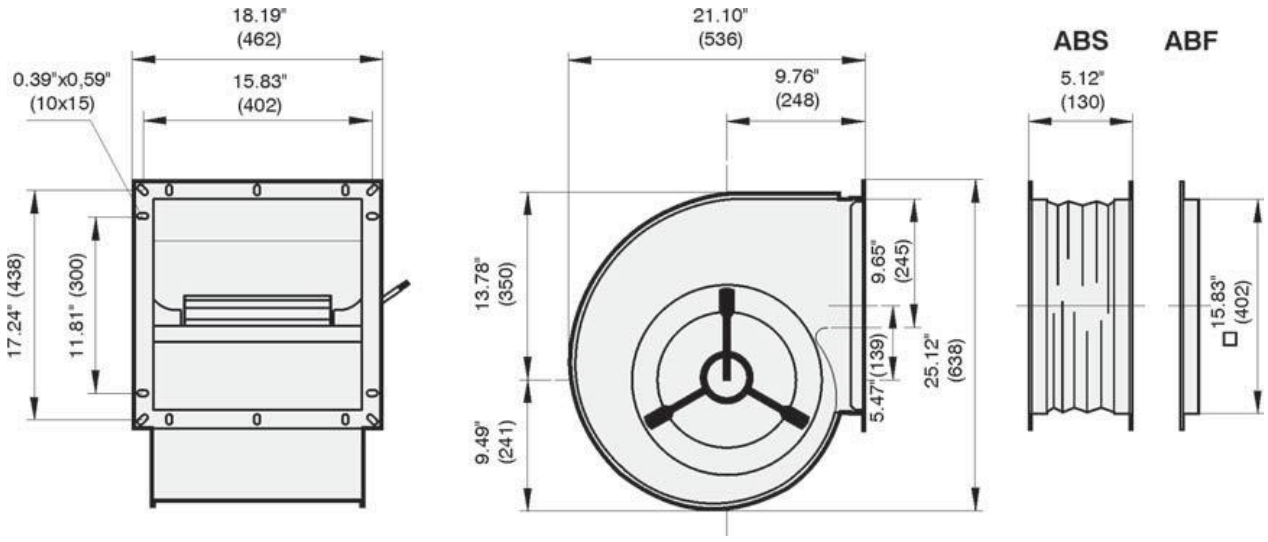
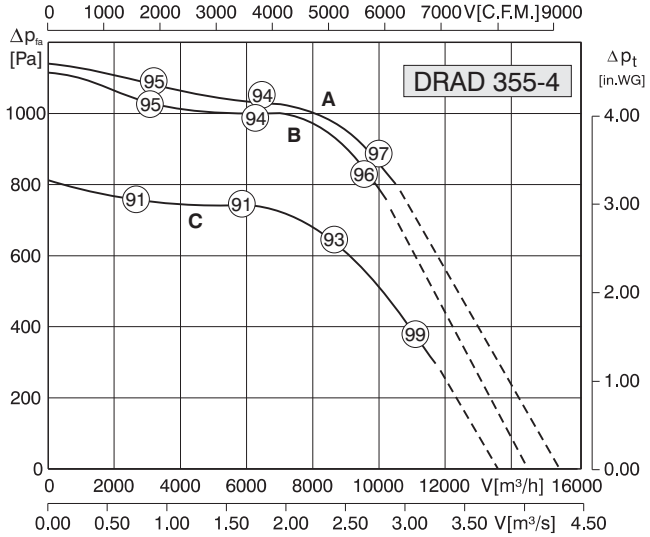
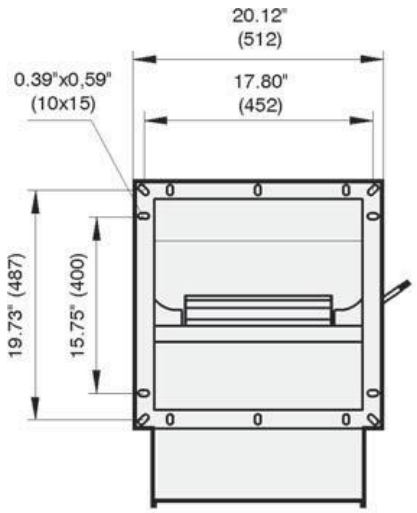
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 315-6	3~460Y	60	A	2.50	3.90	880	122	50	-	-	2.2	54	01.005	36.5
DRAD 315-6	3~230D	60	B	2.20	6.80	815	122	50	-	-	2.2	54	01.006	36.5
DRAD 315-6	3~400Y	50	C	2.10	3.70	780	140	60	-	-	2.6	54	01.005	36.5

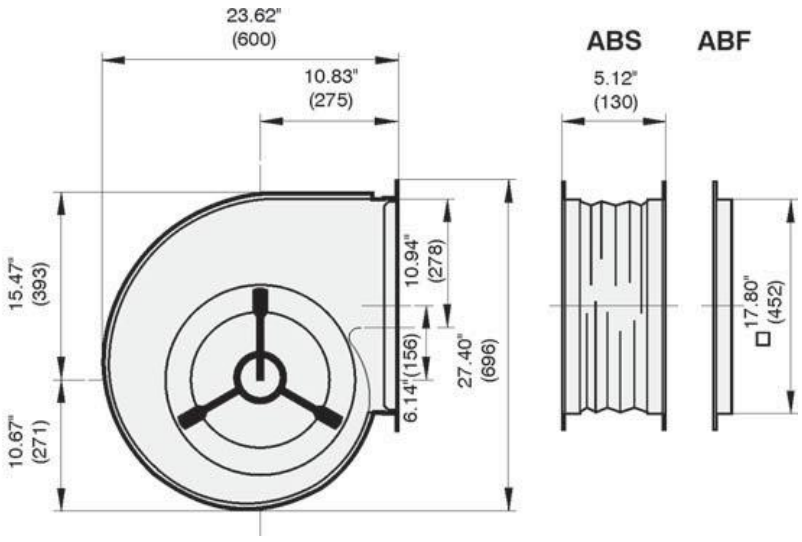


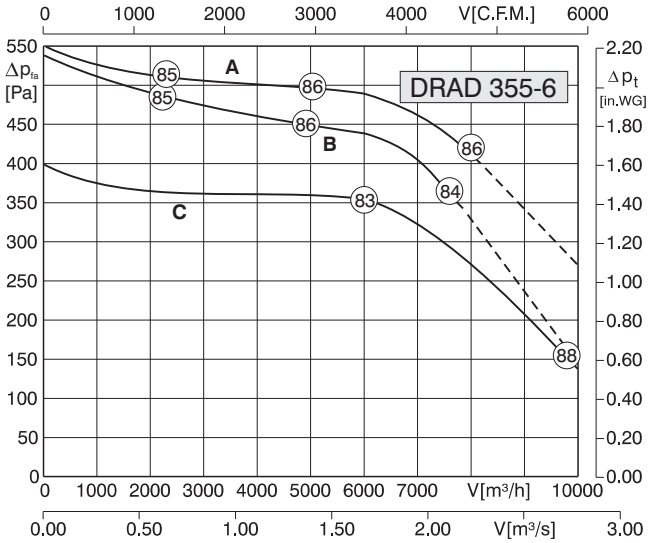


- compact and space saving design
- 100% speed controllable through auto transformers
- Motor protection through thermal contacts as standard

Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 355-4	3~460Y	60	A	7.65	11.7	1655	104	40	-	24	4.7	54	01.005	79
DRAD 355-4	3~230D	60	B	7.30	21.3	1610	104	40	-	18	4.5	54	01.006	79
DRAD 355-4	3~400Y	50	C	6.65	11.8	1365	104	40	-	11	3.7	54	01.005	79







- compact and space saving design
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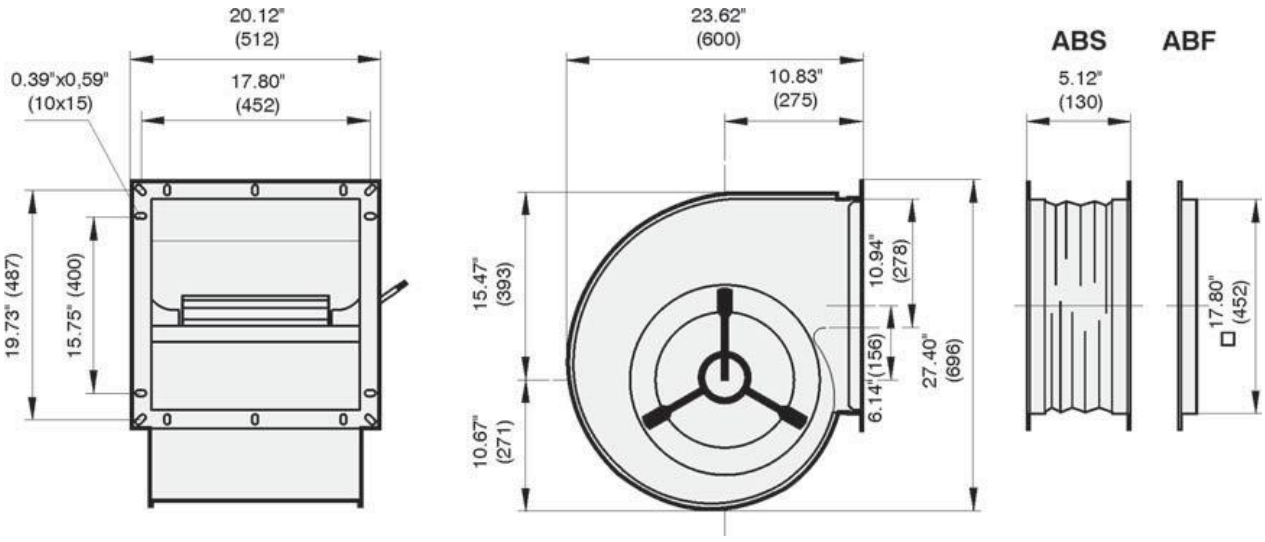
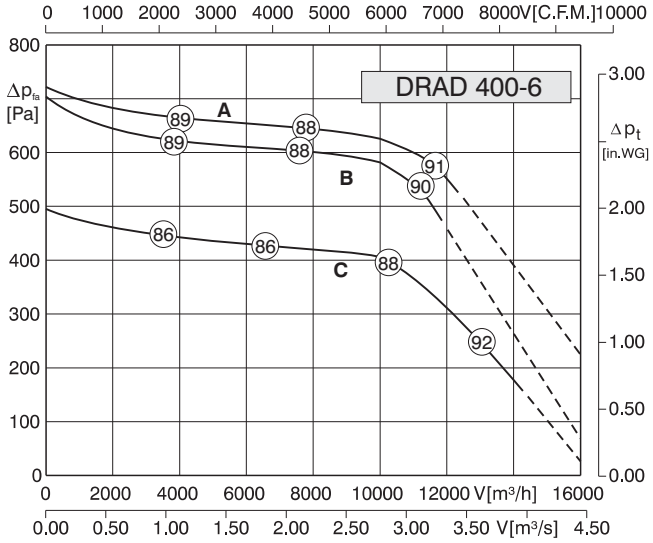
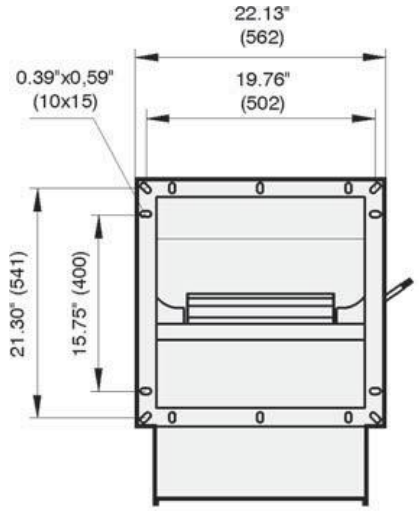
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 355-6	3~460Y	60	A	3.10	4.70	990	104	40	-	2	3.0	54	01.005	50.5
DRAD 355-6	3~230D	60	B	2.80	8.30	910	104	40	-	-	3.0	54	01.006	50.5
DRAD 355-6	3~400Y	50	C	2.95	5.20	790	104	40	-	-	3.0	54	01.006	50.5

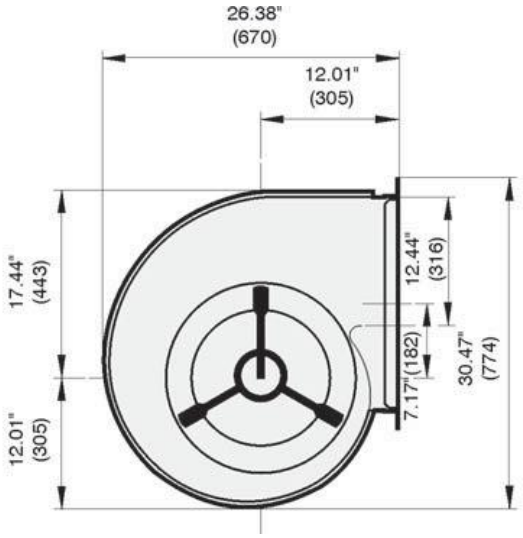


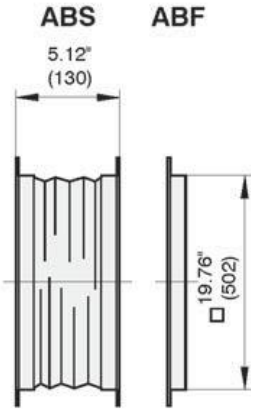


- compact and space saving design
- 100% speed controllable through auto transformers
- Motor protection through thermal contacts as standard

Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 400-6	3~460Y	60	A	5.70	9.6	1040	122	50	-	4	3.2	54	01.005	94
DRAD 400-6	3~230D	60	B	5.20	17	990	122	50	-	4	3.2	54	01.006	94
DRAD 400-6	3~400Y	50	C	5.30	10	845	104	40	-	3	3.2	54	01.005	94

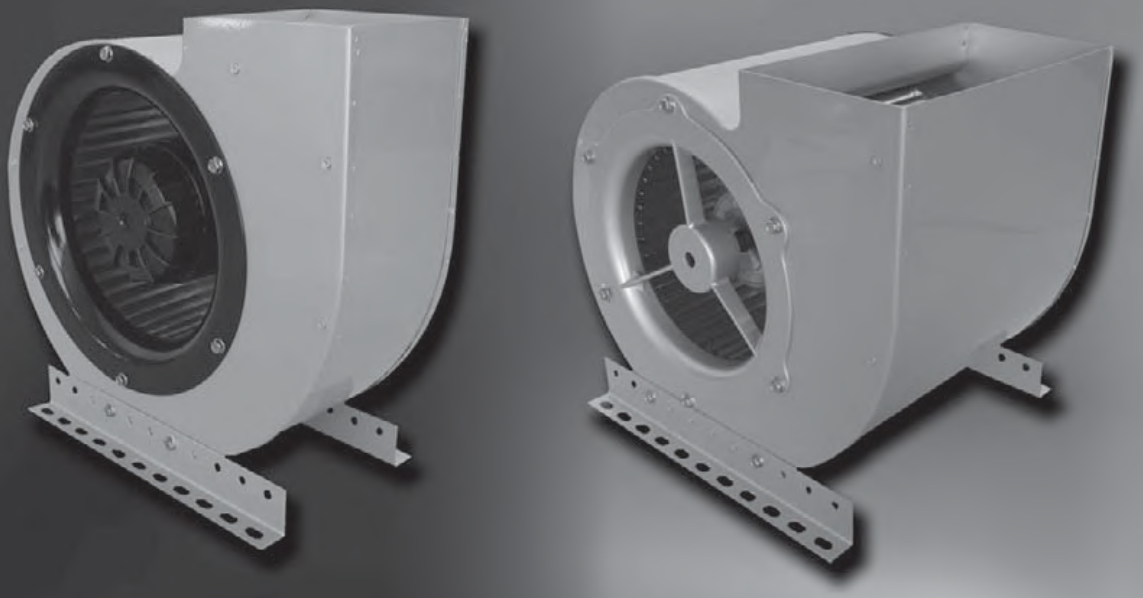






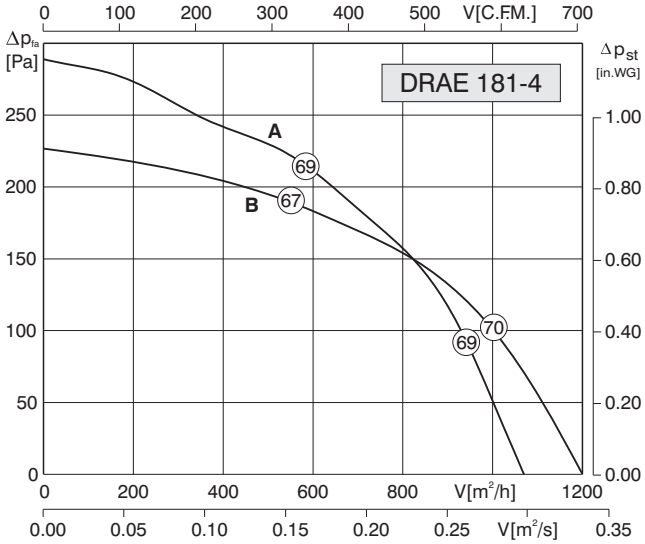
High Efficiency Radial Fans

with compact casing



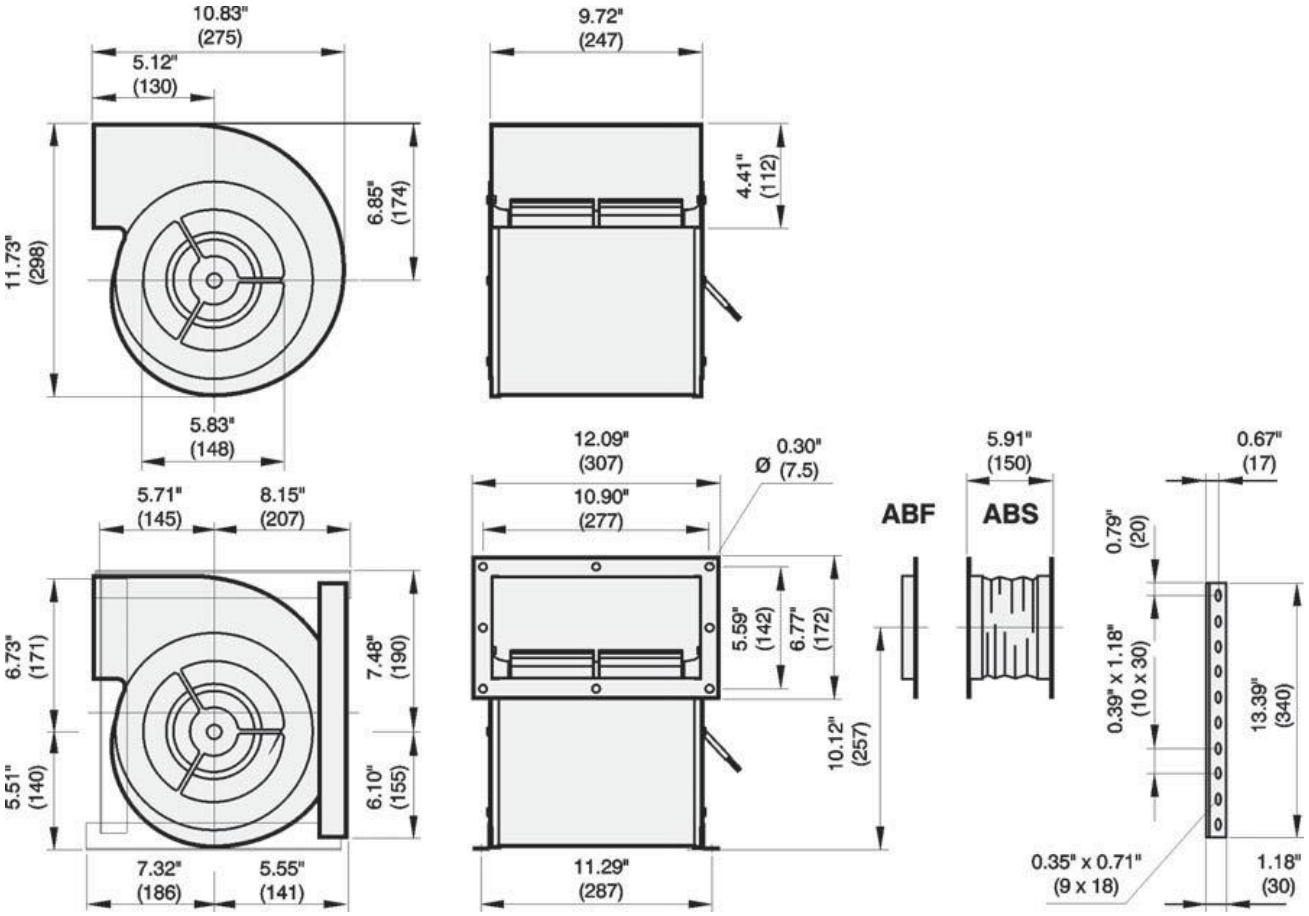
Advantages:

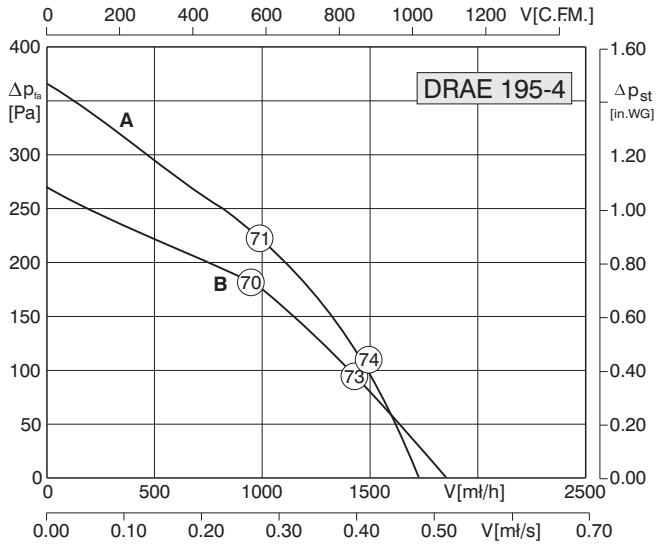
- **Steep pressure-volume-performance curve**
- **The speed is 0-100% adjustable using auto transformers or electronic control**
- **Easy air volume adjustments via a large range of control products based on pressure and temperature**
- **Compact and space saving design**
- **Easy installation in many positions**
- **Extremely low starting currents**
- **Motor protection by thermal contacts in motor windings**



- Steep pressure-volume-performance curve
- compact and space saving design
- 100% speed controllable through auto transformers
- Motor protection through thermal contacts as standard

Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [μF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 181-4	1~120	60	A	0.23	2.10	960	158	70	16	-	1.1	54	01.025	10
DRAE 181-4	1~230	60	A	0.23	1.05	960	158	70	4	-	1.1	54	01.025	10
DRAE 181-4	1~230	50	B	0.20	0.90	1060	158	70	4	-	1.5	54	01.025	10





- Steep pressure-volume-performance curve
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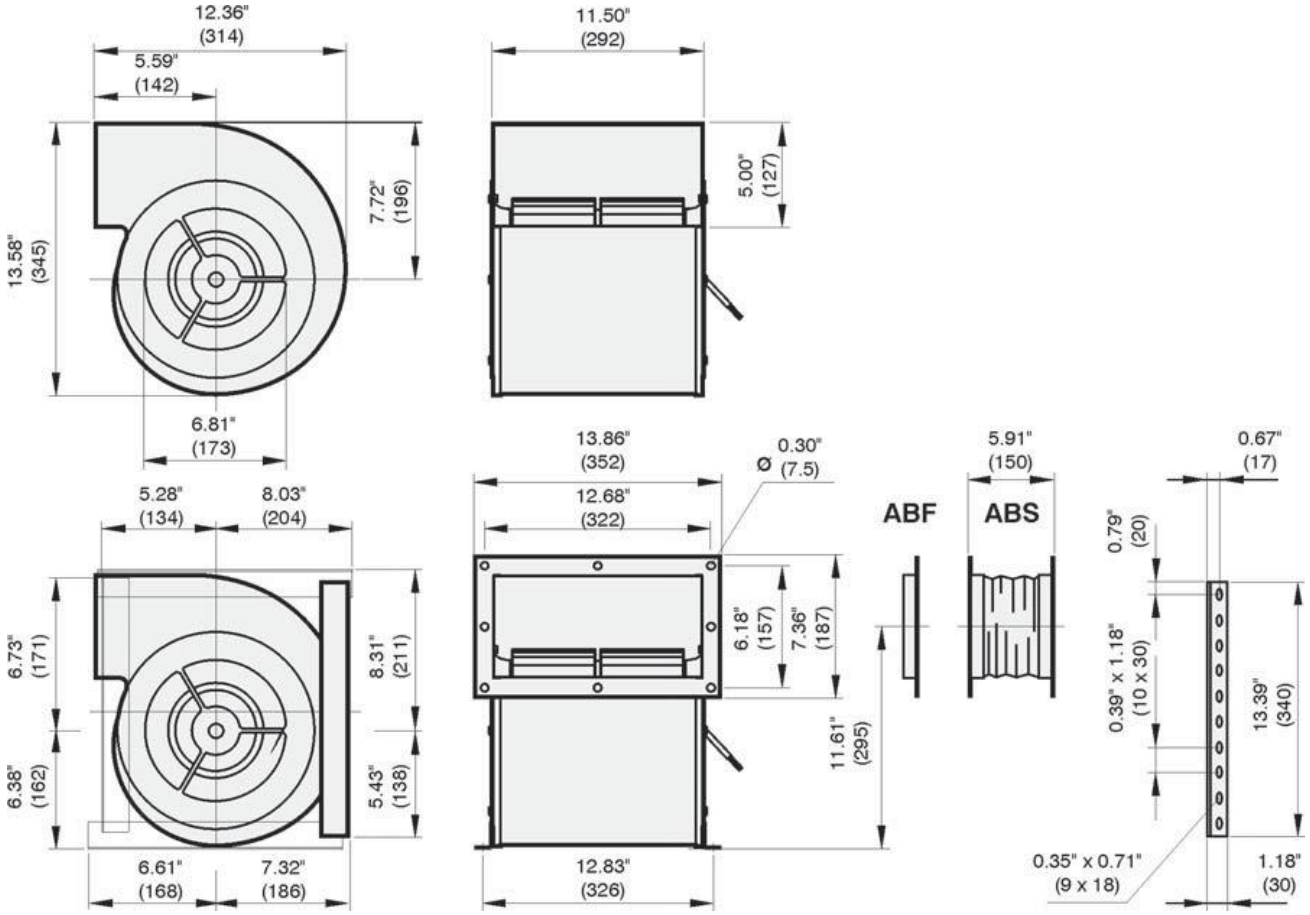
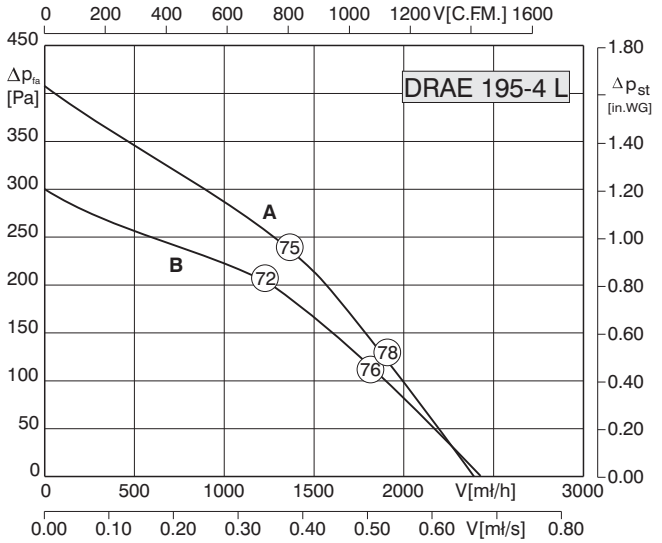
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [μF]	ΔI [%]	I_A/I_N	⚠	✱	ℹ [kg]
DRAE 195-4	1~120	60	A	0.32	2.80	880	140	60	20	-	1.1	54	01.025	11.5
DRAE 195-4	1~230	60	A	0.32	1.40	880	140	60	5	-	1.1	54	01.025	11.5
DRAE 195-4	1~230	50	B	0.28	1.20	950	158	70	5	-	1.4	54	01.025	11.5





