li-cha

IT'S ALL IN THE DETAIL'S

هوای سبز کاسپین

www.licha.ir

شرکت هوای سبز کاسپین با نام تجاری (لی-چا) با تکیه بر دانش فنی و تجربه متخصصان خود، در زمینه طراحی و تولید انواع تجهیزات تهویه صنعتی ازجمله اگزاست فن‌ها و ساپلای فن‌های صنعتی و ساختمانی، سیستم‌های تهویه و تخلیه دود پارکینگ و تونل و ... مورد تایید سازمان آتش‌نشانی تهران، فعالیت می‌نماید. هدف اصلی این شرکت، ارائه خدمات و محصولات با کیفیت، دوام و راندمان بالا در حوزه تهویه می‌باشد.

ما اعتقاد داریم که همه چیز در جزئیات است و همه جانبه می‌کوشیم تا از جزئی‌ترین موارد در این حیطه بمنظور افزایش کیفیت محصول و خدمت ، بهره به عمل آوریم.

Technical Calculation

محاسبات

محاسبات ظرفیت هوادهی و افت‌فشار سیستم تهویه برای فضاها با کاربری‌های متفاوت مطابق استانداردهای بین‌المللی انجام می‌شود.این محاسبات می‌تواند بسته به شرایط بر مبنای مساحت،نوع کاربری ، حجم و یا تعداد افراد مستقر در آن فضای صورت گیرد که در این فصل مختصرا به تعدادی از آنها می‌پردازیم.

محاسبه دبی و افت فشار

انتخاب اگزاست فن با ظرفیت مناسب یکی از مهم‌ترین عوامل در طراحی سیستم‌های تهویه صنعتی و ساختمانی است. یک محاسبه دقیق نه تنها عملکرد بهینه سیستم را تضمین می‌کند، بلکه از مصرف انرژی بیش از حد و هزینه‌های غیرضروری جلوگیری می‌نماید.

مفاهیم پایه در محاسبه اگزاست فن:

دبی هوا (حجم هوادهی): مقدار هوایی که فن در واحد زمان جابجا می‌کند، معمولاً بر حسب مترمکعب بر ساعت (m^3/h) یا فوت مکعب بر دقیقه (CFM) بیان می‌شود.

افت فشار استاتیک: مقاومتی که فن باید بر آن غلبه کند تا هوا را در سیستم جریان دهد، بر حسب پاسکال (Pa) یا اینچ ستون آب (in wg) اندازه‌گیری می‌شود.

راندمان فن: نسبت توان مفید به توان مصرفی که معمولاً بین ۳۵% تا ۷۵% متغیر است.

محاسبه ظرفیت اگزاست فن:

محاسبه حجم فضای مورد تهویه: طول × عرض × ارتفاع = حجم فضا (متر مکعب)

تعیین تعداد تعویض هوا در ساعت: این عدد در جدول ضریب تخلیه هوا که مقادیر آن مطابق با استاندارد بین المللی مشخص گردیده است به تفصیل آماده است.

محاسبه دبی هوای مورد نیاز: حجم فضا × تعداد تعویض هوا = (m^3/h) دبی هوا

مثال: برای یک کارگاه به ابعاد 20×16×5 متر با نیاز به ۸ تعویض هوا در ساعت:

(m^3) حجم فضا : 5×16×20 = 1600

(m^3/h) دبی مورد نیاز : 8×1600 = 12800

محاسبه فشار استاتیک سیستم:

جهت محاسبه افت فشار استاتیکی عوامل مؤثر بر آن به شرح ذیل میباشد:

- میزان دبی حجمی
- سطح مقطع کانال
- جنس کانال
- طول کانال‌کشی
- تعداد زانویی‌ها و تغییر جهت‌ها
- فیلترها و تجهیزات جانبی
- نوع دمپر و دریچه‌های سیستم تهویه
- چگالی هوا و به عبارتی ارتفاع از سطح دریا

در ادامه با توجه به محاسبه دبی و فشار مورد نیاز، پس از انتخاب نوع فن از قبیل (کانالی، سقفی ، دیواری، یوتیلیتی و ...) به منحنی عملکرد آن مراجعه میکنیم . منحنی عملکرد فن ها شامل محور افقی (دبی حجمی) ، محور عمودی (فشار استاتیکی) و منحنی های رفتار فن در دورهای مختلف میباشد. همچنین در آن میزان توان جذبی ، فشار دینامیکی ، شدت صوت تولیدی و راندمان فن را نیز میتوان مشاهده کرد. شایان ذکر است فن باید در نقطه‌ای کار کند که دبی مورد نیاز را تأمین کند، افت فشار سیستم را پوشش دهد و در ناحیه با راندمان بالا عمل نماید.

در انتخاب فن عواملی همچون دمای هوا ، رطوبت نسبی و ارتفاع از سطح دریا موثر است و در ارتفاعات بالا، چگالی هوا کاهش می‌یابد و ظرفیت واقعی فن کمتر می‌شود.

در مواردی که مواد آلاینده از محل خاصی در فضا منتشر میشود جهت جلوگیری از انشار آن به سایر فضاهای دیگر به جای تهویه عمومی، استفاده از تهویه موضعی پیشنهاد میگردد. که برای سیستم‌های هود صنعتی، محاسبات بر اساس اندازه هود، سرعت جذب در هود و فاصله منبع آلاینده تا هود در انتخاب فن موثر است. در مواردی مانند بخارات شیمیایی، ممکن است نیاز به دبی بالاتر باشد و نوع پروانه میبایست از متریال مقاوم در برابر خورندگی مانند استنلس استیل ، PVC و موارد مشابه باشد .

در خصوص انتخاب فن و عملکرد سیستم تهویه و تخلیه هوا ، نرم افزار های تخصصی مفیدی مانند AUTO CAD ، REVIT MEP ، ANSYS FLUENT CFD و ... وجود دارند که با شبیه سازی گرافیکی و اندازه گیری پارامترهای فنی مختلف ، می‌توان نقاط ضعف و قوت سیستم را قبل از اجرا تحلیل و بررسی کرد که در پروژه های متوسط و بزرگ بسیار کارآمد بوده و از هزینه های انتخاب اشتباه جلوگیری به عمل آورد .

محاسبه دقیق ظرفیت اگزاست فن نیازمند درک کامل پارامترهای سیستم است. همیشه بهتر است پس از محاسبات اولیه، با یک متخصص تهویه مشورت کنید. برای این کار کارشناسان شرکت "هوای سبز کاسپین" مشتاقانه در خدمت شما هستند .

فرمول ۱ تا ۴ را می‌توان برای هر فن استفاده کرد به شرطی که قطر فن تغییر نکند و از نظر هندسی مشابه هم باشند. واحد تا زمانیکه یکسان باشند تاثیری ندارند و قطر (d) سرعت فن (n)، چگالی (p) در فرمول‌های ۵ تا ۸ واحدهای اندازه‌گیری نشان داده شده بدست آمدن نتایج صحیح، می‌بایست حتما رعایت شوند.

1. Volume flow: $q_{v2} = q_{v1} \times \left(\frac{n_2}{n_1}\right)^1 \times \left(\frac{d_2}{d_1}\right)^3$

2. Pressure: $p_2 = p_1 \times \left(\frac{n_2}{n_1}\right)^2 \times \left(\frac{d_2}{d_1}\right)^2 \times \left(\frac{\rho_2}{\rho_1}\right)^1$

3. Absorbed power: $P_{R2} = P_{R1} \times \left(\frac{n_2}{n_1}\right)^3 \times \left(\frac{d_2}{d_1}\right)^5 \times \left(\frac{\rho_2}{\rho_1}\right)^1$

4. Sound Power Level: $PWL_2 = PWL_1 + 70 \log_{10}\left(\frac{d_2}{d_1}\right) + 55 \log_{10}\left(\frac{n_2}{n_1}\right) + 20 \log_{10}\left(\frac{c_2}{c_1}\right)$

5. Density: $\rho_2 = \rho_1 \times \left(\frac{B_2}{B_1}\right) \times \left(\frac{T_1}{T_2}\right)$

6. Fan Total Efficiency %: $\frac{q_v \times p_tF}{10\, P_R}$

7. Fan Total pressure: $p_tF = p_sF + p_dF$

or Fan Static pressure: $p_sF = p_tF - p_dF$

8. Velocity pressure: $p_d = 0.5\ \rho\ V^2$

$p_d = 0.6\ V^2$ (Standard air, where $\rho = 1.2\ kg/m^3$)

Nomenclature for symbols used in this page:

q_v = volume flow of air, m^3/sec	دبی حجم
n = rotational speed of fan	سرعت چرخشی
d = diameter of fan	قطر فن
p = pressure developed by the fan	فشار خروجی فن
p = density of air, kg/m^3	چگالی هوا
P_R = power absorbed by the fan, kw	توان جذبی فن
B = barometric pressure (milibars)	فشار جو
T = absolute temperature, K (K= °C+273)	دمای مطلق کلوین
p_tF = fan total pressure, Pa	فشار کل فن
p_sF = fan static pressure, Pa	فشار استاتیکی فن
p_dF = fan dynamic/velocity pressure, Pa	فشار سرعتی (دینامیکی) فن
p_d = system dynamic/velocity pressure, Pa	فشار سرعتی (دینامیکی) سیستم
V = velocity of air, m/sec	سرعت عبور هوا
PWL = sound power level	شدت صوت

li-cha
HVAC & VENTILATION SYSTEM

Unit Conversion

تبدیل واحد

Physical Quantity	Given → X → Gives Gives ← ÷ ← Given		
Temperature	°C	1.8	°F-32
Mass	lb	0.4536	kg
	kg	2.2046	lb
Length	inch	25.4	mm
	mm	0.0394	inch
	m	3.281	ft
	ft	0.3048	m
Area	m^2	10.764	ft^2
	m^2	1550	$inch^2$
	$inch^2$	6.45	cm^2
	ft^2	929.03	cm^2
Volume	m^3	35.32	ft^3
	ft^3	28316.8	m^3
Volume Flow Rate	CFM	1.699	m^3/h
	lit/s(LPS)	3.6	m^3/h
	m^3/s	2118.6	CFM
	CFM	0.000472	m^3/s
	m^3/h	4.4	GPM
	GPM	3.78	lit/min

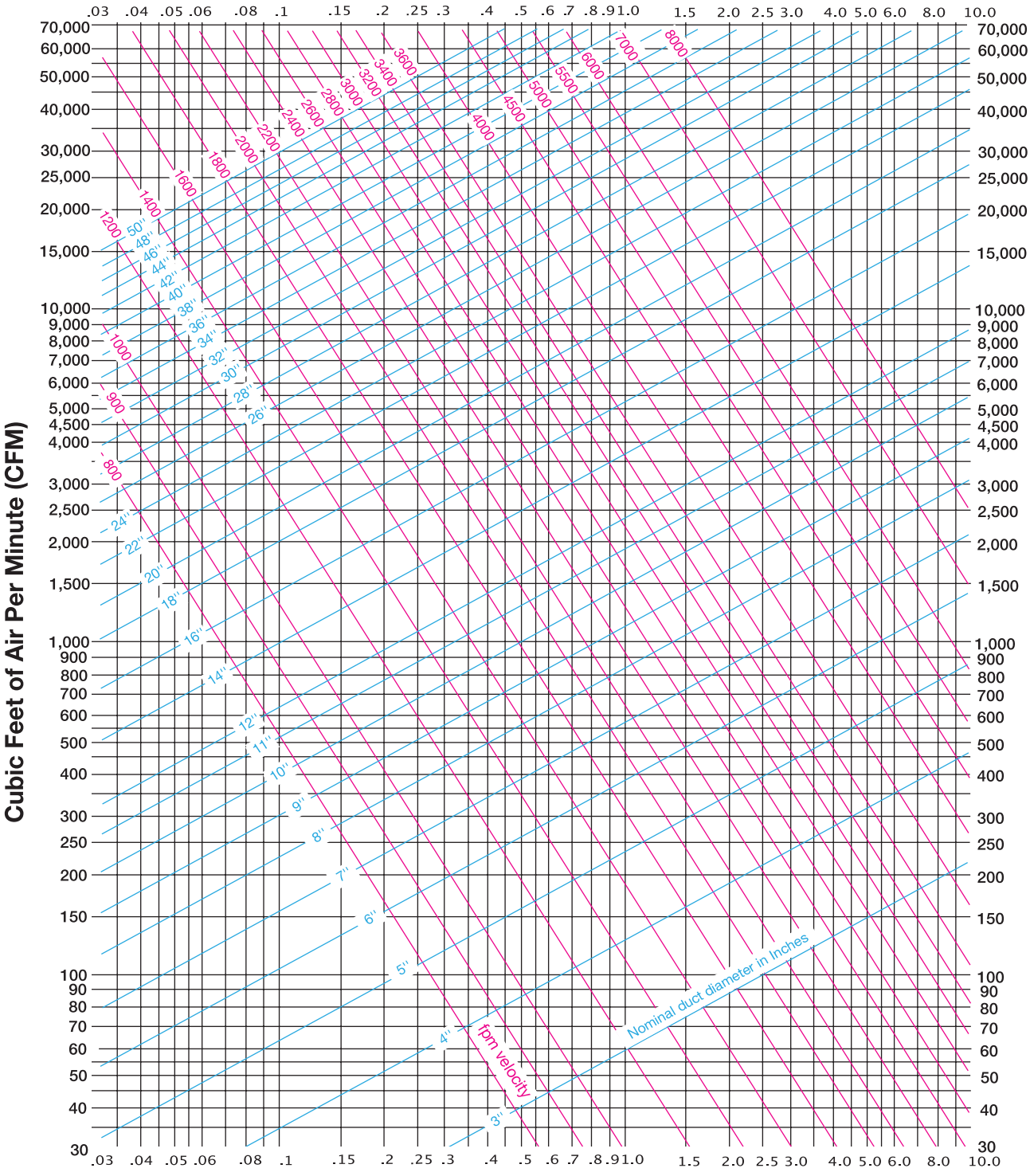
Nominal voltage	Given → X → Gives Gives ← ÷ ← Given		
Velocity	m/s	196.85	fpm
Pressure	Bar	100	kPa
	inHg	3.386	kPa
	mmwg	9.8067	Pa
	inwg	249.01	Pa
	atm	759.9	mmHg
	atm	1013	mbar
	Pa	0.004	inwg
	mbar	0.0295	inHg
	mbar	0.4019	inwg
Power/ Energy	kW	3411.8	Btu/h
	Btu/h	0.252	kcal/h
	kcal/h	1.163	W
	hp	735.5	W
	W	1.36	hp
Density	lb/ft^3	16.02	kg/m^4
Mass Floww Rate	lb/s	0.4536	kg/s
	kg/s	7936.5	lb/h

در یک میزان دبی مشخص ، با کاهش سطح مقطع کانال، سرعت هوا افزایش و میزان تلاطم جریان و همچنین صدای ایجاد شده بالا می‌رود در نتیجه باعث افزایش افت فشار میگردد.
توصیه میگردد حداکثر سرعت هوا در طراحی کانال از جداول استاندارد از جمله جدول ذیل انتخاب گردد.

کاربری	سرعت برمبنای تولید صدا در کانال اصلی (fpm)	سرعت مناسب برمبنای افت کانال (fpm)			
		کانال اصلی		کانال انشعاب فرعی	
		رفت	برگشت	رفت	برگشت
اقامتگاه	600	1000	800	600	600
آپارتمان / اتاق‌های هتل اتاق‌ها بیمارستان	1000	1500	1300	1200	1000
دفتاتر خصوصی / اتاق‌های کنترل کتابخانه‌ها	1200	2000	1500	1600	1200
تئاتر سالن اجتماعات	800	1300	1100	1000	800
ادارات عمومی / رستوران‌ها واحدهای تجاری / بانک‌ها	1500	2000	1500	1600	1200
کافه / مغازه	1800	2000	1500	1600	1200
صنعتی	2500	3000	1800	2200	1500

Static Pressure (Friction) Loss of Spiral Pipe

نمودار افت فشار کانال



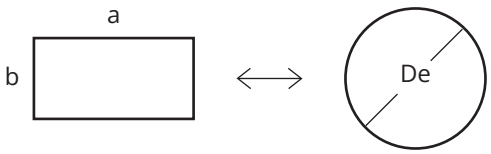
قطر معادل Equivalent Diameter :

به قطر کانال دایره‌ای که افت فشار حاصله از آن برابر با همان افت فشار در کانال مستطیلی شکل است، قطر معادل گفته می‌شود.
گفتنی‌ست که یک کانال دایره‌ای شکل باعث ایجاد افت فشار کمتر و در نتیجه میزان توان مصرفی پایین‌تر فن و سایر تجهیزات می‌شود.

$$De = 1.3 \frac{(a \times b)^{0.625}}{(a + b)^{0.25}}$$

De = (mm) قطر معادل

a & b = (mm) طول و عرض کانال



Circular Equivalents of Rectangular Ducts for Equal Friction and Capacity—Dimensions in Inches, Feet, or Meters

Side *a* of Rectangular Duct	Diameter D_e of Circular Duct																
	b = 6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22	24
6	6.6																
7	7.1	7.7															
8	7.5	8.2	8.8														
9	8.0	8.6	9.3	9.9													
10	8.4	9.1	9.8	10.4	10.9												
11	8.8	9.5	10.2	10.8	11.4	12.0											
12	9.1	9.9	10.7	11.3	11.9	12.5	13.1										
13	9.5	10.3	11.1	11.8	12.4	13.0	13.6	14.2									
14	9.8	10.7	11.5	12.2	12.9	13.5	14.2	14.7	15.3								
15	10.1	11.0	11.8	12.6	13.3	14.0	14.6	15.3	15.8	16.4							
16	10.4	11.4	12.2	13.0	13.7	14.4	15.1	15.7	16.3	16.9	17.5						
17	10.7	11.7	12.5	13.4	14.1	14.9	15.5	16.1	16.8	17.4	18.0	18.6					
18	11.0	11.9	12.9	13.7	14.5	15.3	16.0	16.6	17.3	17.9	18.5	19.1	19.7				
19	11.2	12.2	13.2	14.1	14.9	15.6	16.4	17.1	17.8	18.4	19.0	19.6	20.2	20.8			
20	11.5	12.5	13.5	14.4	15.2	15.9	16.8	17.5	18.2	18.8	19.5	20.1	20.7	21.3	21.9		
22	12.0	13.1	14.1	15.0	15.9	16.7	17.6	18.3	19.1	19.7	20.4	21.0	21.7	22.3	22.9	24.1	
24	12.4	13.6	14.6	15.6	16.6	17.5	18.3	19.1	19.8	20.6	21.3	21.9	22.6	23.2	23.9	25.1	26.2
26	12.8	14.1	15.2	16.2	17.2	18.1	19.0	19.8	20.6	21.4	22.1	22.8	23.5	24.1	24.8	26.1	27.2
28	13.2	14.5	15.6	16.7	17.7	18.7	19.6	20.5	21.3	22.1	22.9	23.6	24.4	25.0	25.7	27.1	28.2
30	13.6	14.9	16.1	17.2	18.3	19.3	20.2	21.1	22.0	22.9	23.7	24.4	25.2	25.9	26.7	28.0	29.3
32	14.0	15.3	16.5	17.7	18.8	19.8	20.8	21.8	22.7	23.6	24.4	25.2	26.0	26.7	27.5	28.9	30.1
34	14.4	15.7	17.0	18.2	19.3	20.4	21.4	22.4	23.3	24.2	25.1	25.9	26.7	27.5	28.3	20.7	31.0
36	14.7	16.1	17.4	18.6	19.8	20.9	21.9	23.0	23.9	24.8	25.8	26.6	27.4	28.3	29.0	30.5	32.0
38	15.0	16.4	17.8	19.0	20.3	21.4	22.5	23.5	24.5	25.4	26.4	27.3	28.1	29.0	29.8	31.4	32.8
40	15.3	16.8	18.2	19.4	20.7	21.9	23.0	24.0	25.1	26.0	27.0	27.9	28.8	29.7	30.5	32.1	33.6

Source: Reprinted by permission from *ASHRAE Handbook, Fundamentals Volume*, 1989.

Equivalent of a Circular Duct

جدول قطر معادل

Circular equivalent diameter – d_e (mm)															
Duct side – a (mm)	Duct side – b (mm)														
	100	150	200	250	300	400	500	600	800	1000	1200	1400	1600	1800	2000
100	109	133	152	168	183	207	227								
150	133	164	189	210	229	261	287	310							
200	152	189	219	244	266	305	337	365							
250	168	210	246	273	299	343	381	414	470						
300	183	229	266	299	328	387	420	457	520	547					
400	207	260	305	343	378	437	488	531	609	647	731				
500	227	287	337	381	420	488	547	598	687	762	827	886			
600		310	365	414	457	531	598	656	755	840	914	980	1041		
800			414	470	520	609	687	755	857	976	1066	1146	1219	1286	
1000				517	574	647	762	840	976	1093	1196	1289	1373	1451	1523
1200					620	731	827	914	1066	1196	1312	1416	1511	1598	1680
1400						781	886	980	1146	1289	1416	1530	1635	1732	1822
1600							939	1041	1219	1373	1511	1635	1749	1854	1952
1800								1096	1286	1451	1598	1732	1854	1968	2073
2000										1523	1680	1822	1952	2073	2186

کاربری		ضریب تخلیه	تخلیه هوا به ازای هر متر مربع (l/s per m^2)	تخلیه هوا (l/s)
نگهداری حیوانات	اسب			40 per animal
	گوسفند			3 per animal
	مرغ			3 per animal
	گاو			100 per animal
	جوجه			2 per animal
آپارتمان				15 per person
سالن مونتاژ		5 - 10		10 - 15 per person
سالن اجتماعات				10 - 15 per person
نانوایی	نانوایی		8	
	اتاق شیرینی		6	
بانک	سالن اصلی		2 - 3	
	بایگانی		1	
	محل کارمندان		2 - 3	
حمام		5 - 8		15
آرایشگاه				10 - 15 per person
سالن زیبایی				10 - 15 per person
سالن بولینگ				10 - 15 per person
کافه			4	10 - 15 per person
سینما و تئاتر		5 - 10		
آزمایشگاه شیمی	اتاق استریل		15	
	آزمایشگاه		15	
	اتاق بسته‌بندی		4	
	فروشگاه		1	
مسجد و کلیسا			2	10 per person
اتاق کامپیوتر				10 - 15 per person
دادگاه				10 - 15 per person
سالن عروسی				15 - 20 per person
کلینیک پزشکی				10 - 15 per person
سالن شان‌خوری				10 - 15 per person

جدول مقادیر تعویض هوا

Air Change Table

کاربری		ضریب تخلیه	تخلیه هوا به ازای هر متر مربع (l/s per m^2)	تخلیه هوا (l/s)
داروخانه				10 - 15 per person
موتورخانه		4		
سالن نمایشگاه			10 - 20	
ایستگاه آتش‌نشانی				10 - 15 per person
گاراژ		5 - 6	> 1	
بیمارستان	عمومی			15 per person
	درمانی		9	
	اتاق عمل		14	
	کالبدشکافی		9	
هتل	پذیرش			10 - 20 per person
	اتاق		3	
صنعتی	کارخانه			10 - 20 per person
	فروشگاه نجاری		2 - 5	
	تعمیرگاه خودرو		4	
	تعمیرگاه خودرو روشن			60 - 80 per person
	کارگاه مکانیکی		3 - 4	
	جوشکاری		12 - 15	
	مونتاژ		4 - 5	
زندان				10 - 15 per person
جواهر فروشی				10 - 15 per person
کتابخانه				10 - 15 per person
اتاق نهارخوری				10 - 15 per person
شهرداری				10 - 15 per person
موزه				10 - 15 per person
آهنگری			6 - 7	
آشپزخانه	کوچک	20 - 40		
	بزرگ	10 - 20		
	< 7 m2			15
	> 7 m2			20
	صنعتی		25 - 30	
	اجاق گازی			550/m^2 outside wall

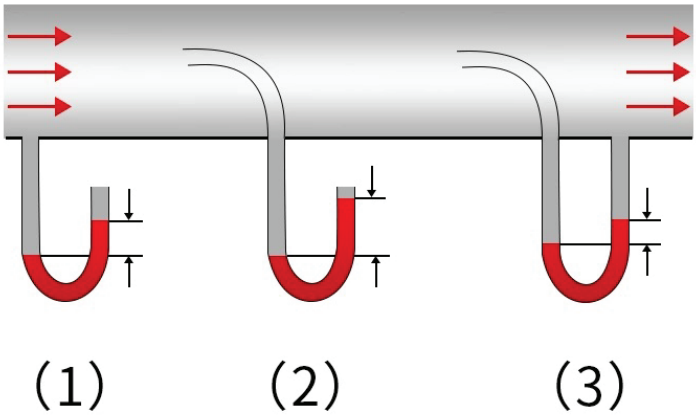
کاربری		ضریب تخلیه	تخلیه هوا به ازای هر متر مربع (l/s per m^2)	تخلیه هوا (l/s)
آشپزخانه	اجاق برقی			300/m^2 outside wall
	صفحه گریل			400/m^2 outside wall
	ماهیتابه			300
	قهوه‌ساز			60
	کابین یخچال		7 - 10	
	اتاق فریزر		0.3 - 0.5	
	مغازه		2 - 4	
خشکشویی		10 - 15		
دستشویی		5 - 10		10
تالار عروسی				15 - 25 per person
مجتمع تجاری				10 - 15 per person
هتل		5 - 8		15 - 20 per person
اداره – دفتر	پارتیشن	3 - 8		10 - 20 per person
	مشاعات			10 - 20 per person
	اتاق جلسات			15 - 30 per person
	اتاق سخنرانی			10 - 20 per person
	سالن غذاخوری			15 - 25 per person
	رختکن		8 - 12	
	اتاق ناهارخوری		8 - 10	
	اتاق استراحت			15 per person
ایستگاه پلیس				10 - 15 per person
ایستگاه پست				10 - 15 per person
کارخانه تولید ابزار دقیق				10 - 15 per person
رستوران		5 - 10	10	10 - 15 per person
مدرسه	کلاس درس		4 - 5	10 - 15 per person
مغازه				10 - 15 per person
پاساژ تجاری				10 - 15 per person
سالن ورزشی			3 - 4	
سوپر مارکت				10 per person
استخر شنا		5 - 10		

Air Change

استاندارد ضریب تخلیه هوا

Air Change (per hour)	استاندارد ضریب تخلیه هوا (در ساعت)	
Building / Room	ضریب تخلیه در ساعت	کاربری
All spaces in general	min 4	تمامی فضاهای عمومی
Assembly halls	4 - 6	سالن مونتاژ
Auditoriums	8 - 15	سالن
Bakeries	20 - 30	نانوایی
Banks	4 - 10	بانک
Barber Shops	6 - 10	آرایشگاه
Beauty Shops	6 - 10	سالن زیبایی
Boiler rooms	15 - 20	موتورخانه
Bowling Alleys	10 - 15	سالن بولینگ
Cafeterias	12 - 15	کافی شاپ
Churches	8 - 15	مسجد و کلیسا
Classrooms	6 - 20	کلاس درس
Computer Rooms	15 - 20	اتاق کامپیوتر
Court Houses	4 - 10	دادگاه
Dental Centers	8 - 12	دندانپزشکی
Department Stores	6 - 10	پاساژ
Dining/ Lunch Halls	12 - 15	سالن نهار / شام
Dining rooms	12	سالن رستوران
Dress Shops	6 - 10	مغازه لباس فروشی
Drug Shops	6 - 10	داروخانه
Engine rooms	4 - 6	پمپ خانه
Factory buildings ordinary	2 - 4	کارخانه تولیدی معمولی
Factory buildings, with fumes or moisture	10 - 15	کارخانه تولیدی با دود و رطوبت
Welding workshop	15 - 25	کارگاه جوشکاری
Animal shelter	6 - 10	محل نگهداری حیوانات
Fire Stations	4 - 10	ایستگاه آتش نشانی
Foundries	15 - 20	ریخته‌گری
Galvanizing plants	20 - 30	آبکاری فلزات
Garages repair	20 - 30	تعمیرگاه خودرو
Garages storage	4 - 6	پارکینگ
Hospital rooms	4 - 6	اتاق بستری
Jewelry shops	6 - 10	جواهر فروشی

Air Change (per hour)	استاندارد ضریب تخلیه هوا (در ساعت)	
Building / Room	ضریب تخلیه در ساعت	کاربری
Kitchen	15 - 60	آشپزخانه
Laundries	15 - 10	خشک شویی
Libraries, public	4	کتابخانه‌عمومی
Party chamber	20 - 30	تالار عروسی
Machine shops	6 - 8	نمایشگاه‌ماشین
Malls	6 - 10	مجتمع تجاری بزرگ
Medical Centers	8 - 12	کلینیک و مراکز پزشکی
Mills, paper	15 - 20	کارتن سازی
Mills, textile general buildings	4	نساجی
Mills, textile dye houses	15 - 20	اتاق رنگ پارچه
Municipal Buildings	4 - 10	شهرداری
Museums	12 - 15	موزه
Offices, public	4	اداره عمومی
Offices, private	3	دفترخصوصی
Photo dark rooms	10 - 15	تاریکخانه‌عکاسی
Printery	12 - 15	چاپخانه
Police Stations	4 - 10	ایستگاه‌پلیس
Post Offices	4 - 10	ایستگاه‌پست
Poultry houses	6 - 10	مرغداری
Precision Manufacturing	10 - 15	کارگاه ساخت ابزار دقیق
Residences	1 - 2	اقامتگاه
School Classrooms	4 - 12	کلاس مدرسه
Shoe Shops	6 - 10	کفش فروشی
Shops, paint	15 - 20	رنگ فروشی
Shops, woodworking	5	نجاری
Substation, electric	5 - 10	مترو
Supermarkets	4 - 10	سوپرمارکت
Swimming pools	20 - 30	استخر
Theaters	8 - 15	سالن تئاتر
Turbine rooms, electric	5 - 10	اتاق توربین برق
Warehouses	2	انبار
Waiting rooms, public	4	سالن انتظار



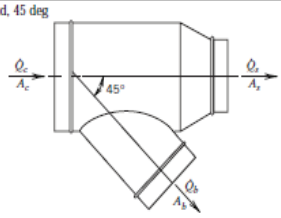
(1) Pressure probe for measuring the static pressure
(2) Pitot tube for measuring the total pressure
(3) Prandtl's pitot tube for measuring the dynamic pressure

$$\Delta P = 0.03\, f \left(\frac{L}{d^{1.22}}\right) \left(\frac{V}{1000}\right)^{1.82}$$

ΔP (inwg)	افت فشار بر حسب اینچ آب
f	زبری سطح (۰/۹ برای سطح گالوانیزه)
L (ft)	طول معادل برحسب فوت
d (in)	قطر (قطر معادل) بر حسب اینچ
V (fpm)	سرعت هوا بر حسب فوت بر دقیقه

Total Pressure Loss Coefficients for Diverging Flow Fittings

A. Diverging Wye, Round, 45 deg

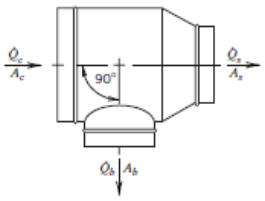


	Branch, C_b							
A_b/A_c	$Q_b/Q_c = 0.1$	0.2	0.3	0.4	0.5	0.6	0.7	0.8
0.1	0.38	0.39	0.48					
0.2	2.25	0.38	0.31	0.39	0.46	0.48	0.45	
0.3	6.29	1.02	0.38	0.30	0.33	0.39	0.44	0.48
0.4	12.41	2.25	0.74	0.38	0.30	0.31	0.35	0.39
0.5	20.58	4.01	1.37	0.62	0.38	0.30	0.30	0.32
0.6	30.78	6.29	2.25	1.02	0.56	0.38	0.31	0.30
0.7	43.02	9.10	3.36	1.57	0.85	0.52	0.38	0.31
0.8	57.29	12.41	4.71	2.25	1.22	0.74	0.50	0.38
0.9	73.59	16.24	6.29	3.06	1.69	1.02	0.67	0.48

	Main, C_s							
A_s/A_c	$Q_s/Q_c = 0.1$	0.2	0.3	0.4	0.5	0.6	0.7	0.8
0.1	0.13	0.16						
0.2	0.20	0.13	0.15	0.16	0.28			
0.3	0.90	0.13	0.13	0.14	0.15	0.16	0.20	
0.4	2.88	0.20	0.14	0.13	0.14	0.15	0.15	0.16
0.5	6.25	0.37	0.17	0.14	0.13	0.14	0.14	0.15
0.6	11.88	0.90	0.20	0.13	0.14	0.13	0.14	0.14
0.7	18.62	1.71	0.33	0.18	0.16	0.14	0.13	0.15
0.8	26.88	2.88	0.50	0.20	0.15	0.14	0.13	0.13
0.9	36.45	4.46	0.90	0.30	0.19	0.16	0.15	0.14

Total Pressure Loss Coefficients for Diverging Flow Fittings *(continued)*

B. Diverging Tee, Round

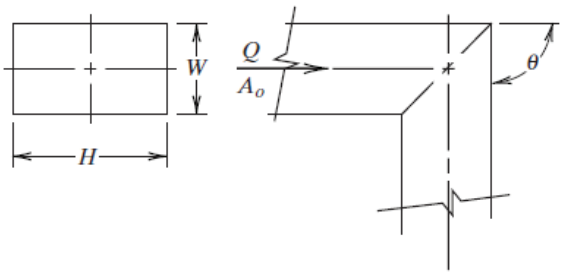


	Branch, C_b								
A_b/A_c	$Q_b/Q_c = 0.1$	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.1	1.20	0.62	0.80	1.28	1.99	2.92	4.07	5.44	7.02
0.2	4.10	1.20	0.72	0.62	0.66	0.80	1.01	1.28	1.60
0.3	8.99	2.40	1.20	0.81	0.66	0.62	0.64	0.70	0.80
0.4	15.89	4.10	1.94	1.20	0.88	0.72	0.64	0.62	0.63
0.5	24.80	6.29	2.91	1.74	1.20	0.92	0.77	0.68	0.63
0.6	35.73	8.99	4.10	2.40	1.62	1.20	0.96	0.81	0.72
0.7	48.67	12.19	5.51	3.19	2.12	1.55	1.20	0.99	0.85
0.8	63.63	15.89	7.14	4.10	2.70	1.94	1.49	1.20	1.01
0.9	80.60	20.10	8.99	5.13	3.36	2.40	1.83	1.46	1.20

	Main, C_s								
A_s/A_c	$Q_s/Q_c = 0.1$	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.1	0.13	0.16							
0.2	0.20	0.13	0.15	0.16	0.28				
0.3	0.90	0.13	0.13	0.14	0.15	0.16	0.20		
0.4	2.88	0.20	0.14	0.13	0.14	0.15	0.15	0.16	0.34
0.5	6.25	0.37	0.17	0.14	0.13	0.14	0.14	0.15	0.15
0.6	11.88	0.90	0.20	0.13	0.14	0.13	0.14	0.14	0.15
0.7	18.62	1.71	0.33	0.18	0.16	0.14	0.13	0.15	0.14
0.8	26.88	2.88	0.50	0.20	0.15	0.14	0.13	0.13	0.14
0.9	36.45	4.46	0.90	0.30	0.19	0.16	0.15	0.14	0.13

Source: Reprinted by permission from *ASHRAE Duct Fitting Database*, 1992.

C. Elbow, Mitered, Rectangular



	C_0										
θ, deg	H/W = 0.25	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
20	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.05	0.05	0.05
30	0.18	0.17	0.17	0.16	0.15	0.15	0.13	0.13	0.12	0.12	0.11
45	0.38	0.37	0.36	0.34	0.33	0.31	0.28	0.27	0.26	0.25	0.24
60	0.60	0.59	0.57	0.55	0.52	0.49	0.46	0.43	0.41	0.39	0.38
75	0.89	0.87	0.84	0.81	0.77	0.73	0.67	0.63	0.61	0.58	0.57
90	1.30	1.30	1.20	1.20	1.10	1.10	0.98	0.92	0.89	0.85	0.83

Source: Reprinted by permission from *ASHRAE Duct Fitting Database*, 1992.

Axial Fan

Wall and Duct Type

فن آکسیال (محوری)

نوع دیواری و بین‌کانالی

فن های آکسیال با توجه به ساختار و نوع طراحی در مدل های بین کانالی و دیواری و اشغال فضای کم نسبت به سایر فن های صنعتی یکی از پرکاربردترین فن‌های در سیستم های تهویه صنعتی و نیمه صنعتی میباشند. این نوع فن مطابق با الگو طرح شرکت SIEMENS و مولتی وینگ تولید میشوند.

برخی از شاخص های فنی در این مدل ها میشود به تنوع در کاربرد ، بازه ظرفیت عملکردی گسترده، راندمان بالا ، قابلیت تولید دستگاه با متریال متنوع بسته به کاربری و شرایط محل نصب از قبیل ورق گالوانیزه ، ورق استنلس استیل ، ورق آلومینیوم ، ورق فولادی (ST37) و همچنین متعلقات جانبی مورد نیاز با توجه به نیاز مشتری از جمله تجهیزات کنترلی ، مکانیکال و الکتریکال اشاره نمود.

DAS

Duct Axial Fan

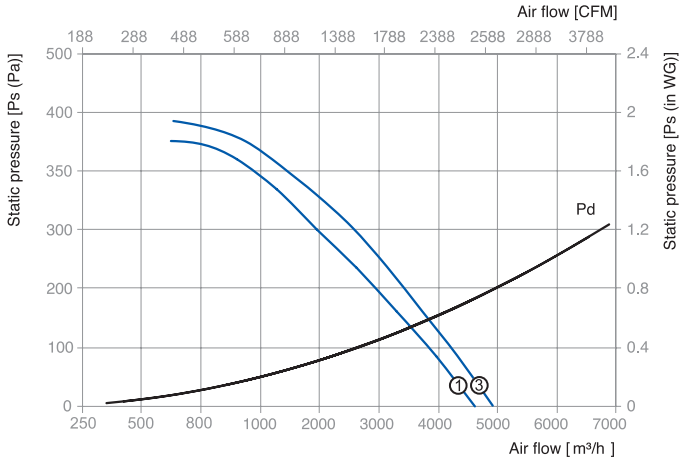
Direct Drive

فن آکسیال بین کانالی

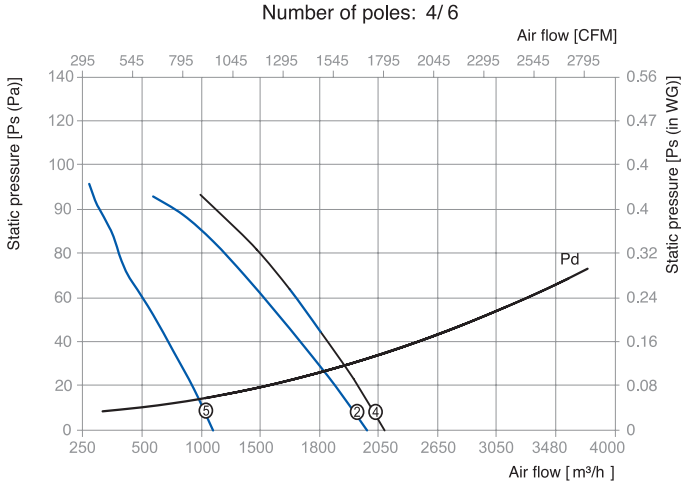
انتقال قدرت مستقیم

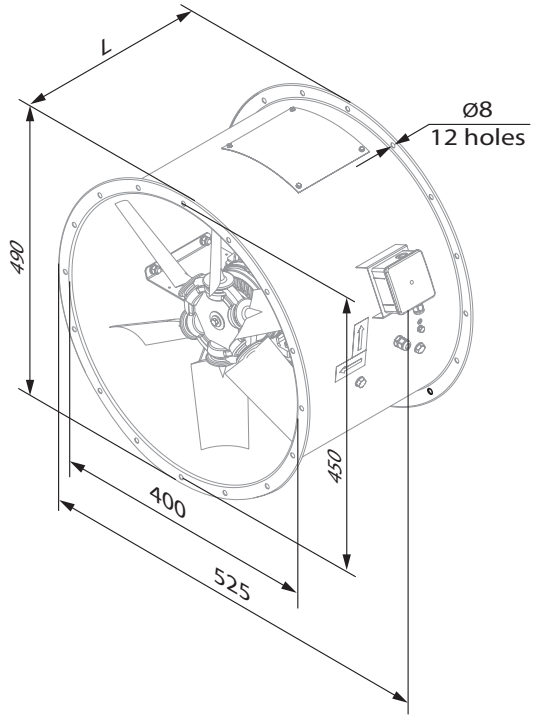
DAS 315

Standard size: 315
Number of poles: 2

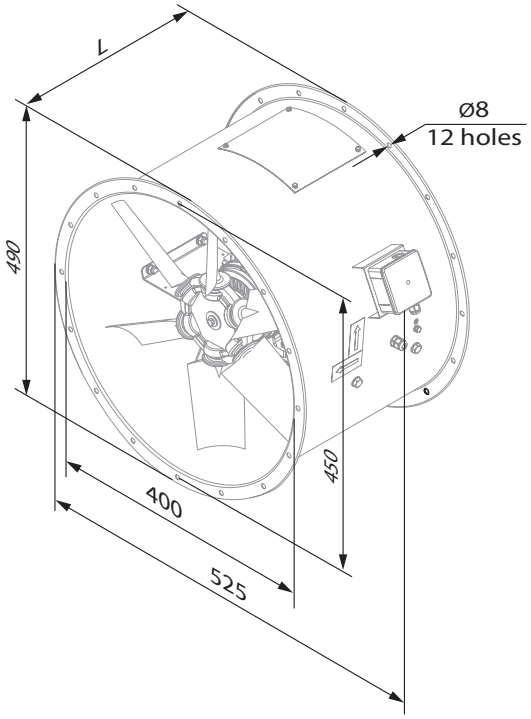


Standard size: 315
Number of poles: 4/ 6

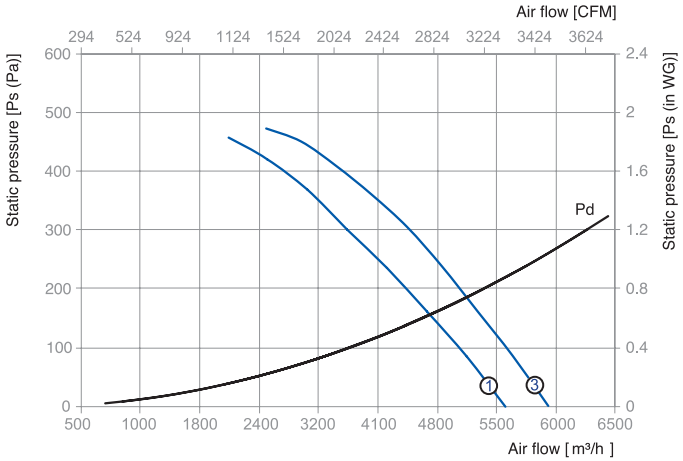




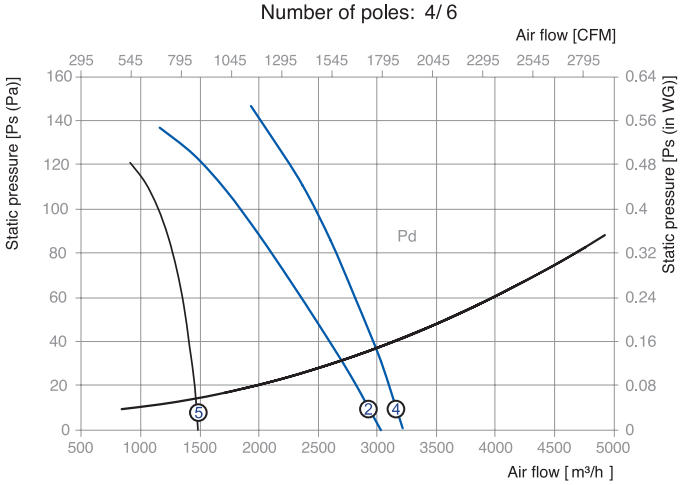
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-315-2S	1 ~ 220	50	2880	0.37	4880	54 or 55	75	38
2	LC-DAS-315-4S	1 ~ 220	50	1385	0.25	1940	54 or 55	62	29
3	LC-DAS-315-2T	3 ~ 400	50	2940	0.37	4940	54 or 55	75	38
4	LC-DAS-315-4T	3 ~ 400	50	1405	0.25	2100	54 or 55	62	29
5	LC-DAS-315-6T	3 ~ 400	50	920	0.37	1020	54 or 55	52	32



Standard size: 350
Number of poles: 2



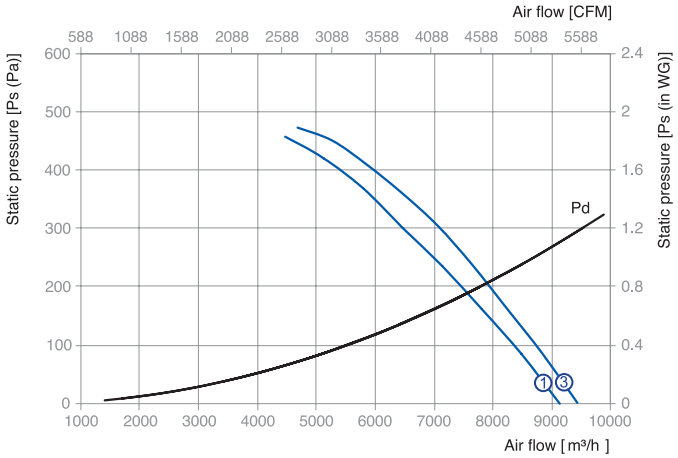
Standard size: 350
Number of poles: 4/ 6



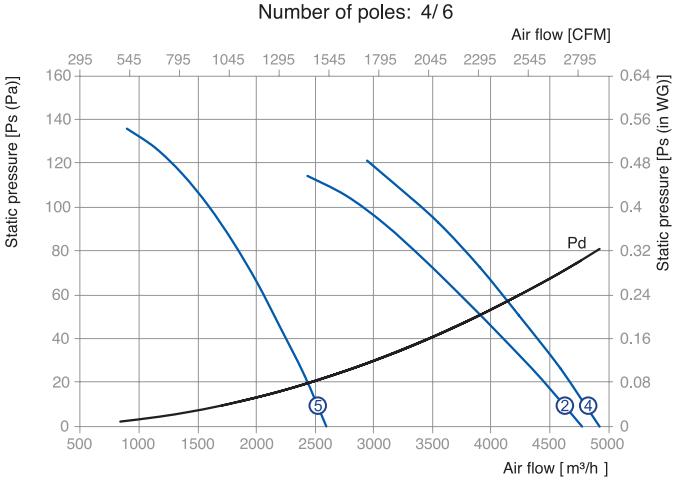
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-350-2S	1 ~ 220	50	2855	0.55	5680	54 or 55	77	42
2	LC-DAS-350-4S	1 ~ 220	50	1410	0.25	3050	54 or 55	64	32
3	LC-DAS-350-2T	3 ~ 400	50	2900	0.55	5940	54 or 55	77	42
4	LC-DAS-350-4T	3 ~ 400	50	1405	0.25	3190	54 or 55	64	32
5	LC-DAS-350-6T	3 ~ 400	50	910	0.37	1475	54 or 55	60	34

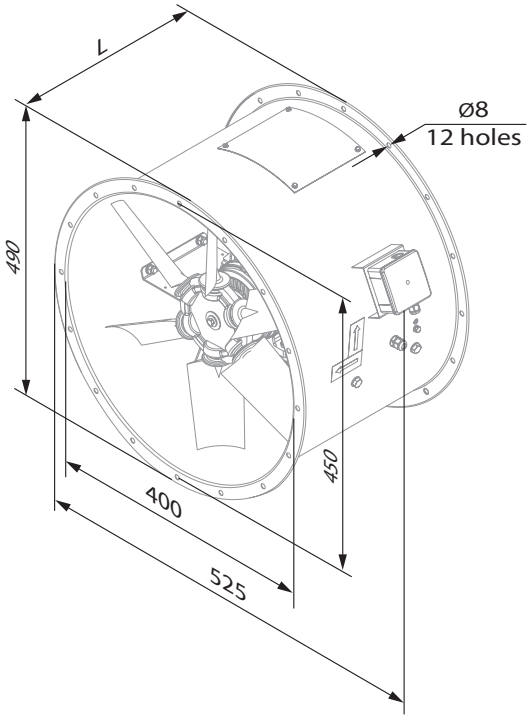
DAS 400

Standard size: 400
Number of poles: 2

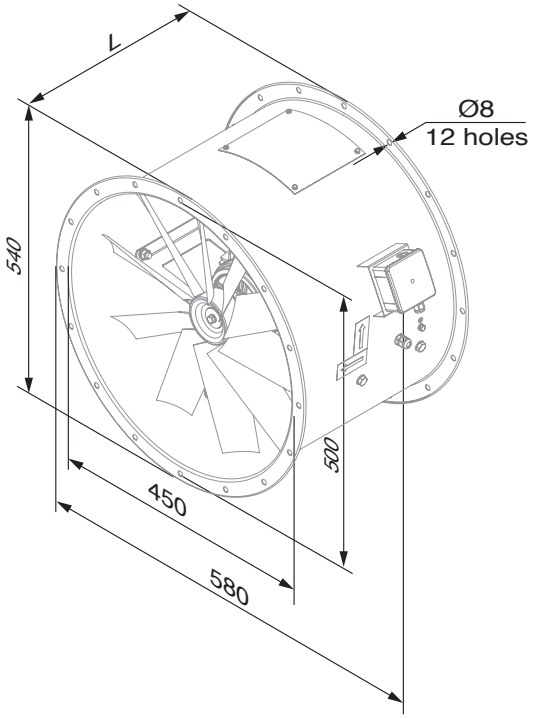


Standard size: 400
Number of poles: 4/ 6

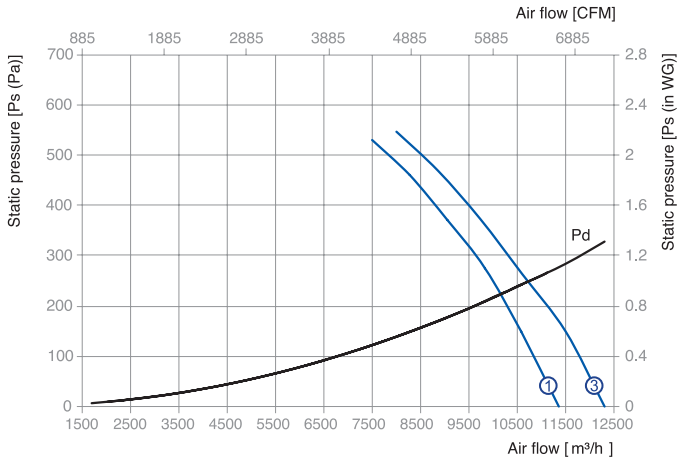




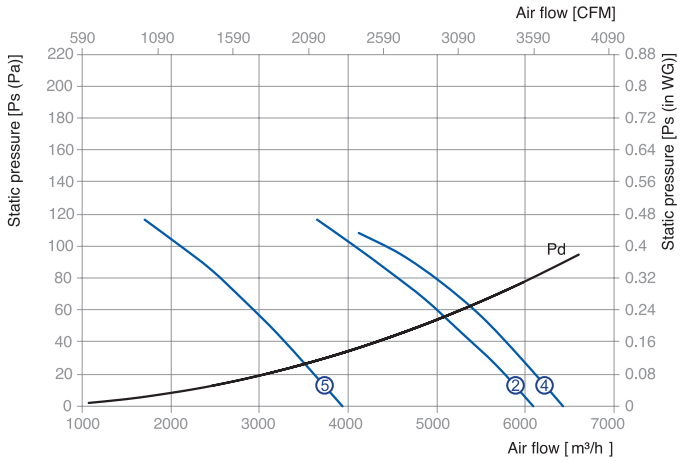
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-400-2S	1 ~ 220	50	2855	1.1	9080	54 or 55	80	46
2	LC-DAS-400-4S	1 ~ 220	50	1410	0.37	4650	54 or 55	66	34
3	LC-DAS-400-2T	3 ~ 400	50	2900	1.1	9110	54 or 55	80	46
4	LC-DAS-400-4T	3 ~ 400	50	1425	0.37	4880	54 or 55	66	34
5	LC-DAS-400-6T	3 ~ 400	50	910	0.37	2610	54 or 55	62	36



Standard size: 450
Number of poles: 2



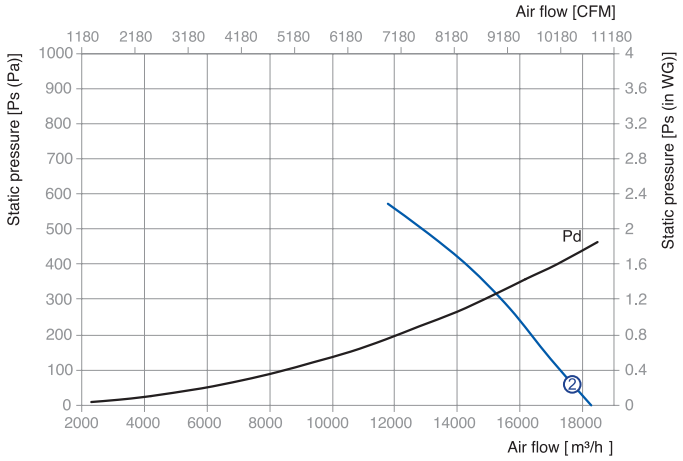
Standard size: 450
Number of poles: 4/ 6



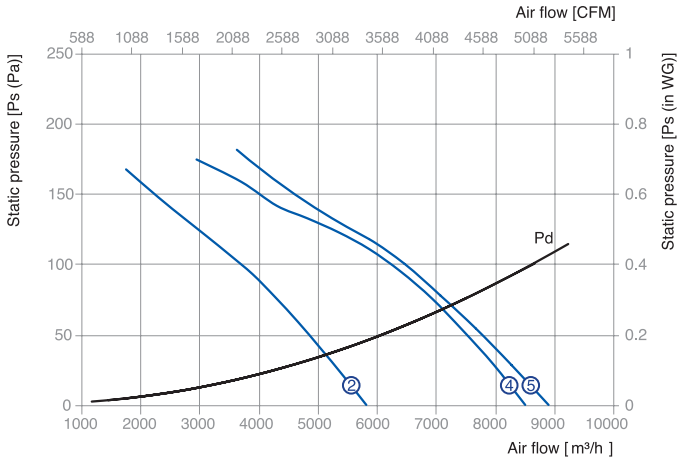
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-450-2S	1 ~ 220	50	2878	1.5	11460	54 or 55	84	50
2	LC-DAS-450-4S	1 ~ 220	50	1410	0.55	6215	54 or 55	66	38
3	LC-DAS-450-2T	3 ~ 400	50	2900	1.5	12240	54 or 55	84	50
4	LC-DAS-450-4T	3 ~ 400	50	1420	0.55	6480	54 or 55	66	38
5	LC-DAS-450-6T	3 ~ 400	50	910	0.37	3990	54 or 55	64	38

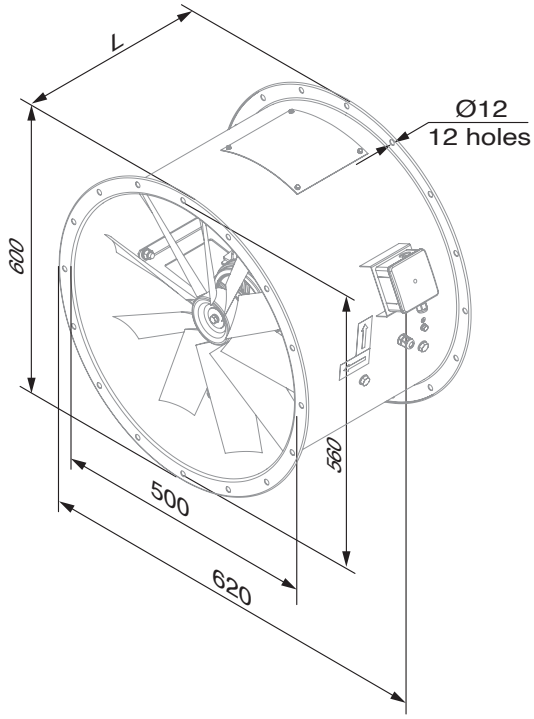
DAS **500**

Standard size: 500
Number of poles: 2

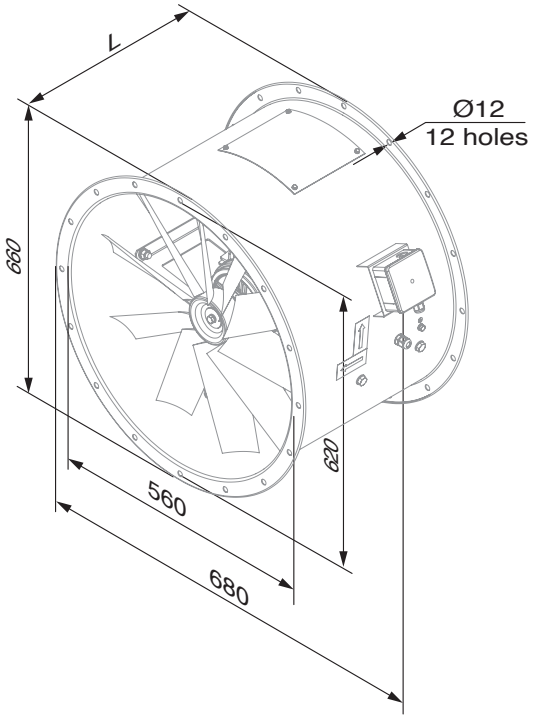


Standard size: 500
Number of poles: 4/ 6

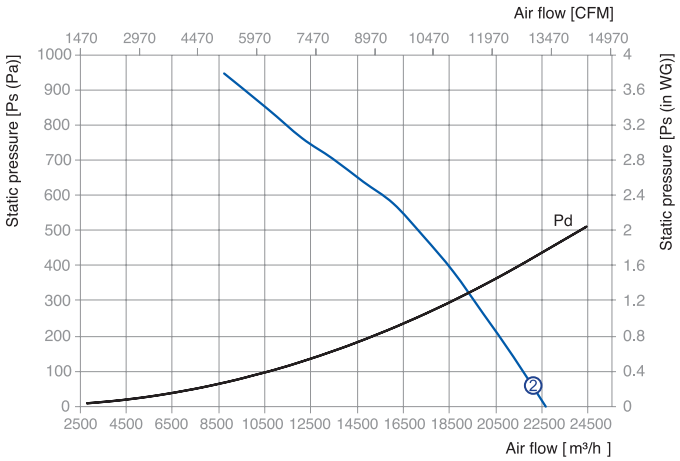




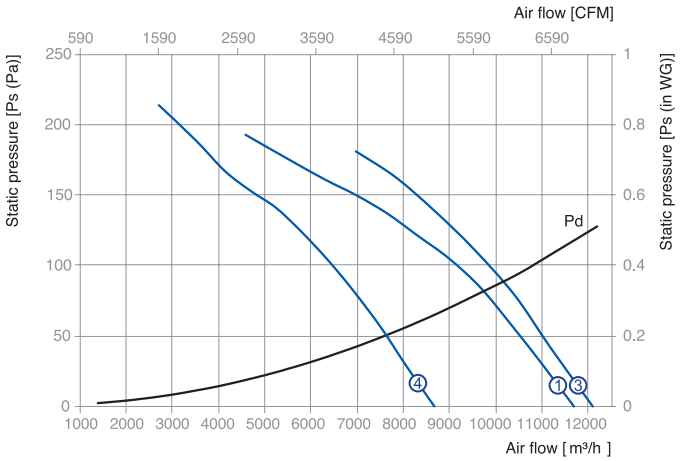
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-500-4S	1 ~ 220	50	1410	0.55	8780	54 or 55	68	40
2	LC-DAS-500-2T	3 ~ 400	50	2900	3.0	18440	54 or 55	90	54
3	LC-DAS-500-4T	3 ~ 400	50	1420	0.55	8980	54 or 55	68	40
4	LC-DAS-500-6T	3 ~ 400	50	910	0.37	5810	54 or 55	66	40



Standard size: 560
Number of poles: 2



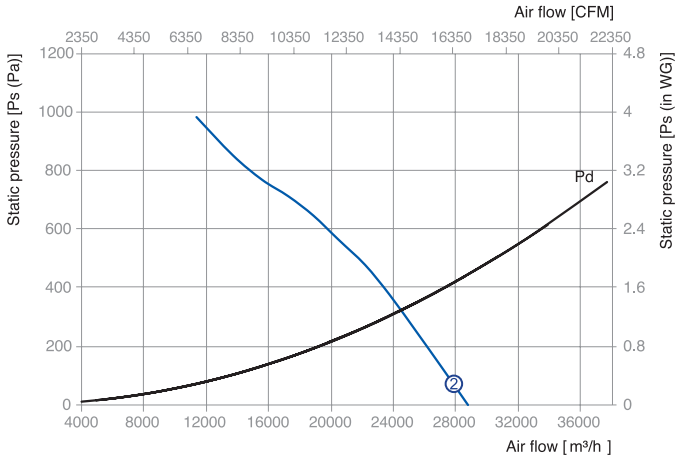
Standard size: 560
Number of poles: 4/6



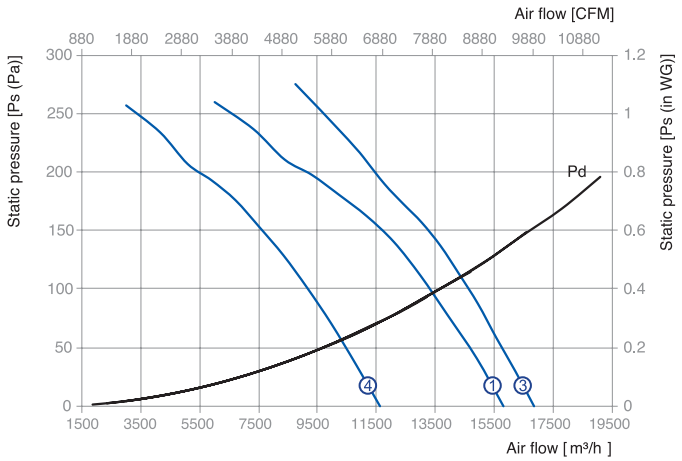
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-560-4S	1 ~ 220	50	1405	0.75	11985	54 or 55	71	42
2	LC-DAS-560-2T	3 ~ 400	50	2900	4.0	22580	54 or 55	92	59
3	LC-DAS-560-4T	3 ~ 400	50	1425	0.75	12180	54 or 55	70	42
4	LC-DAS-560-6T	3 ~ 400	50	910	0.55	8640	54 or 55	69	42

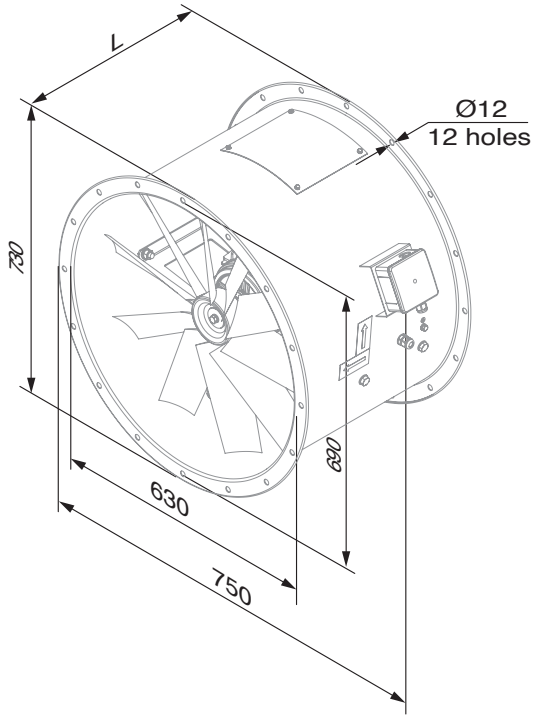
DAS 630

Standard size: 630
Number of poles: 2

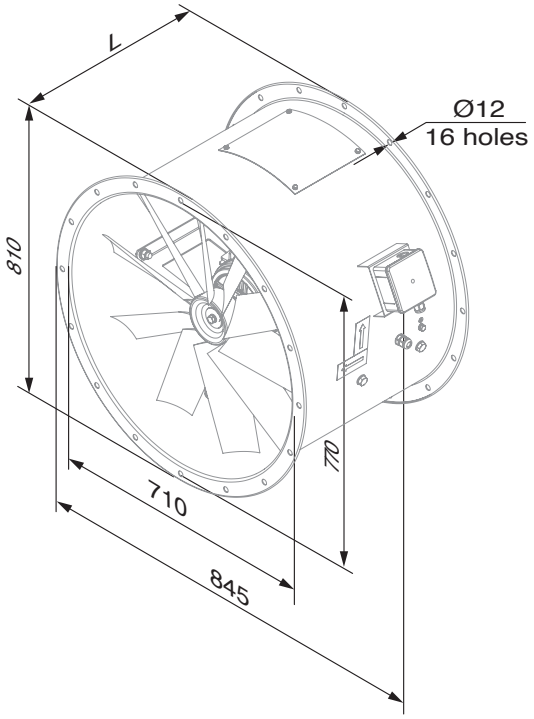


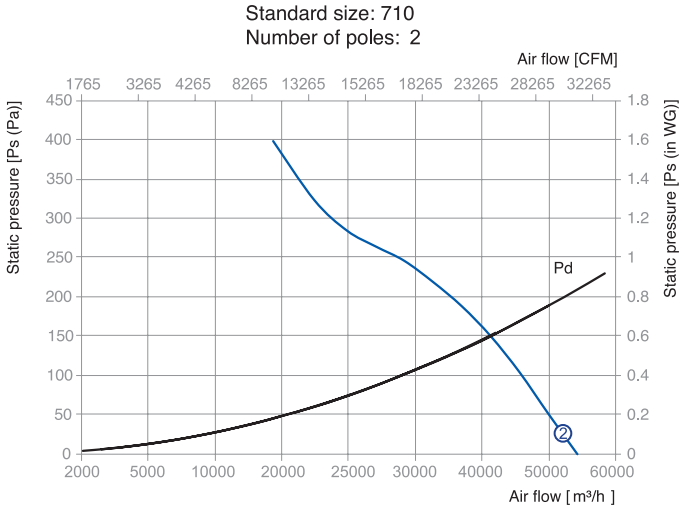
Standard size: 630
Number of poles: 4/6

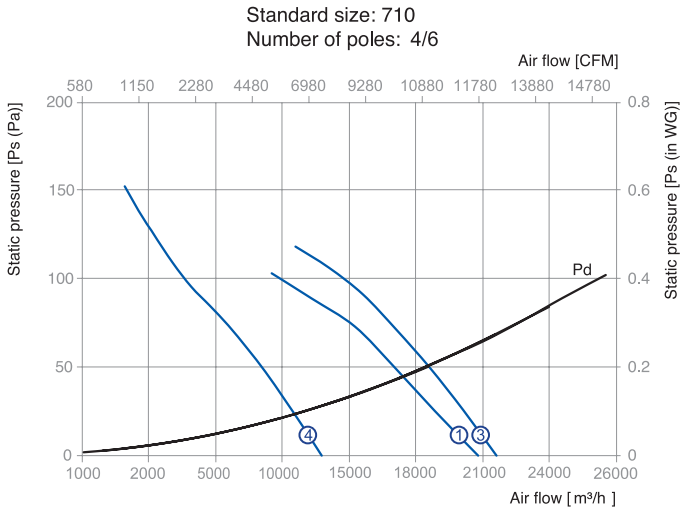




Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-630-4S	1 ~ 220	50	1410	1.5	15820	54 or 55	73	46
2	LC-DAS-630-2T	3 ~ 400	50	2900	5.5	29840	54 or 55	98	66
3	LC-DAS-630-4T	3 ~ 400	50	1405	1.5	16660	54 or 55	72	46
4	LC-DAS-630-6T	3 ~ 400	50	910	0.75	11700	54 or 55	71	44



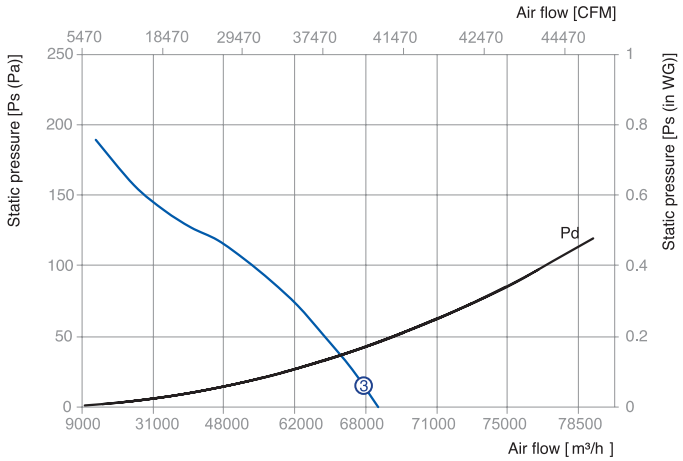




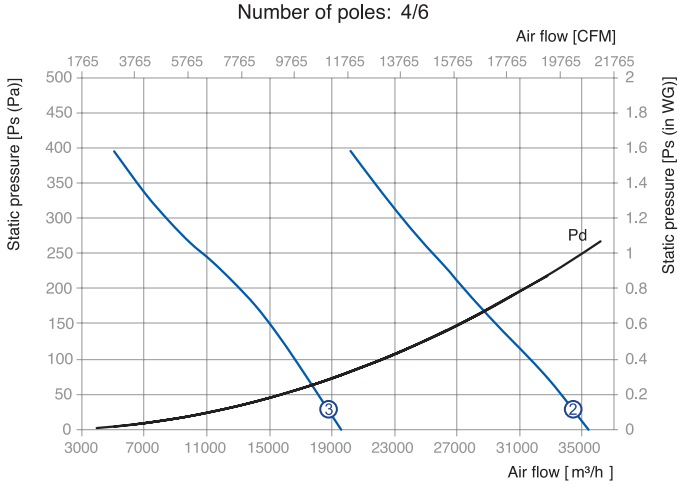
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-710-4S	1 ~ 220	50	1410	2.2	20150	54 or 55	79	52
2	LC-DAS-710-2T	3 ~ 400	50	2900	11.0	54200	54 or 55	108	71
3	LC-DAS-710-4T	3 ~ 400	50	1405	2.2	22480	54 or 55	78	52
4	LC-DAS-710-6T	3 ~ 400	50	910	1.1	13040	54 or 55	72	49

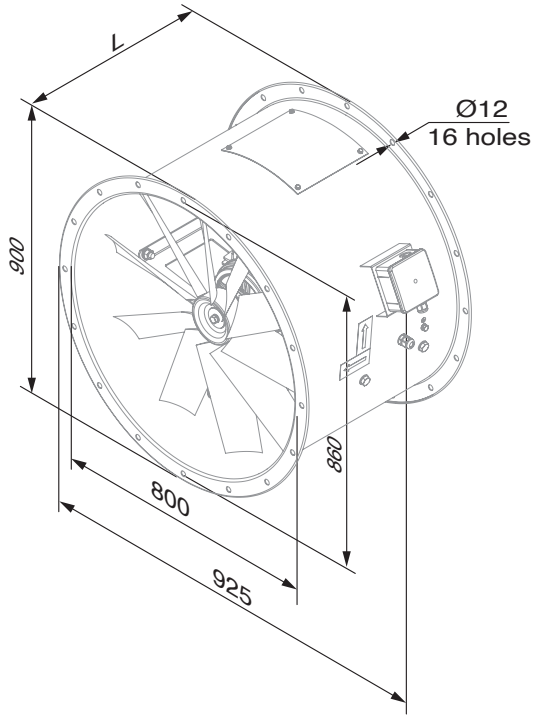
DAS 800

Standard size: 800
Number of poles: 2

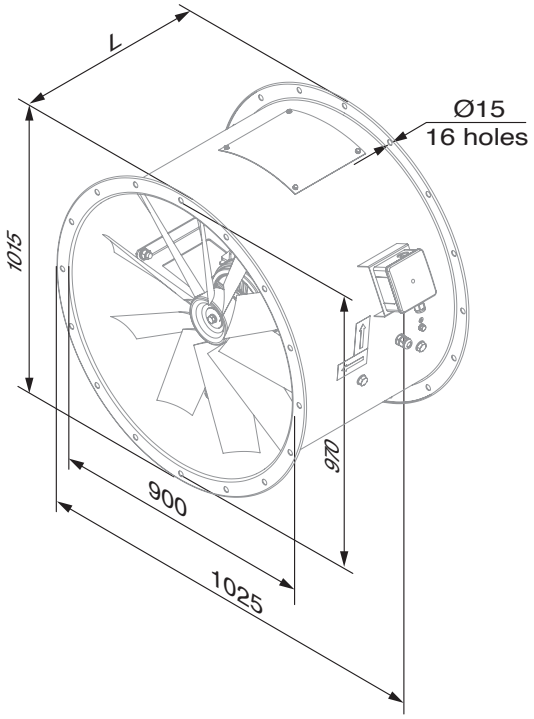


Standard size: 800
Number of poles: 4/6

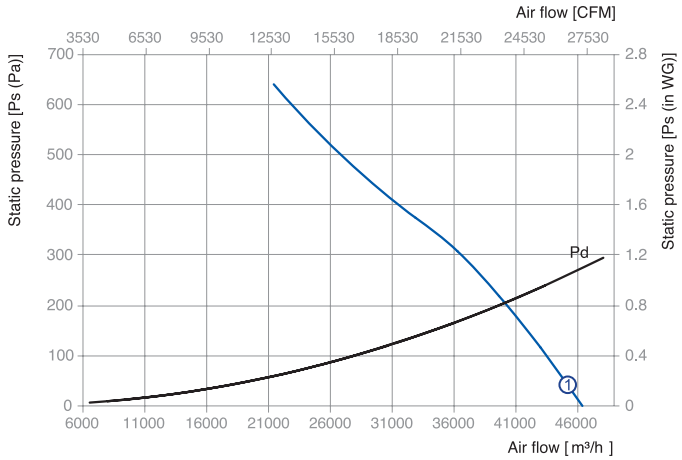




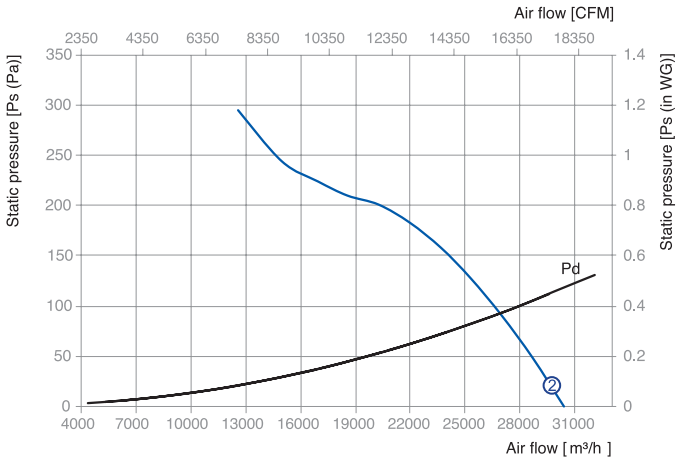
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-800-2T	3 ~ 400	50	2900	15.0	68740	54 or 55	112	79
2	LC-DAS-800-4T	3 ~ 400	50	1405	3.0	36230	54 or 55	80	68
3	LC-DAS-800-6T	3 ~ 400	50	910	1.5	20880	54 or 55	75	62



Standard size: 900
Number of poles: 4



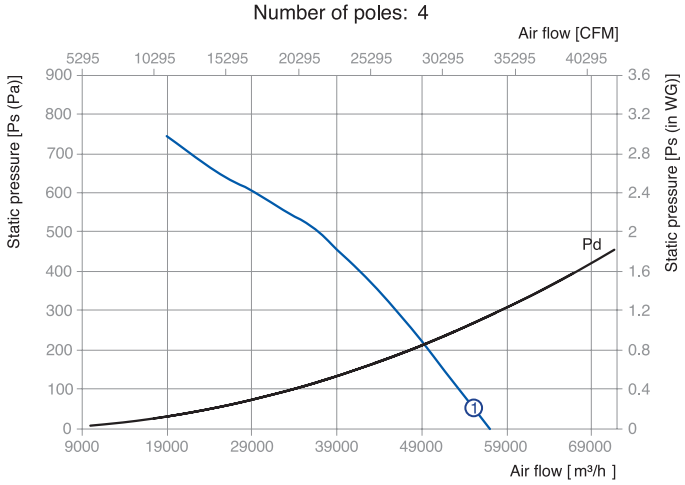
Standard size: 900
Number of poles: 6



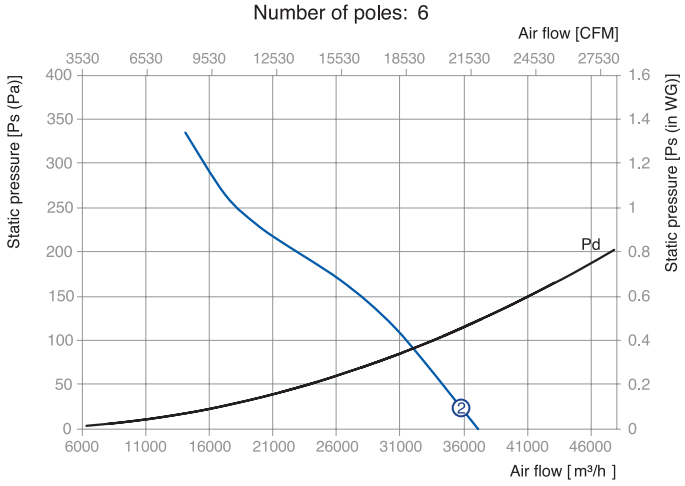
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-900-4T	3 ~ 400	50	1405	4.0	46800	54 or 55	84	94
2	LC-DAS-900-6T	3 ~ 400	50	910	3.0	30180	54 or 55	79	92