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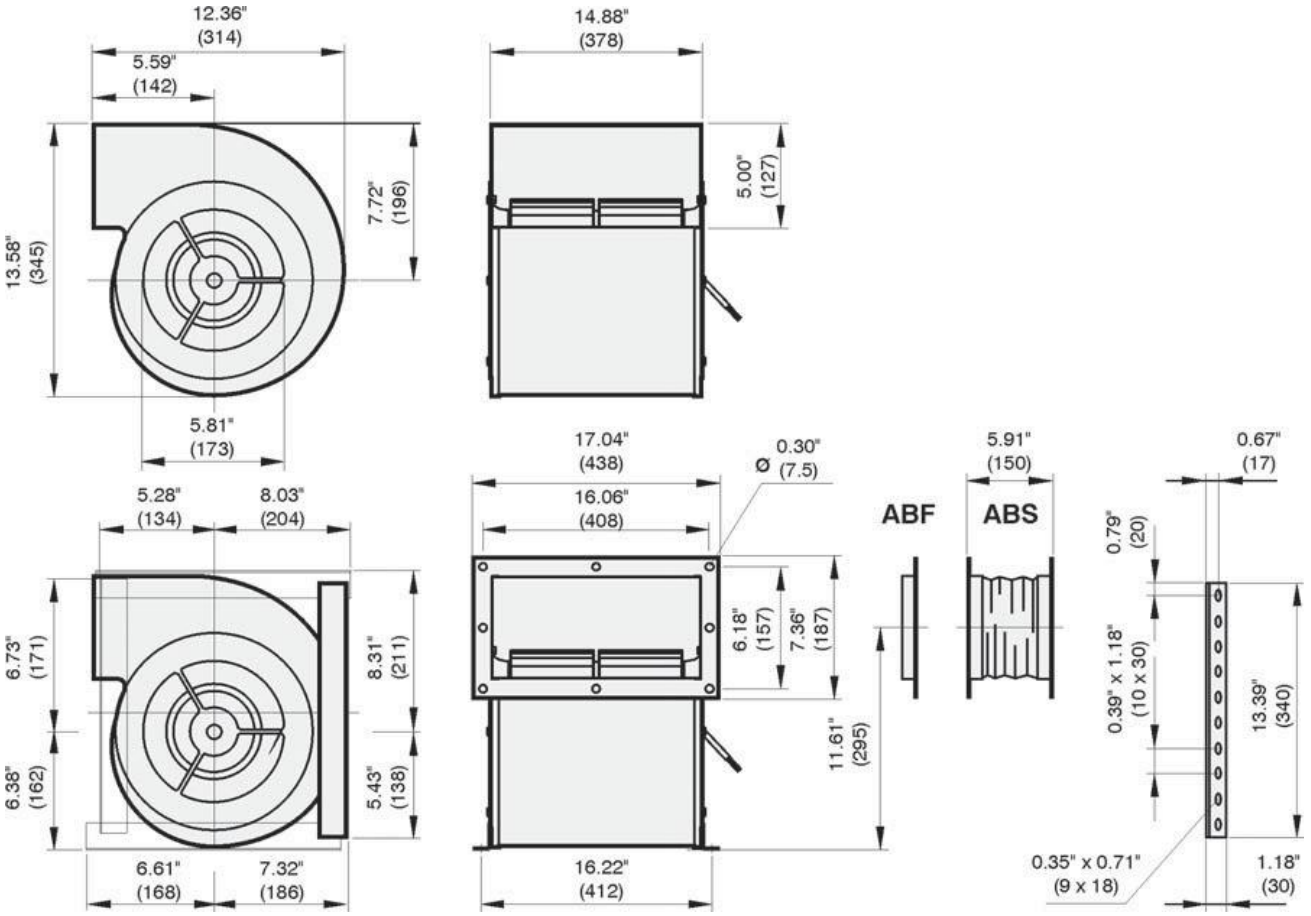
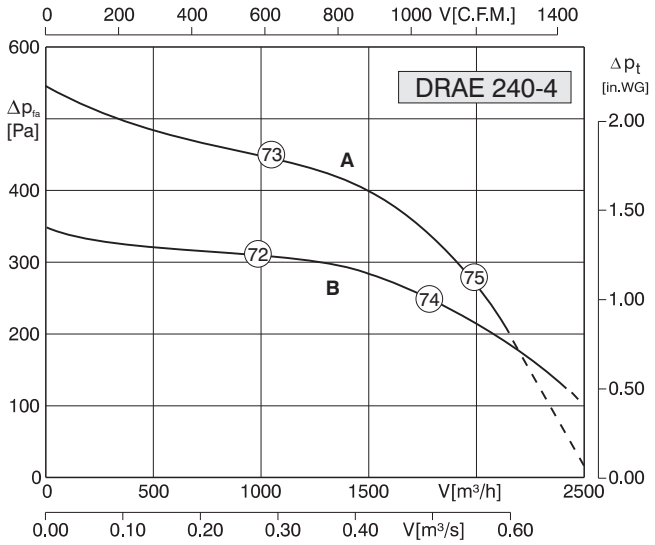
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 195-4L	1~120	60	A	0.51	4.80	1130	122	50	30	-	1.2	54	01.025	13
DRAE 195-4L	1~230	60	A	0.51	2.40	1130	122	50	8	-	1.2	54	01.025	13
DRAE 195-4L	1~230	50	B	0.40	1.80	1150	158	70	8	-	1.7	54	01.025	13





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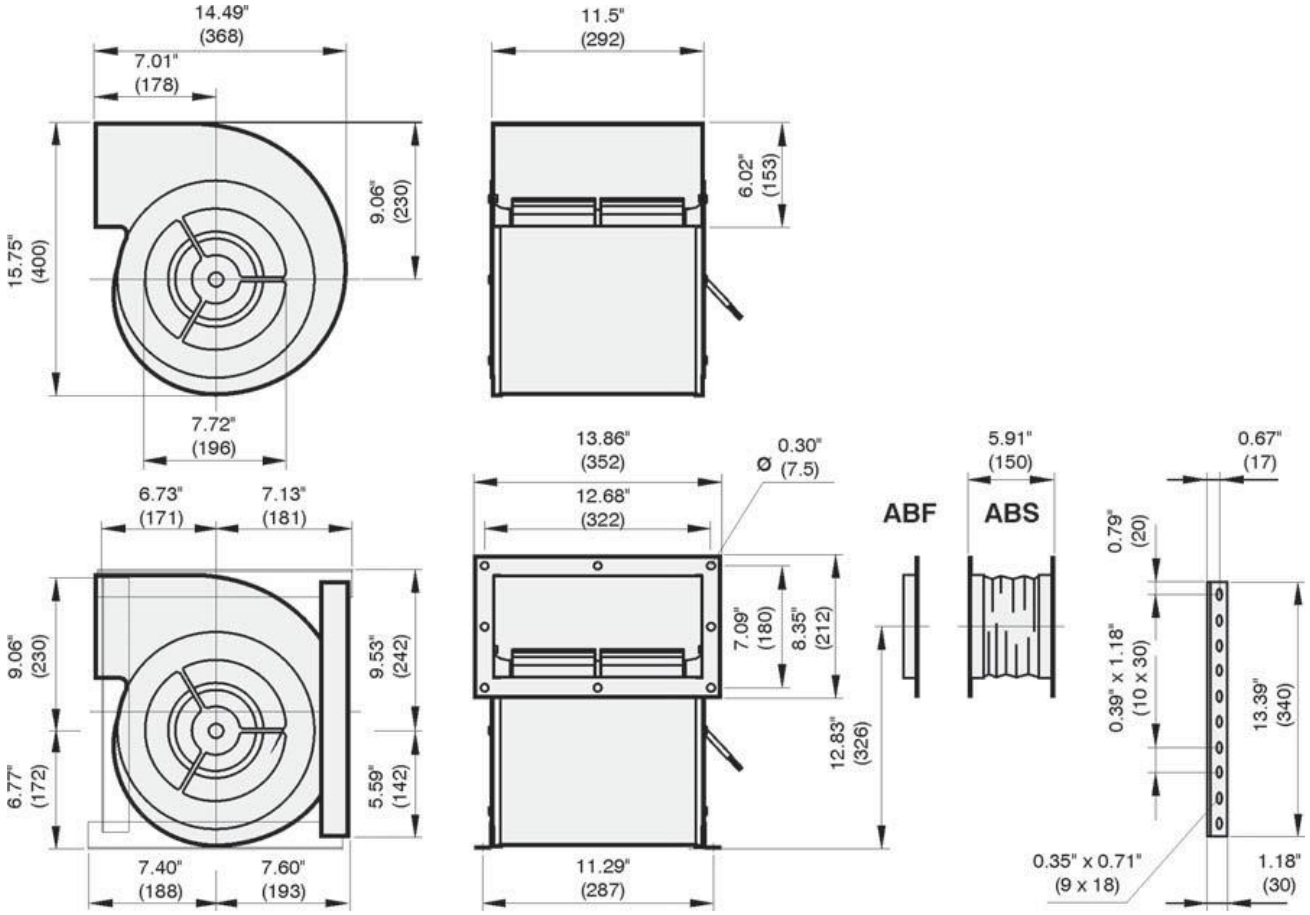
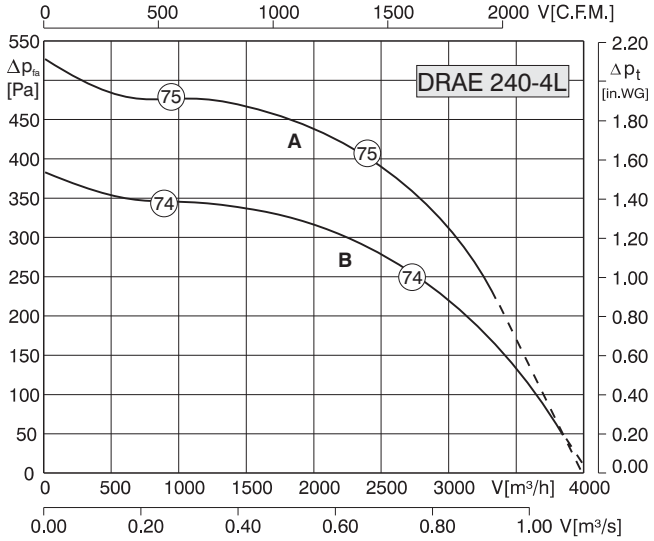
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 240-4	1~120	60	A	0.64	5.50	1175	122	50	30	-	1.4	54	01.025	15
DRAE 240-4	1~230	60	A	0.64	2.75	1175	122	50	8	-	1.4	54	01.025	15
DRAE 240-4	1~230	50	B	0.59	2.60	1045	122	50	8	-	1.6	54	01.025	15