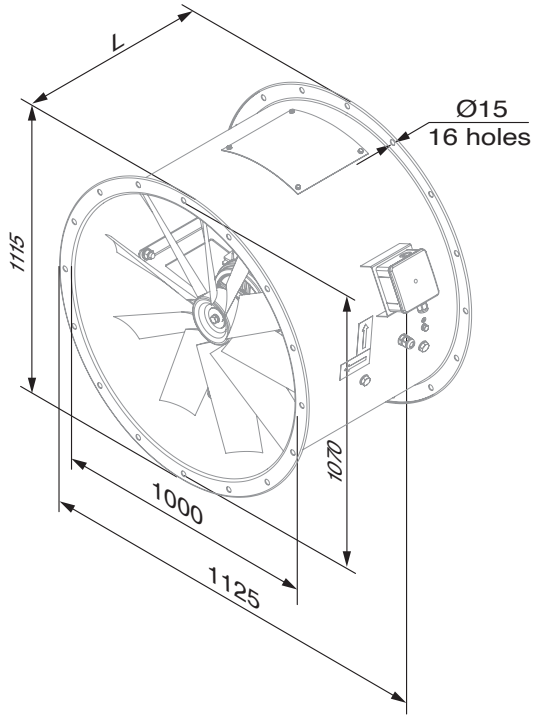
DAS 1000

Standard size: 1000
Number of poles: 4

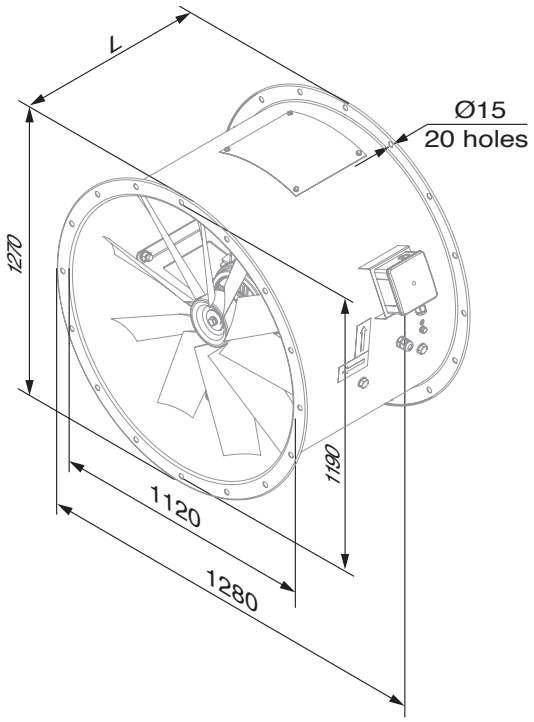


Standard size: 1000
Number of poles: 6

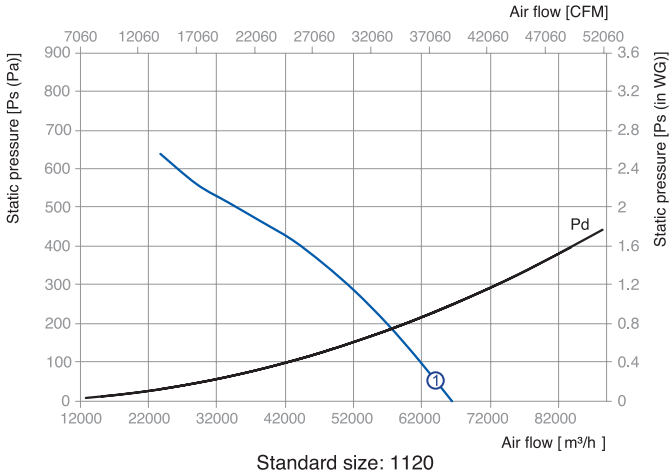




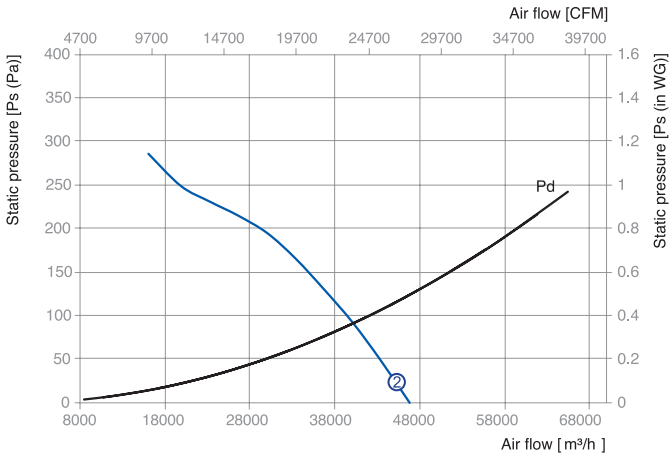
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-1000-4T	3 ~ 400	50	1405	5.5	56480	54 or 55	88	110
2	LC-DAS-1000-6T	3 ~ 400	50	910	4.0	37760	54 or 55	84	99



Standard size: 1120
Number of poles: 4



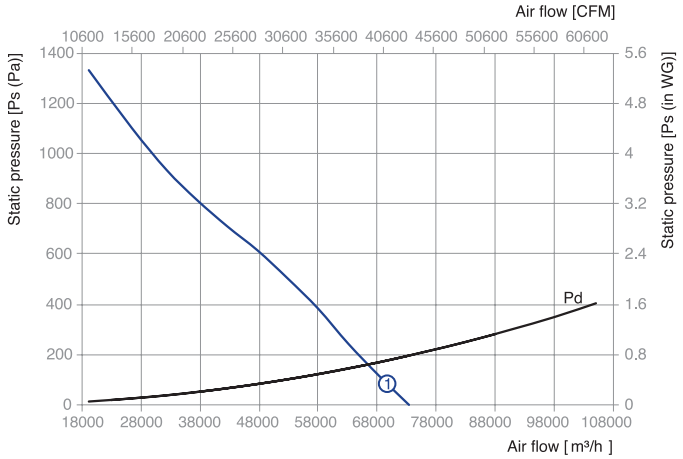
Standard size: 1120
Number of poles: 6



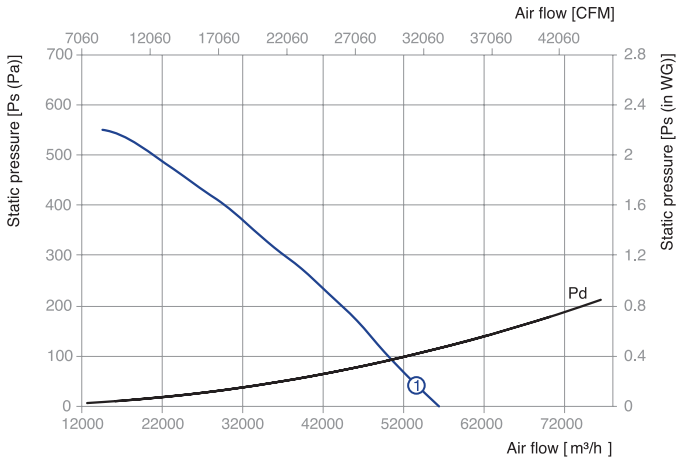
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-1120-4T	3 ~ 400	50	1405	7.5	65340	54 or 55	92	118
2	LC-DAS-1120-6T	3 ~ 400	50	910	4.0	46890	54 or 55	88	108

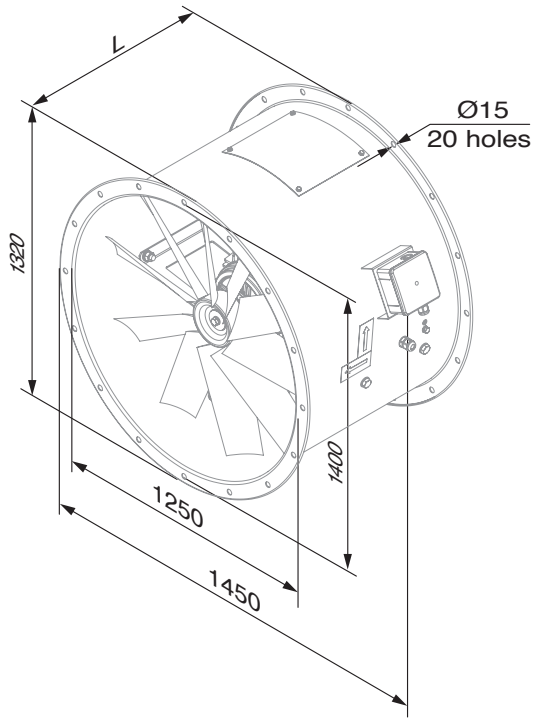
DAS 1250

Standard size: 1250
Number of poles: 4



Standard size: 1250
Number of poles: 6





Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level	Weight
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	IP	dB (A)	kg
1	LC-DAS-1250-4T	3 ~ 400	50	1405	11.0	74610	54 or 55	96	144
2	LC-DAS-1250-6T	3 ~ 400	50	910	5.5	54320	54 or 55	94	128

Note

WAS

Wall Axial Fan

Direct Drive

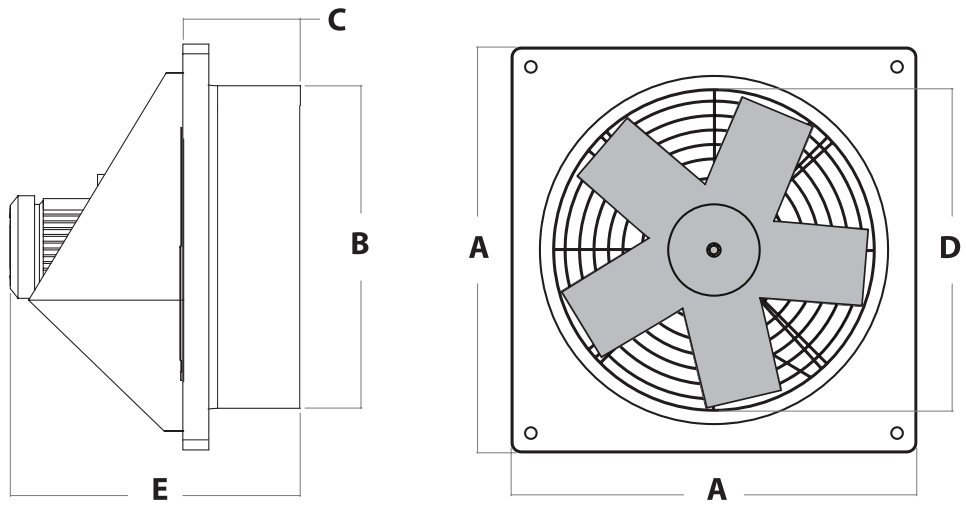
فن آکسیال دیواری

انتقال قدرت مستقیم

Axial Wall Fan (WAS)

فن آکسیال دیواری

No.	Model	Power (kW)	Speed (RPM)	Voltage (V)	K=1 St.p of mmwg						T=20°
					0	2.5	5	7.5	10	15	20
1	LC- WAS 254-3/1	0.12/0.18	1345	380/220	925	834	724	706	694	676	664
2	LC- WAS 252-3/1	0.18	2800	380/220	1900	1713	1488	1451	1425	1389	1364
3	LC- WAS 314-3/1	0.25	1380	380/220	2060	1857	1613	1573	1545	1506	1479
4	LC- WAS 312-3/1	0.37	2800	380/220	4180	3768	3273	3191	3135	3056	3002
5	LC- WAS 356-3	0.37	910	380	1877	1692	1470	1433	1408	1372	1348
6	LC- WAS 354-3/1	0.25	1380	380/220	2920	2632	2287	2229	2190	2135	2097
7	LC- WAS 352-3/1	0.55	2815	380/220	5980	5390	4683	4566	4484	4372	4294
8	LC- WAS 406-3	0.37	910	380	2973	2680	2328	2270	2229	2174	2135
9	LC- WAS 404-3/1	0.25	1380	380/220	4560	4110	3571	3482	3420	3334	3275
10	LC- WAS 402-3/1	0.75	2775	380/220	9160	8257	7173	6994	6869	6697	6578
11	LC- WAS 456-3	0.37	910	380	4050	3651	3172	3092	3037	2961	2908
12	LC- WAS 454-3/1	0.37	1390	380/220	6190	5580	4847	4726	4642	4526	4445
13	LC- WAS 452-3/1	1.5	2835	380/220	12620	11375	9883	9635	9464	9227	9062
14	LC- WAS 506-3	0.37	910	380	5720	5156	4479	4367	4289	4182	4108
15	LC- WAS 504-3/1	0.37	1390	380/220	8750	7887	6852	6681	6562	6397	6283
16	LC- WAS 502-3	4	2890	380	18190	16396	14244	13888	13641	13299	13062
17	LC- WAS 566-3	0.55	900	380	8110	7310	6351	6192	6082	5929	5824
18	LC- WAS 546-3/1	0.75	1380	380/220	12140	10943	9507	9269	9104	8876	8718
19	LC- WAS 562-3	5.5	2880	380	25340	22841	19844	19347	19002	18527	18197
20	LC- WAS 636-3	0.75	910	380	11100	10005	8692	8475	8324	8116	7971
21	LC- WAS 634-3/1	1.5	1415	380/220	16390	14774	12835	12514	12291	11983	11770
22	LC- WAS 632-3	7.5	2900	380	30900	27852	24198	23592	23172	22592	22189
23	LC- WAS 716-3	1.1	920	380	16340	14728	12796	12476	12253	11947	11734
24	LC- WAS 714-3/1	2.2	1405	380/220	25810	23264	20212	19706	19355	18870	18534
25	LC- WAS 712-3	11	2910	380	48110	43365	37675	36732	36077	35175	34548
26	LC- WAS 806-3	1.5	920	380	21380	19271	16743	16324	16033	15632	15353
27	LC- WAS 804-3	4	1415	380	32890	29646	25756	25111	24664	24047	23618
28	LC- WAS 802-3	15	2930	380	61290	55245	47996	46795	45961	44811	44012
29	LC- WAS 906-3	3	950	380	30800	27762	24119	23516	23097	22519	22118
30	LC- WAS 904-3	5.5	1425	380	46200	41643	36179	35274	34645	33778	33176
31	LC- WAS 1006-3	4	945	380	33800	30466	26469	25806	25346	24712	24272
32	LC- WAS 1004-3	7.5	1440	380	51300	46241	40173	39168	38470	37507	36839



No.	Model	Dimensions (mm)				
		A	B	C	D	E
1	LC-WAS 252/4	325	255	50	245	245
2	LC-WAS 314/2	400	300	60	290	255
3	LC-WAS 354/2/6	450	355	80	340	295
4	LC-WAS 402/4/6	500	405	85	390	315
5	LC-WAS 454/6	530	455	95	440	335
6	LC-WAS 452	530	455	95	440	375
7	LC-WAS 504/6	600	500	95	480	335
8	LC-WAS 502	600	500	95	480	425
9	LC-WAS 566/4	670	550	100	540	340
10	LC-WAS 562	670	550	100	540	510
11	LC-WAS 636/4	725	600	110	580	390
12	LC-WAS 632	725	600	110	580	520
13	LC-WAS 714/6	850	700	125	680	420
14	LC-WAS 712	850	700	125	680	650
15	LC-WAS 804/6	960	800	140	775	460
16	LC-WAS 802	960	800	140	775	665
17	LC-WAS 904/6	1090	900	145	880	555
18	LC-WAS 1004/6	1220	1000	145	980	555

Tolerance +15mm

Centrifugal Backward Fan

Single or Double Inlet / Direct or Belt Drive

فن سانتریفیوژ بکوارد

ورودی یک طرفه و دو طرفه / مستقیم و پولی تسمه

فن‌های سانتریفیوژ یوتیلیتی با پروانه مدل بکوارد (Backward Curve) در دو نوع ورودی یک طرفه یا دو طرفه با تنوع بسیار بالا در ظرفیت هوادهی و فشار استاتیکی یکی از پرکاربردترین فن‌های سانتریفیوژ در سیستم های تهویه صنعتی و نیمه صنعتی می‌باشند. این نوع فن مطابق با الگو طرح شرکت NicotralGebhardt آلمان با دو نوع انتقال قدرت مستقیم و پولی تسمه (Direct Drive & Belt Drive) تولید می‌شوند.

برخی از شاخص‌های فنی در این مدل ها میشود به تنوع در کاربرد ، بازه ظرفیت عملکردی گسترده، راندمان بالا، صدای نسبتا کم ، شاسی دوبل و لرزه گیر، امکان تولید در حالات مختلف جهت دهانه ورودی و خروجی هوا، پوشش کامل رنگ پودری الکترواستاتیک کوره‌ای ، قابلیت تولید دستگاه با متریال متنوع بسته به کاربری و شرایط محل نصب از قبیل ورق گالوانیزه ، ورق استنلس استیل ، ورق آلومینیوم ، ورق فولادی (ST37) و همچنین متعلقات جانبی مورد نیاز با توجه به نیاز مشتری از جمله تجهیزات کنترلی ، مکانیکال و الکتریکال اشاره نمود.

USB - D

Centrifugal Backward Fan

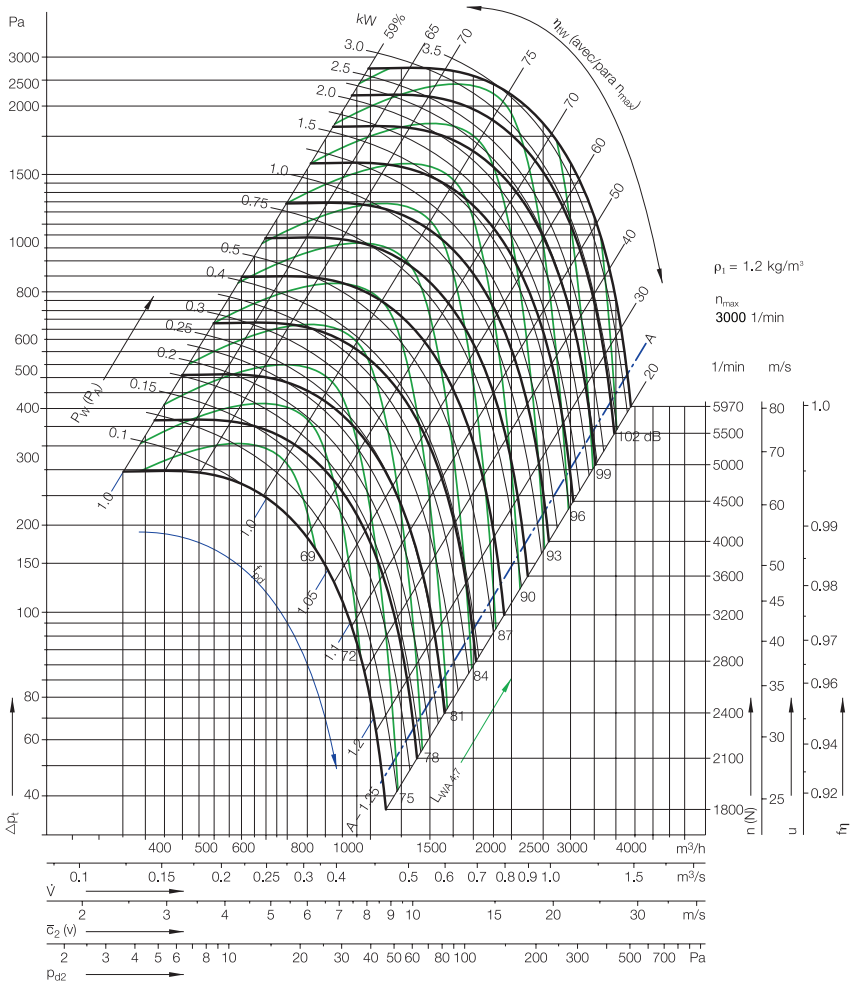
Single Inlet / Direct drive

فن سانتریفیوژ یوتیلیتی بکوارد

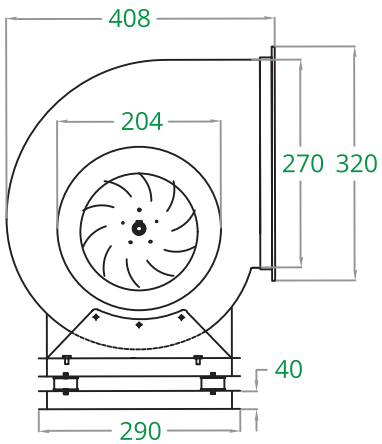
ورودی یک طرفه با انتقال قدرت مستقیم

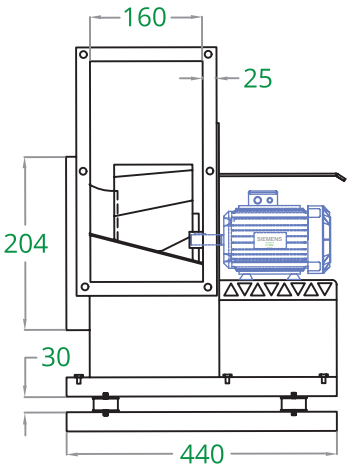
USB 250 D

فن سانتریفیوژ یوتیلیتی بکوارد



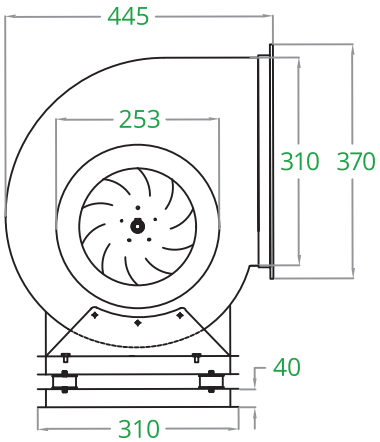
UNIT: mm
TOLERANCE: ±15

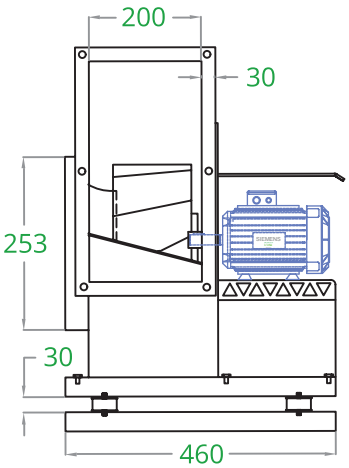


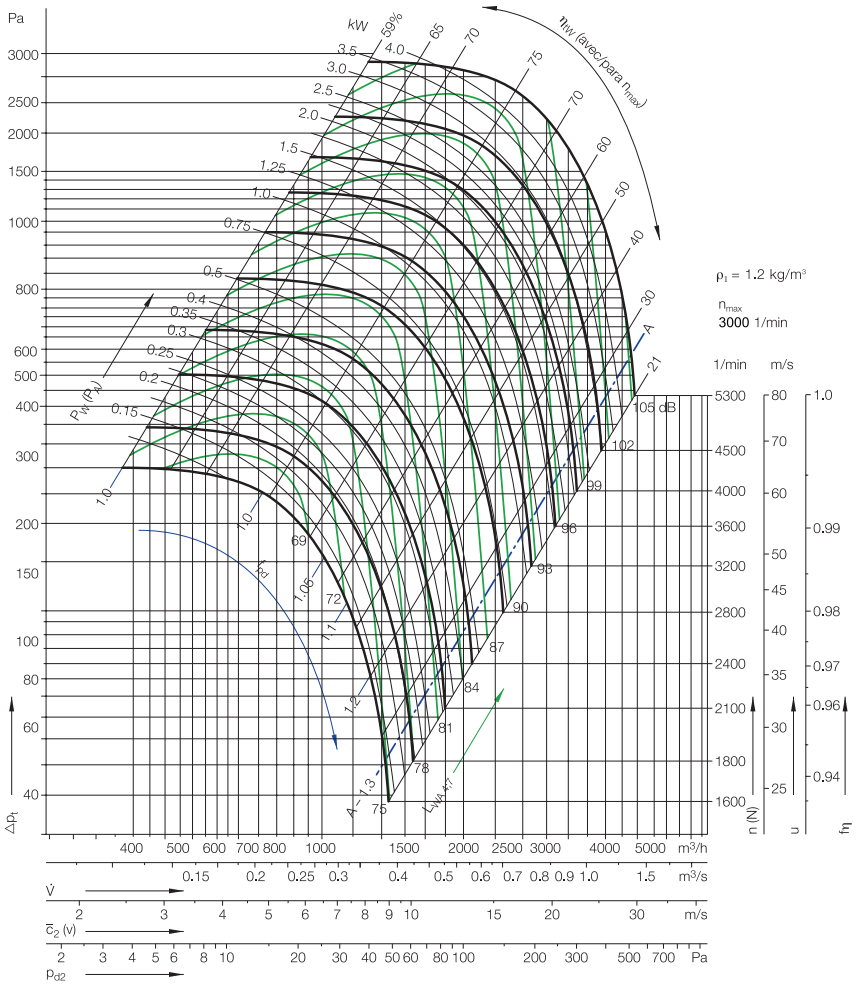


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-250-2S-D	1 ~ 220	50	2807	0.75	2060	54 or 55	68
2	LC-USB-250-4S-D	1 ~ 220	50	1385	0.25	1090	54 or 55	59
3	LC-USB-250-2T-D	3 ~ 380	50	2825	0.75	2170	54 or 55	68
4	LC-USB-250-4T-D	3 ~ 380	50	1400	0.25	1105	54 or 55	59
5	LC-USB-250-6T-D	3 ~ 380	50	920	0.37	680	54 or 55	55

UNIT: mm
TOLERANCE: ±15



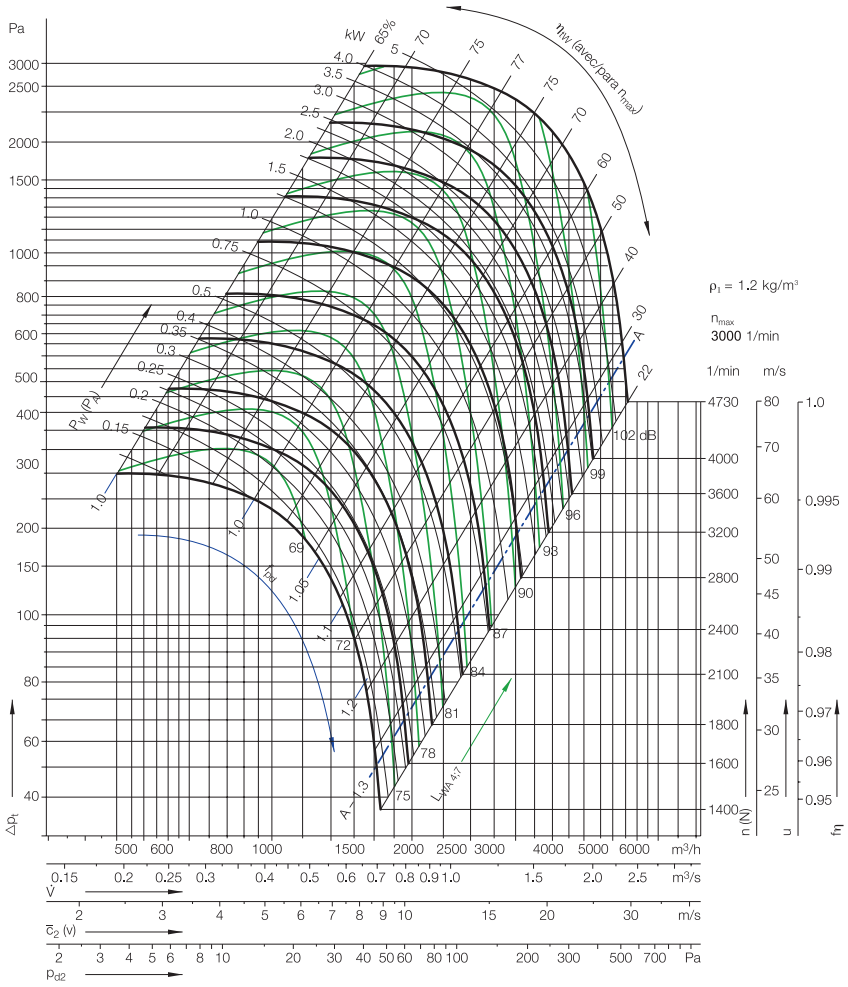




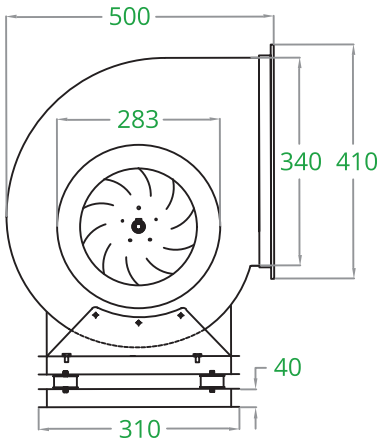
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-280-2S-D	1 ~ 220	50	2940	0.75	2590	54 or 55	68
2	LC-USB-280-4S-D	1 ~ 220	50	1400	0.25	1380	54 or 55	61
3	LC-USB-280-2T-D	3 ~ 380	50	2910	0.75	2620	54 or 55	68
4	LC-USB-280-4T-D	3 ~ 380	50	1435	0.25	1410	54 or 55	61
5	LC-USB-280-6T-D	3 ~ 380	50	920	0.37	975	54 or 55	59

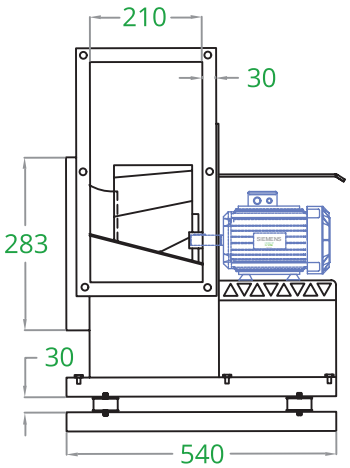
USB 315 D

فن سانتریفیوژ یوتیلیتی بکوارد



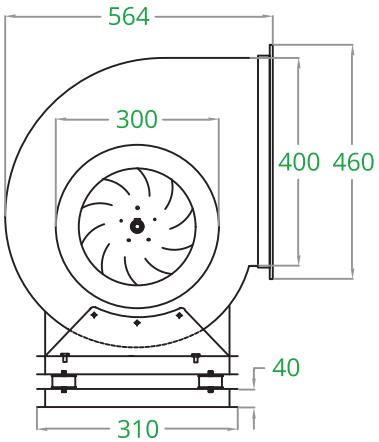
UNIT: mm
TOLERANCE: ±15

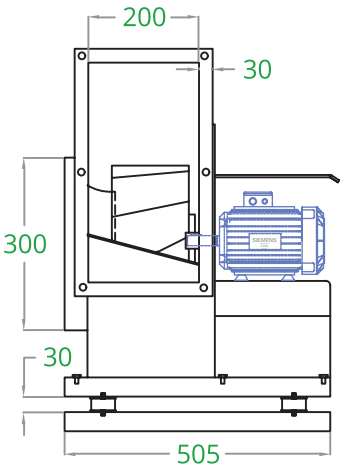


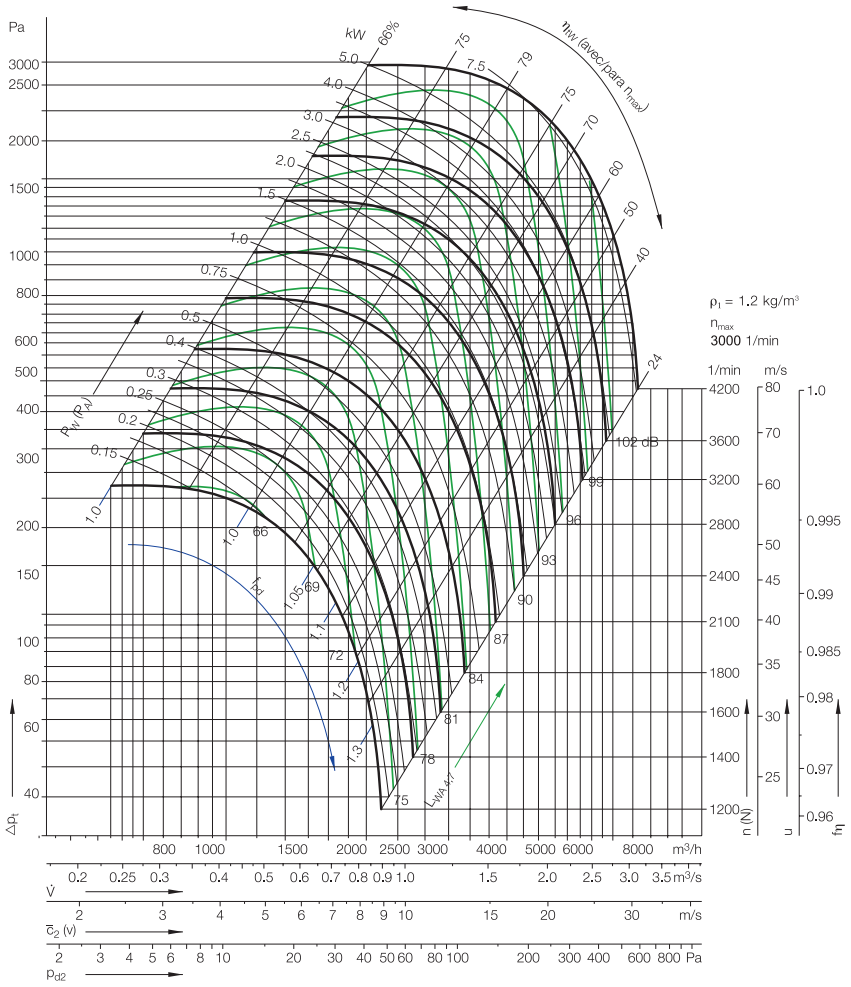


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-315-2S-D	1 ~ 220	50	2950	1.1	3610	54 or 55	70
2	LC-USB-315-4S-D	1 ~ 220	50	1385	0.37	1860	54 or 55	62
3	LC-USB-315-2T-D	3 ~ 380	50	2980	1.1	3750	54 or 55	69
4	LC-USB-315-4T-D	3 ~ 380	50	1400	0.37	1890	54 or 55	62
5	LC-USB-315-6T-D	3 ~ 380	50	920	0.37	1380	54 or 55	60

UNIT: mm
TOLERANCE: ±15



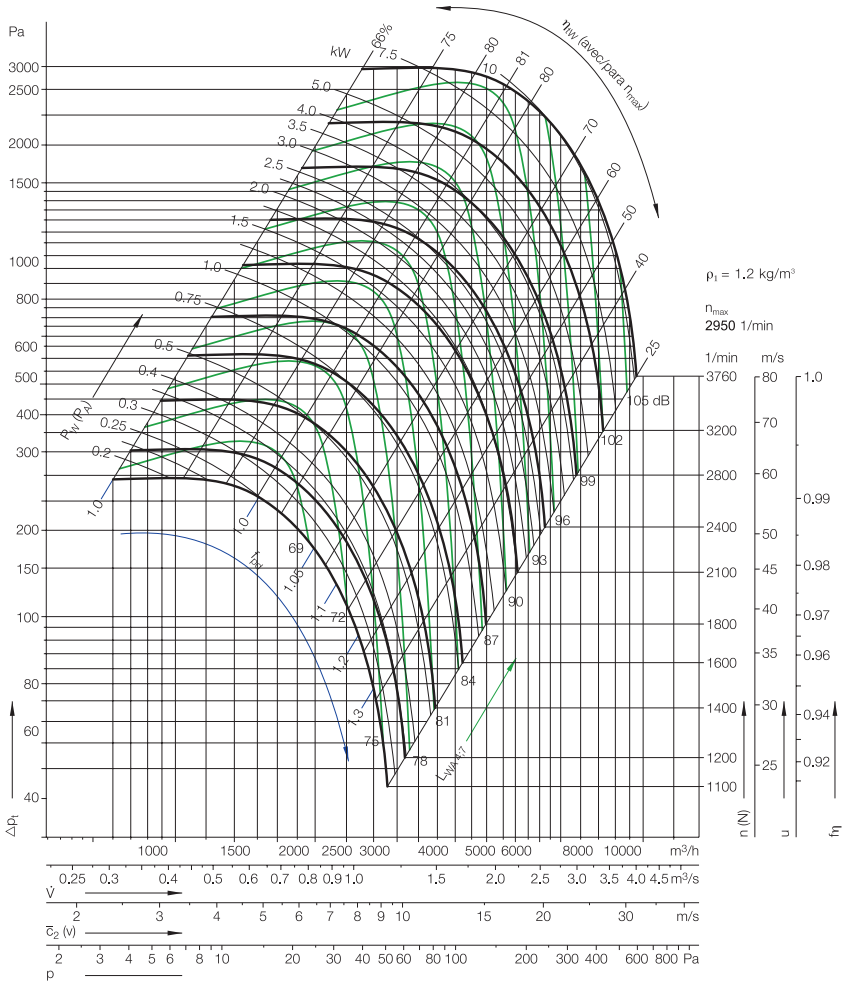




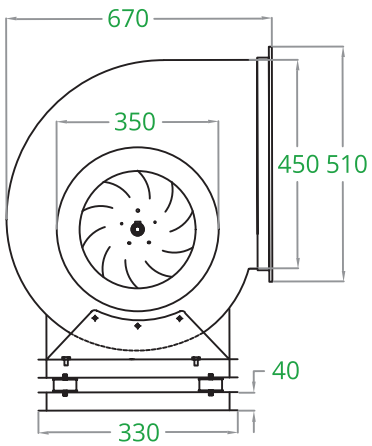
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-350-2S-D	1 ~ 220	50	2855	1.5	5480	54 or 55	74
2	LC-USB-350-4S-D	1 ~ 220	50	1410	0.55	2690	54 or 55	65
3	LC-USB-350-2T-D	3 ~ 380	50	2900	1.5	5530	54 or 55	74
4	LC-USB-350-4T-D	3 ~ 380	50	1405	0.55	2750	54 or 55	65
5	LC-USB-350-6T-D	3 ~ 380	50	910	0.37	1990	54 or 55	61

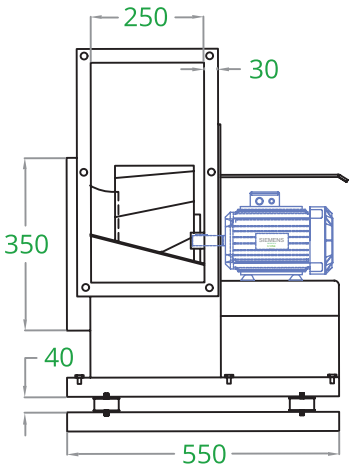
USB 400 D

فن سانتریفیوژ یوتیلیتی بکوارد



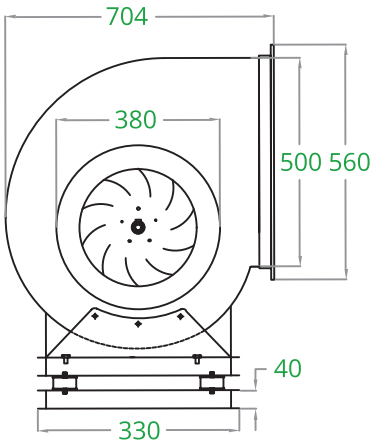
UNIT: mm
TOLERANCE: ±15

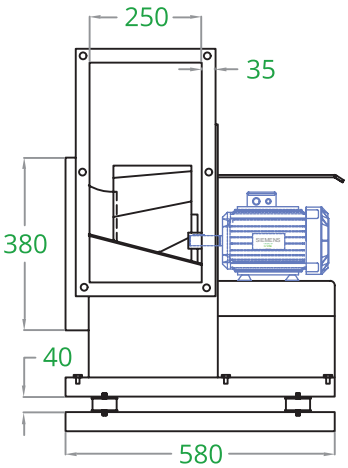


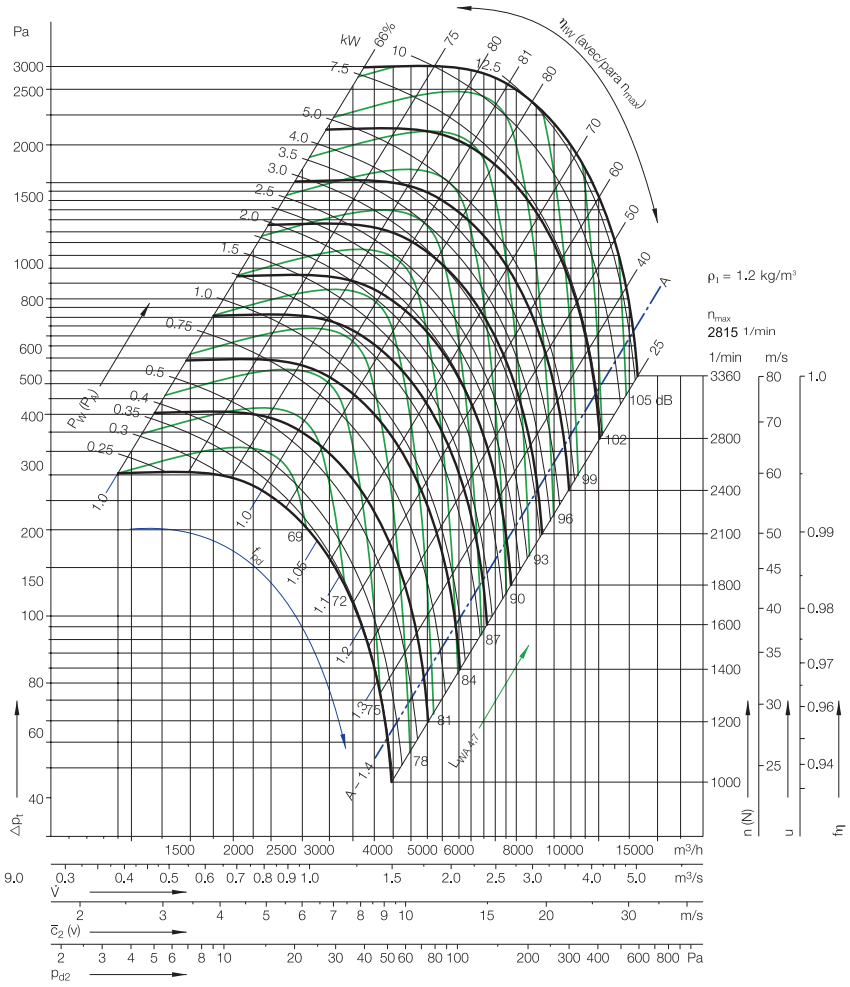


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-400-4S-D	1 ~ 220	50	1410	0.75	4350	54 or 55	70
2	LC-USB-400-2T-D	3 ~ 380	50	2815	3.0	8800	54 or 55	80
3	LC-USB-400-4T-D	3 ~ 380	50	1405	0.75	4380	54 or 55	68
4	LC-USB-400-6T-D	3 ~ 380	50	895	0.55	3120	54 or 55	63

UNIT: mm
TOLERANCE: ±15



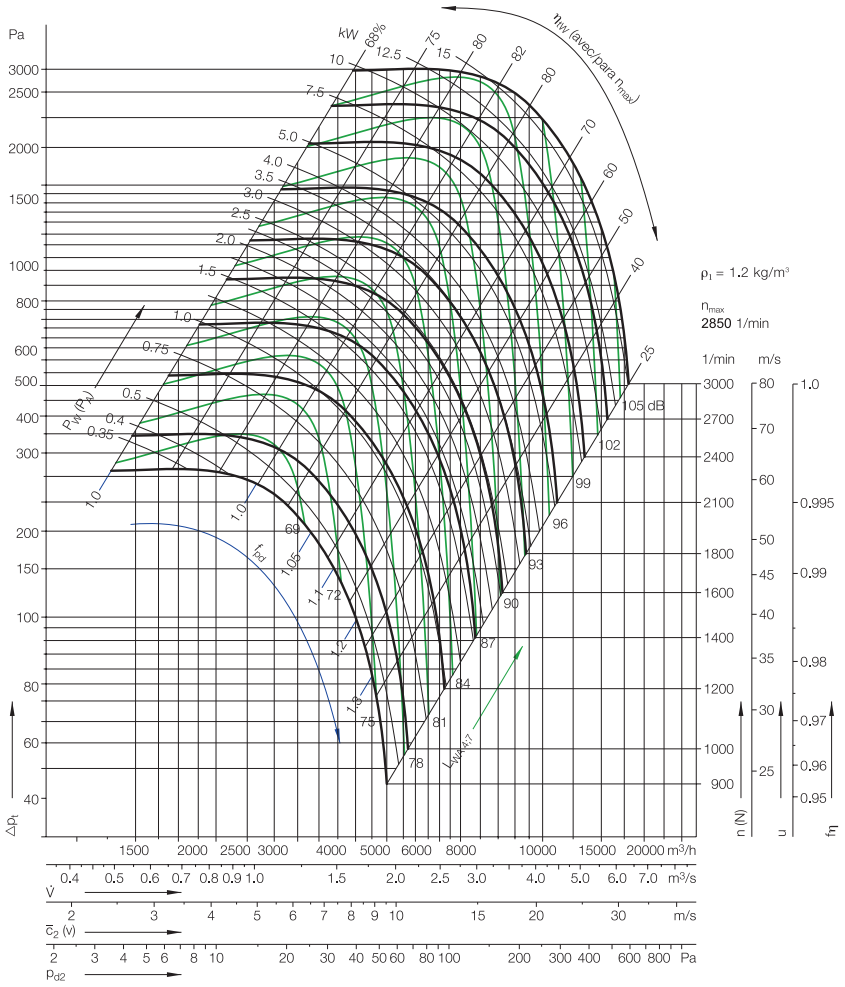




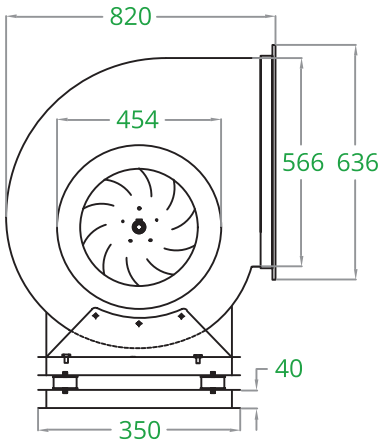
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-450-4S-D	1 ~ 220	50	1405	1.5	6250	54 or 55	72
2	LC-USB-450-2T-D	3 ~ 380	50	2815	4.0	13800	54 or 55	88
3	LC-USB-450-4T-D	3 ~ 380	50	1430	1.5	6320	54 or 55	71
4	LC-USB-450-6T-D	3 ~ 380	50	895	0.75	4680	54 or 55	68

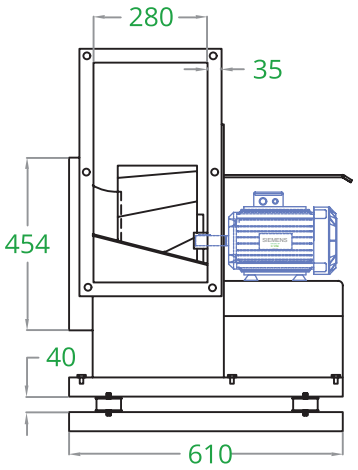
USB 500 D

فن سانتریفیوژ یوتیلیتی بکوارد



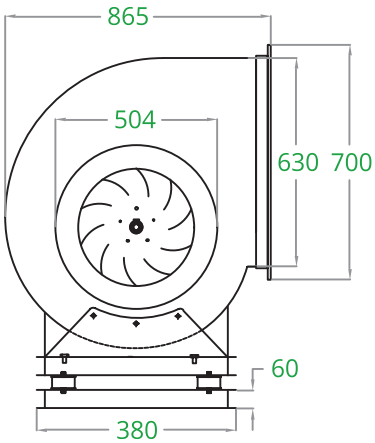
UNIT: mm
TOLERANCE: ±15

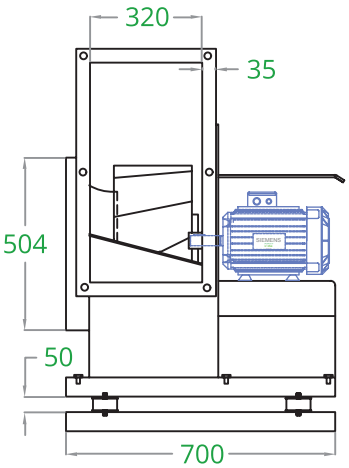


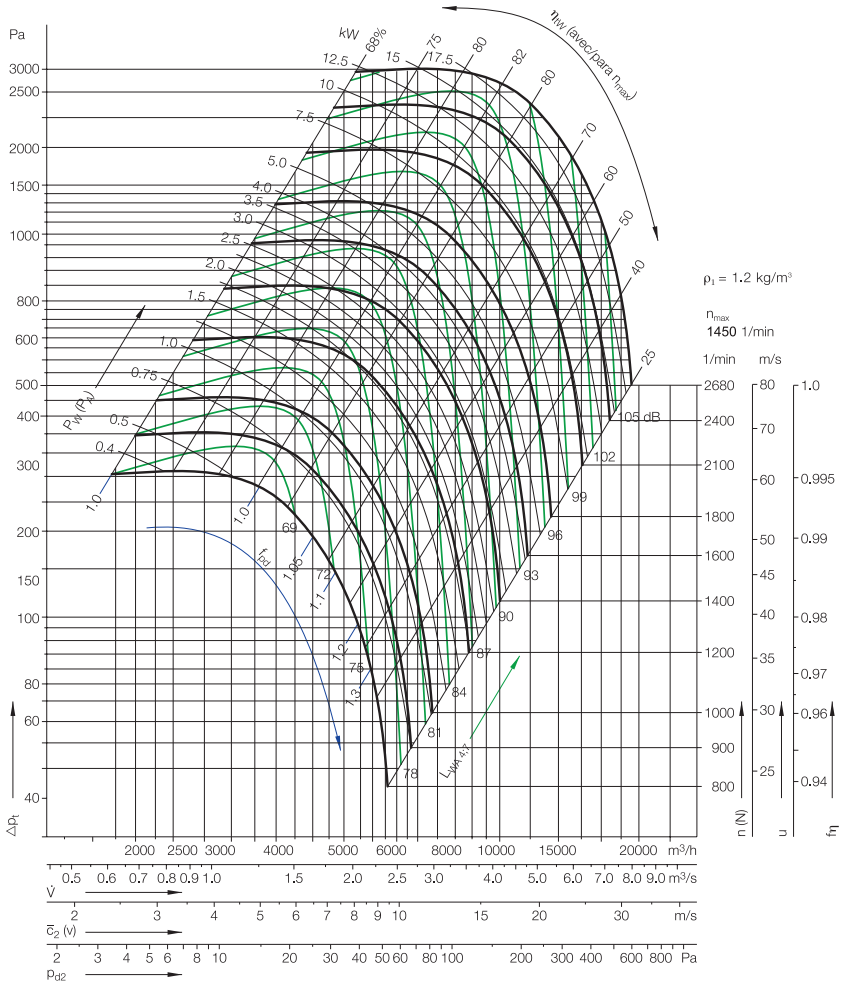


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-500-4S-D	1 ~ 220	50	1395	2.2	8140	54 or 55	78
2	LC-USB-500-2T-D	3 ~ 380	50	2850	7.5	18750	54 or 55	104
3	LC-USB-500-4T-D	3 ~ 380	50	1405	2.2	8280	54 or 55	77
4	LC-USB-500-6T-D	3 ~ 380	50	905	1.1	5850	54 or 55	72

UNIT: mm
TOLERANCE: ±15



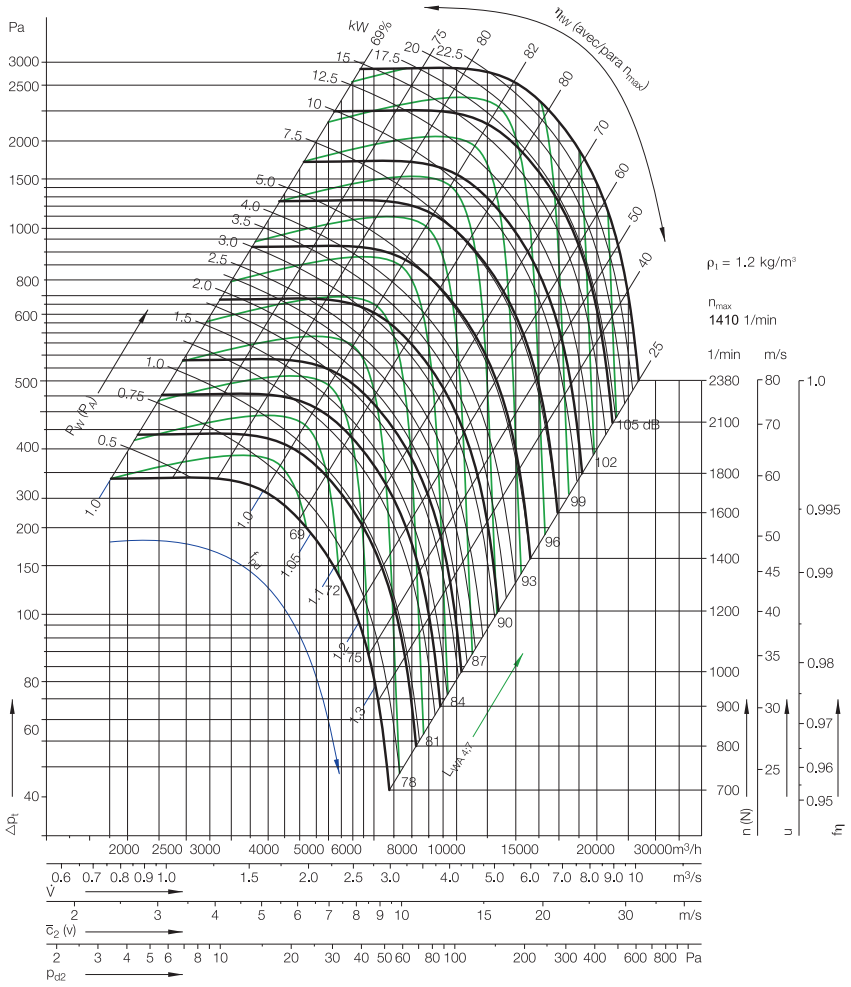




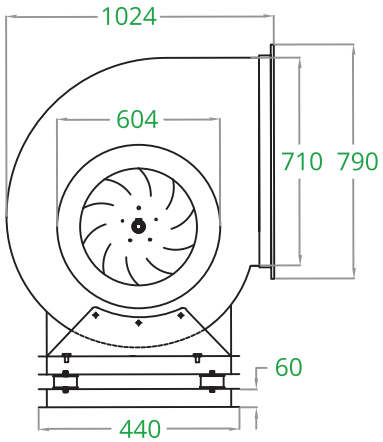
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-560-4T-D	3 ~ 380	50	1390	3.0	10750	54	80
2	LC-USB-560-6T-D	3 ~ 380	50	890	1.5	7150	54	78
3	LC-USB-560-8T-D	3 ~ 380	50	715	1.1	6060	54	74

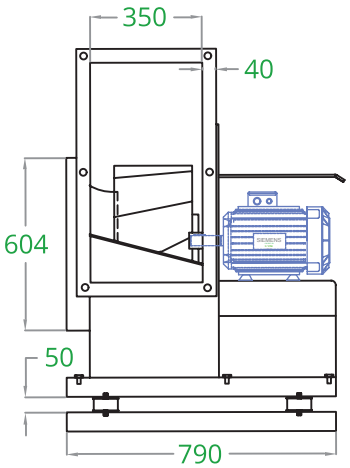
USB 630 D

فن سانتریفیوژ یوتیلیتی بکوارد



UNIT: mm
TOLERANCE: ±15

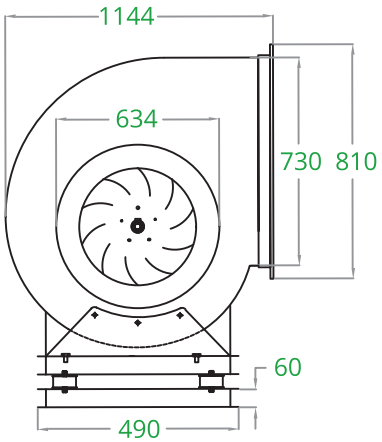


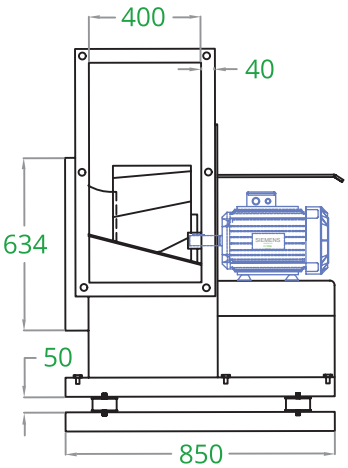


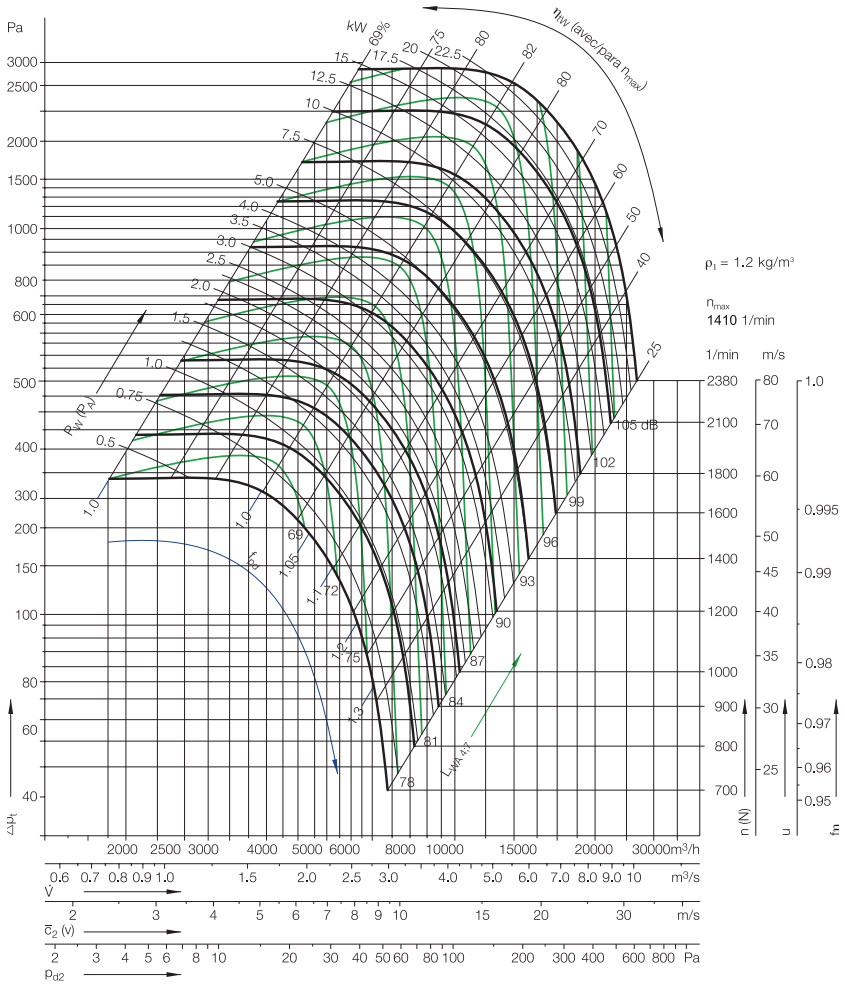
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-630-4T-D	3 ~ 380	50	1390	4.0	17150	54	95
2	LC-USB-630-6T-D	3 ~ 380	50	910	2.2	10660	54	82
3	LC-USB-630-8T-D	3 ~ 380	50	740	1.5	8450	54	78

Just used with soft starter or inverter drive

UNIT: mm
TOLERANCE: ±15





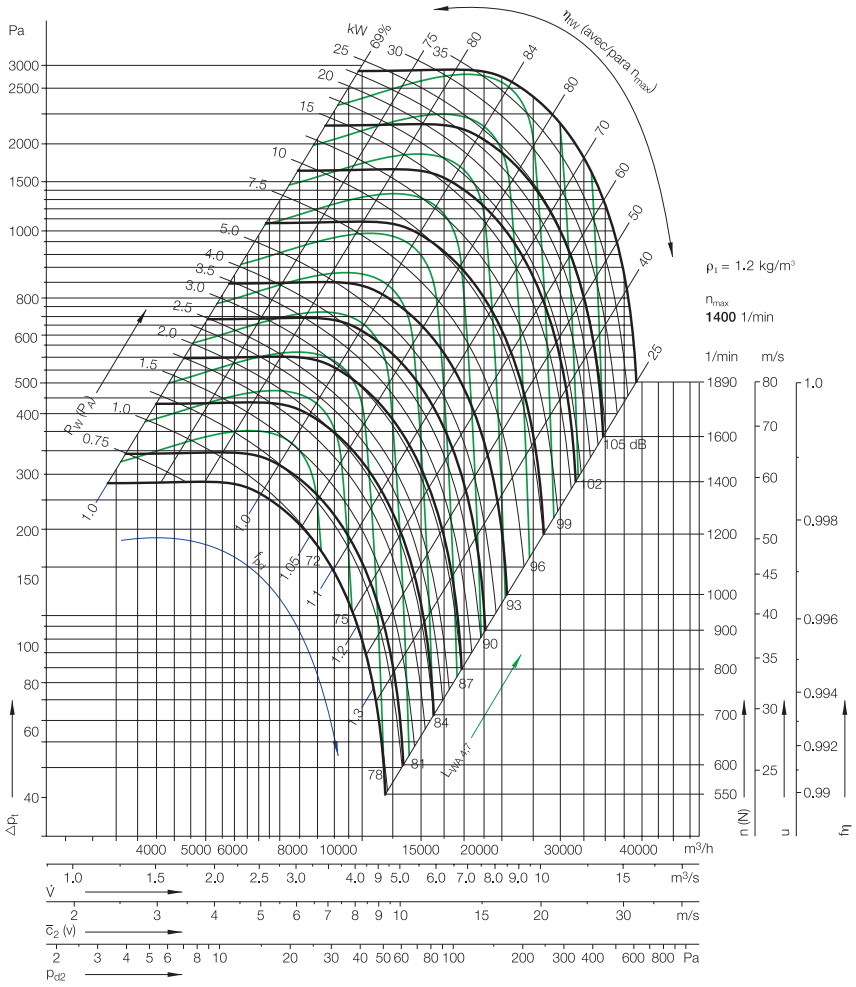


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-710-4T-D	3 ~ 380	50	1420	5.5	24580	54	95
2	LC-USB-710-6T-D	3 ~ 380	50	900	3.0	14950	54	88
3	LC-USB-710-8T-D	3 ~ 380	50	730	2.2	12850	54	82

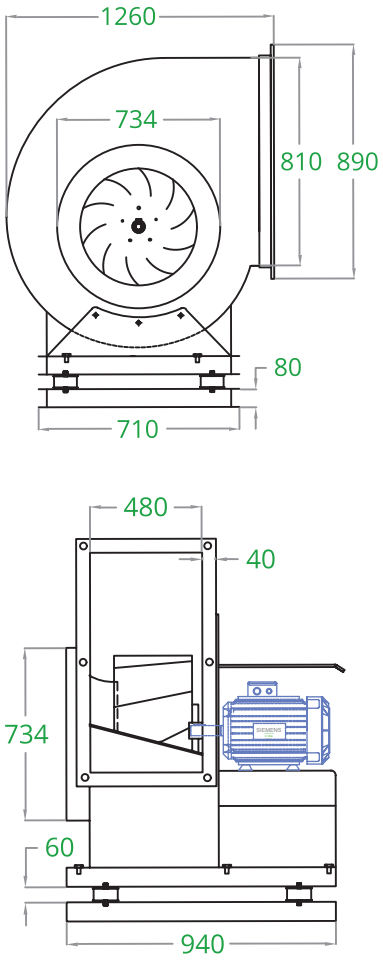
Just used with soft starter or inverter drive

USB 800 D

فن سانتریفیوژ یوتیلیتی بکوارد



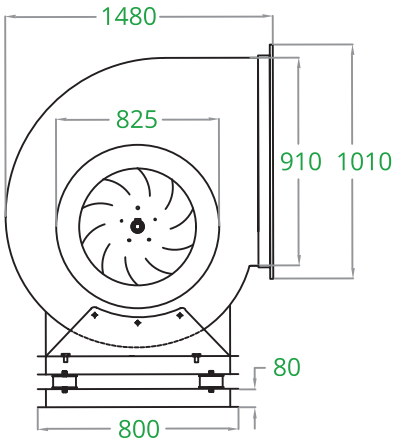
UNIT: mm
TOLERANCE: ±15

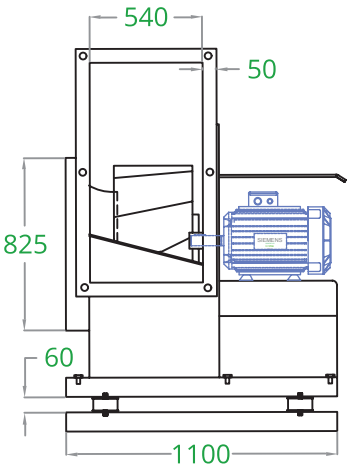


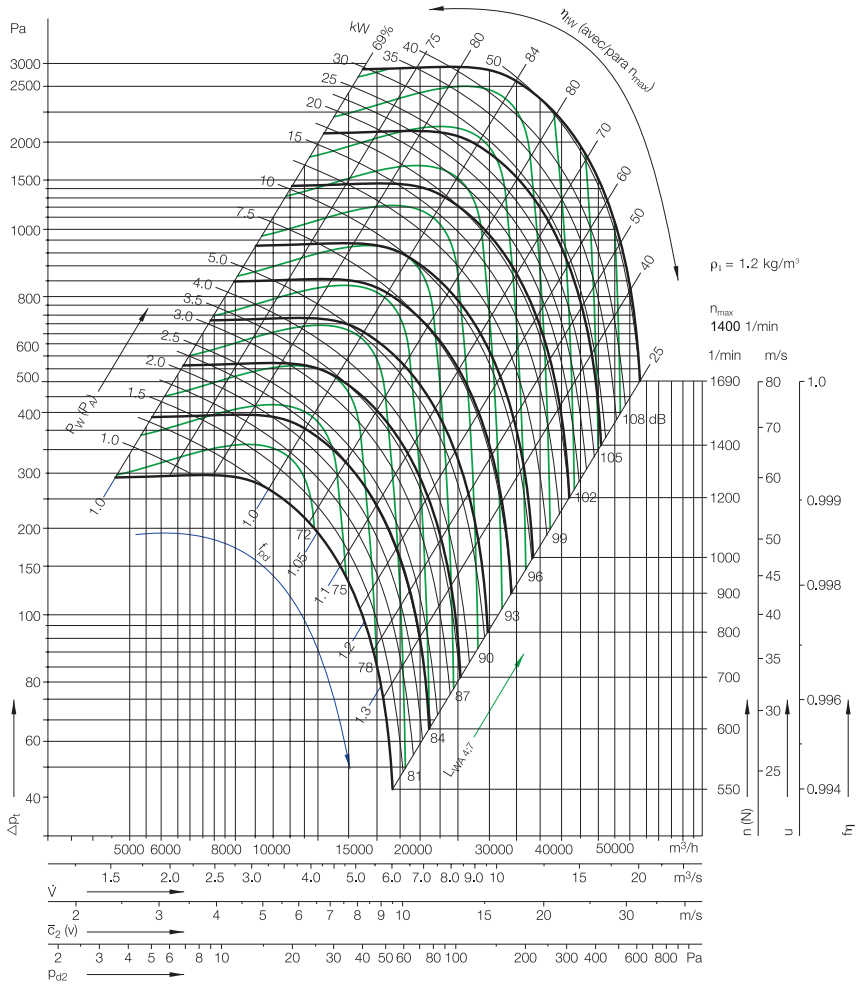
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-800-4T-D	3 ~ 380	50	1410	11.0	35400	54	102
2	LC-USB-800-6T-D	3 ~ 380	50	915	5.5	25800	54	92
3	LC-USB-800-8T-D	3 ~ 380	50	755	4.0	19780	54	88

Just used with soft starter or inverter drive

UNIT: mm
TOLERANCE: ±15







Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-USB-900-4T-D	3 ~ 380	50	1425	15.0	46770	54	108
2	LC-USB-900-6T-D	3 ~ 380	50	915	7.5	36400	54	102
3	LC-USB-900-8T-D	3 ~ 380	50	755	5.5	22240	54	88

Just used with soft starter or inverter drive

USB - B

Centrifugal Utility Backward Fan

Single Inlet / Belt drive

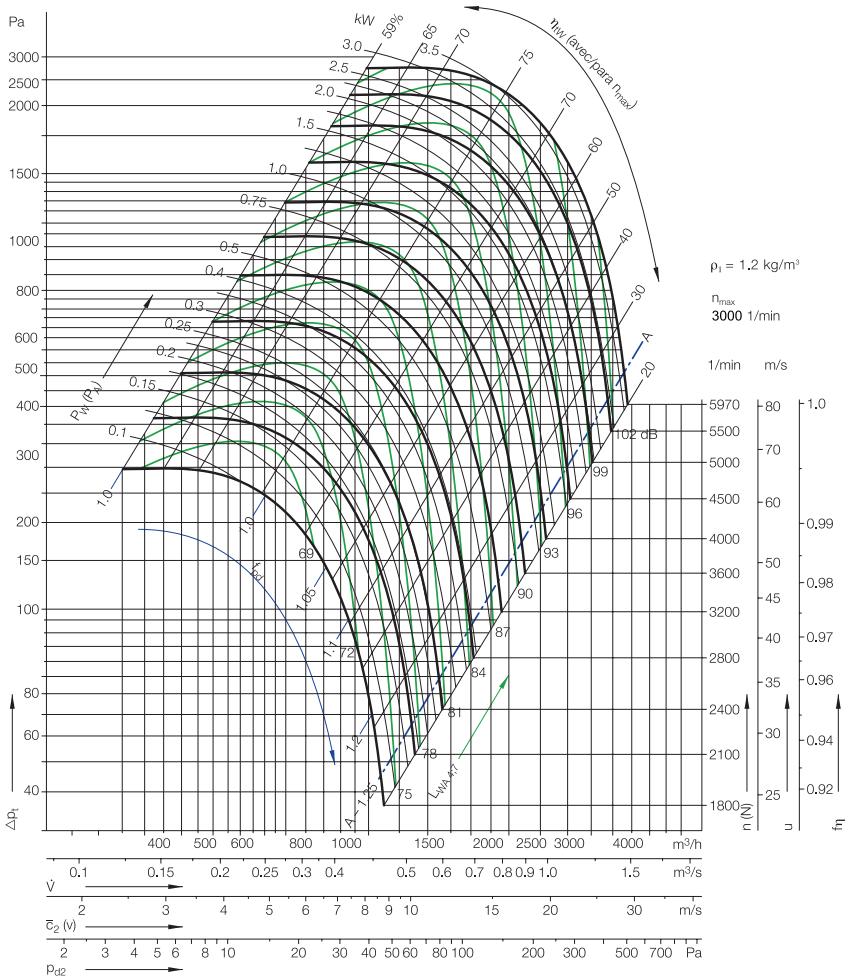
فن سانتریفیوژ یوتیلیتی بکوارد

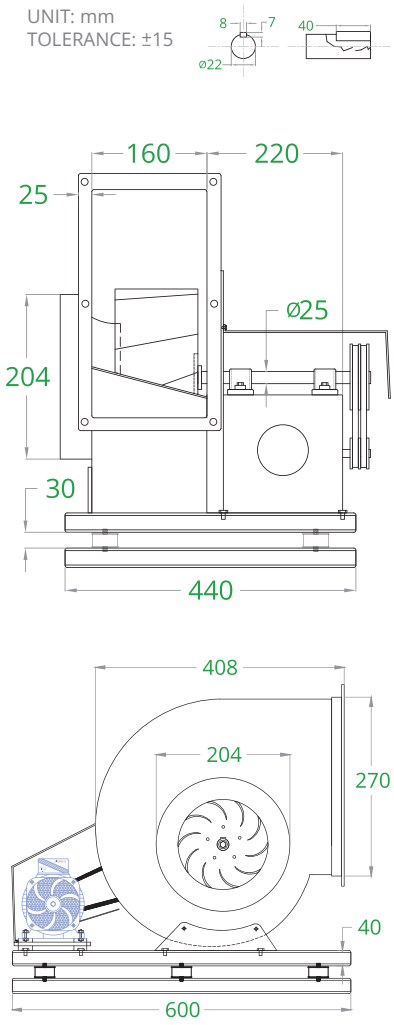
ورودی یک طرفه با انتقال قدرت پولی و تسمه

li-cha
HVAC & VENTILATION SYSTEM

USB 250 B

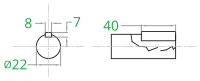
فن سانتریفیوژ یوتیلیتی بکوارد

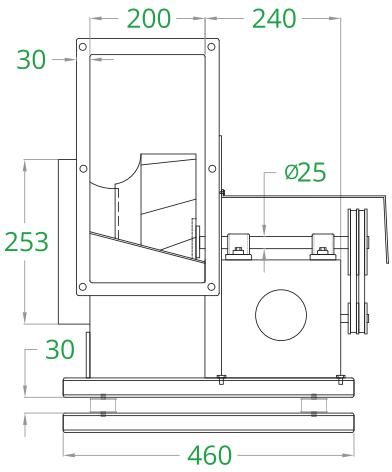


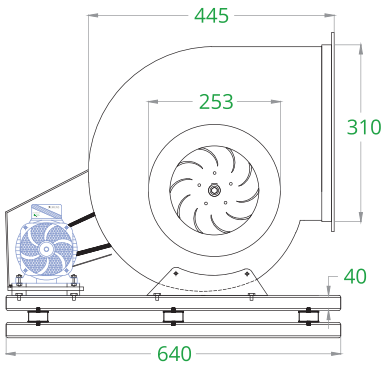


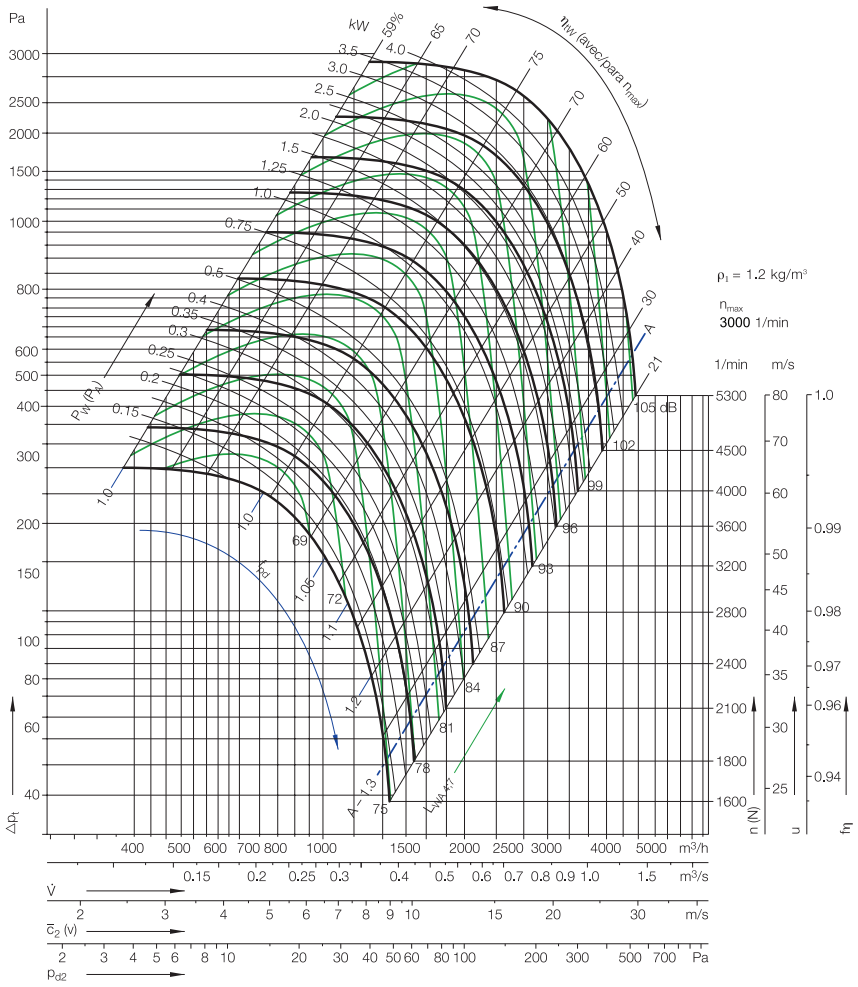
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-250-4S-B	1 ~ 220	50	750~1400	0.18~0.25	320~1100	50~220	54	60 in max rpm
2	LC-USB-250-4T-B	3 ~ 380	50	750~1400	0.18~0.25	330~1100	50~220	54 or 55	60 in max rpm

UNIT: mm
TOLERANCE: ±15





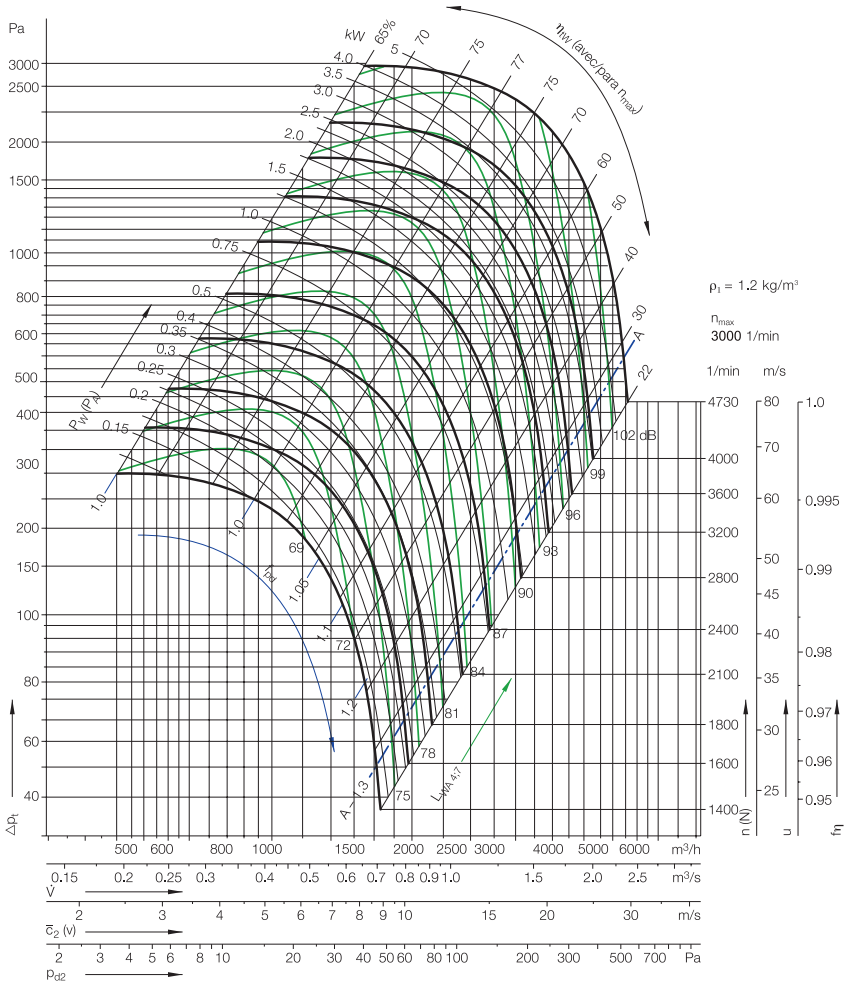


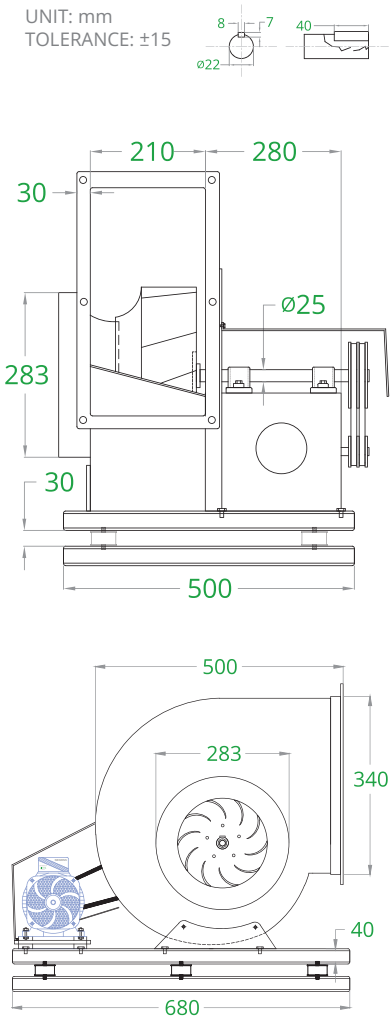


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-280-4S-B	1 ~ 220	50	740~1400	0.25	480~1380	55~230	54	61 in max rpm
2	LC-USB-280-4T-B	3 ~ 380	50	740~1420	0.25	480~1410	55~230	54 or 55	60 in max rpm