- Steep pressure-volume-performance curve
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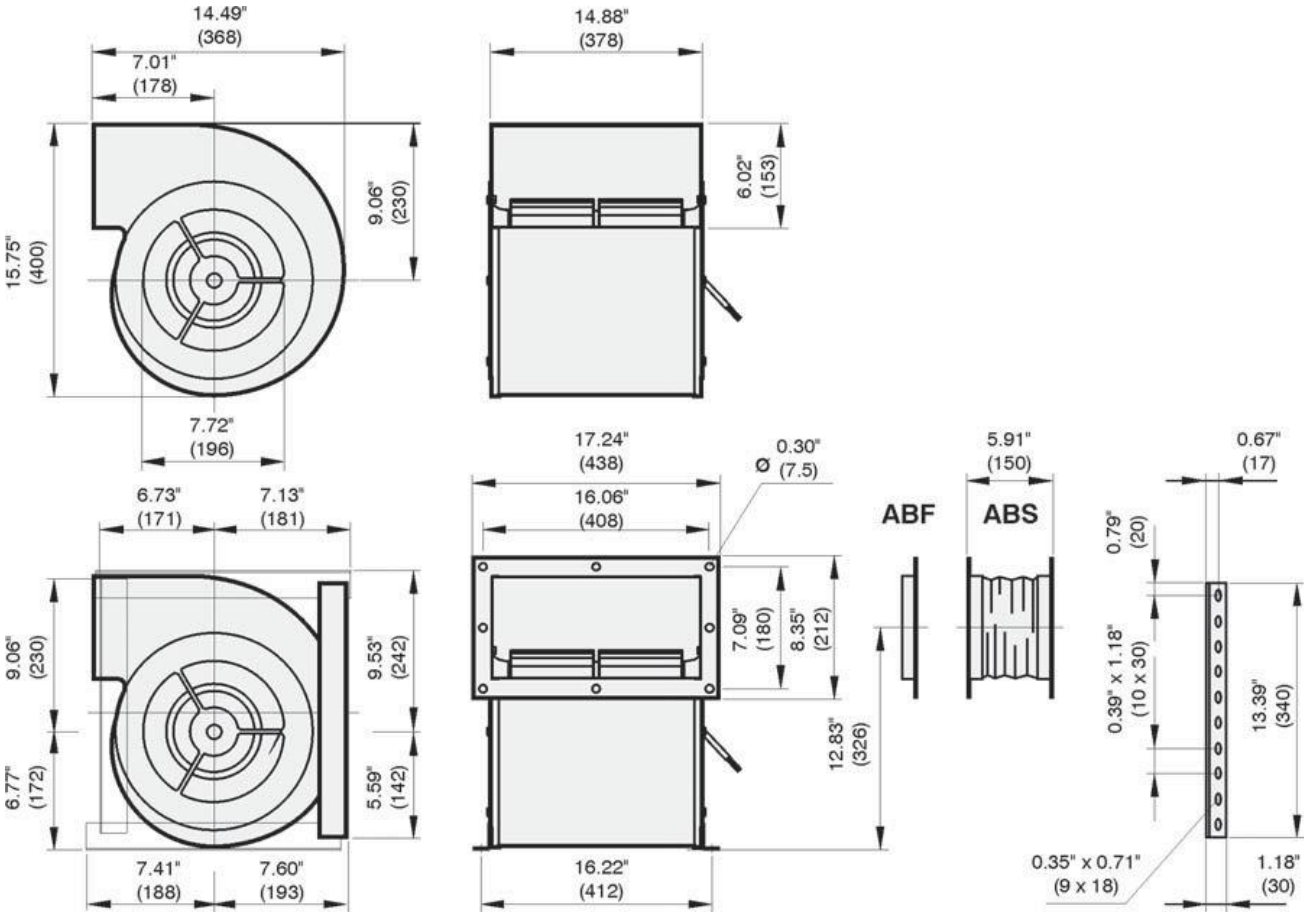
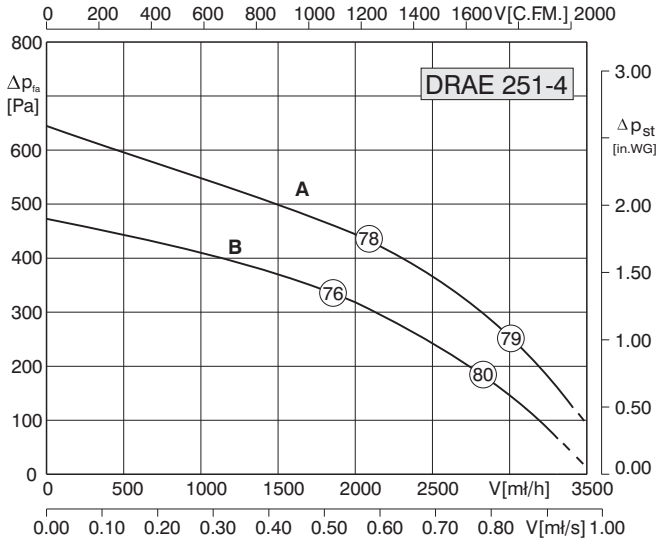
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	⊠	[kg]
DRAE 240-4L	1~120	60	A	1.15	10.0	1320	122	50	50	-	1.6	54	01.025	21
DRAE 240-4L	1~230	60	A	1.15	5.00	1320	122	50	14	-	1.6	54	01.025	21
DRAE 240-4L	1~230	50	B	1.05	4.75	1120	122	50	14	5.0	1.8	54	01.025	21





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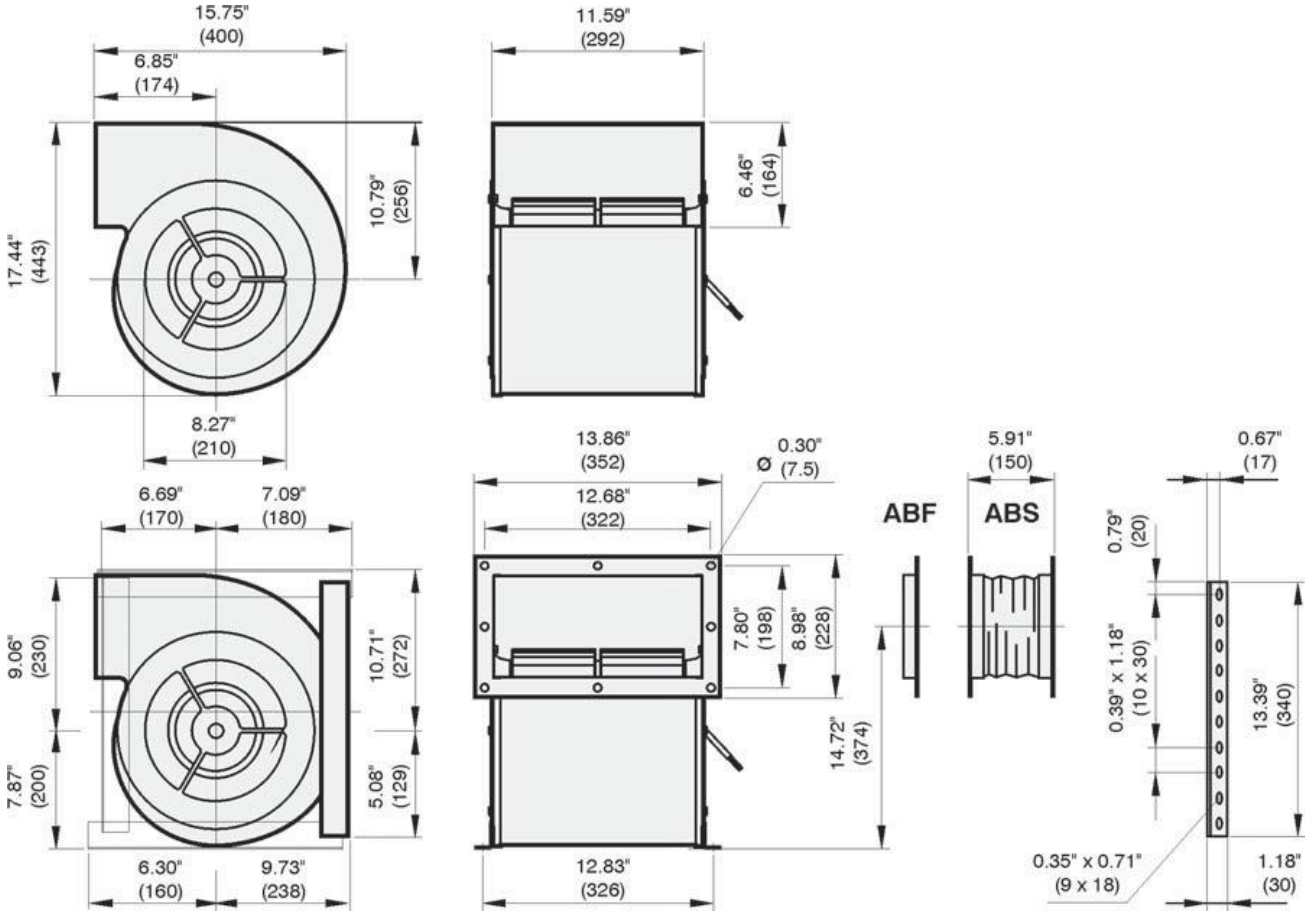
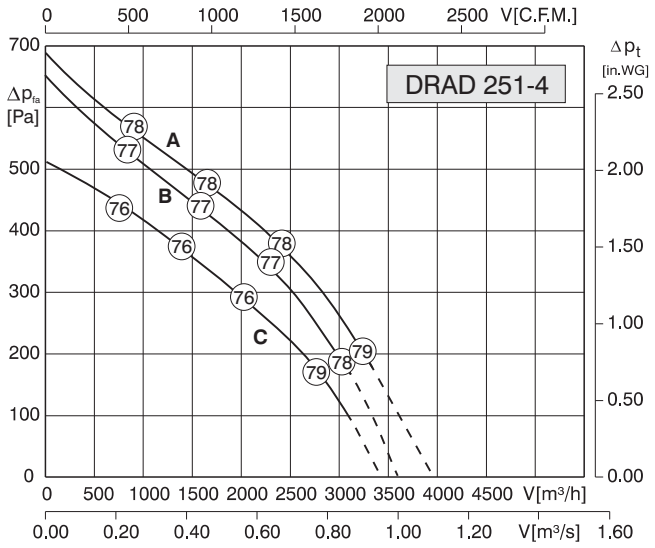
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 251-4	1~120	60	A	1.15	10.0	1270	140	60	60	-	1.4	54	01.025	21
DRAE 251-4	1~230	60	A	1.15	5.00	1270	140	60	14	-	1.4	54	01.025	21
DRAE 251-4	1~230	50	B	0.96	4.30	1170	140	60	14	5	1.8	54	01.025	21





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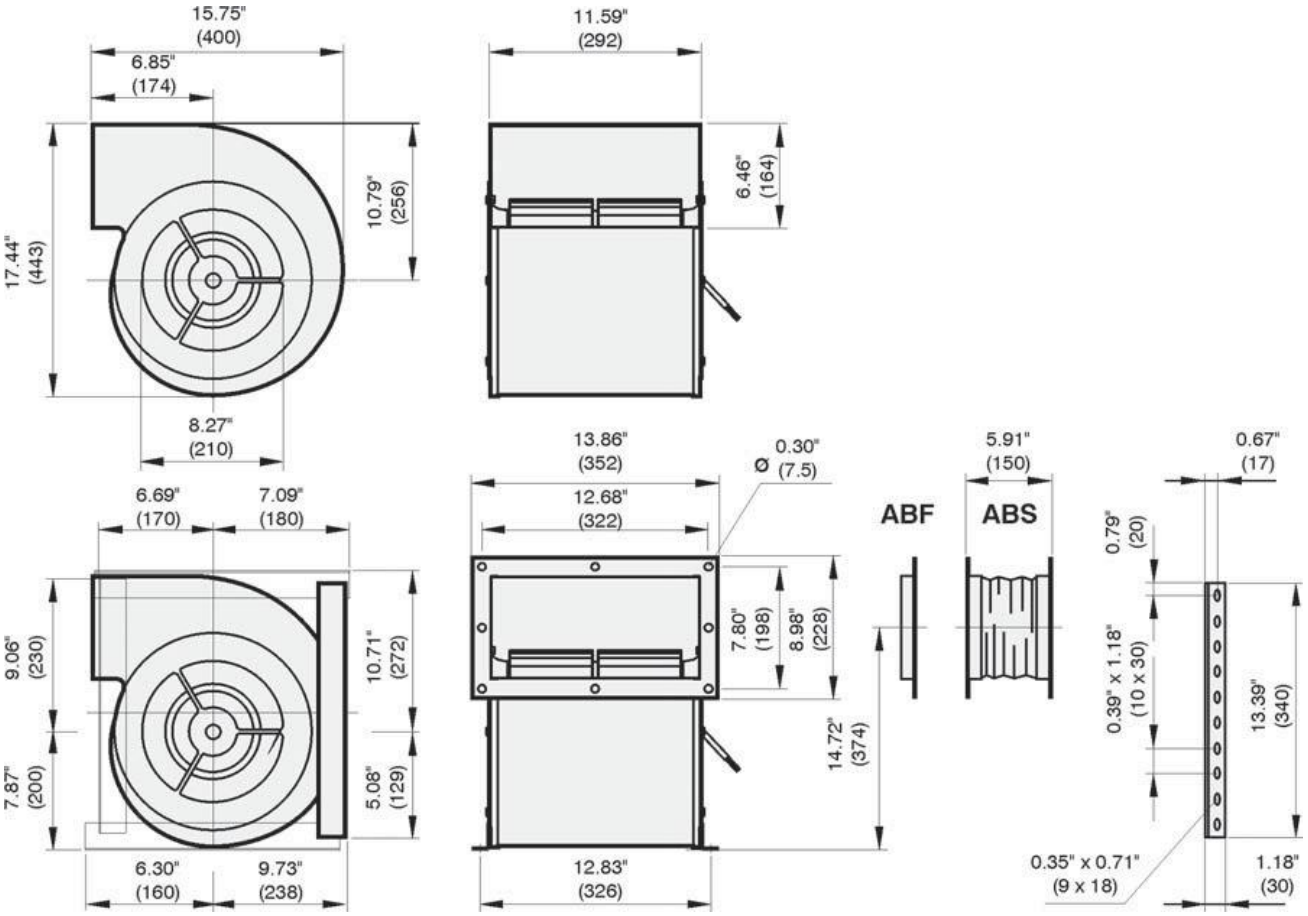
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 251-4	3~460Y	60	A	1.10	1.70	1350	120	50	-	-	2.9	54	01.005	20
DRAD 251-4	3~230Δ	60	B	0.95	2.80	1260	120	50	-	-	2.9	54	01.006	20
DRAD 251-4	3~400Y	50	C	0.85	1.55	1150	149	65	-	-	2.4	54	01.005	20