USB 315 B

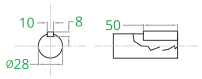
فن سانتریفیوژ یوتیلیتی بکوارد

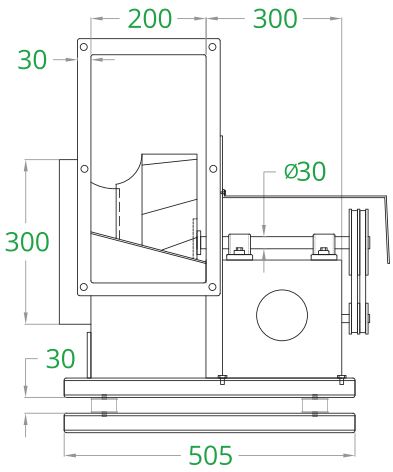


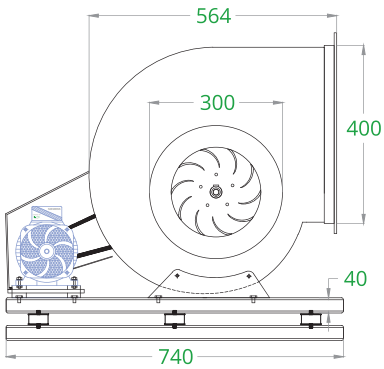


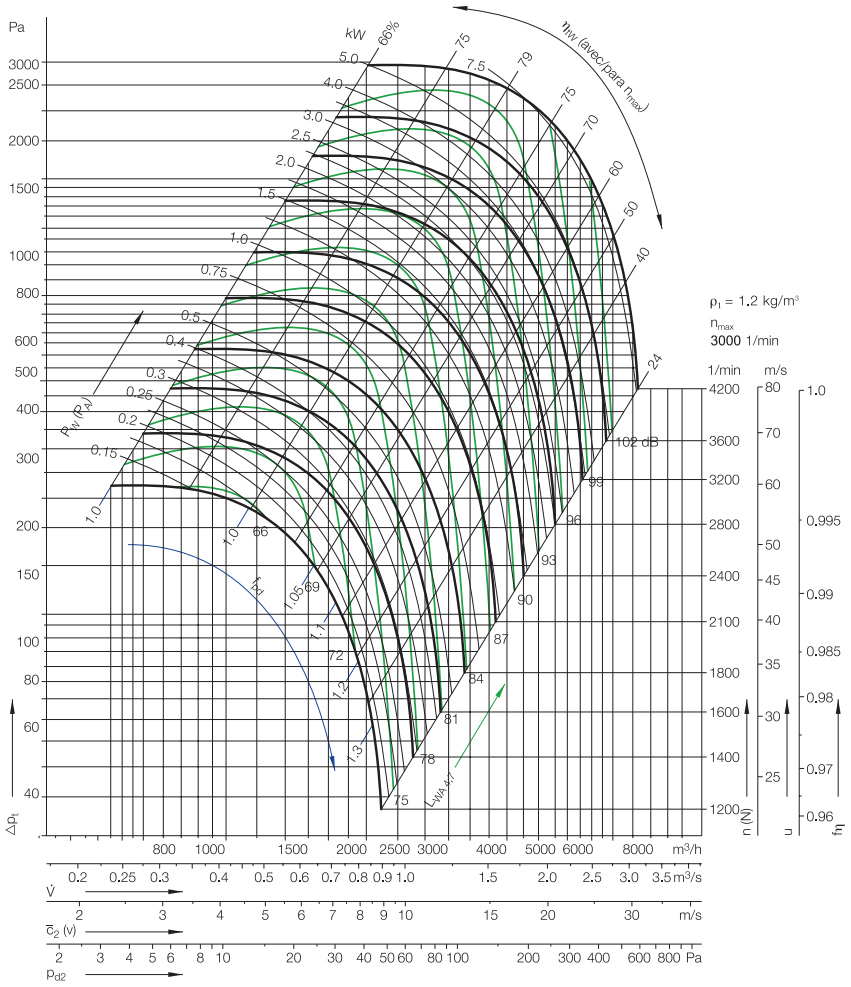
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-315-4S-B	1 ~ 220	50	720~1100	0.37~0.55	780~1800	60~250	54	63 in max rpm
2	LC-USB-315-4T-B	3 ~ 380	50	720~1320	0.37~0.55	790~1880	60~250	54 or 55	62 in max rpm

UNIT: mm
TOLERANCE: ±15





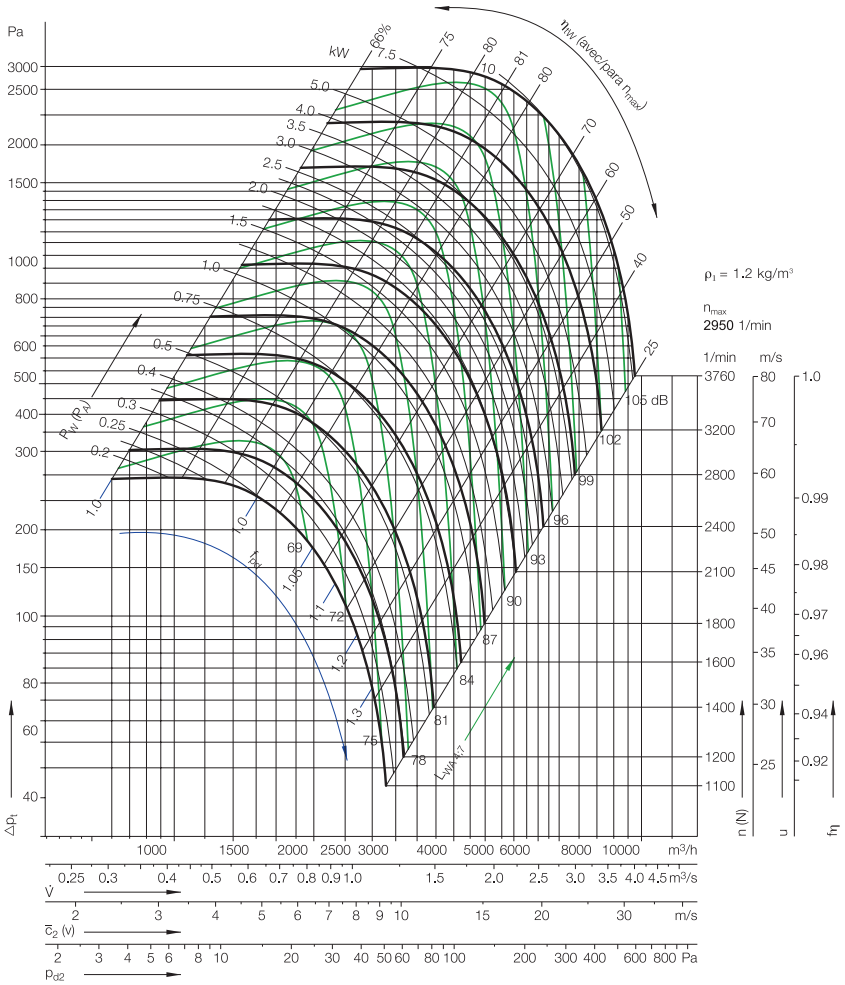


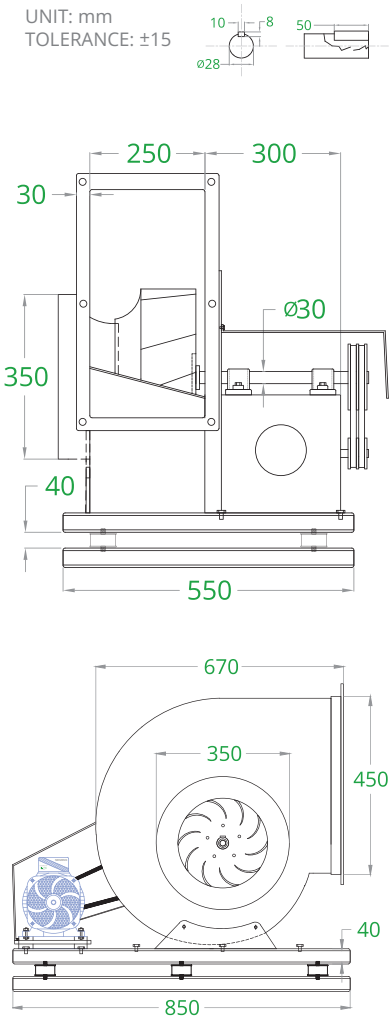


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-350-4S-B	1 ~ 220	50	700~1390	0.55~0.75	980~2550	70~250	54	64 in max rpm
2	LC-USB-350-4T-B	3 ~ 380	50	700~1410	0.55~0.75	990~2590	70~250	54 or 55	63 in max rpm

USB 400 B

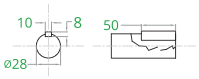
فن سانتریفیوژ یوتیلیتی بکوارد

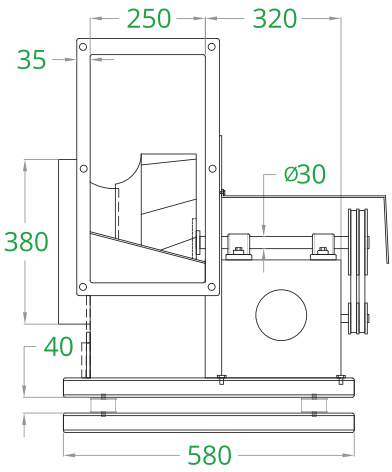


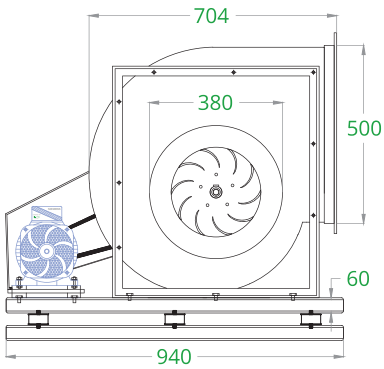


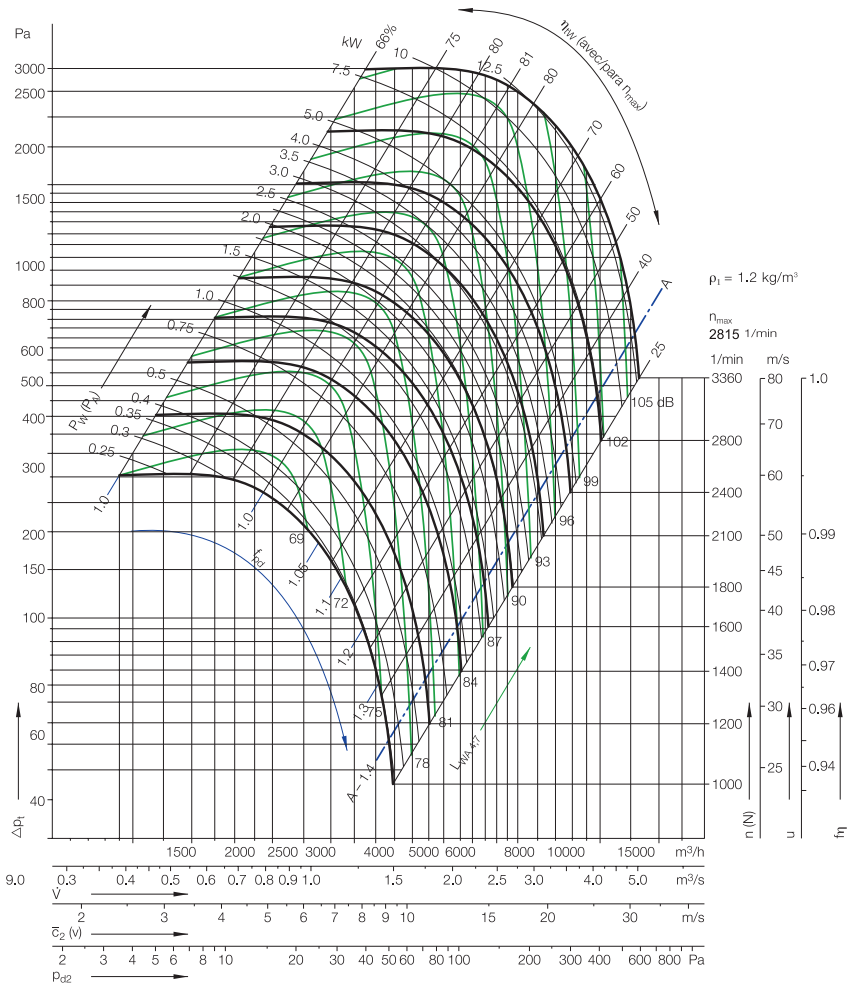
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-400-4S-B	1 ~ 220	50	660~1400	0.75~1.5	1600~4300	80~340	54	67 in max rpm
2	LC-USB-400-4T-B	3 ~ 380	50	660~1400	0.75~1.5	1680~4350	80~340	54 or 55	65 in max rpm

UNIT: mm
TOLERANCE: ±15







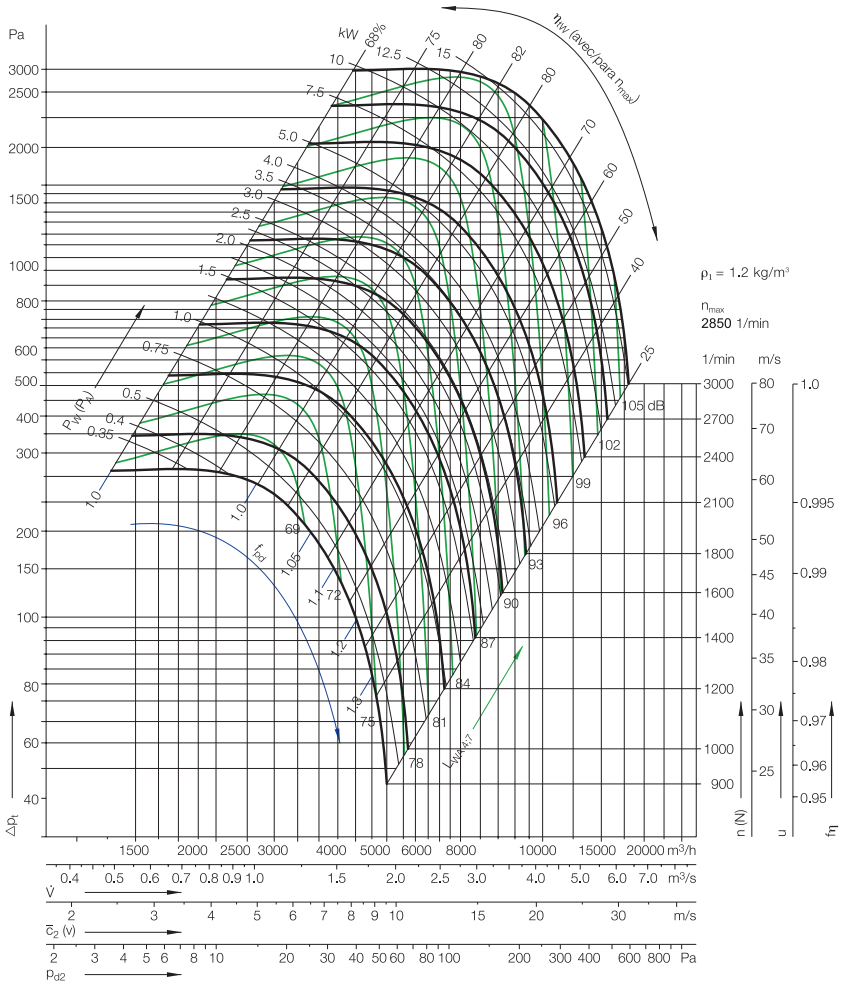


Technical data		Nominal voltage	Frequency	Speed	Motor Pow-er input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-450-4S-B	1 ~ 220	50	650~1250	1.1~1.5	1750~6080	90~320	54	69 in max rpm
2	LC-USB-450-4T-B	3 ~ 380	50	650~1250	1.1~1.5	1750~6150	90~330	54 or 55	68 in max rpm

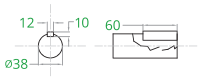
li-cha
HVAC & VENTILATION SYSTEM

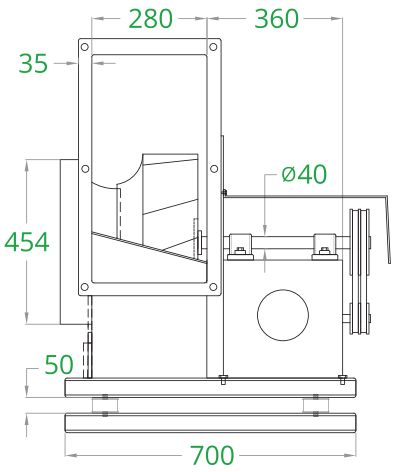
USB 500 B

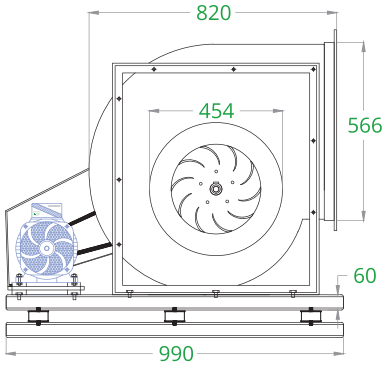
فن سانتریفیوژ یوتیلیتی بکوارد



UNIT: mm
TOLERANCE: ±15

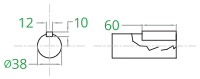


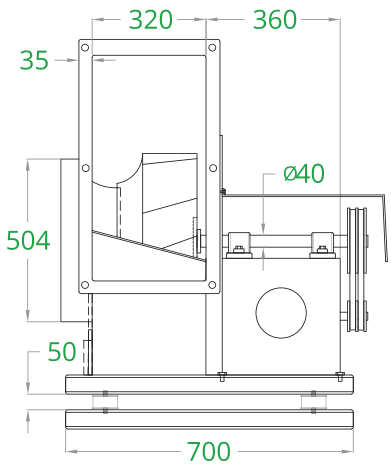


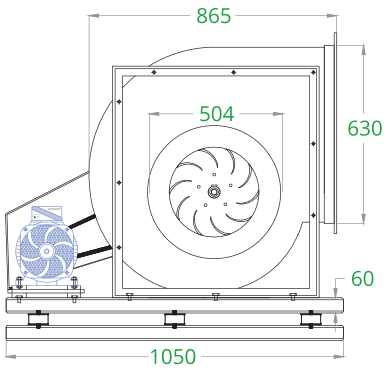


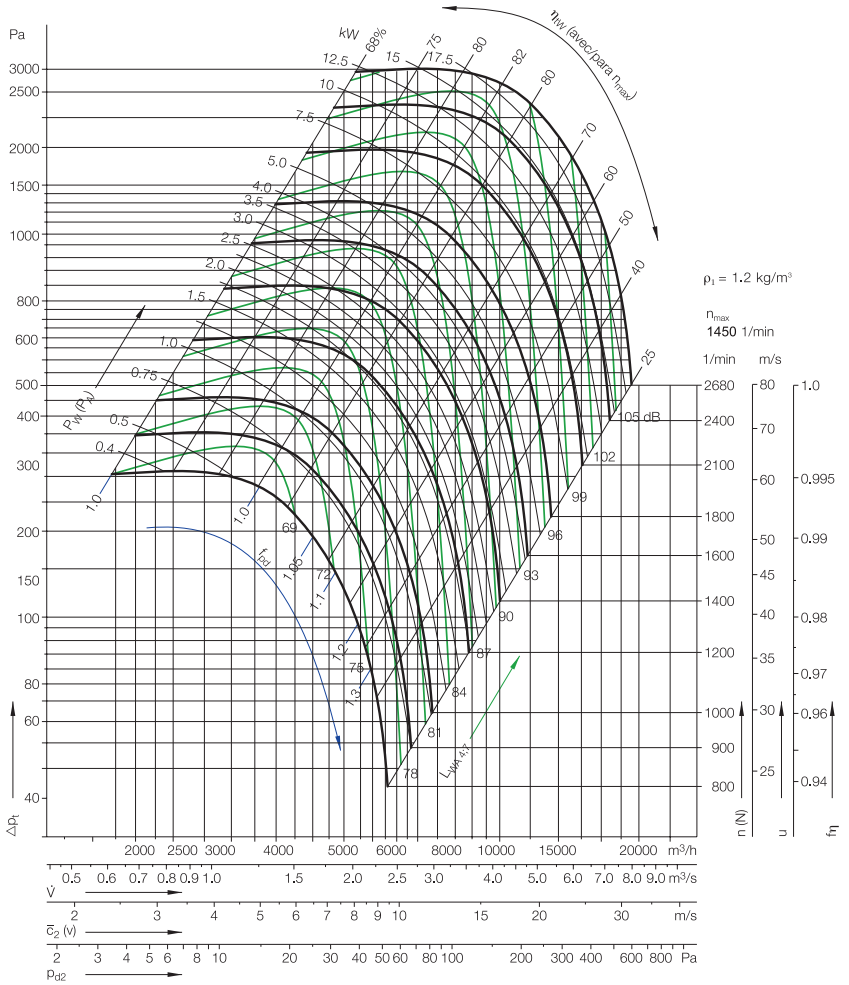
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-500-4S-B	1 ~ 220	50	640~1180	1.5~2.2	2000~7780	100~340	54	72 in max rpm
2	LC-USB-500-4T-B	3 ~ 380	50	640~1180	1.5~2.2	2000~7980	100~350	54 or 55	71 in max rpm

UNIT: mm
TOLERANCE: ±15





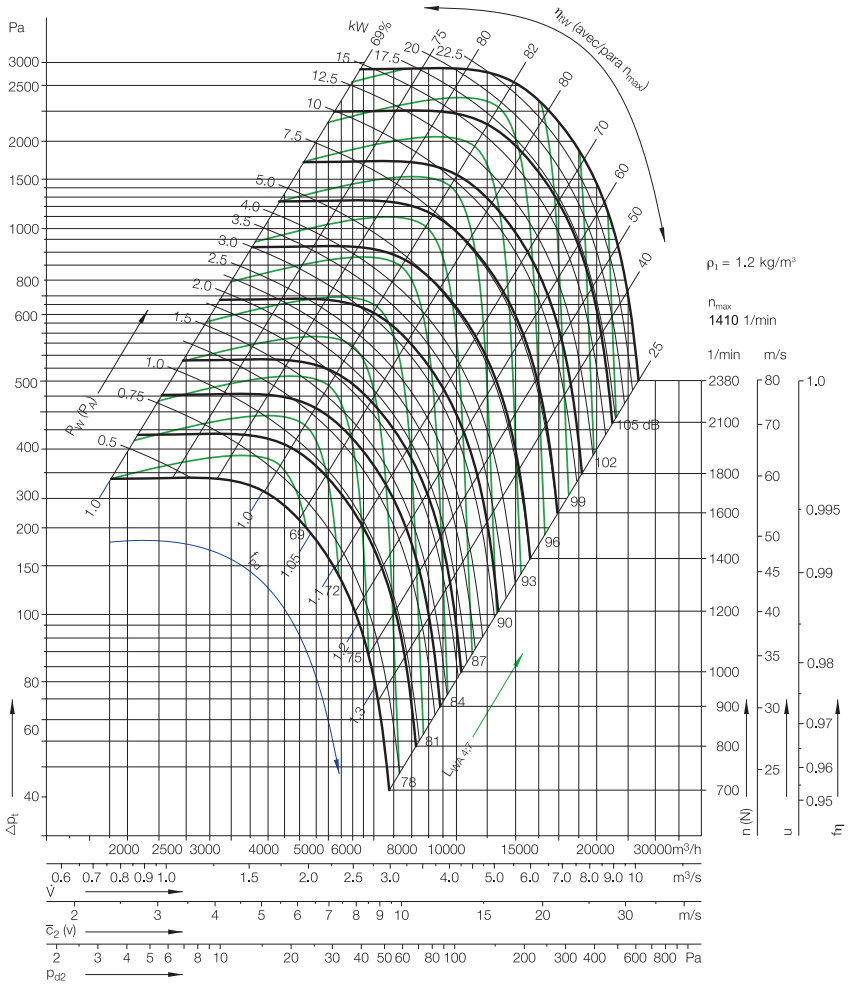


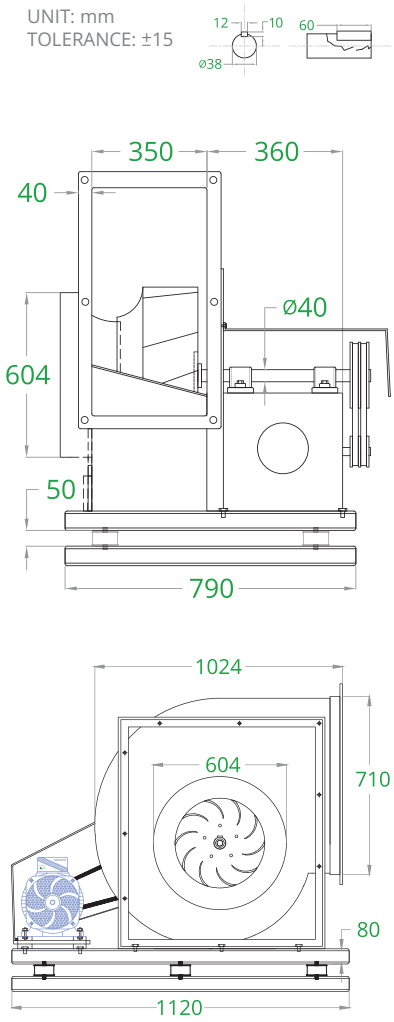


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-560-4T-B	3 ~ 380	50	605~1010	2.2~3.0	3200~9350	150~450	54 or 55	77 in max rpm

USB 630 B

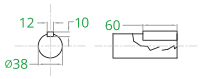
فن سانتریفیوژ یوتیلیتی بکوارد

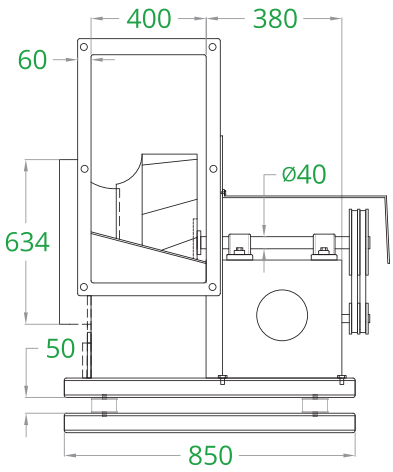


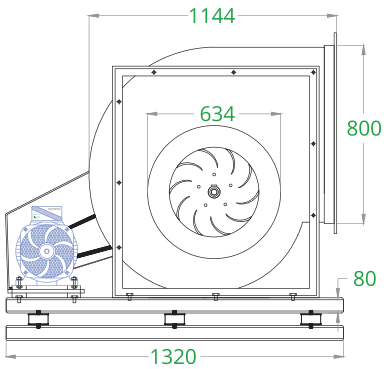


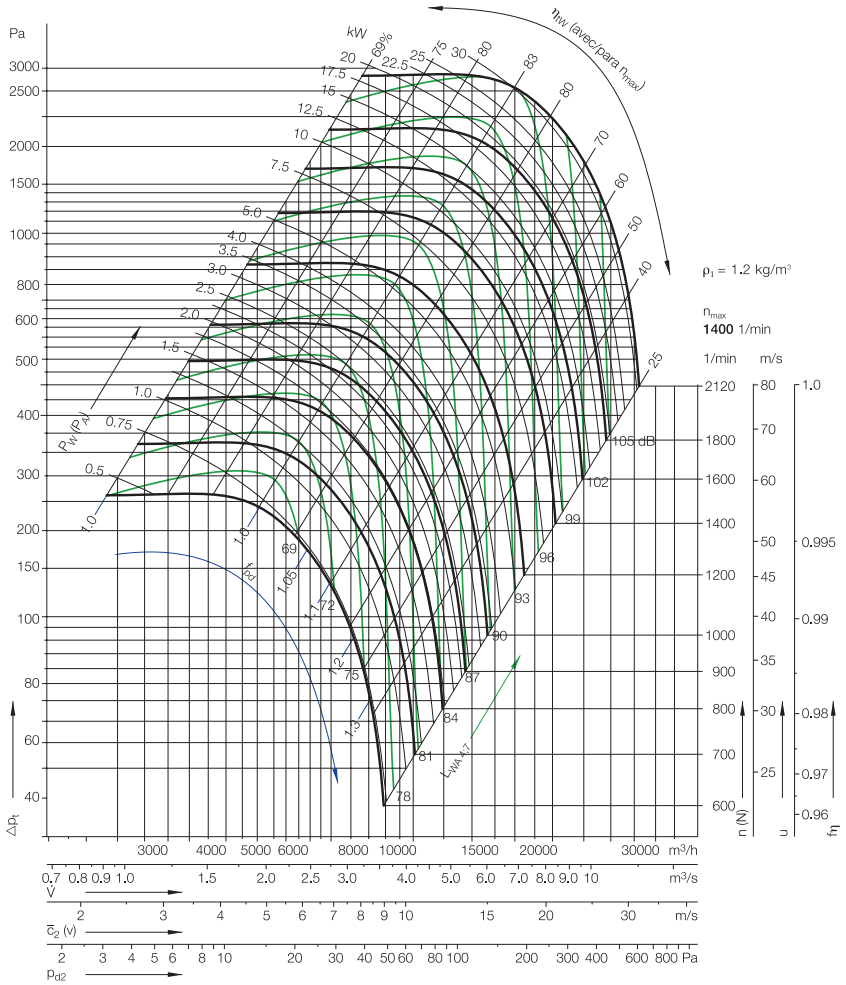
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-630-4T-B	3 ~ 380	50	520~930	2.2~3.0	5200~14780	160~480	54 or 55	79 in max rpm

UNIT: mm
TOLERANCE: ±15





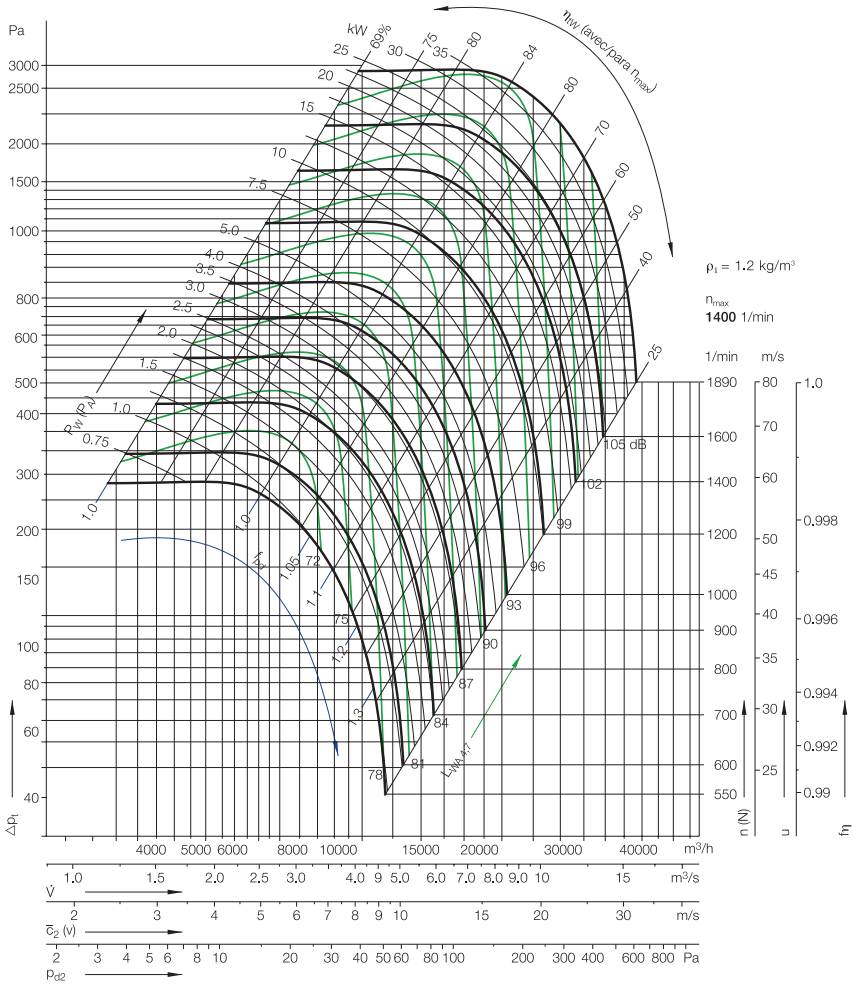




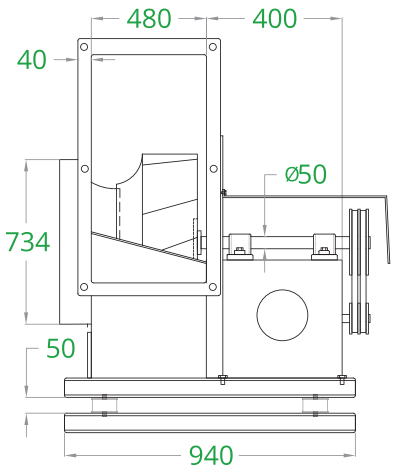
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-710-4T-B	3 ~ 380	50	410~900	2.2~4.0	6900~14940	170~500	54 or 55	88 in max rpm

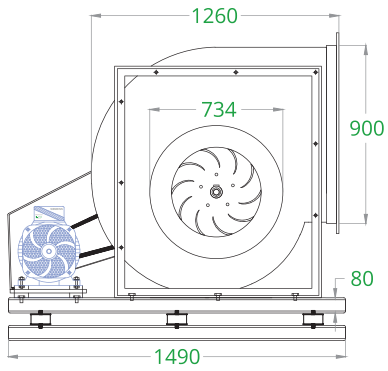
USB 800 B

فن سانتریفیوژ یوتیلیتی بکوارد



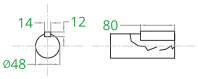


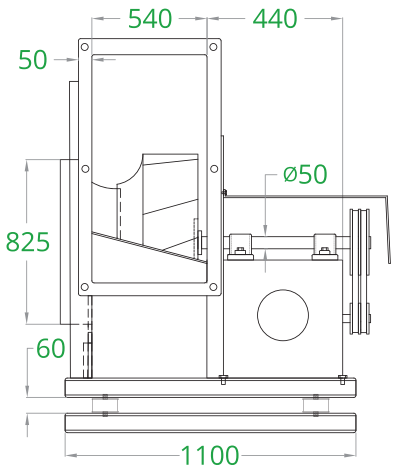


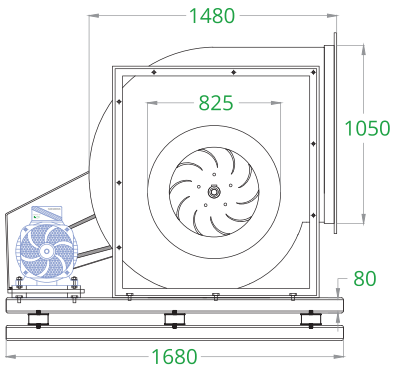


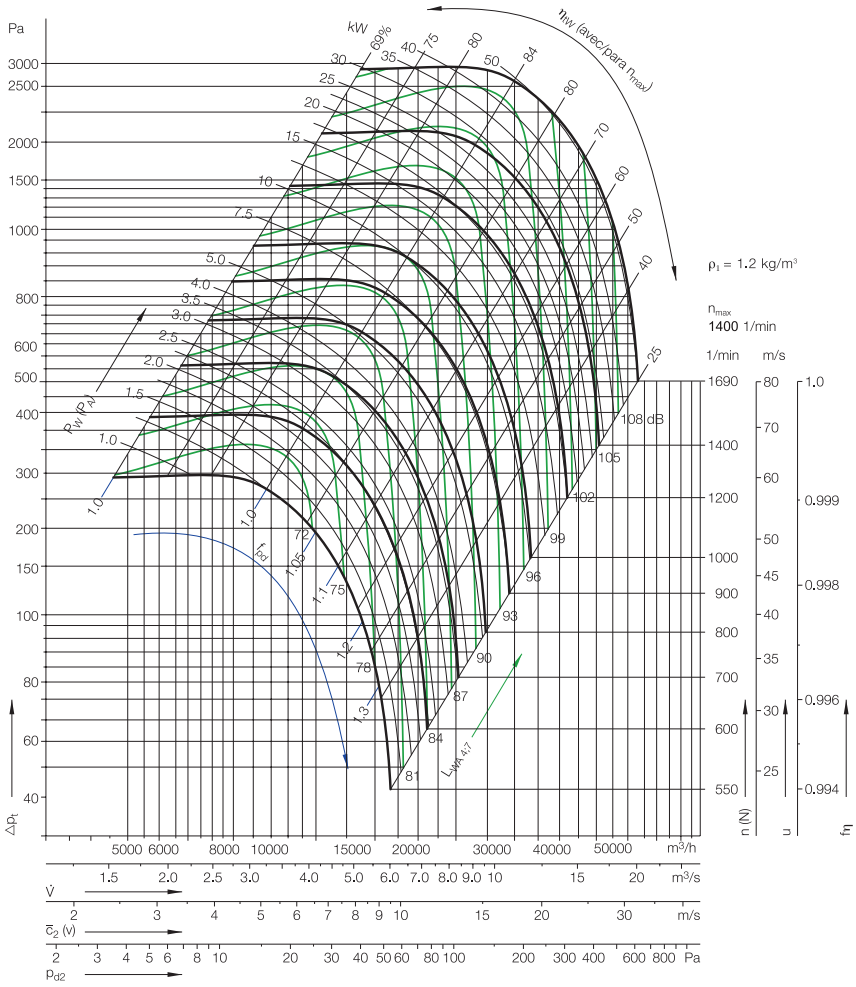
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-800-4T-B	3 ~ 380	50	400~815	4.0~5.5	9800~24750	200~550	54 or 55	90 in max rpm