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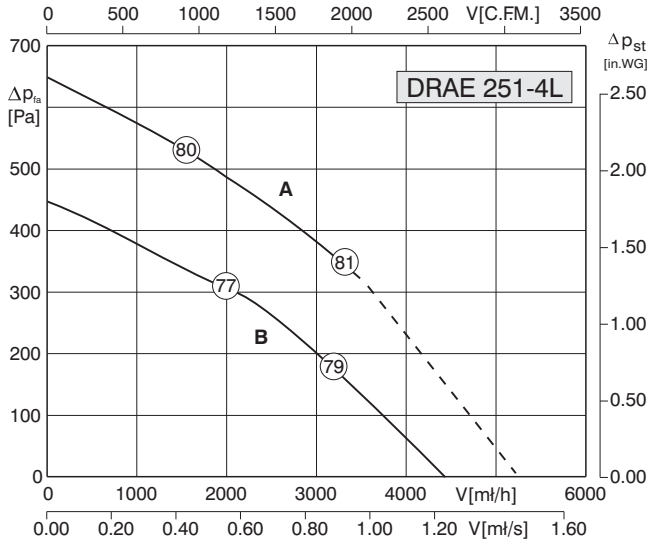
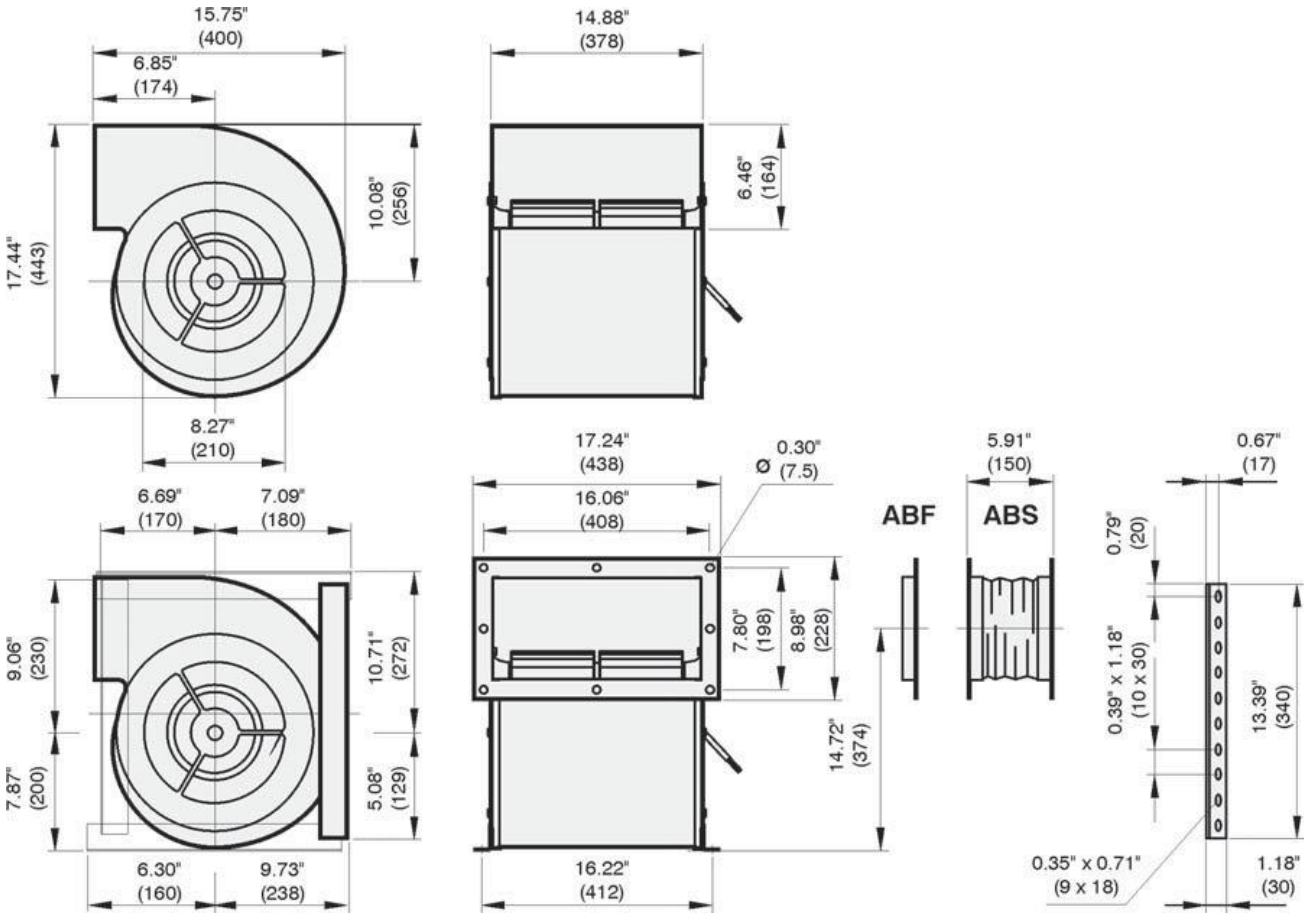
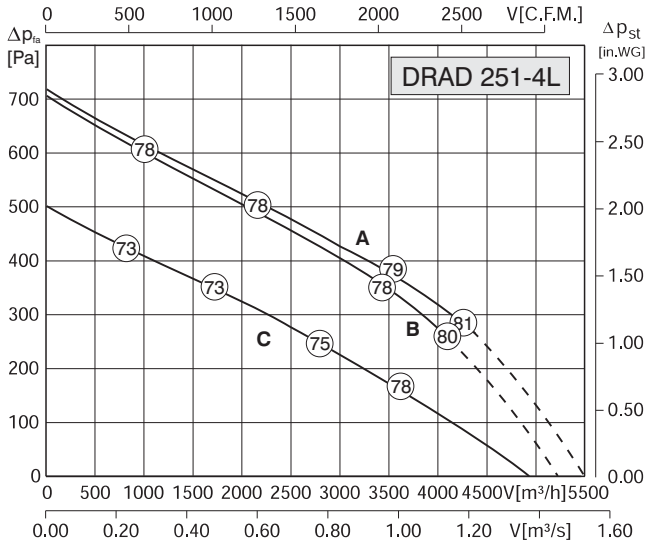


Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 251-4L	1~120	60	A	1.50	13.0	1430	122	50	80	17	1.9	54	01.025	26
DRAE 251-4L	1~230	60	A	1.50	6.50	1430	122	50	20	17	1.9	54	01.025	26
DRAE 251-4L	1~230	50	B	1.35	6.00	1240	131	55	20	5	1.5	54	01.025	26





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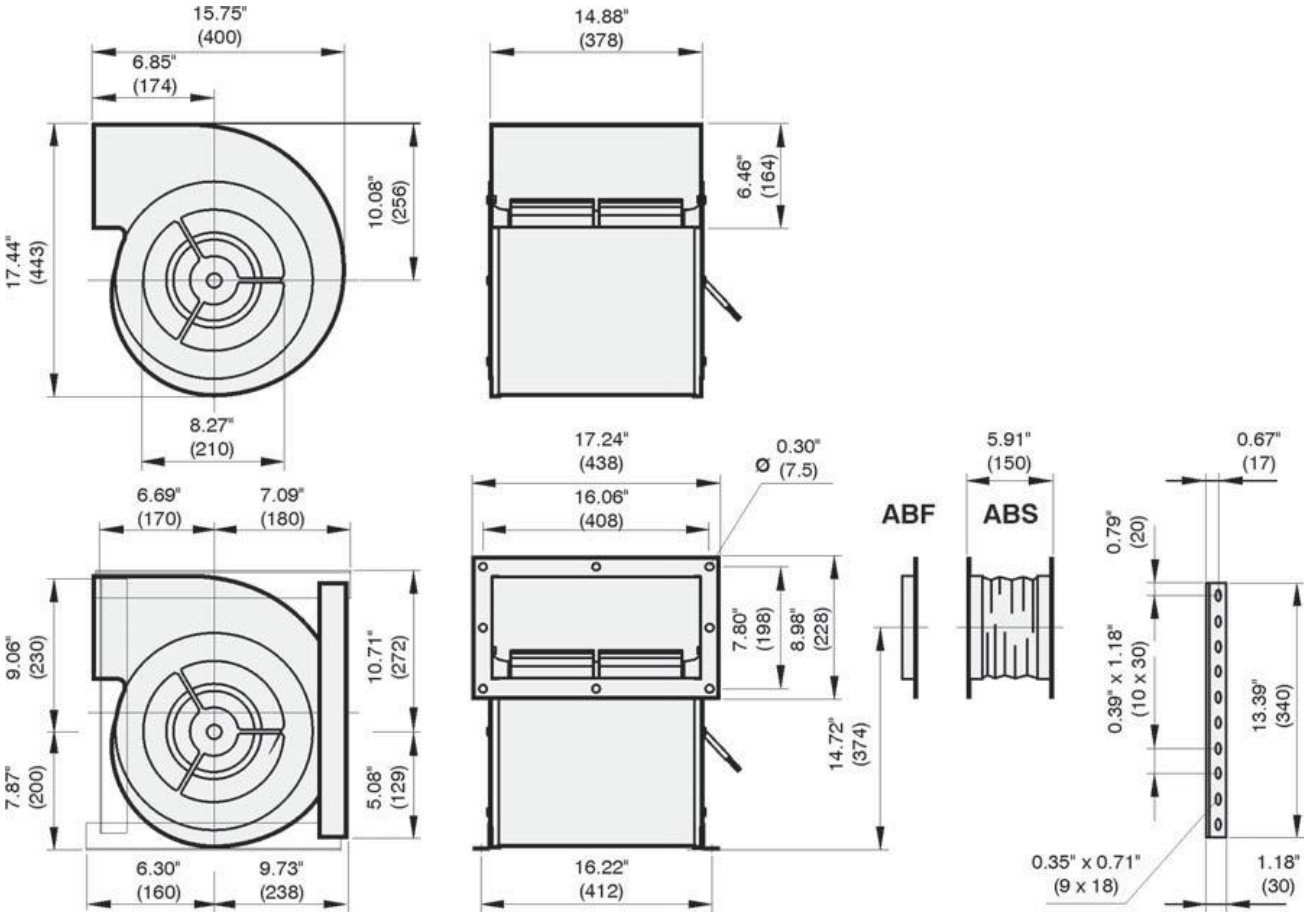
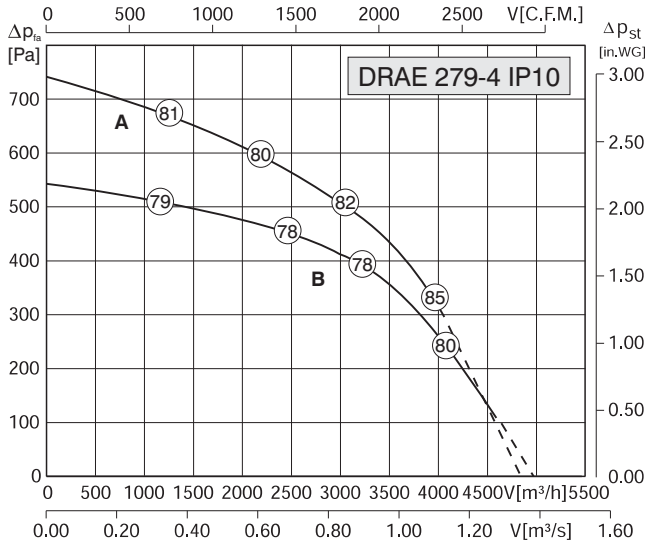
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 251-4 L	3~460Y	60	A	1.50	2.60	1550	120	50	-	-	3.7	54	01.005	24
DRAD 251-4 L	3~230Δ	60	B	1.40	4.20	1490	120	50	-	-	3.7	54	01.006	24
DRAD 251-4 L	3~400Y	50	C	1.10	2.50	1300	120	50	-	-	3.5	54	01.005	24





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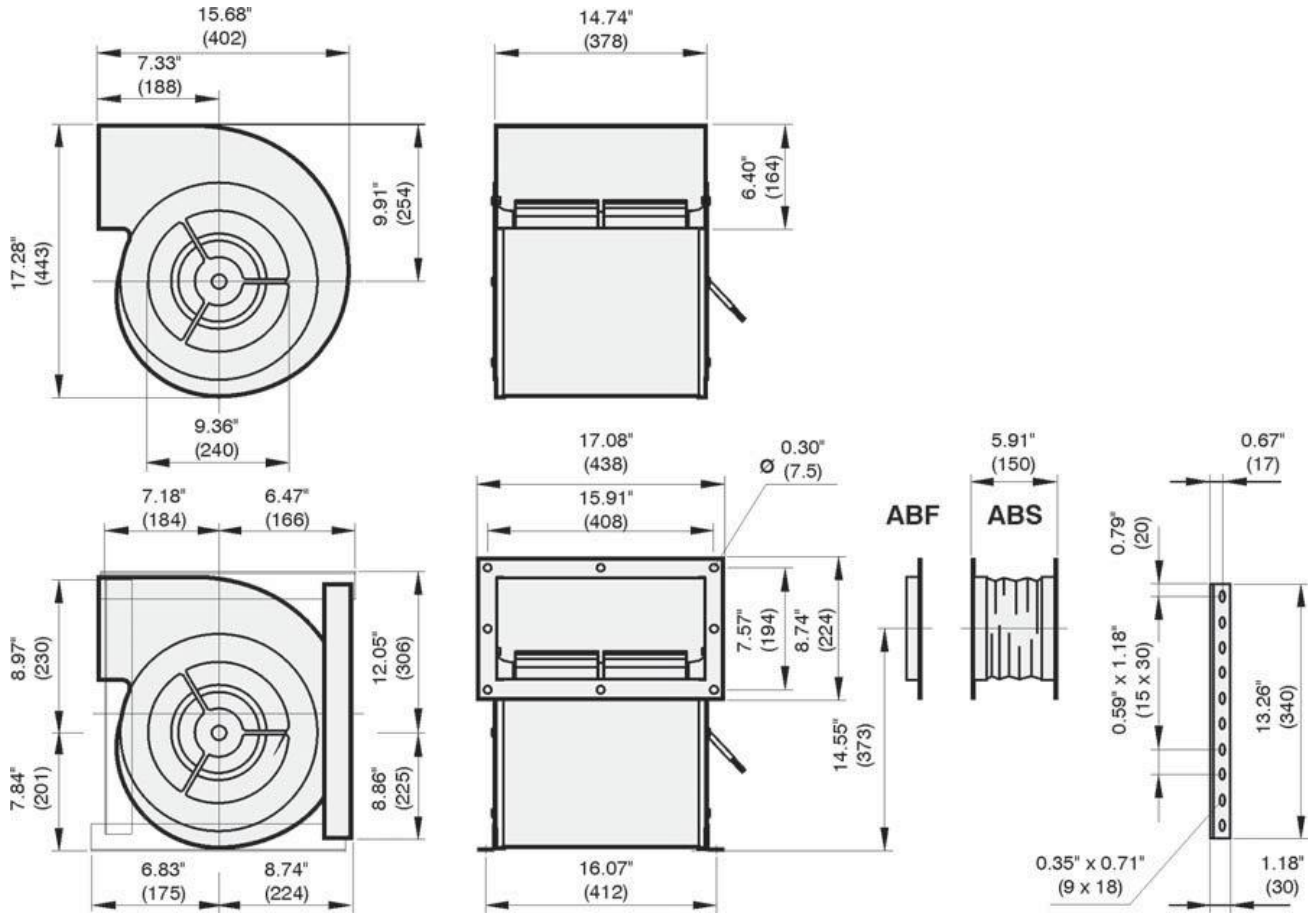
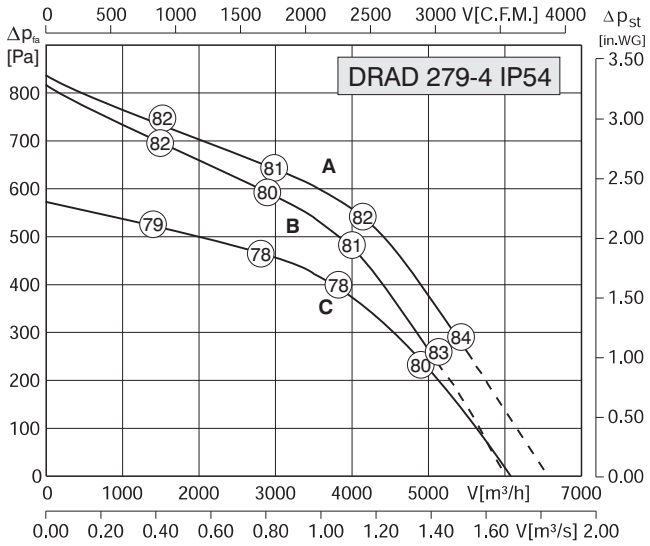
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 279-4 IP10	1~120	60	A	1.70	14.8	1235	120	50	100	-	1.5	10	01.025	27
DRAE 279-4 IP10	1~230	60	B	1.70	7.40	1235	120	50	25	-	1.5	10	01.025	27
DRAE 279-4 IP10	1~230	50	C	1.65	7.30	1050	120	50	25	-	1.5	10	01.025	27





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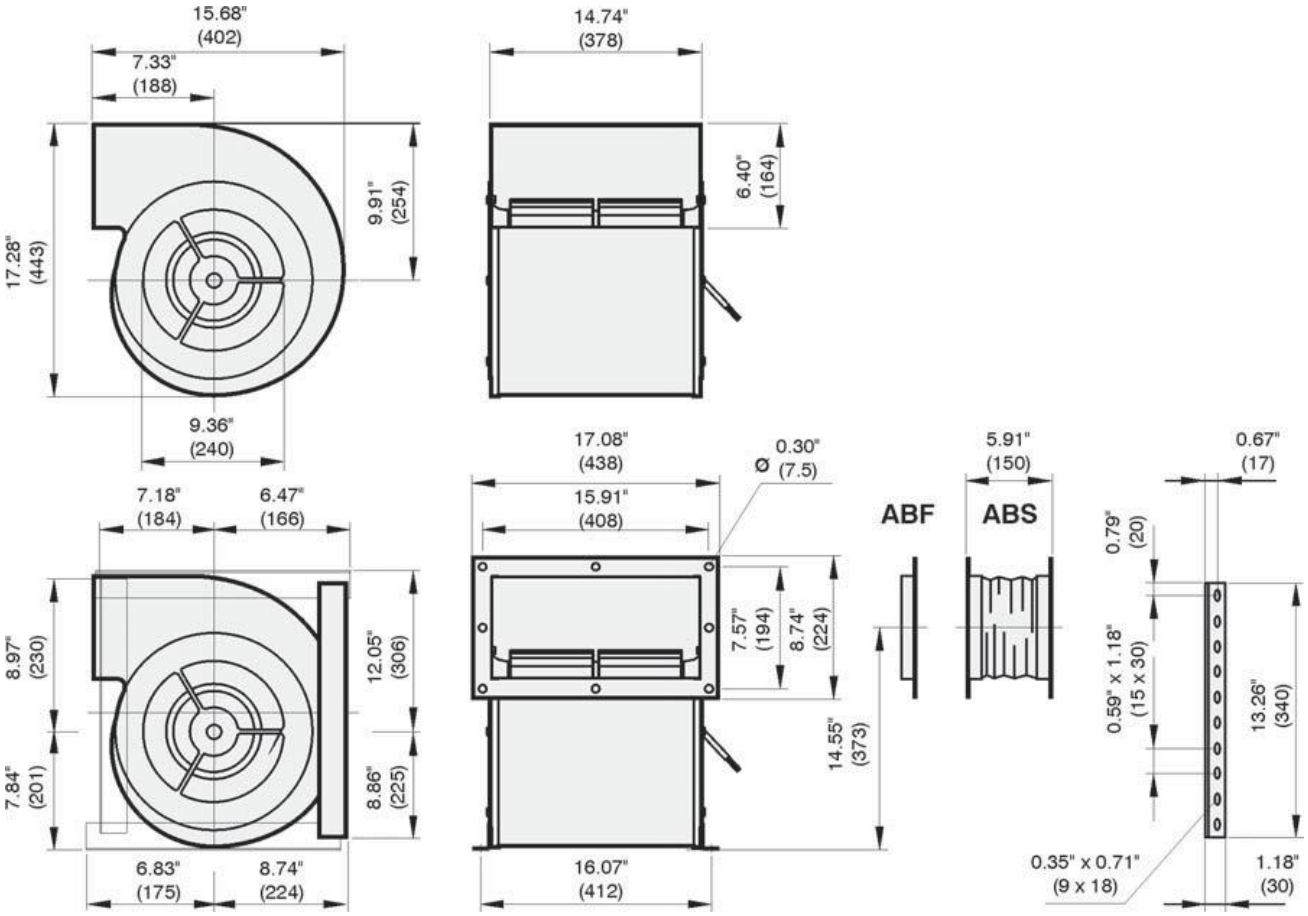
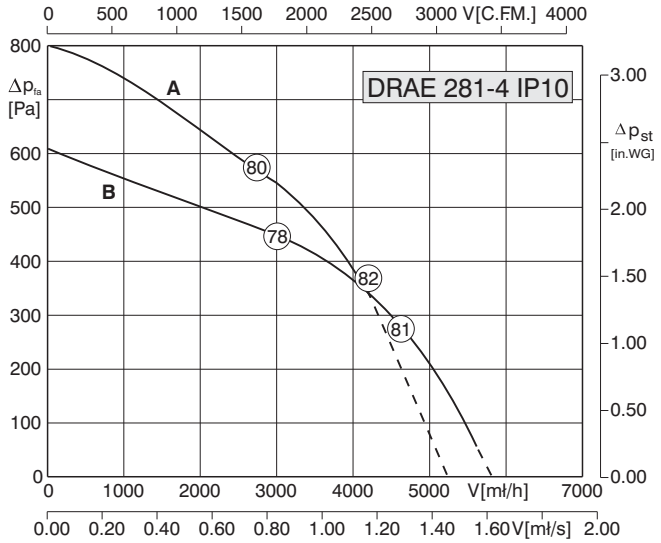
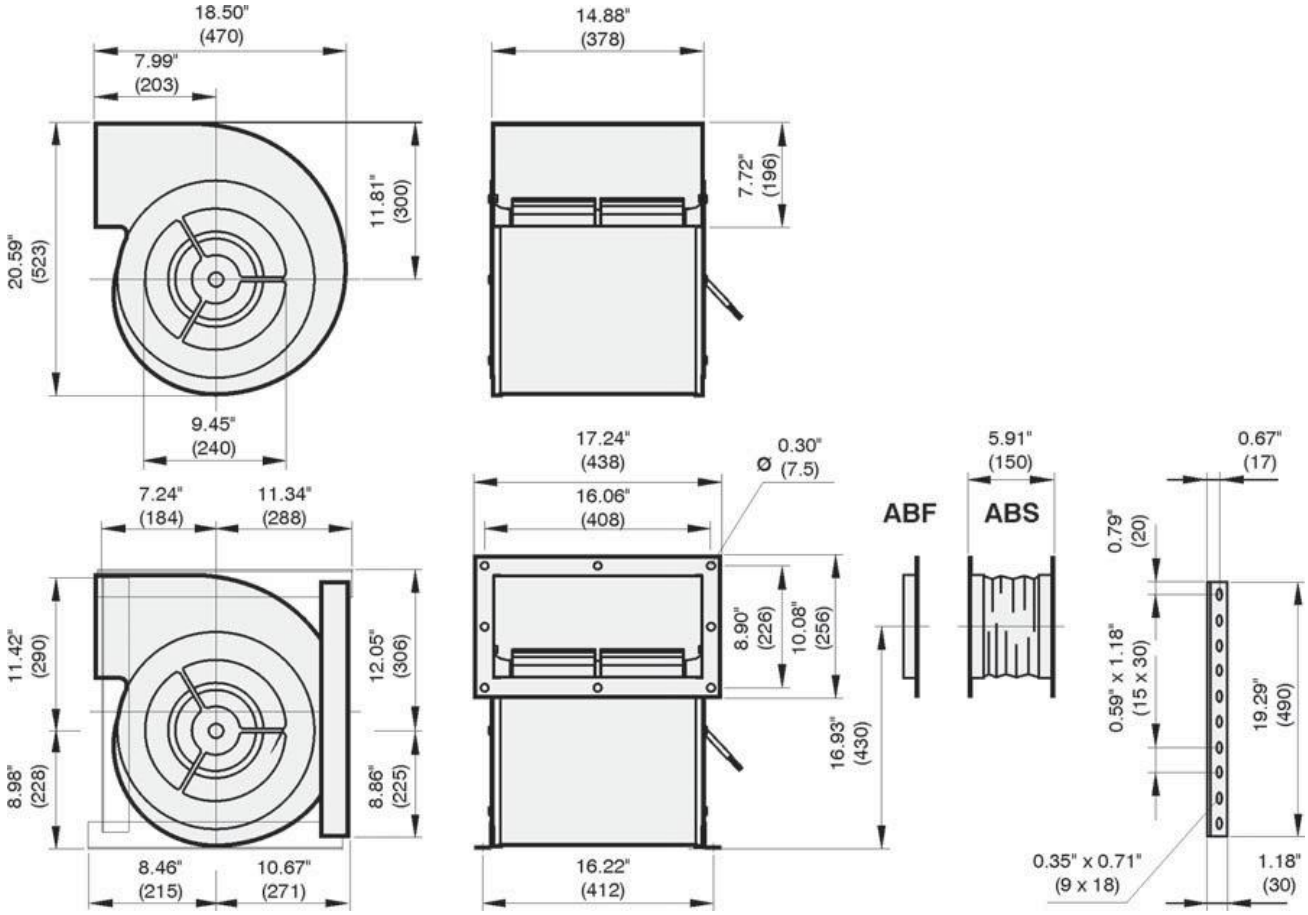
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [μF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 279-4 IP54	3~460Y	60	A	2.20	3.60	1400	104	40	-	-	2.9	54	01.005	27
DRAD 279-4 IP54	3~230Δ	60	B	2.00	6.20	1300	104	40	-	-	2.9	54	01.006	27
DRAD 279-4 IP54	3~400D	50	C	1.80	3.40	1170	120	50	-	-	2.7	54	01.005	27