UNIT: mm
TOLERANCE: ±15







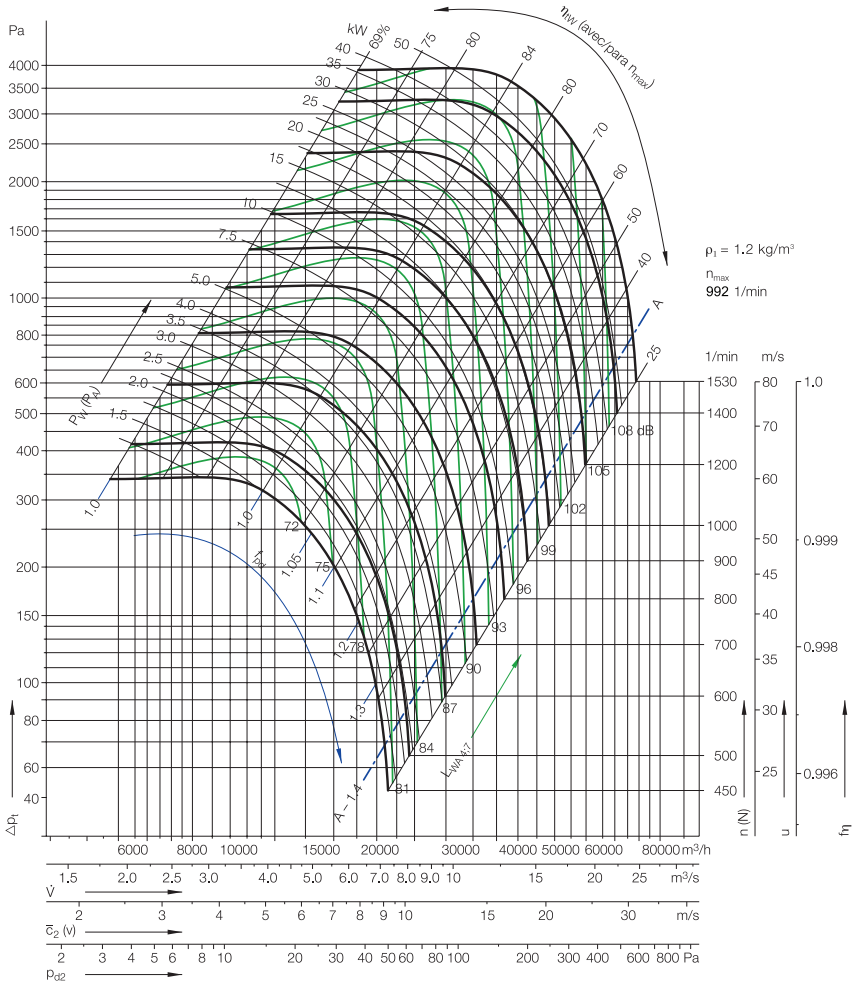


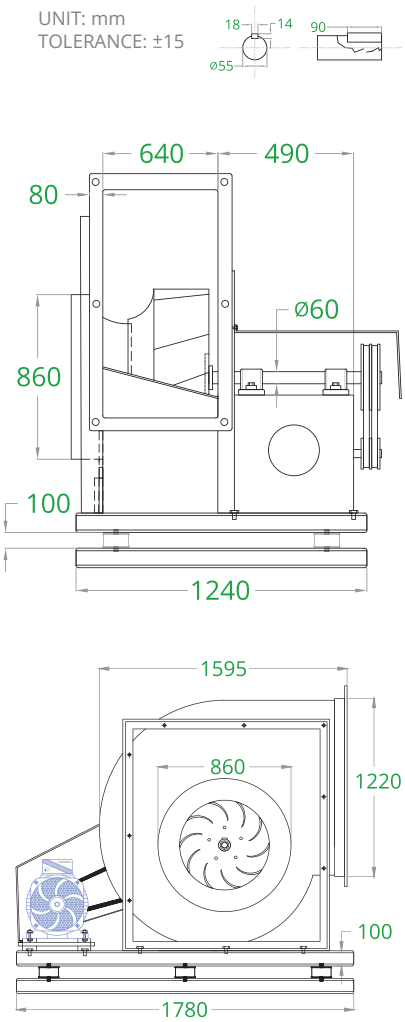
Technical data		Nominal voltage	Frequency	Speed	Motor Pow-er input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-900-4T-B	3 ~ 380	50	370~690	5.5~7.5	13500~21500	230~600	54 or 55	84 in max rpm

li-cha
HVAC & VENTILATION SYSTEM

USB 1000 B

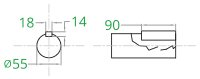
فن سانتریفیوژ یوتیلیتی بکوارد

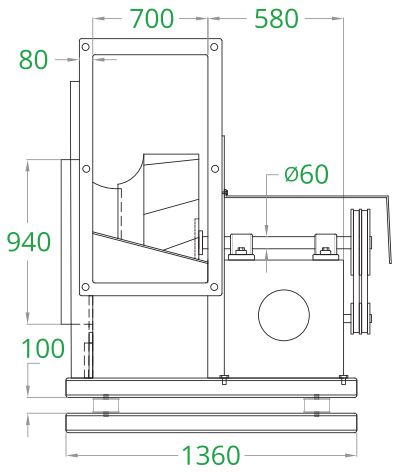


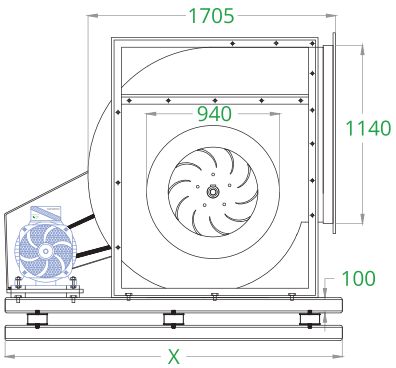


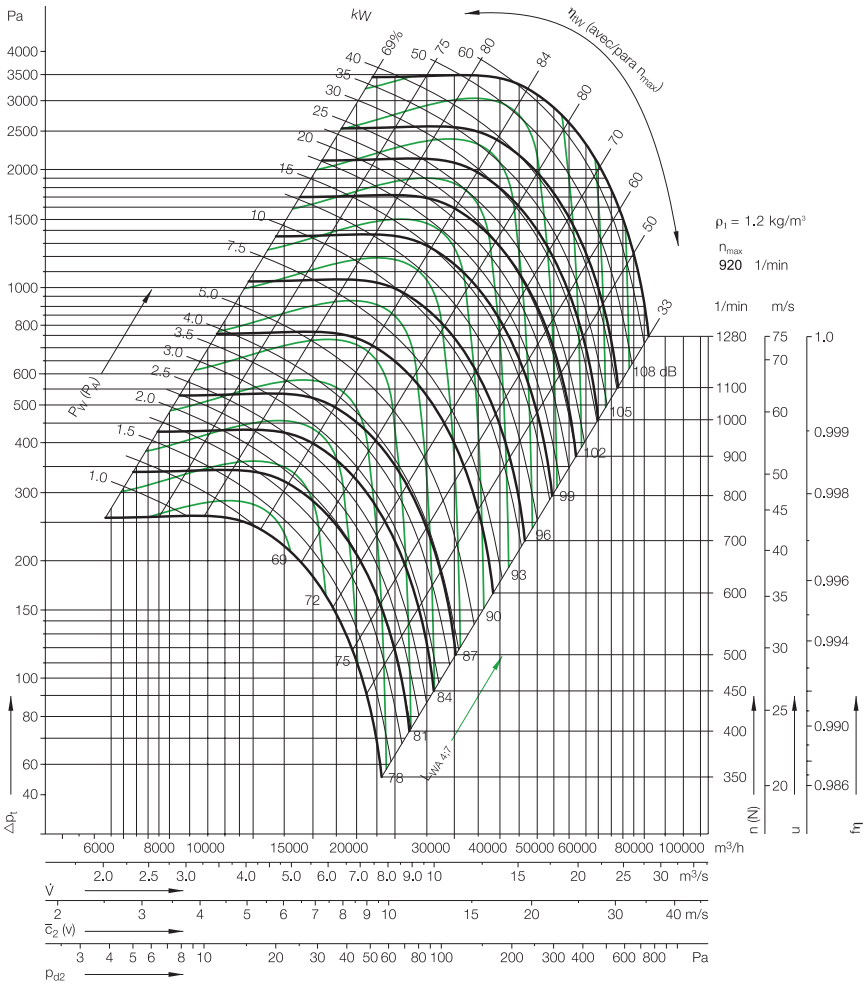
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-1000-4T-B	3 ~ 380	50	365~655	7.5~15.0	14800~36000	300~640	54 or 55	99 in max rpm

UNIT: mm
TOLERANCE: ±15





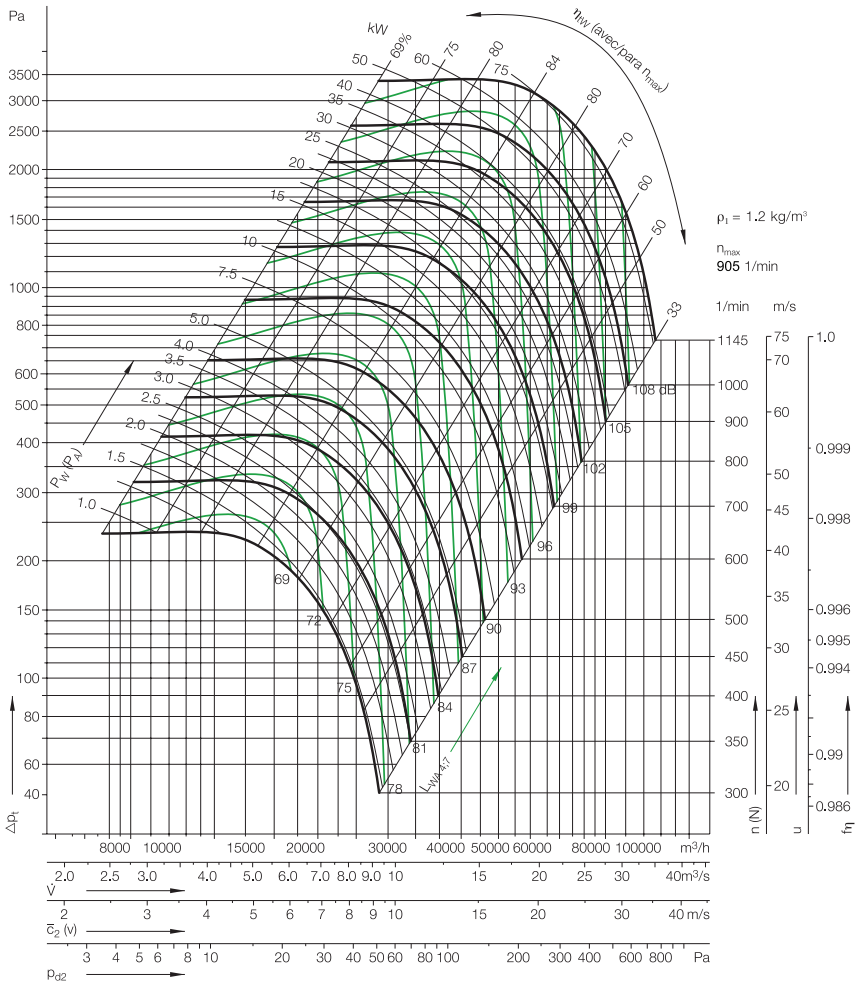


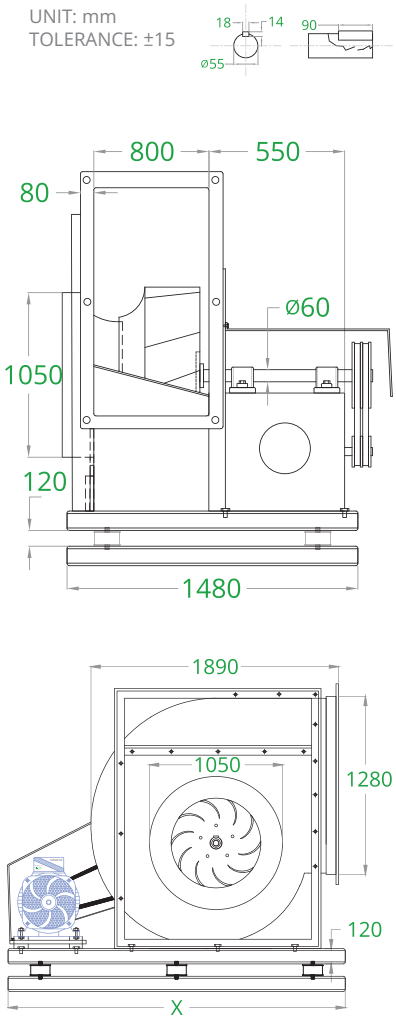


Technical data		Nominal voltage	Frequency	Speed	Motor Pow-er input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-1120-4T-B	3 ~ 380	50	310~618	11~18.5	19000~44000	320~655	54 or 55	101 in max rpm

USB 1250 B

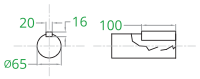
فن سانتریفیوژ یوتیلیتی بکوارد

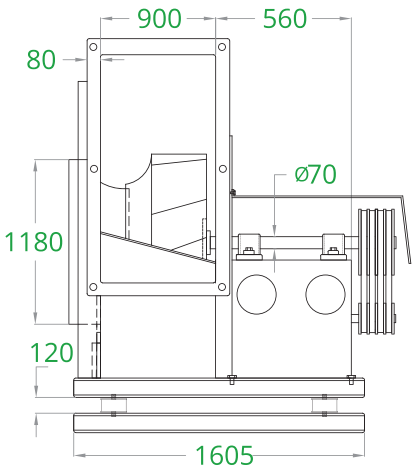


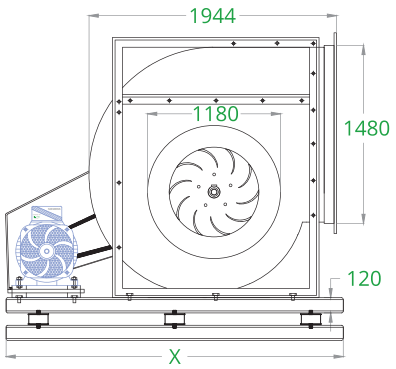


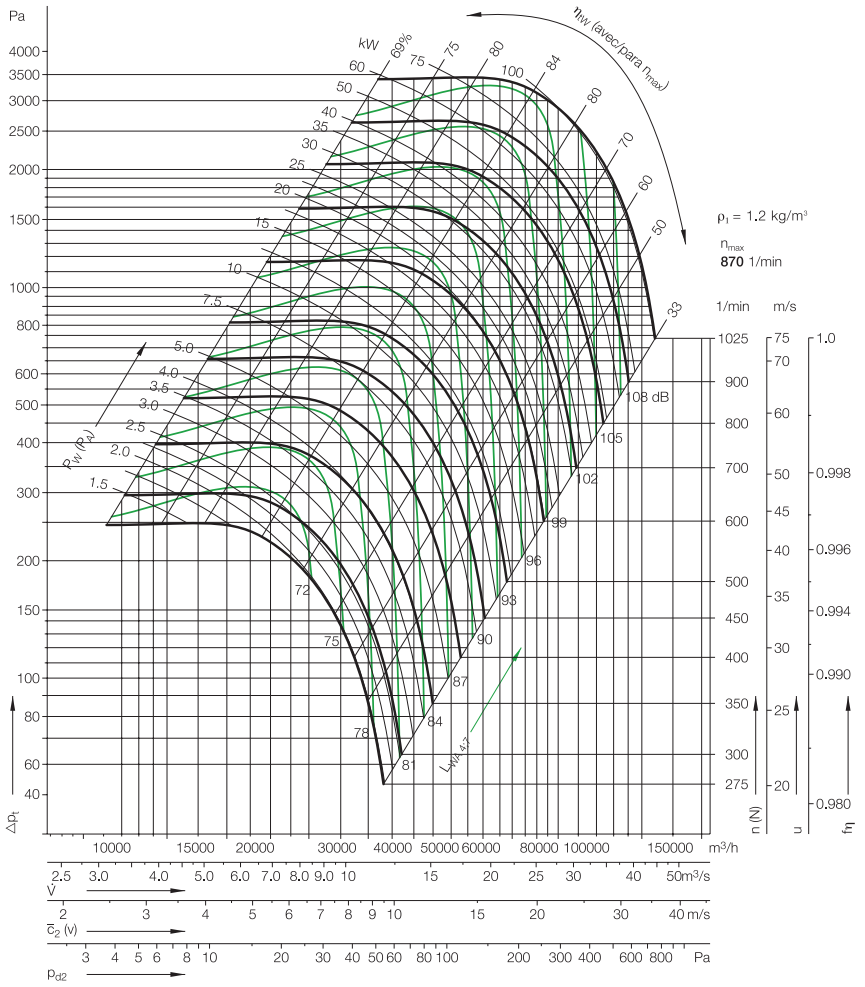
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-1250-4T-B	3 ~ 380	50	290~590	15.0~22	24000~57500	350~670	54 or 55	108 in max rpm

UNIT: mm
TOLERANCE: ±15





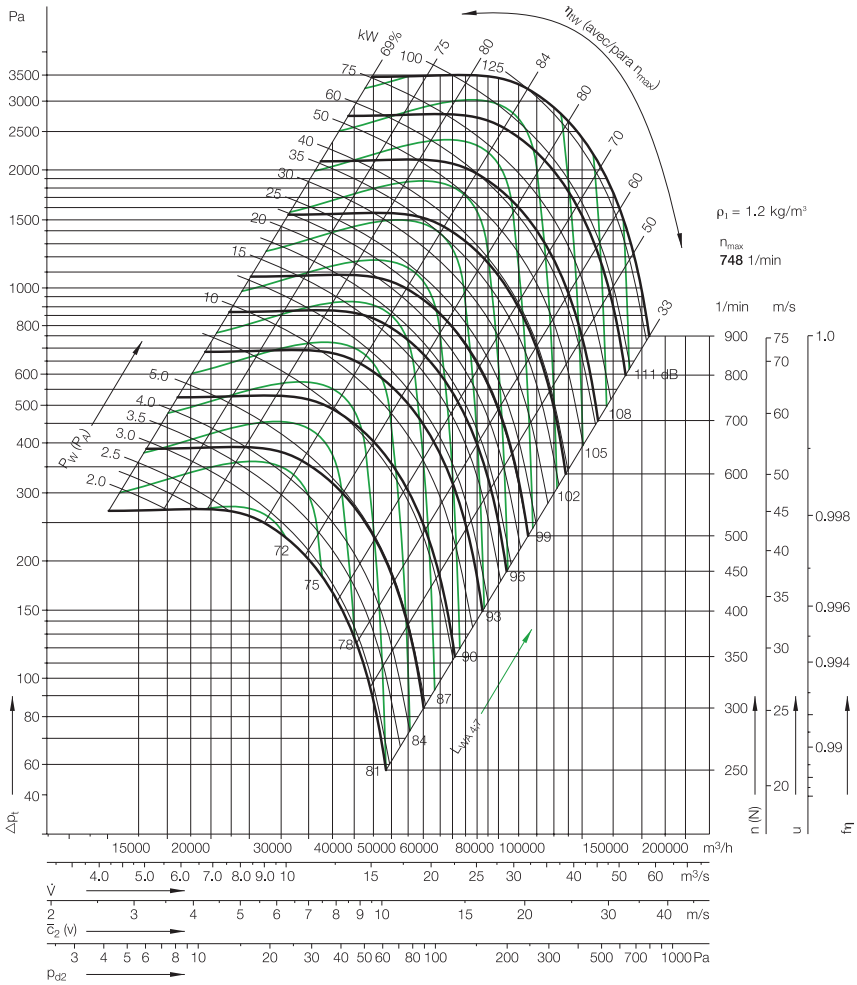


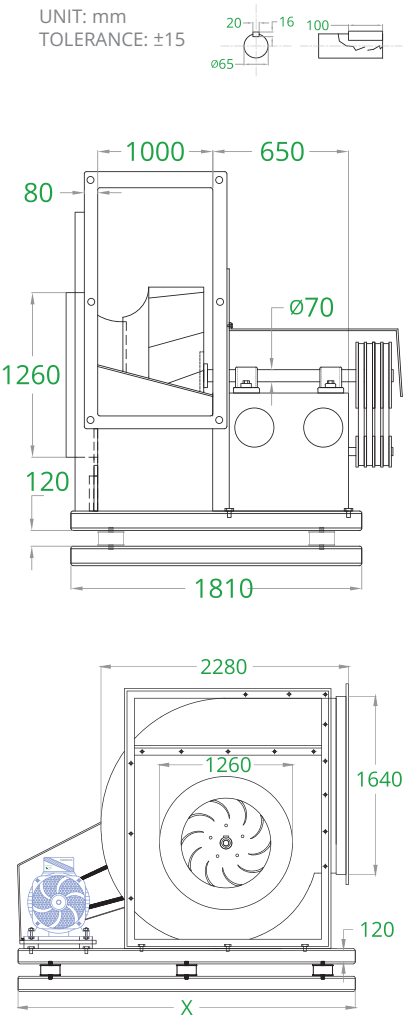


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-1400-4T-B	3 ~ 380	50	288~548	18.5~30	38000~67800	375~680	54 or 55	114 in max rpm

USB 1600 B

فن سانتریفیوژ یوتیلیتی بکوارد





Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USB-1600-4T-B	3 ~ 380	50	248~450	22~55	52000~98000	400~950	54 or 55	125 in max rpm

Note

SDB

Centrifugal Supplier Backward Fan

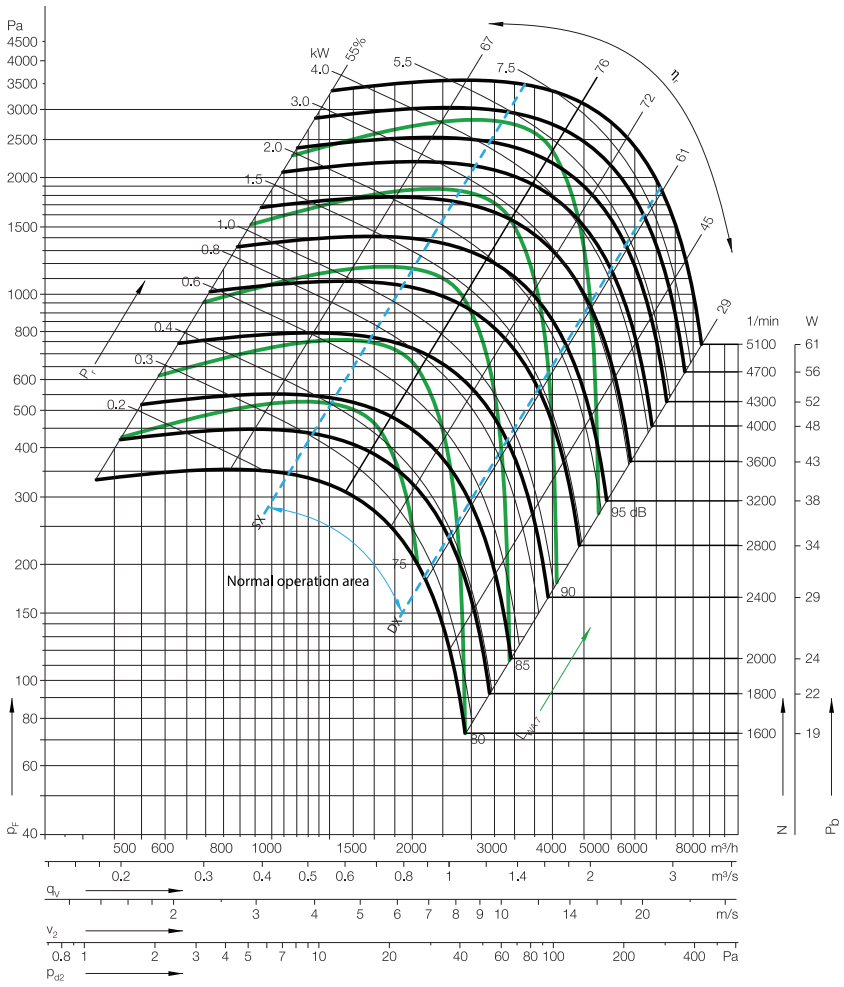
Double Inlet / Belt drive

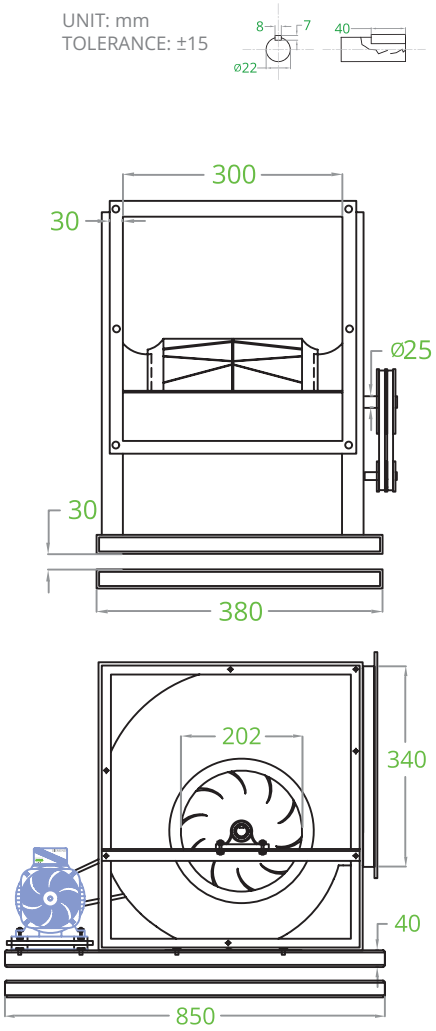
فن سانتریفیوژ ساپلایر بکوارد

ورودی دو طرفه با انتقال قدرت پولی و تسمه

SDB 280

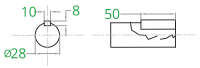
فن سانتریفیوژ ساپلایر بکوارد

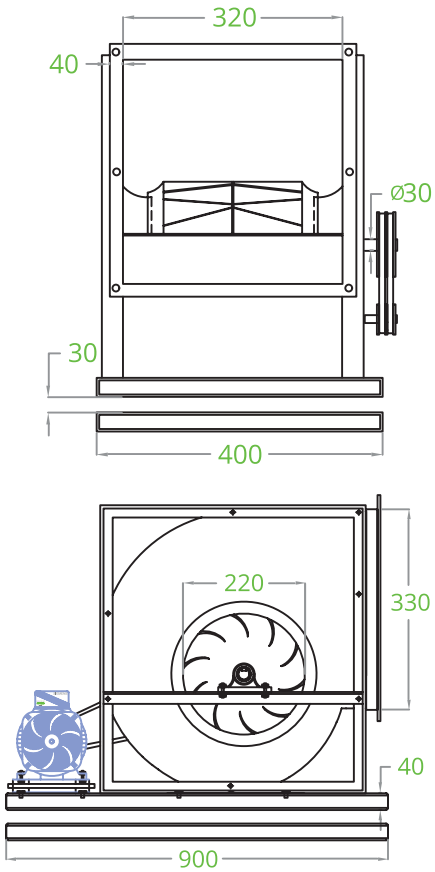


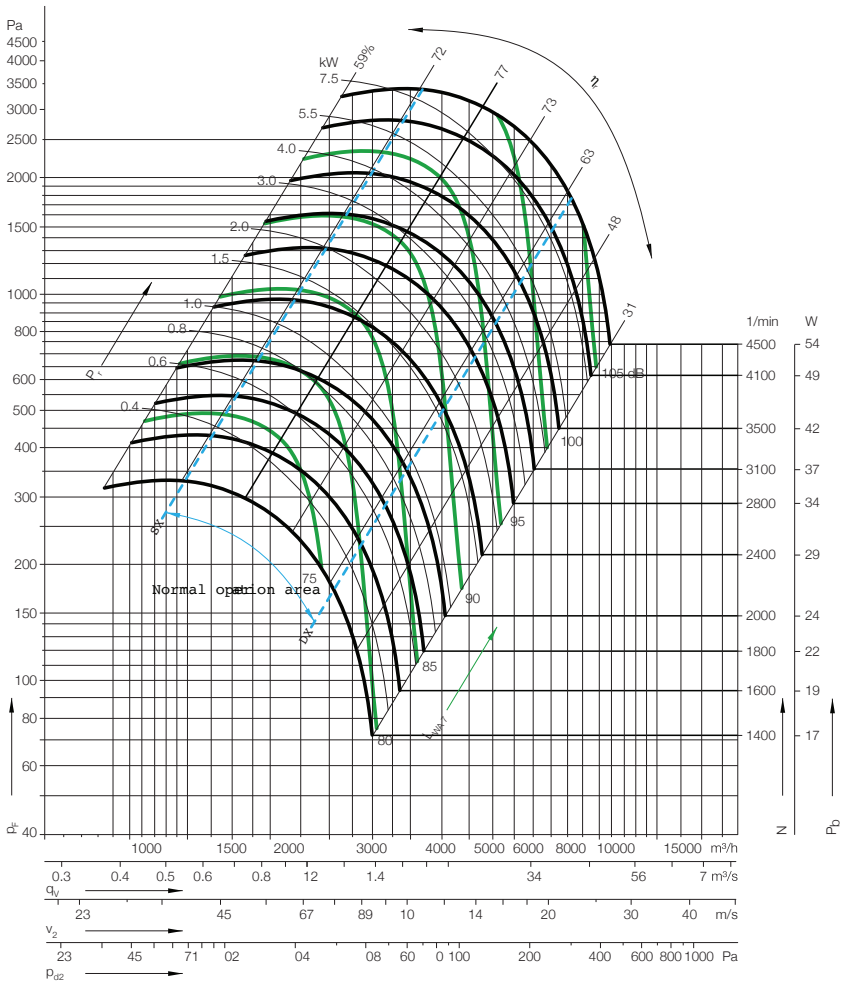


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-280-4S-B	1 ~ 220	50	786~1358	0.55~0.75	1415~2150	200~340	54	64 in max rpm
2	LC-SDB-280-4T-B	3 ~ 380	50	798~1358	0.55~0.75	1420~2240	200~340	54 or 55	63 in max rpm

UNIT: mm
TOLERANCE: ±15



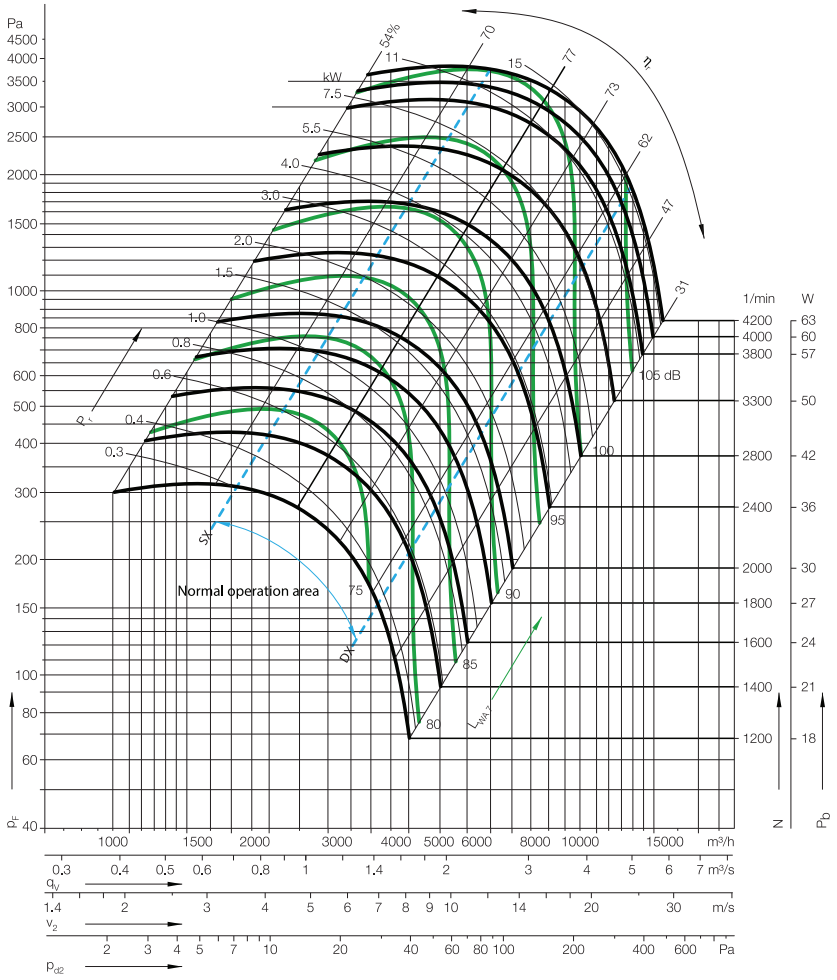


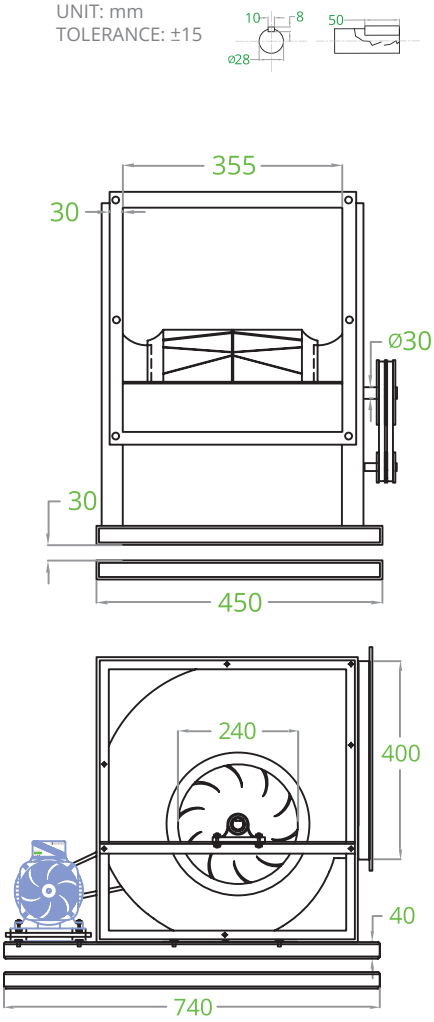


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-315-4S-B	1 ~ 220	50	764~1395	0.75~1.5	2060~3180	220~350	54	66 in max rpm
2	LC-SDB-315-4T-B	3 ~ 380	50	768~1410	0.75~1.5	2110~3250	220~350	54 or 55	65 in max rpm

SDB 350

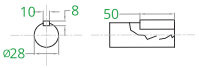
فن سانتریفیوژ ساپلایر بکوارد

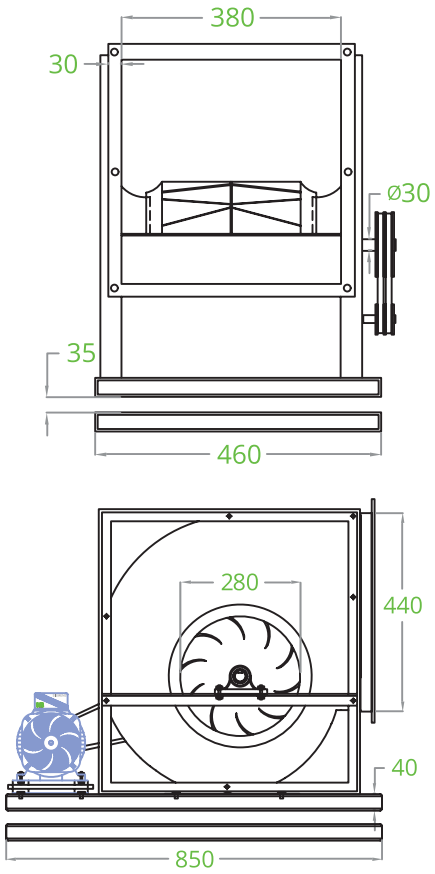


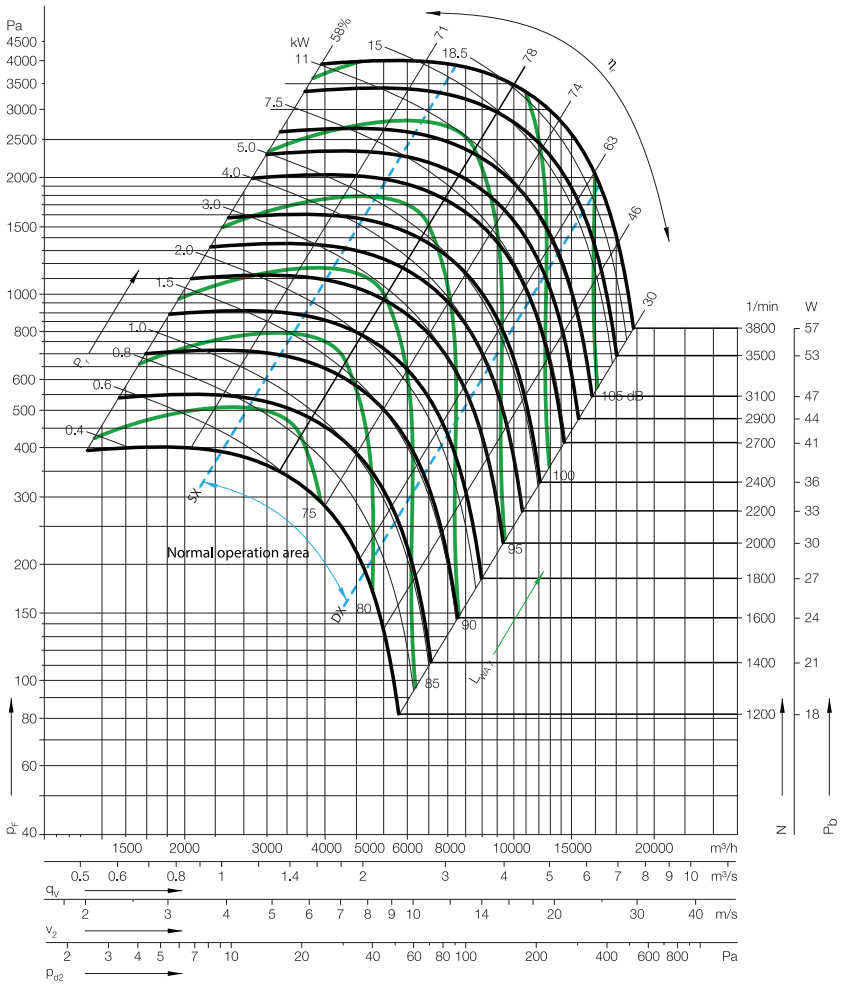


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-350-4S-B	1 ~ 220	50	735~1390	1.5~2.2	2380~4220	220~380	54	69 in max rpm
2	LC-SDB-350-4T-B	3 ~ 380	50	744~1395	1.5~2.2	2415~4480	220~380	54 or 55	68 in max rpm

UNIT: mm
TOLERANCE: ±15



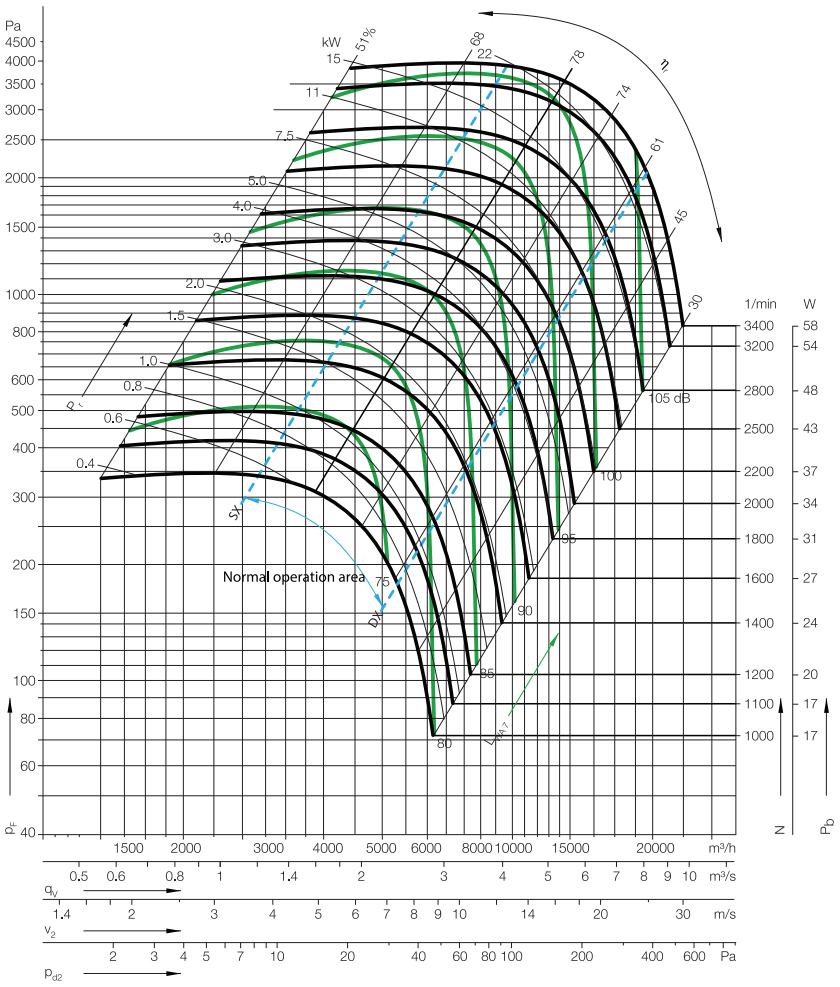


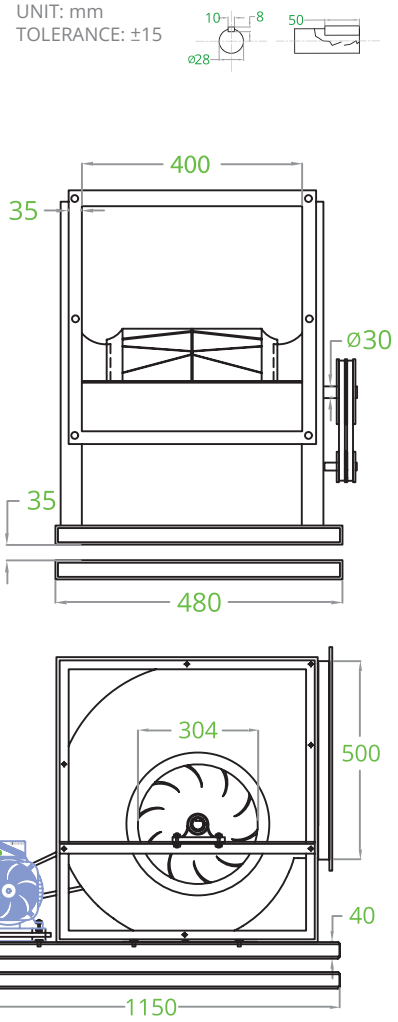


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-400-4S-B	1 ~ 220	50	712~874	2.2	3155~8650	115~390	54	71 in max rpm
2	LC-SDB-400-4T-B	3 ~ 380	50	722~874	2.2	3270~8815	115~390	54 or 55	70 in max rpm