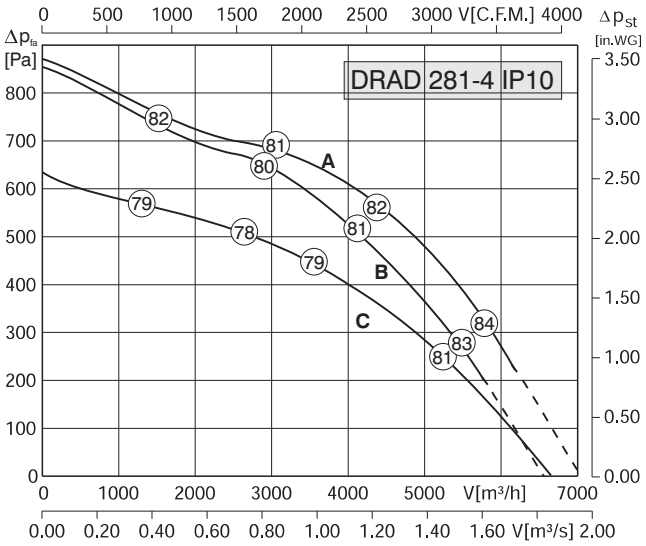




- Steep pressure-volume-performance curve
- compact and space saving design
- 100% speed controllable through auto transformers
- Motor protection through thermal contacts as standard

Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAE 281-4 IP10	1~120	60	A	1.70	14.8	1230	122	50	100	-	1.5	10	01.025	30
DRAE 281-4 IP10	1~230	60	A	1.70	7.40	1230	122	50	25	-	1.5	10	01.025	30
DRAE 281-4L IP10	1~230	50	B	1.70	7.40	1010	122	50	25	-	1.5	54	01.025	30





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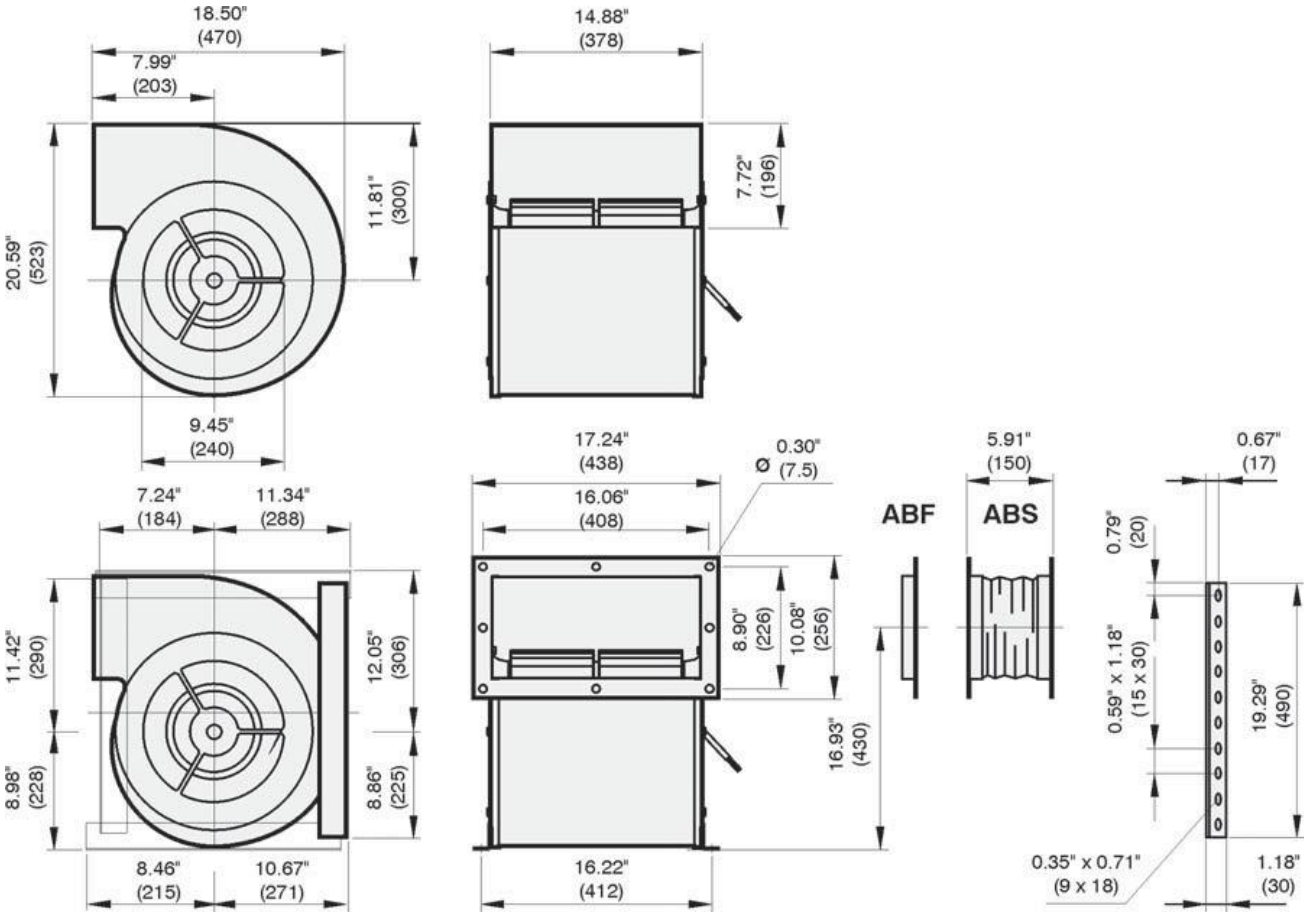
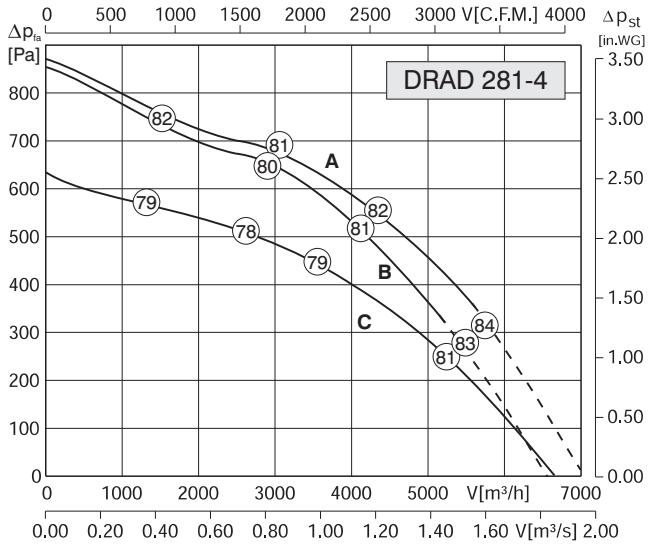
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 281-4 IP10	3~460Y	60	A	2.50	3.90	1340	120	50	-	-	2.5	10	01.005	32
DRAD 281-4 IP10	3~230Δ	60	B	2.20	6.40	1250	120	50	-	-	2.5	10	01.006	32
DRAD 281-4 IP10	3~400D	50	C	1.90	3.60	1140	130	55	-	-	3.4	10	01.005	32





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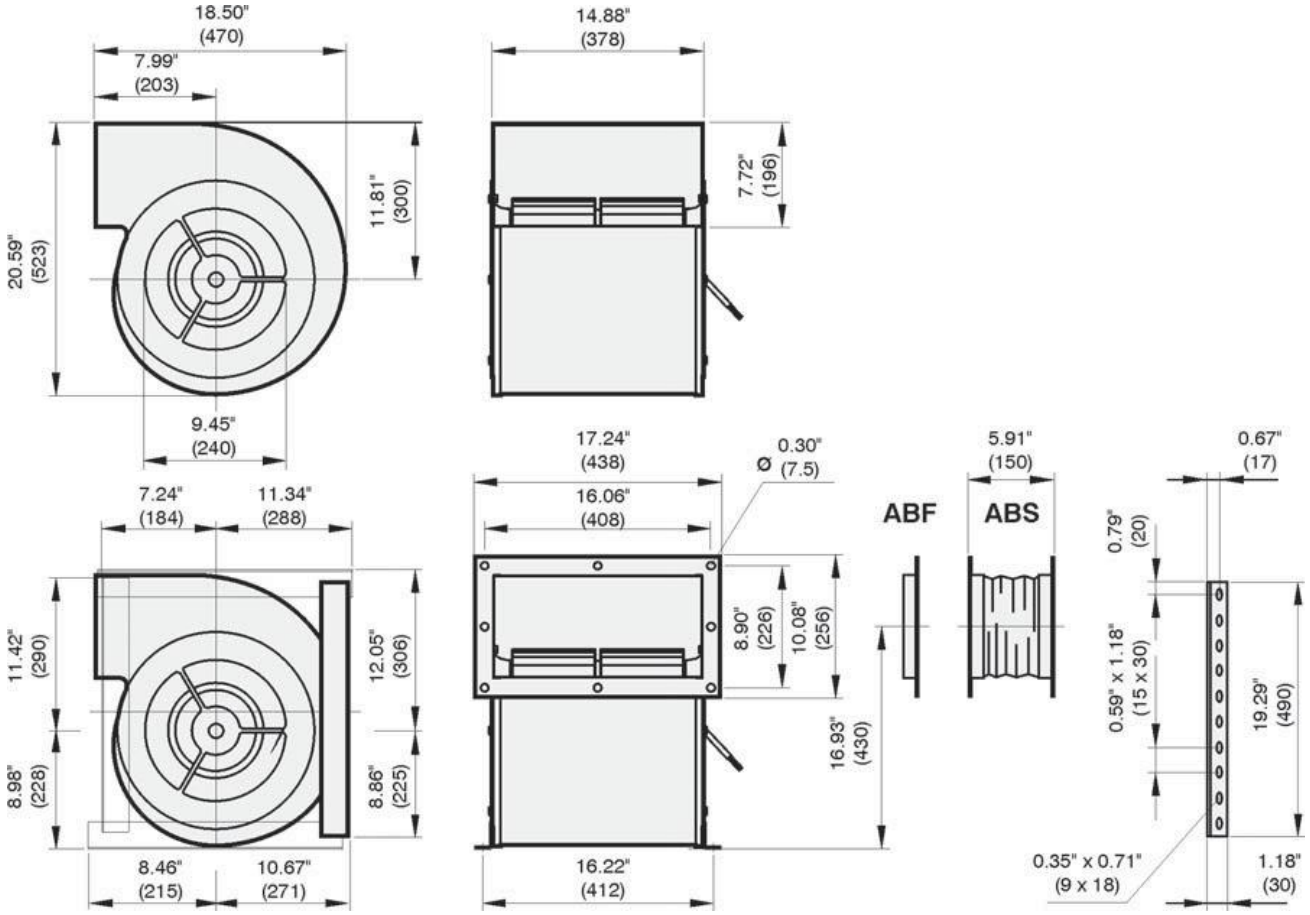
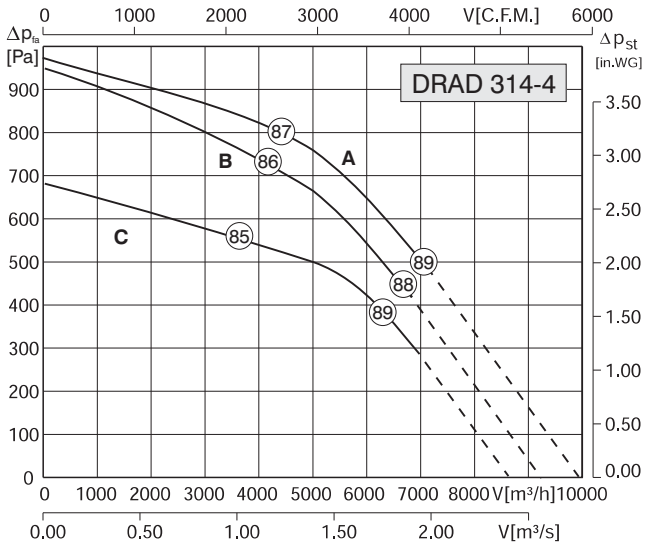
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [µF]	ΔI [%]	I_A/I_N	⚠	✱	i [kg]
DRAD 281-4	3~460Y	60	A	2.20	3.60	1400	104	40	-	-	2.9	54	01.005	32
DRAD 281-4	3~230Δ	60	B	2.00	5.90	1310	104	40	-	-	2.9	54	01.006	32
DRAD 281-4	3~400D	50	C	1.90	3.60	1140	104	40	-	-	2.7	54	01.006	32