SDB 450

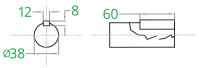
فن سانتریفیوژ ساپلایر بکوارد

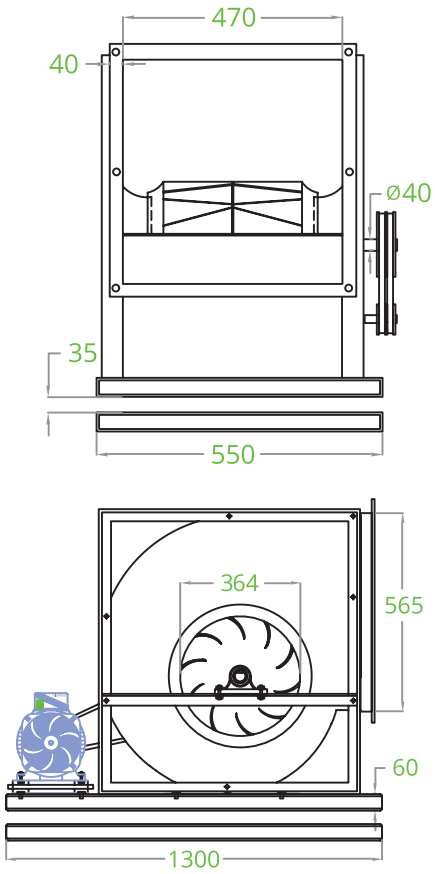


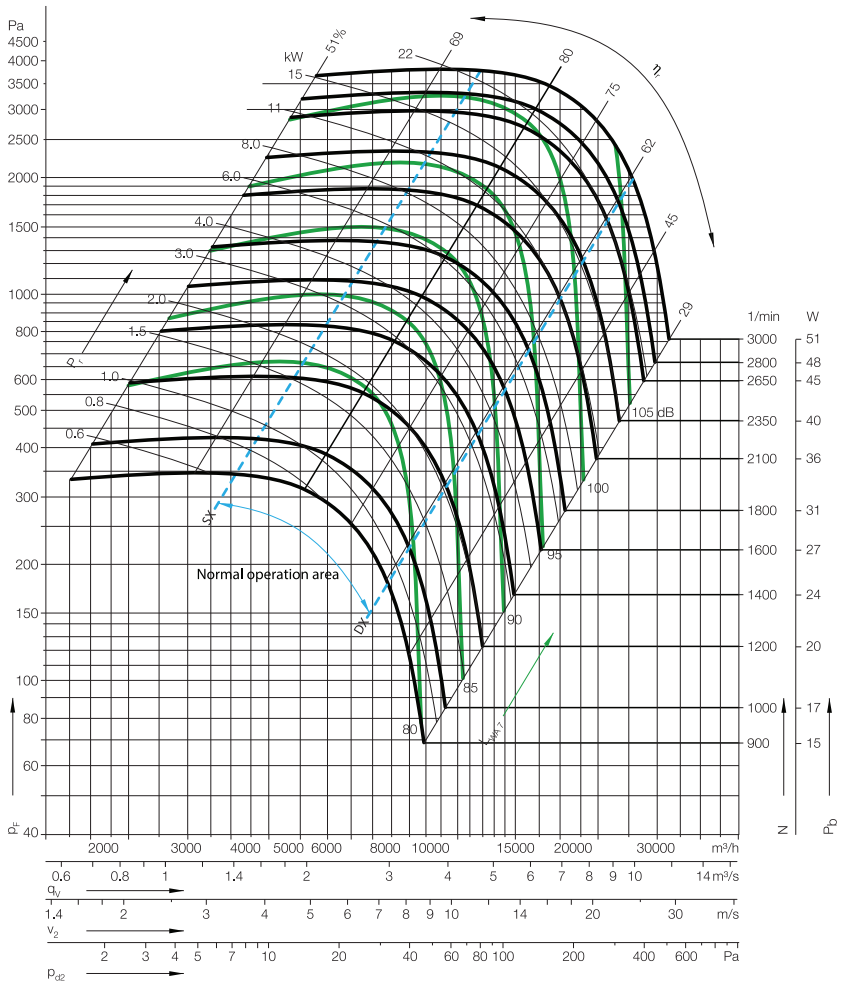


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-450-4T-B	3 ~ 380	50	615~881	3.0~4.0	5250~12688	140~405	54 or 55	74 in max rpm

UNIT: mm
TOLERANCE: ±15



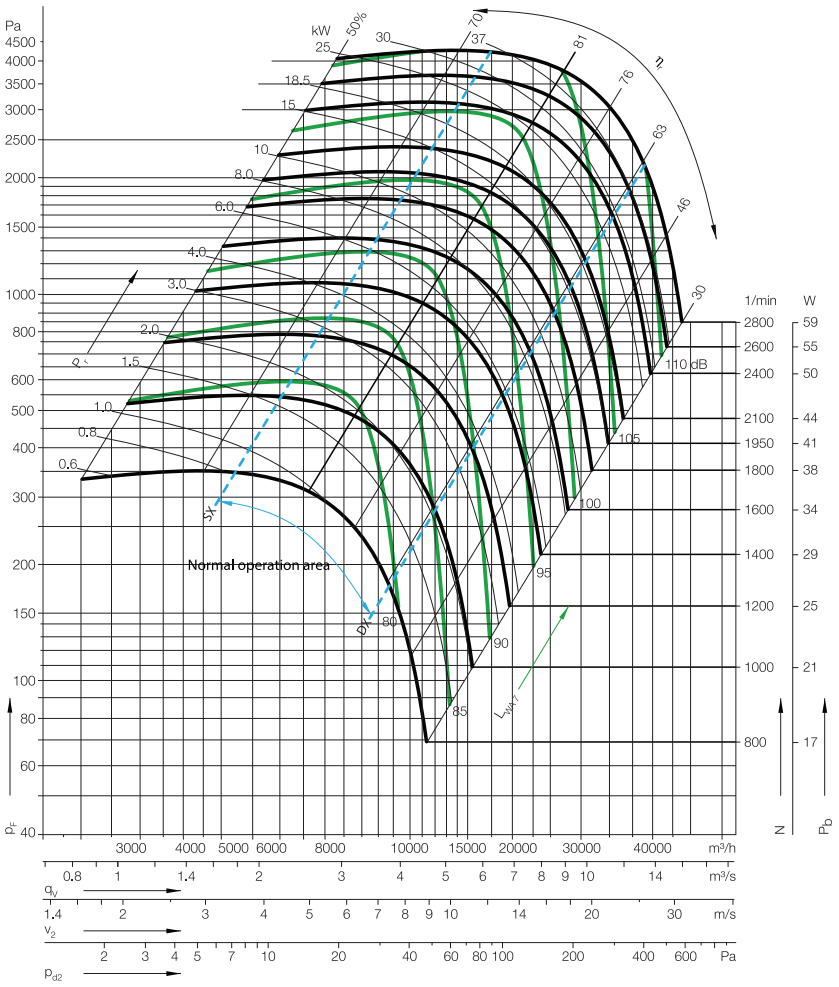


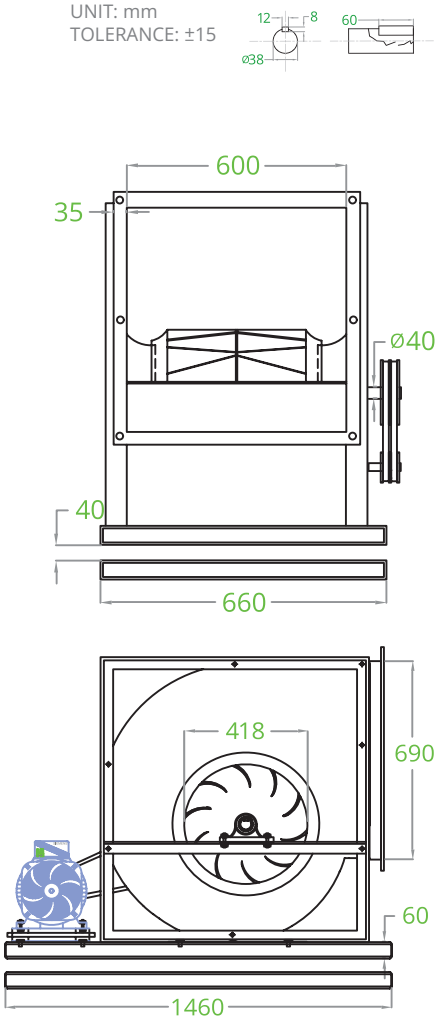


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-500-4T-B	3 ~ 380	50	580~1250	4.0~5.5	7950~14800	200~450	54 or 55	82 in max rpm

SDB 560

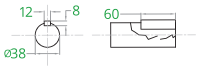
فن سانتریفیوژ ساپلایر بکوارد

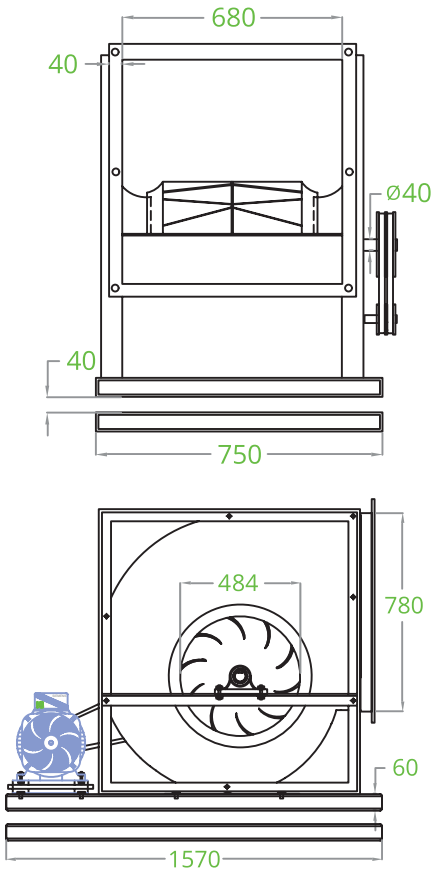


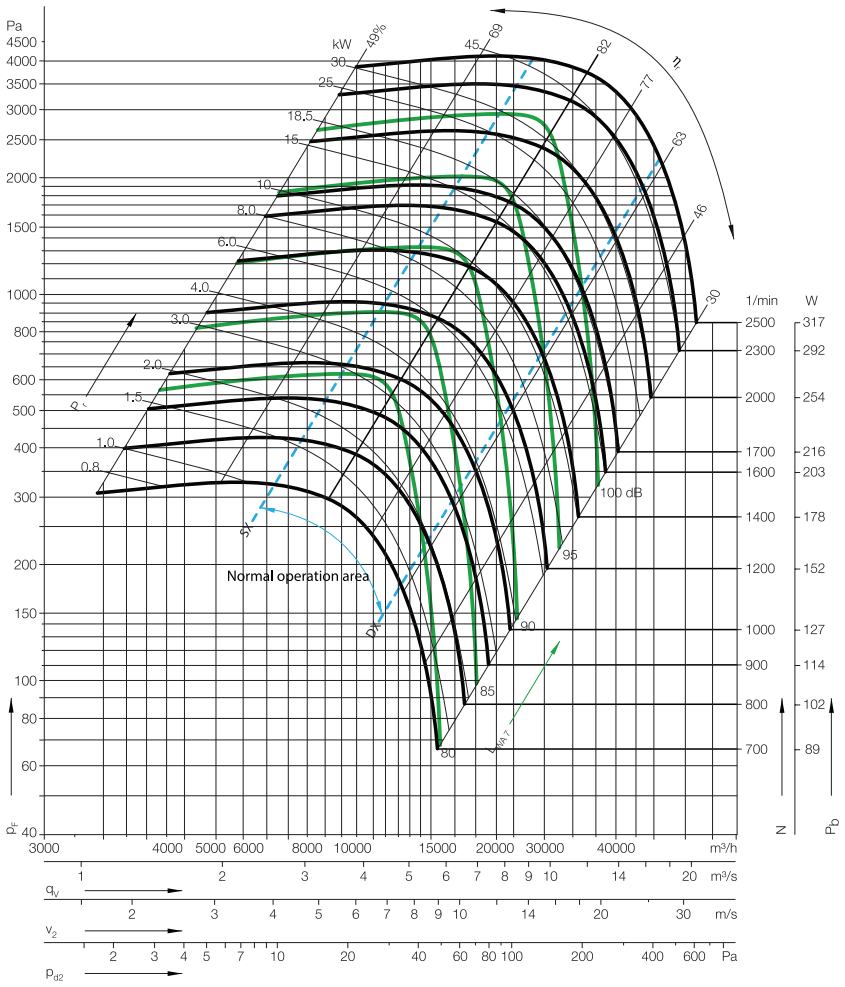


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-560-4T-B	3 ~ 380	50	533~1210	5.5~7.5	9680~19850	200~500	54 or 55	84 in max rpm

UNIT: mm
TOLERANCE: ±15





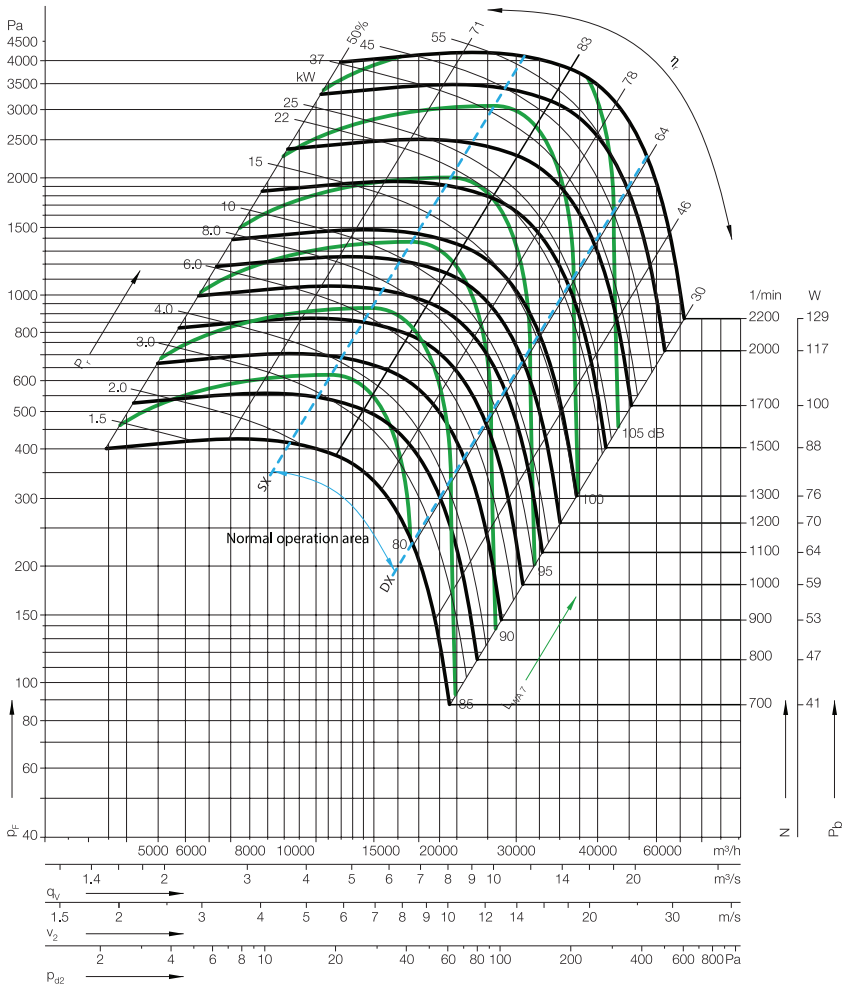


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-630-4T-B	3 ~ 380	50	466~980	7.5~11.0	16400~24500	205~515	54 or 55	95 in max rpm

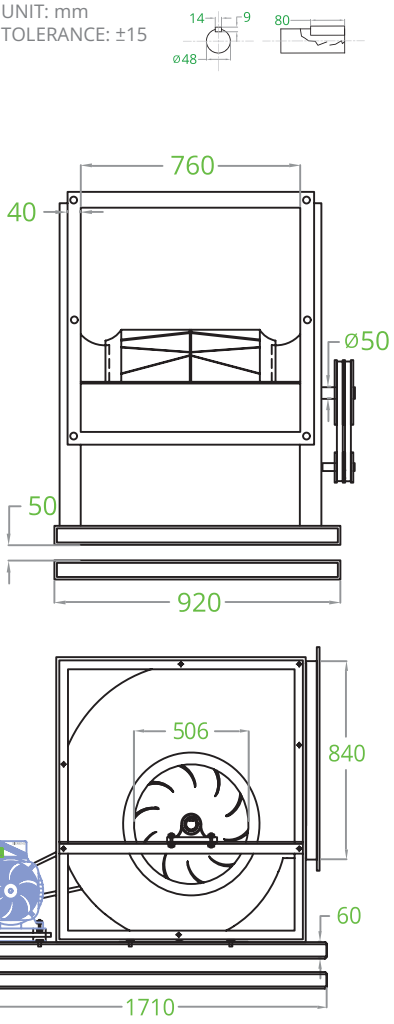
li-cha
HVAC & VENTILATION SYSTEM

SDB 710

فن سانتریفیوژ ساپلایر بکوارد

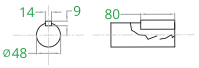


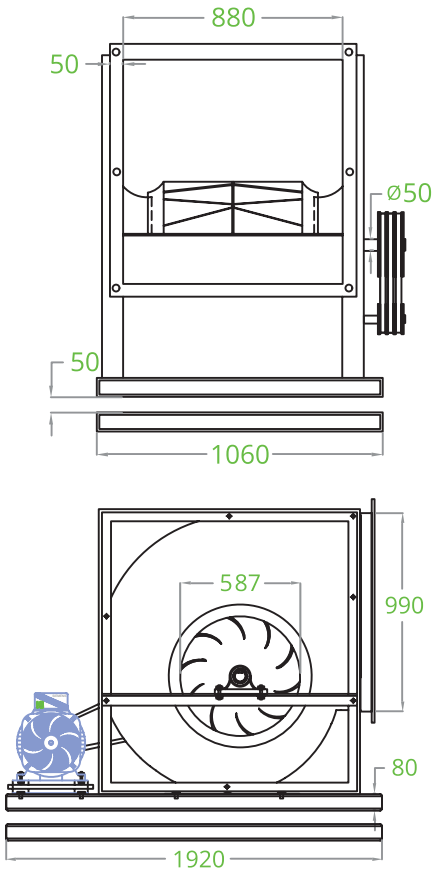
UNIT: mm
TOLERANCE: ±15

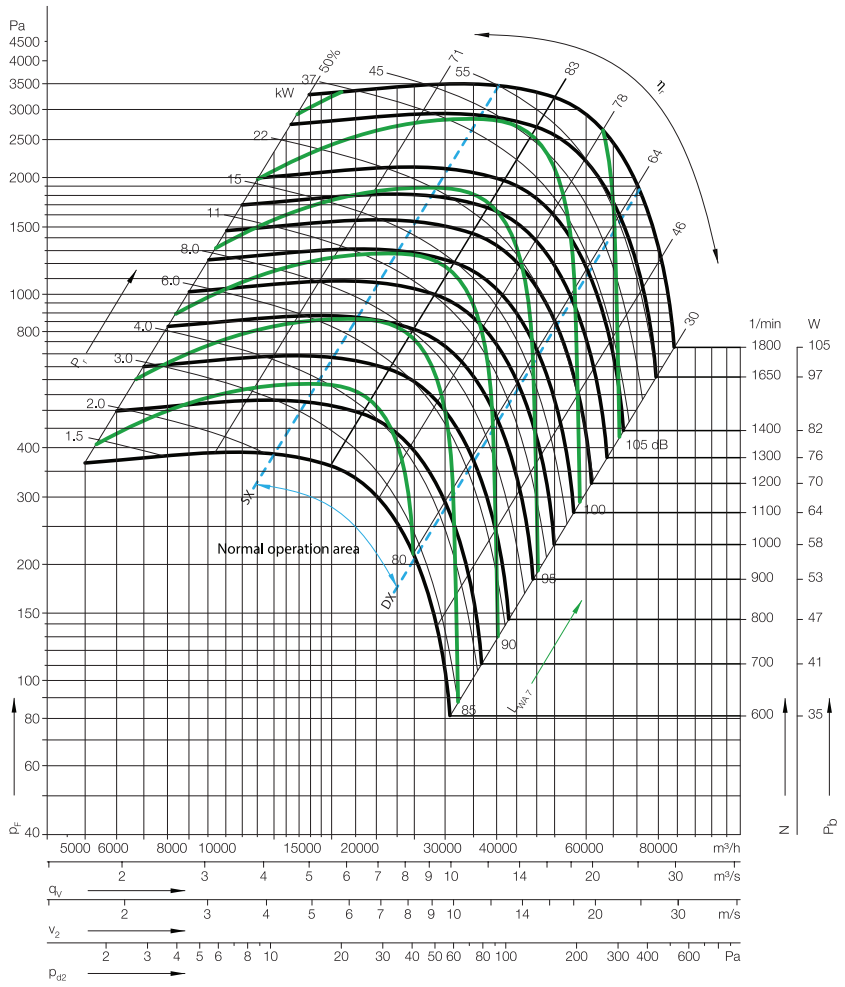


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-710-4T-B	3 ~ 380	50	425~788	7.5~15.0	17400~28900	250~550	54 or 55	108 in max rpm

UNIT: mm
TOLERANCE: ±15







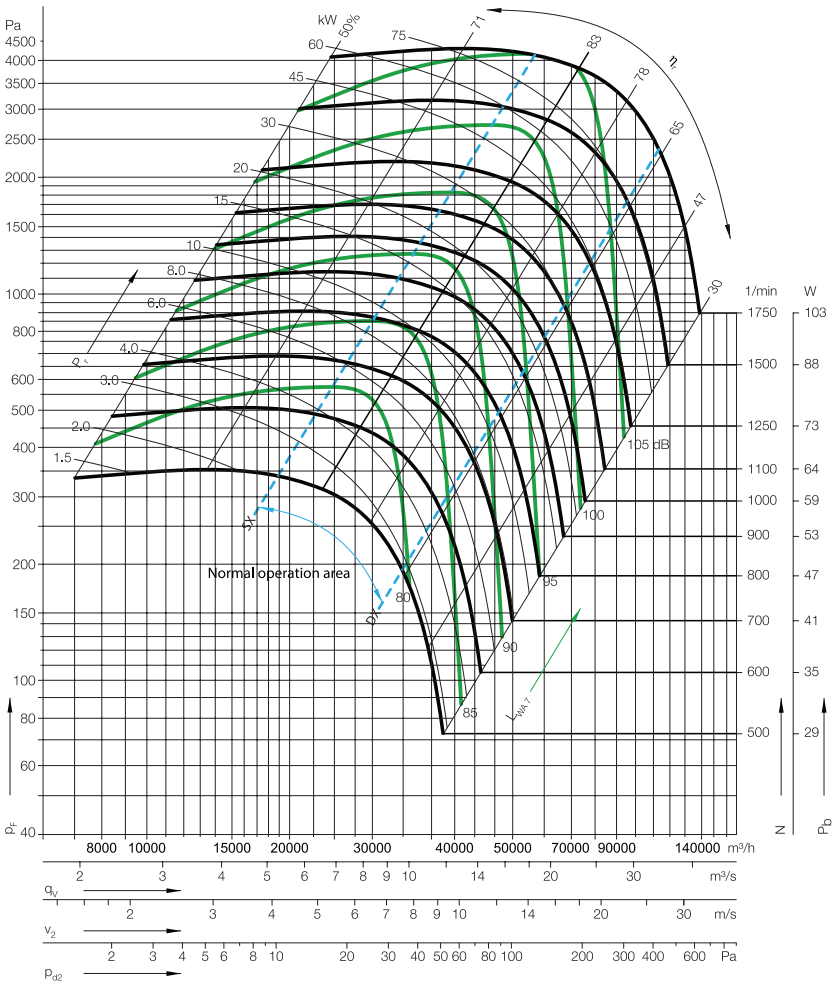
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-800-4T-B	3 ~ 380	50	366~750	11.0~22.0	22500~40500	260~565	54	115 in max rpm

Just used with soft starter or inverter drive

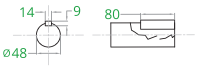
li-cha
HVAC & VENTILATION SYSTEM

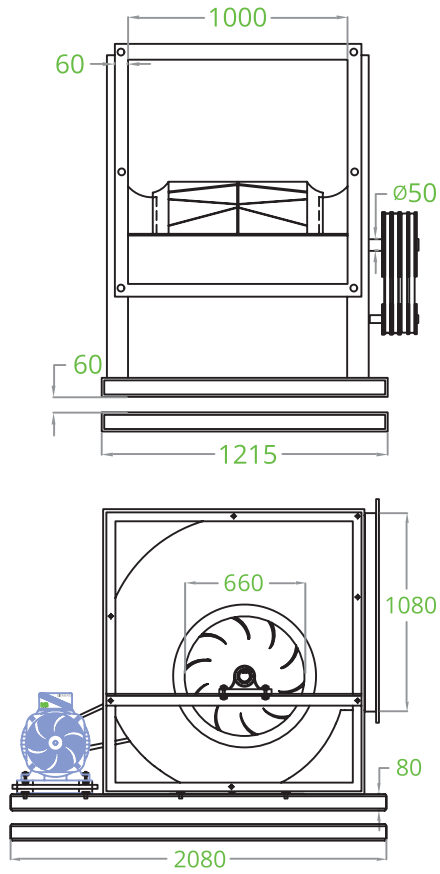
SDB 900

فن سانتریفیوژ ساپلایر بکوارد



UNIT: mm
TOLERANCE: ±15

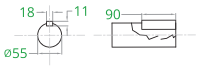


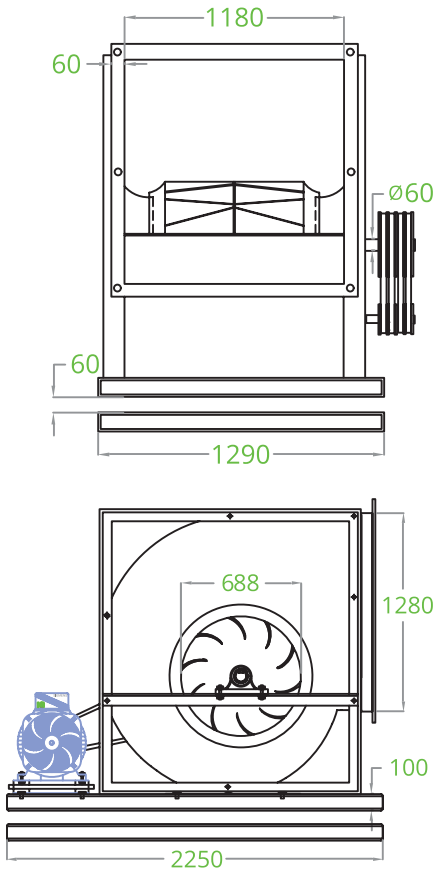


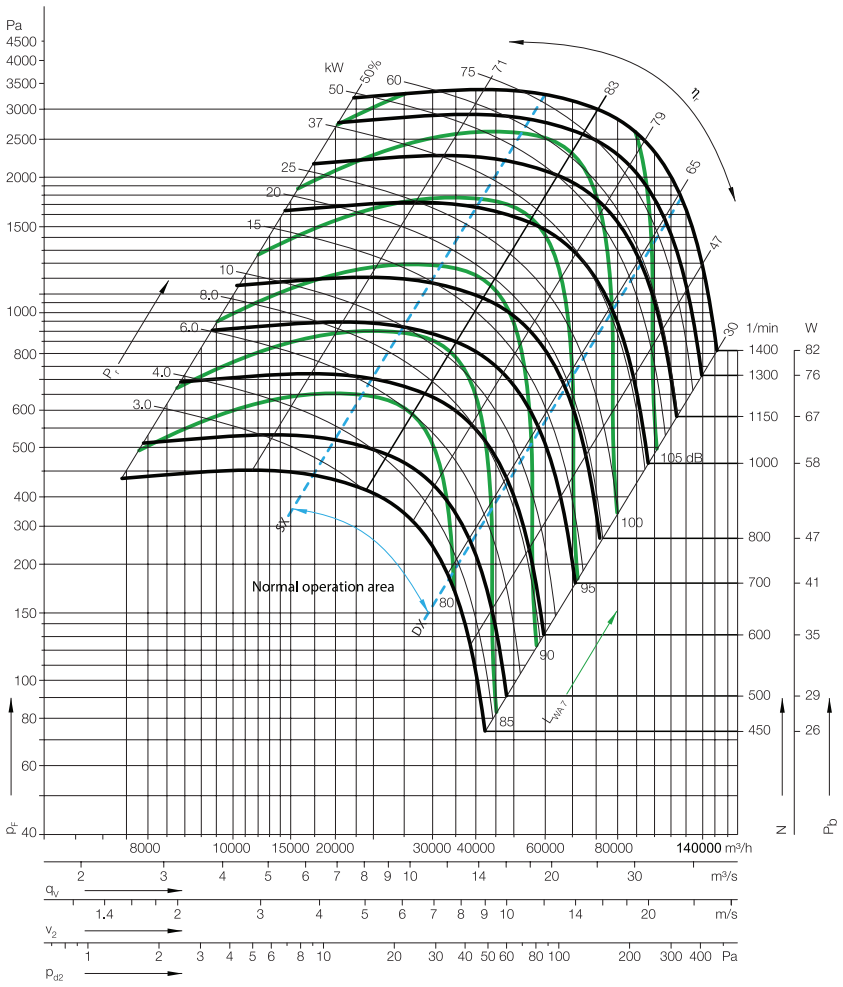
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-900-4T-B	3 ~ 380	50	328~697	18.5~37.0	25400~51800	300~600	54	121 in max rpm

Just used with soft starter or inverter drive

UNIT: mm
TOLERANCE: ±15







Technical data		Nominal voltage	Frequency	Speed	Motor Pow-er input	Max Air flow (free delivery)	Static Pressur Range	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-SDB-1000-4T-B	3 ~ 380	50	300~681	22.0~37.0	38400~68280	310~650	54	125 in max rpm

Just used with soft starter or inverter drive

PLB

Centrifugal Plug Fan

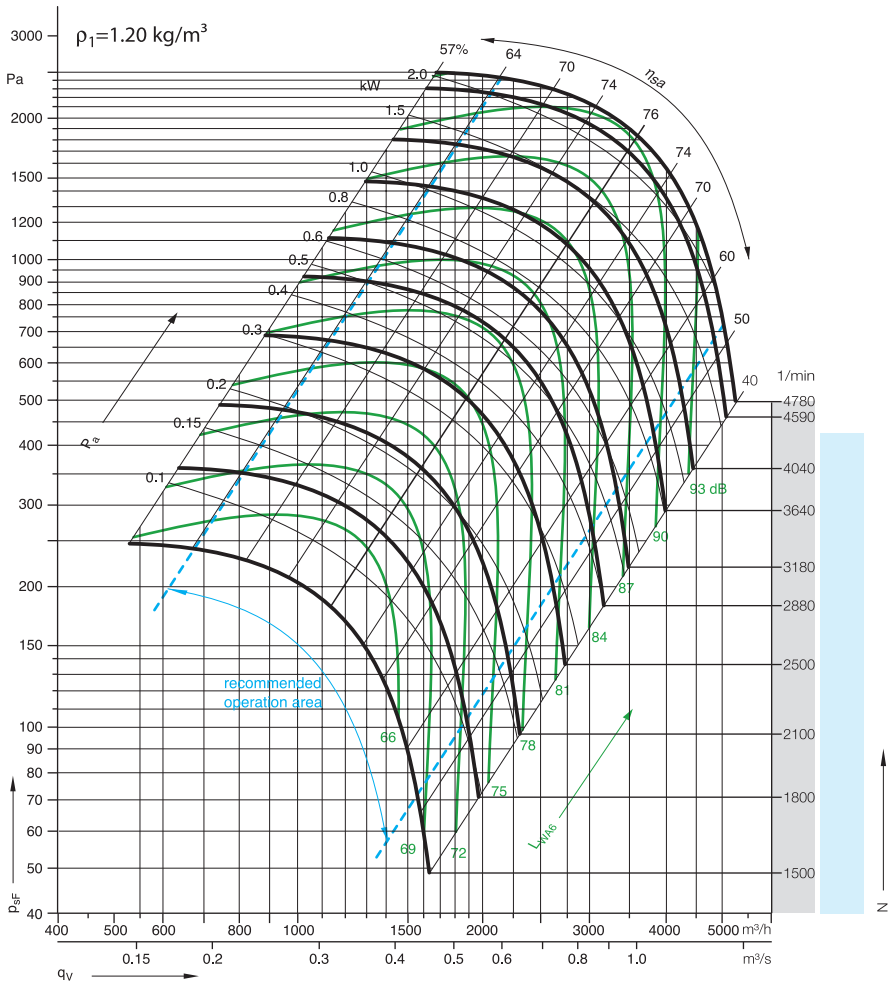
Backward Curve / Direct drive

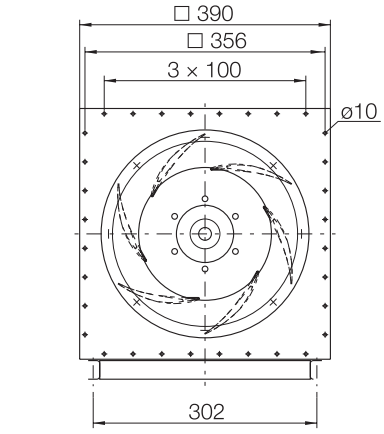
پلاگ فن

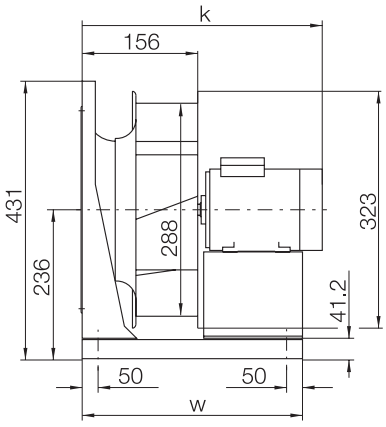
بکوارد انتقال قدرت مستقیم

PLB 250

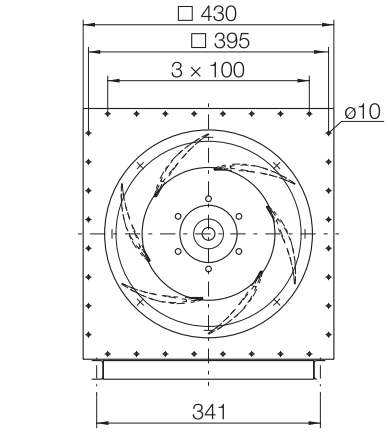
پلاگ فن انتقال مستقیم

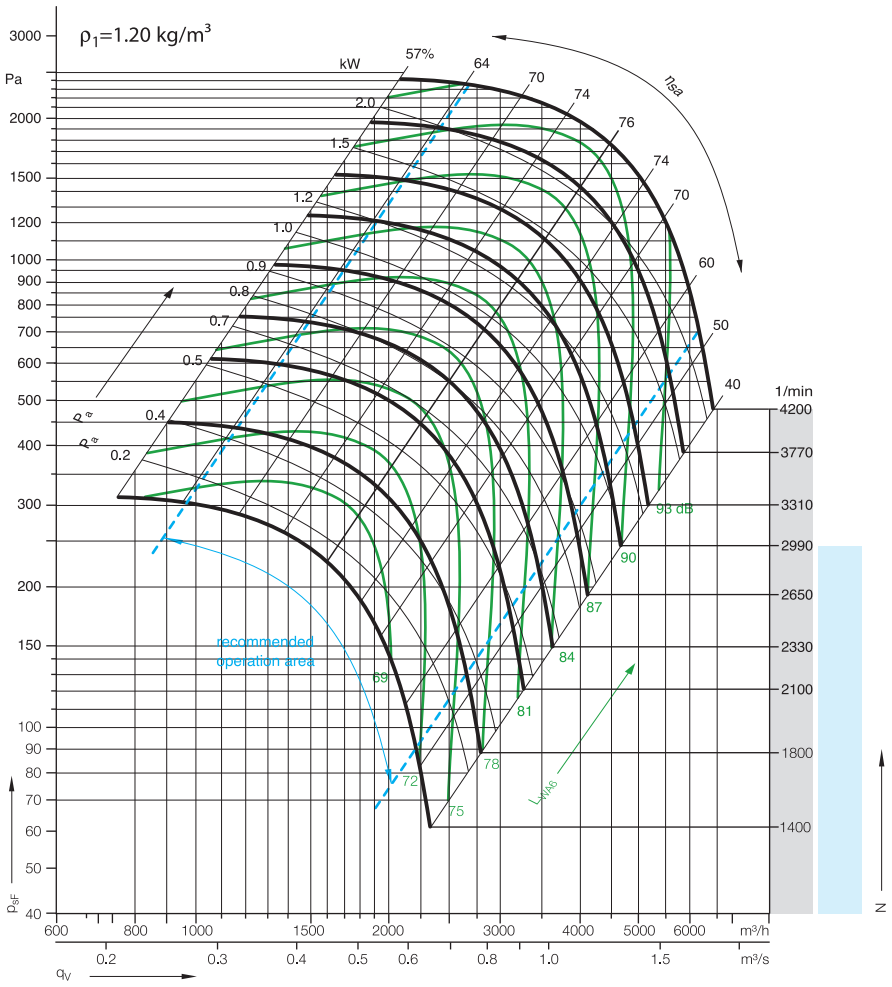






Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-250-2S	1 ~ 220	50	2950	0.55	2450	54 or 55	70
2	LC-PLB-250-4S	1 ~ 220	50	1385	0.37	1150	54 or 55	64
3	LC-PLB-250-2T	3 ~ 380	50	2980	0.55	2480	54 or 55	70
4	LC-PLB-250-4T	3 ~ 380	50	1400	0.37	1205	54 or 55	64
5	LC-PLB-250-6T	3 ~ 380	50	915	0.37	1010	54 or 55	59