- Steep pressure-volume-performance curve
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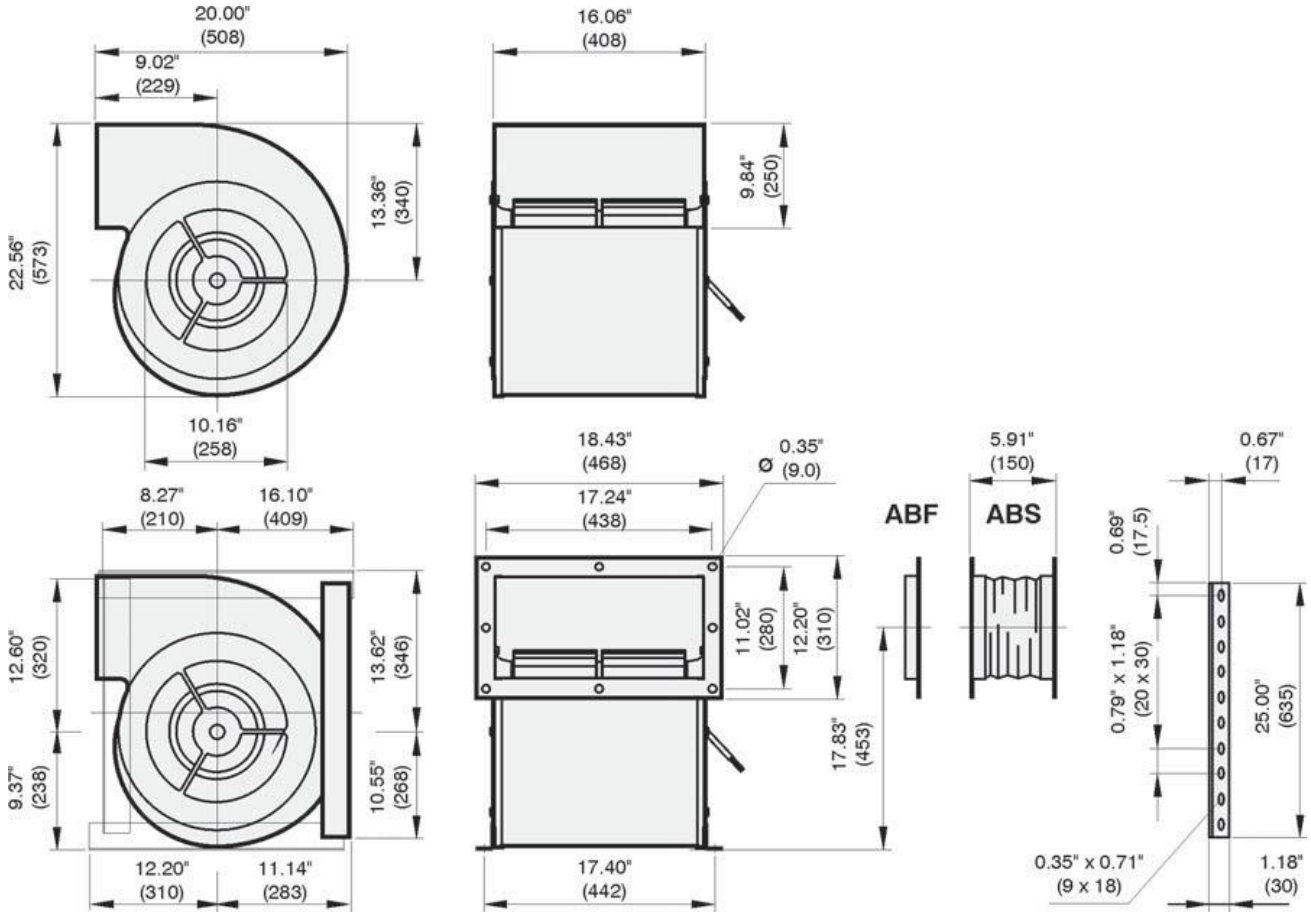
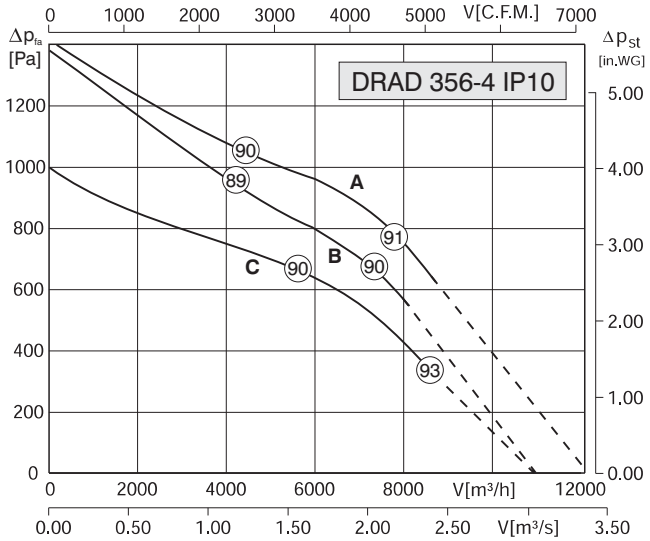
- Motor protection through thermal contacts as standard

Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [μF]	ΔI [%]	I_A/I_N	⚠	✱	[kg]
DRAD 314-4	3~460Y	60	A	4.10	5.60	1470	120	50	-	7	3.2	54	01.005	47
DRAD 314-4	3~230Δ	60	B	3.70	10.0	1390	120	50	-	5	3.2	54	01.006	47
DRAD 314-4	3~400Y	50	C	3.00	4.9	1160	104	40	-	2	2.6	54	01.006	47





- Steep pressure-volume-performance curve
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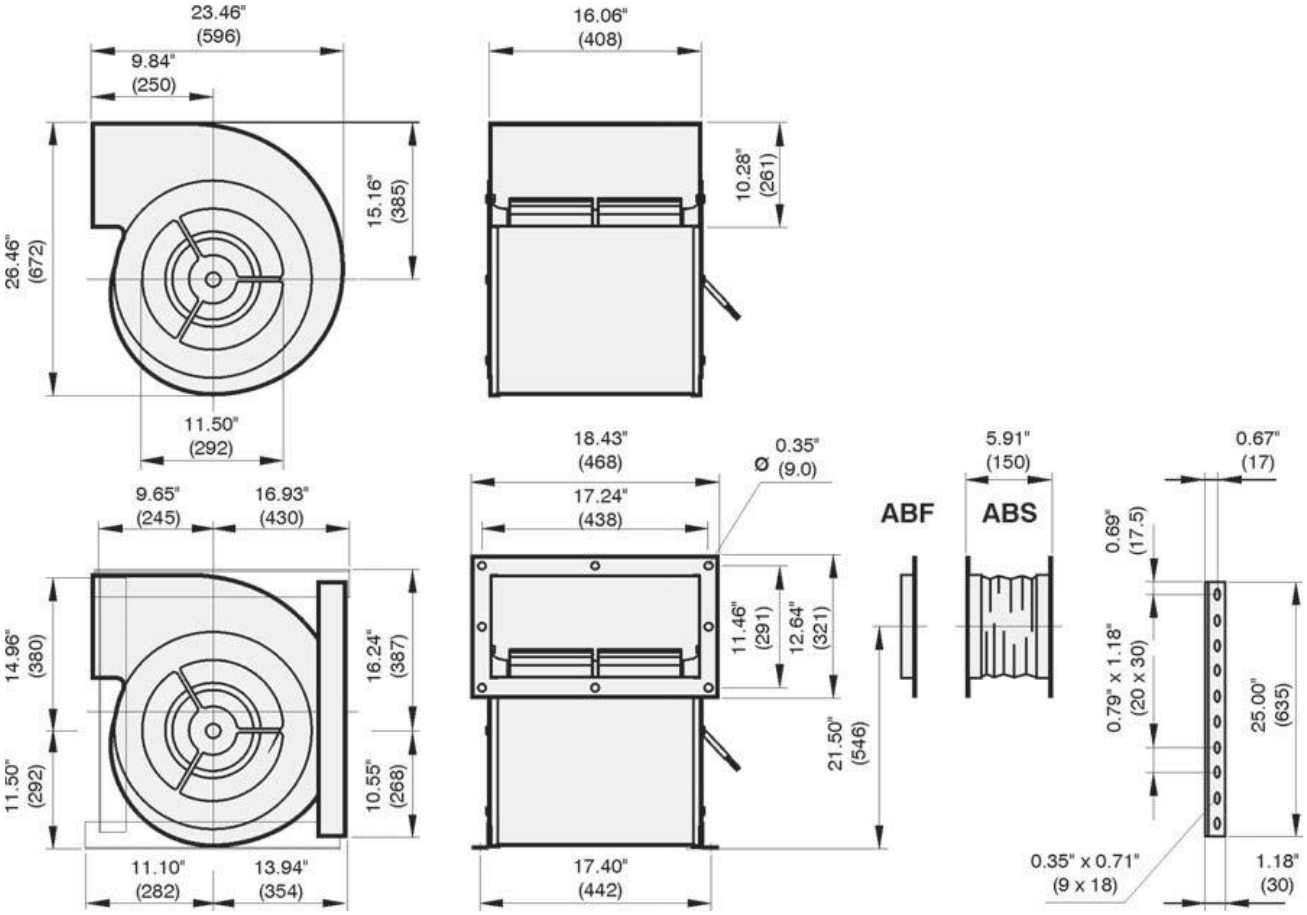
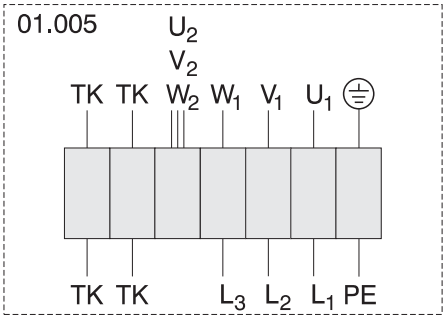
Type	U [Volt]	f [Hz]	Curve	P_1 [kW]	I_N [A]	n [min^{-1}]	t_R [°F]	t_R [°C]	C [μF]	ΔI [%]	I_A/I_N	⚠	⊠	[kg]
DRAD 356-4 IP10	3~460Y	60	A	5.80	8.10	1410	120	50	-	2	2.4	10	01.005	71
DRAD 356-4 IP10	3~230Δ	60	B	5.10	14.0	1330	120	50	-	2	2.4	10	01.006	71
DRAD 356-4 IP10	3~400Y	50	C	5.30	8.40	1140	120	50	-	-	2.6	10	01.006	71



No. 01.005

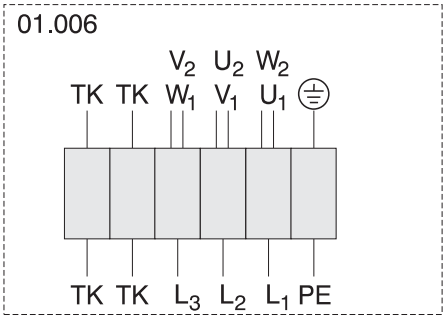
Three phase motor in Y connection with thermostatic switch. Changing of rotation direction by interchanging of 2 phases.



U_1	brown
V_1	blue
W_1	black
U_2	red
V_2	grey
W_2	orange
TB	white
PE	yellow-green

No. 01.006

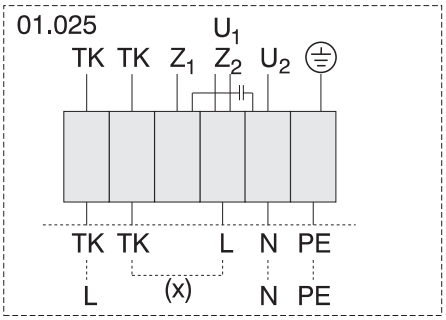
Three phase motor in delta connection with thermostatic switch. Changing of rotation direction by interchanging of 2 phases.



U_1	brown
V_1	blue
W_1	black
U_2	red
V_2	grey
W_2	orange
TB	white
PE	yellow-green

No. 01.025 anti-clockwise

Single phase A.C. motor with operating capacitor and thermostatic switch. Thermostatic switch wired in series with windings, if RE controllers are used. Insert bridge (x) and wire connections shown as dash-line on the drawing.



U_1	brown
U_2	blue
Z_1	black
Z_2	orange
TB	white
PE	yellow-green