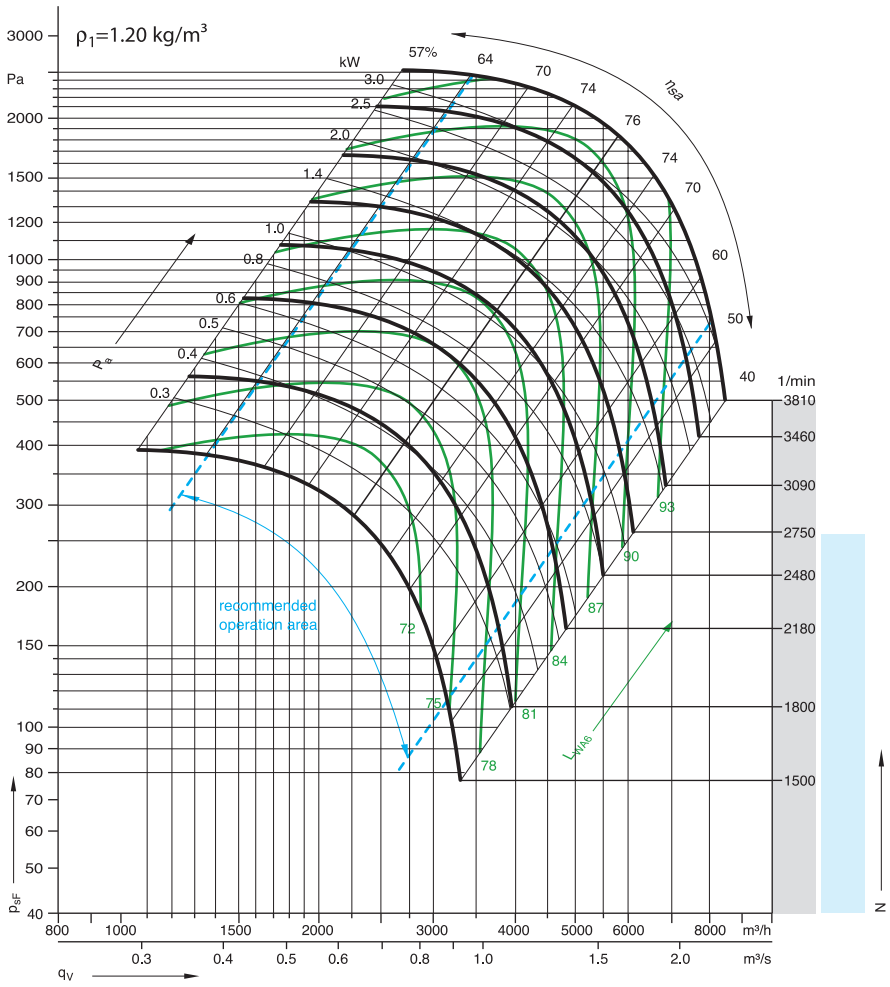


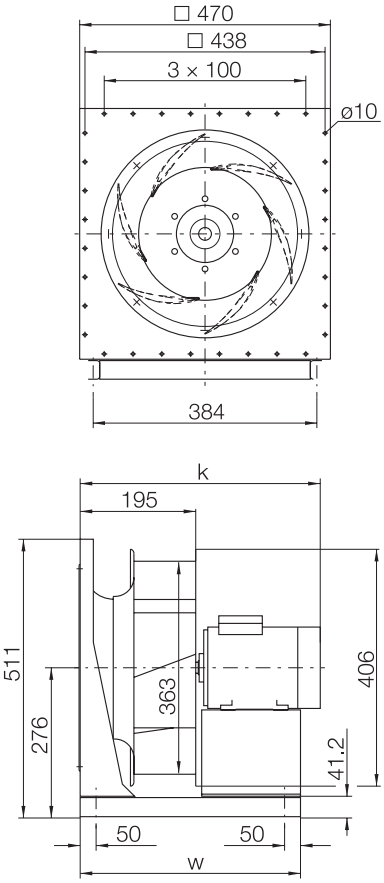


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-280-2S	1 ~ 220	50	2950	0.75	3820	54 or 55	72
2	LC-PLB-280-4S	1 ~ 220	50	1385	0.55	1990	54 or 55	65
3	LC-PLB-280-2T	3 ~ 380	50	2980	0.75	3880	54 or 55	72
4	LC-PLB-280-4T	3 ~ 380	50	1400	0.55	1950	54 or 55	65
5	LC-PLB-280-6T	3 ~ 380	50	915	0.37	1220	54 or 55	59

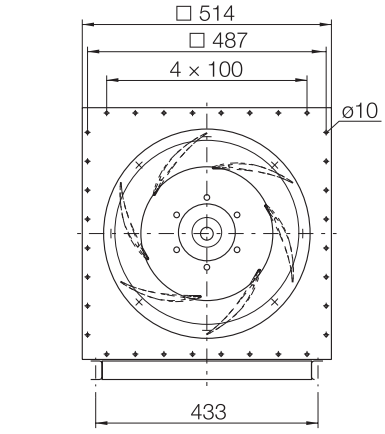
PLB 315

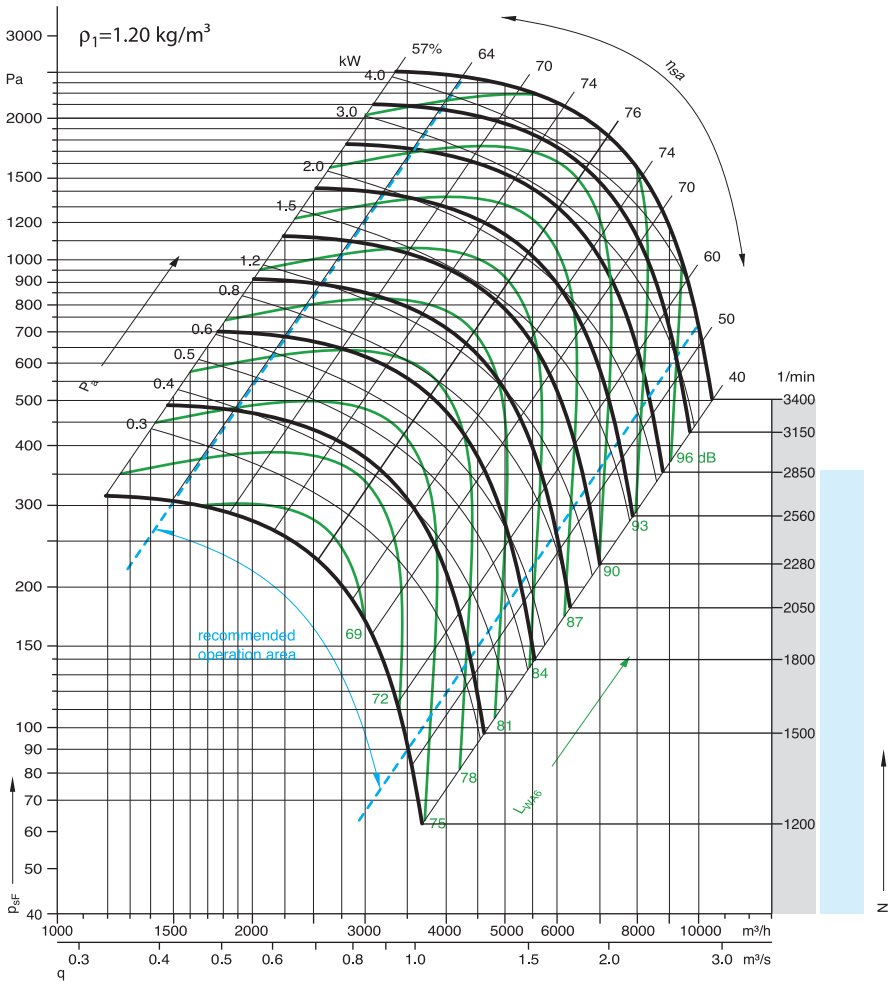
پلاگ فن انتقال مستقیم





Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-315-2S	1 ~ 220	50	2855	1.5	4780	54 or 55	72
2	LC-PLB-315-4S	1 ~ 220	50	1410	0.55	2450	54 or 55	65
3	LC-PLB-315-2T	3 ~ 380	50	2900	1.5	4920	54 or 55	72
4	LC-PLB-315-4T	3 ~ 380	50	1405	0.55	2495	54 or 55	65
5	LC-PLB-315-6T	3 ~ 380	50	910	0.37	1480	54 or 55	60

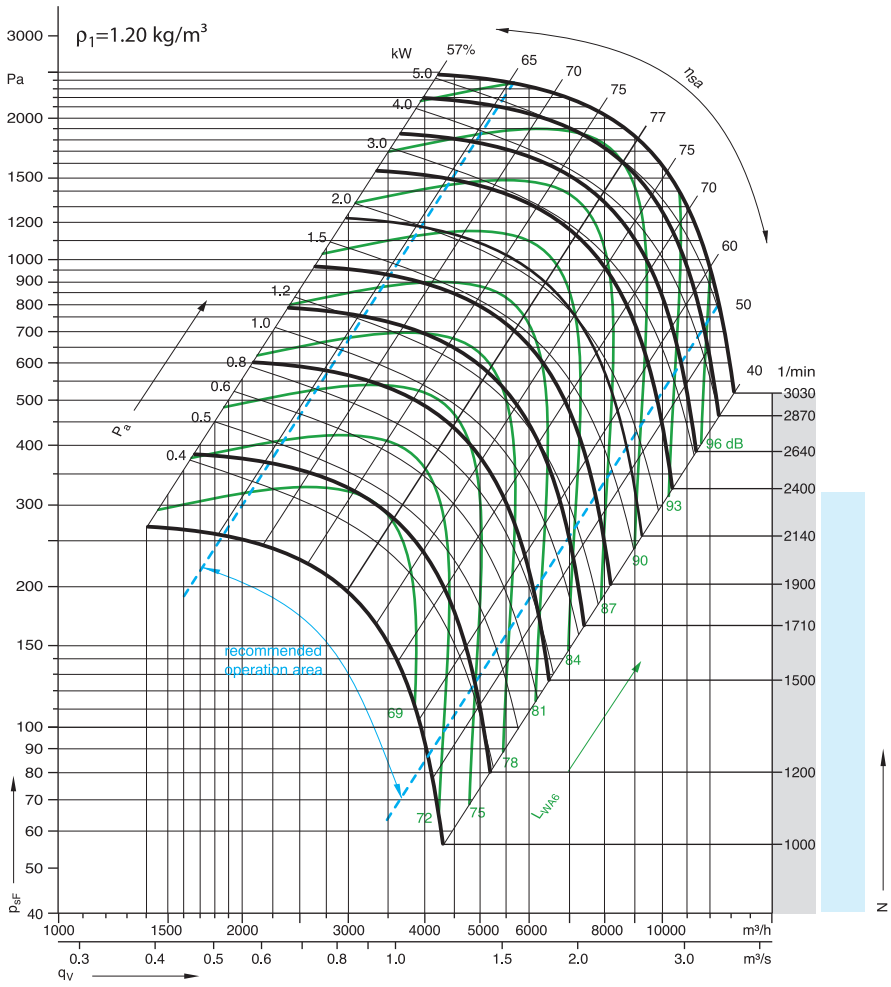


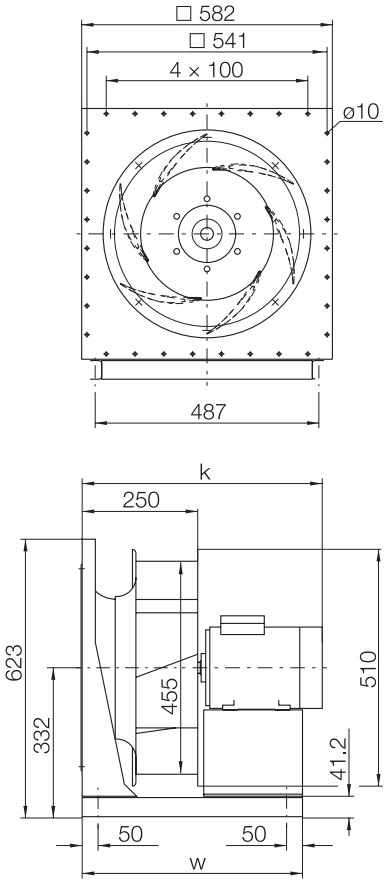


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-350-2S	1 ~ 220	50	2900	2.2	6840	54 or 55	74
2	LC-PLB-350-4S	1 ~ 220	50	1404	0.75	3110	54 or 55	66
3	LC-PLB-350-2T	3 ~ 380	50	2950	2.2	6880	54 or 55	74
4	LC-PLB-350-4T	3 ~ 380	50	1415	0.75	3150	54 or 55	64
5	LC-PLB-350-6T	3 ~ 380	50	925	0.55	2020	54 or 55	60

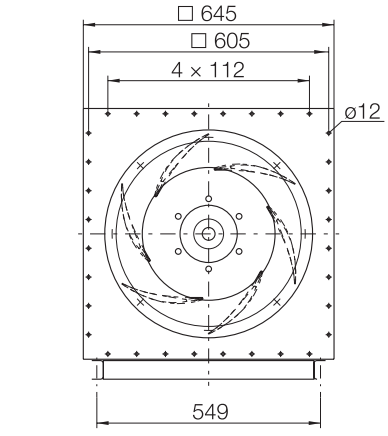
PLB 400

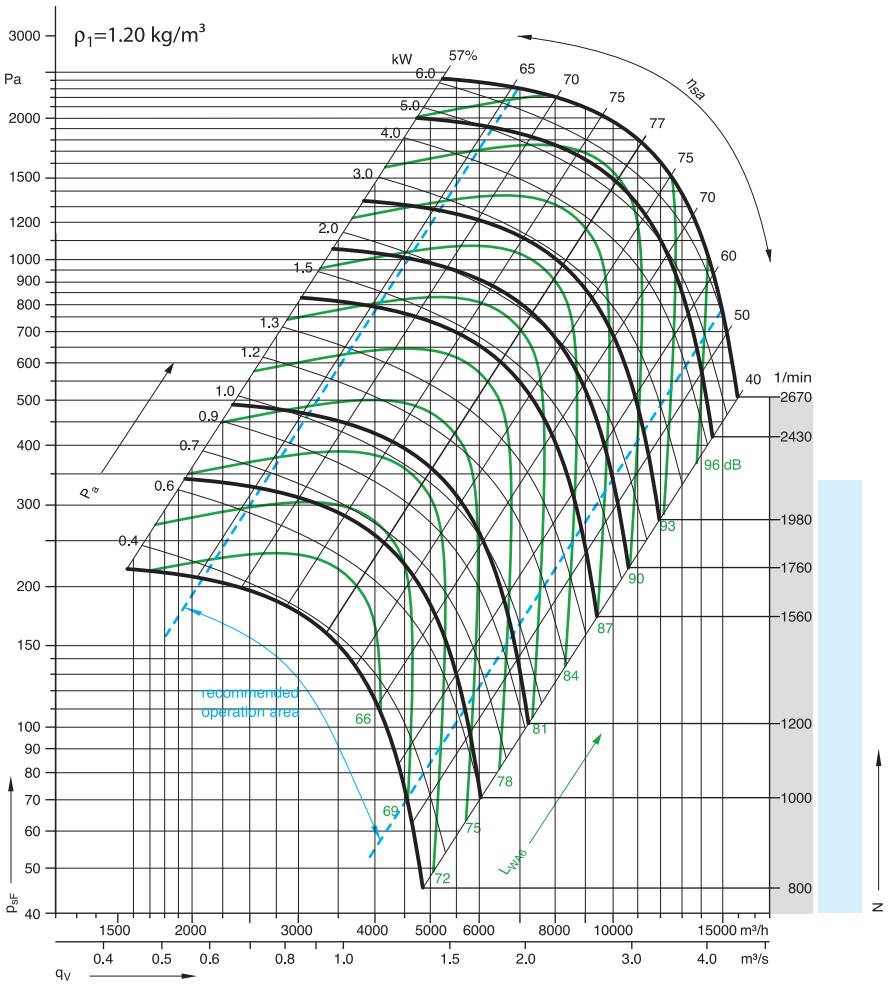
پلاگ فن انتقال مستقیم





Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-400-4S	1 ~ 220	50	1405	1.5	4850	54 or 55	72
2	LC-PLB-400-2T	3 ~ 380	50	2815	4.0	9550	54 or 55	98
3	LC-PLB-400-4T	3 ~ 380	50	1420	1.5	4880	54 or 55	71
4	LC-PLB-400-6T	3 ~ 380	50	925	0.75	3018	54 or 55	68

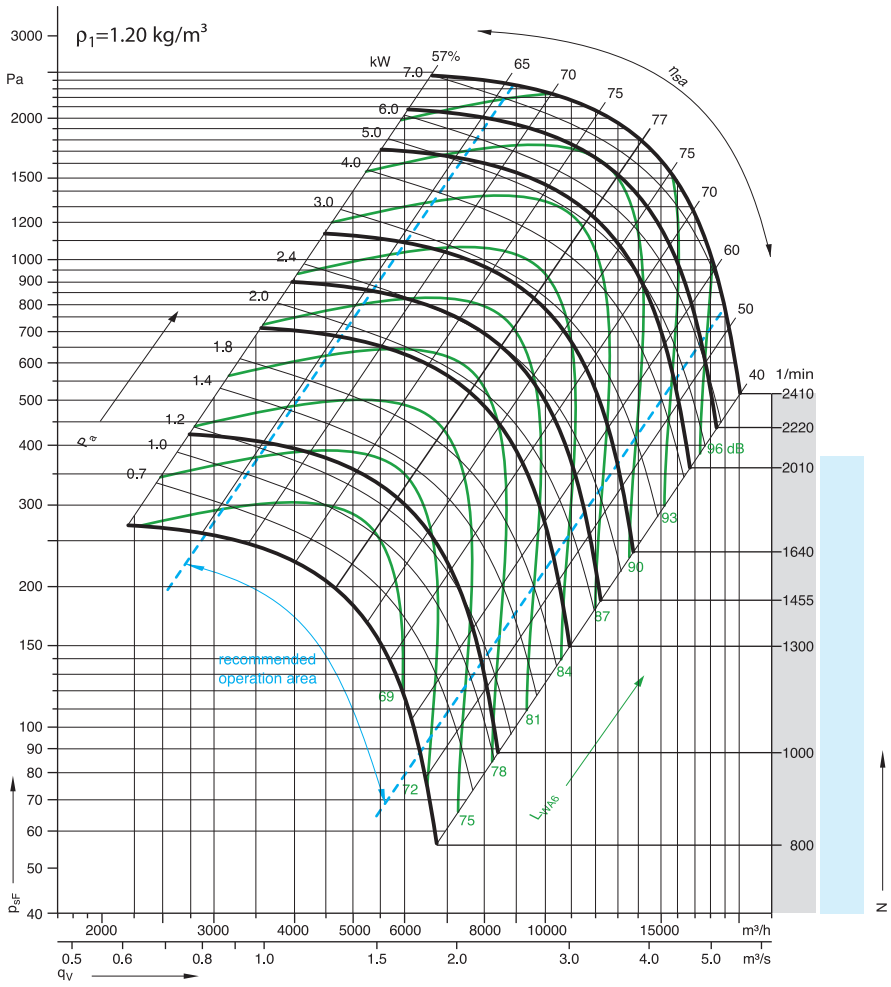


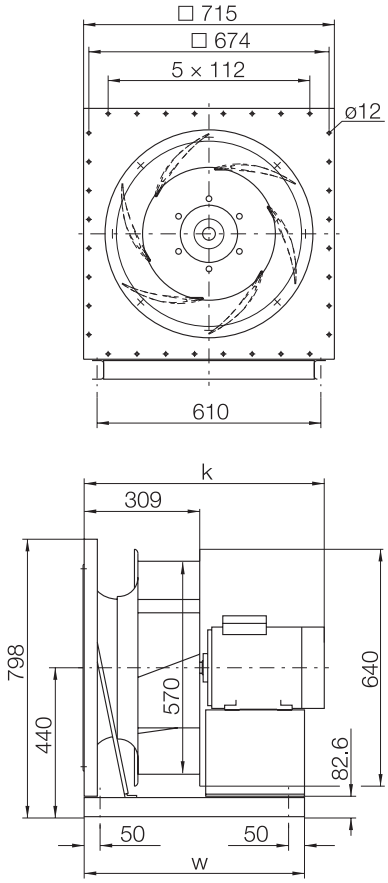


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-450-4S	1 ~ 220	50	1399	2.2	6380	54 or 55	78
2	LC-PLB-450-4T	3 ~ 380	50	2955	5.5	12500	54 or 55	110
3	LC-PLB-450-2T	3 ~ 380	50	1405	2.2	6415	54 or 55	78
4	LC-PLB-450-6T	3 ~ 380	50	940	1.1	4180	54 or 55	72

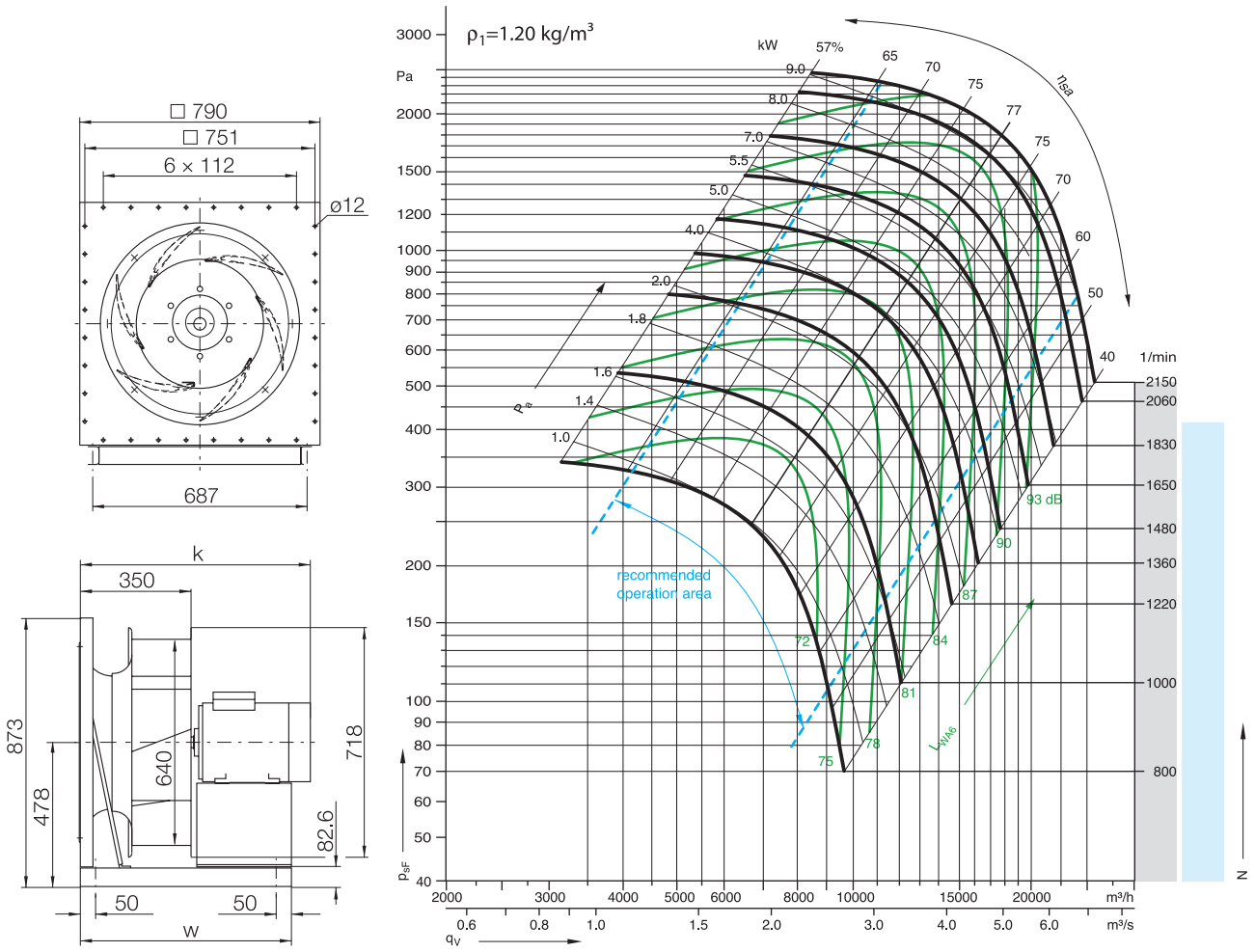
PLB 500

پلاگ فن انتقال مستقیم





Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-500-4T	3 ~ 380	50	1390	3.0	7250	54	82
2	LC-PLB-500-6T	3 ~ 380	50	950	1.5	5150	54	79
3	LC-PLB-500-8T	3 ~ 380	50	700	1.1	4480	54	74

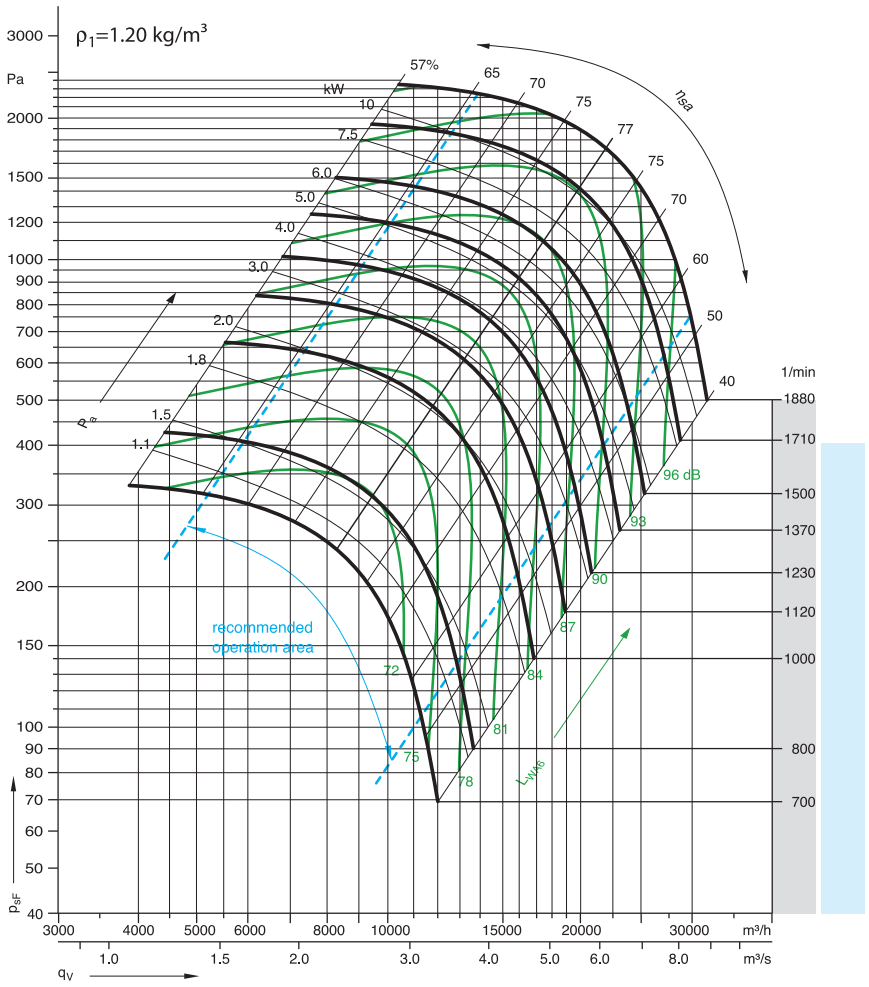


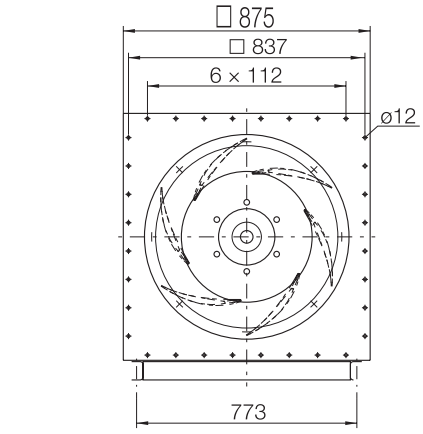
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-560-4T	3 ~ 380	50	1410	4.0	10180	54	86
2	LC-PLB-560-6T	3 ~ 380	50	910	2.2	8010	54	83
3	LC-PLB-560-8T	3 ~ 380	50	710	1.5	6450	54	79

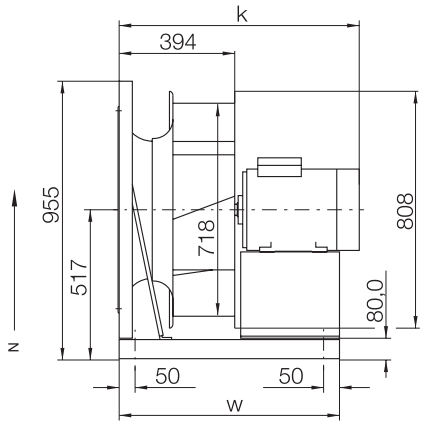
Just used with soft starter or inverter drive

PLB 630

پلاگ فن انتقال مستقیم

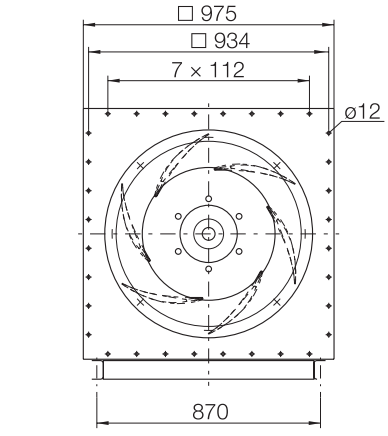


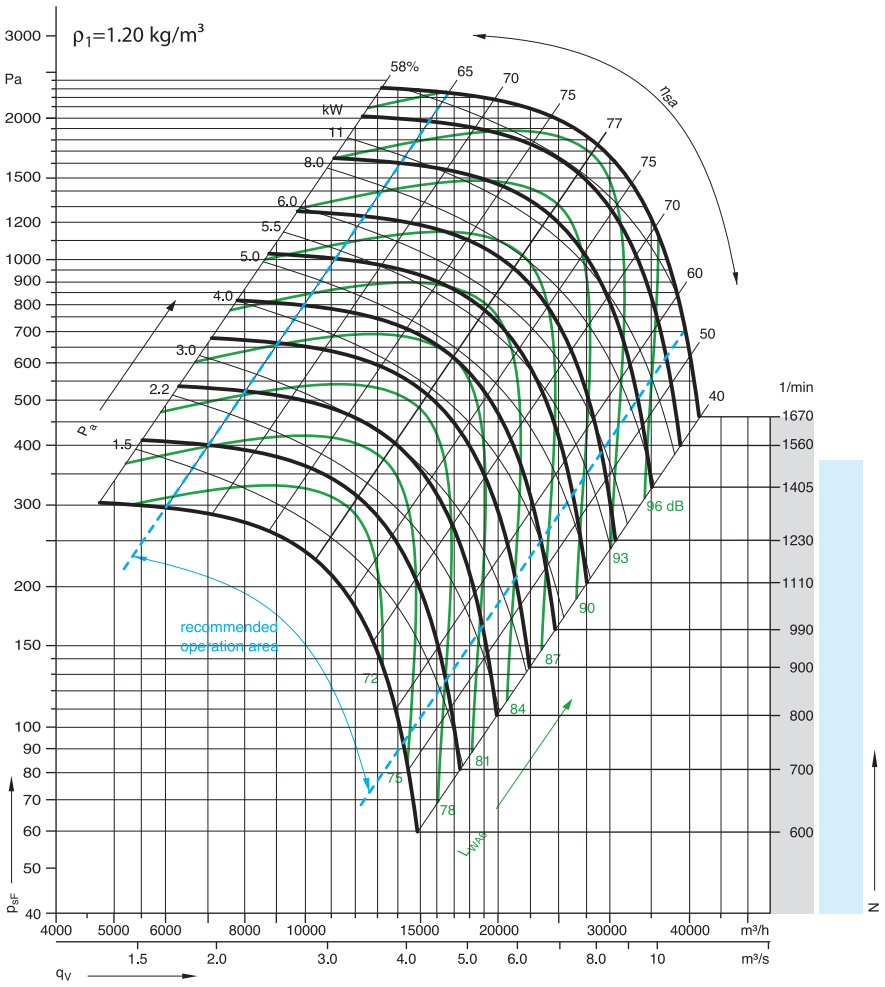




Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-630-4T	3 ~ 380	50	1390	5.5	17500	54	93
2	LC-PLB-630-6T	3 ~ 380	50	910	3.0	13640	54	87
3	LC-PLB-630-8T	3 ~ 380	50	720	2.2	10850	54	82

Just used with soft starter or inverter drive





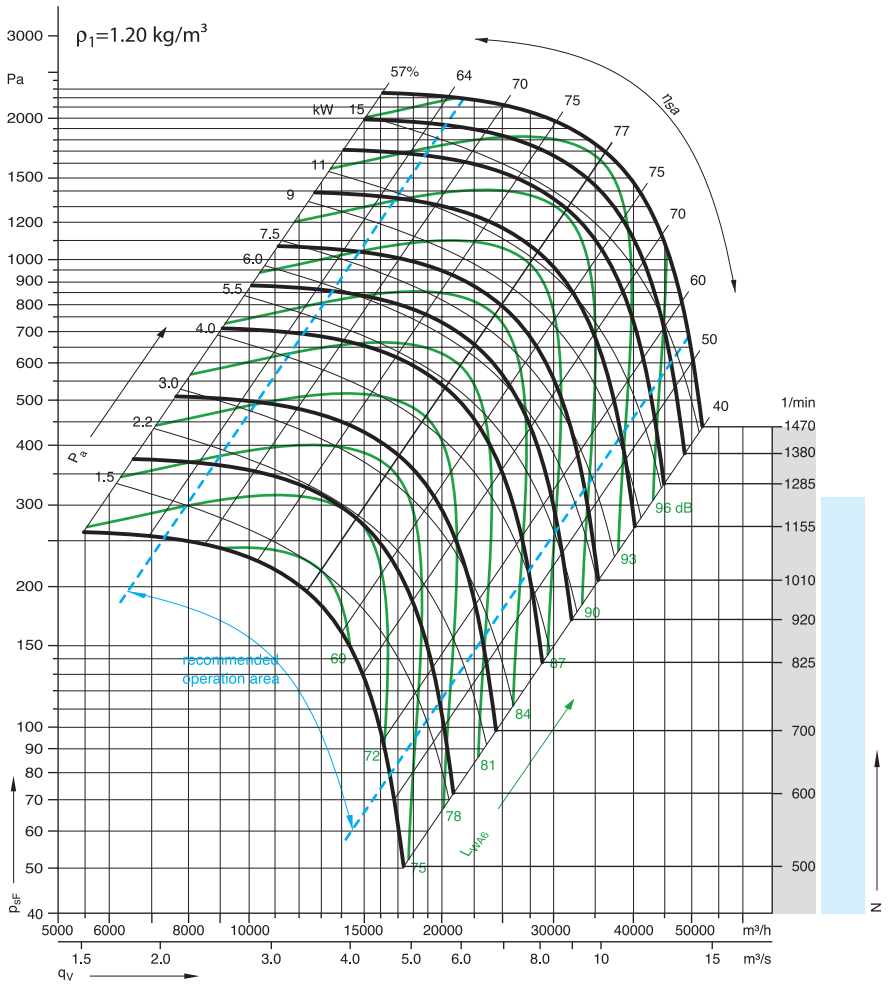
Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-710-4T	3 ~ 380	50	1420	7.5	22500	54	98
2	LC-PLB-710-6T	3 ~ 380	50	900	4.0	19250	54	87
3	LC-PLB-710-8T	3 ~ 380	50	740	3.0	15140	54 or 55	82

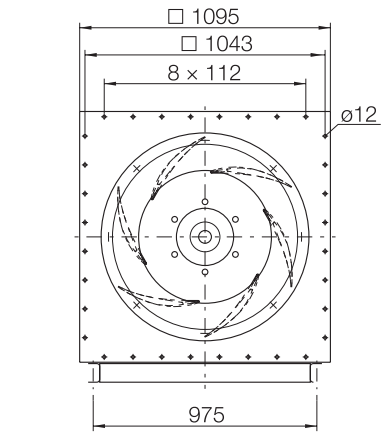
Just used with soft starter or inverter drive

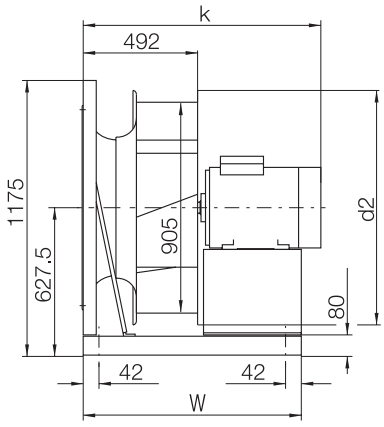
li-cha
HVAC & VENTILATION SYSTEM

PLB 800

پلاگ فن انتقال مستقیم

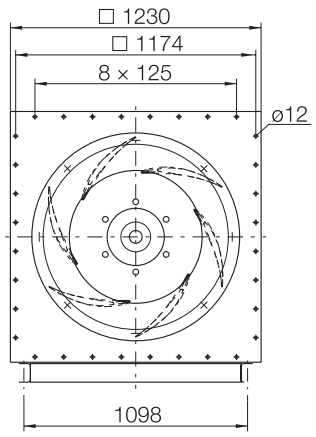


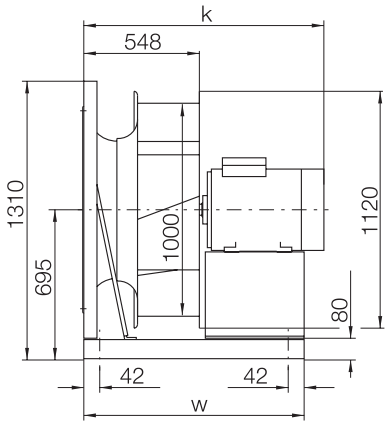


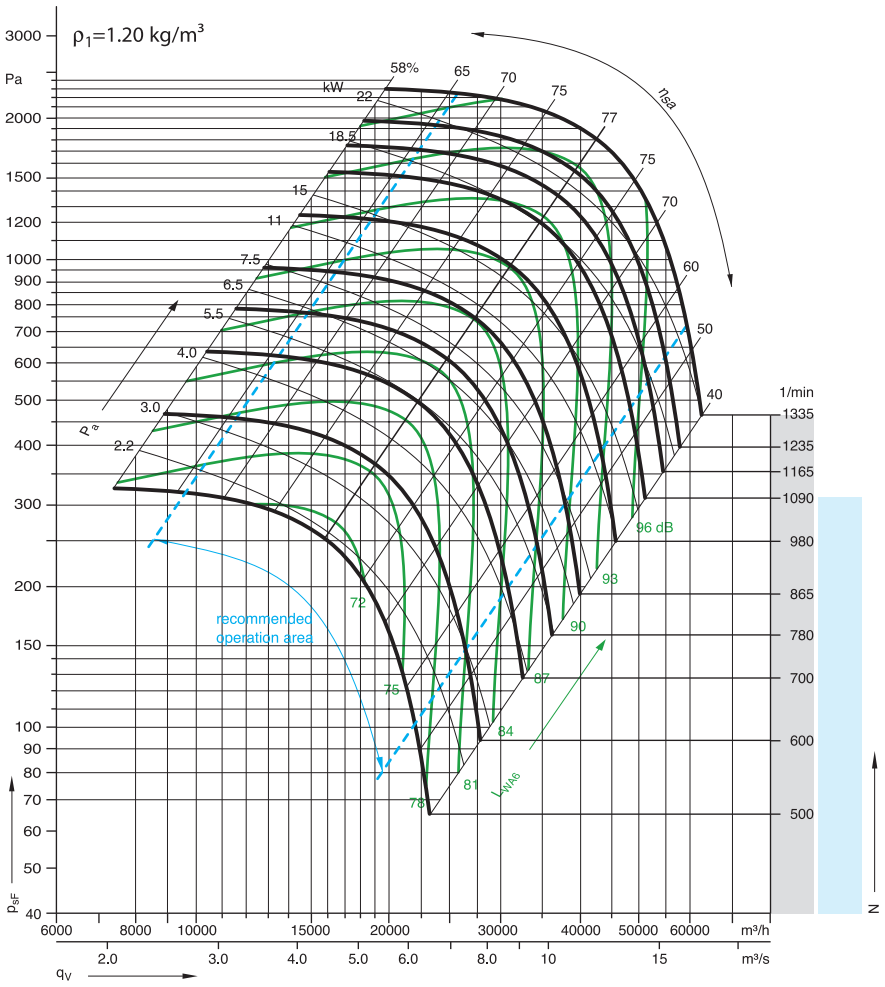


Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-800-4T	3 ~ 380	50	1410	15.0	34800	54	118
2	LC-PLB-800-6T	3 ~ 380	50	915	7.5	24500	54	92
3	LC-PLB-800-8T	3 ~ 380	50	755	5.5	19800	54	88

Just used with soft starter or inverter drive







Technical data		Nominal voltage	Frequency	Speed	Motor Power input	Max Air flow (free delivery)	Motor protective	Sound pressure level
No	Model	V - AC	Hz	rpm	kW	m^3/h	IP	dB (A)
1	LC-PLB-900-4T	3 ~ 380	50	1405	18.5	48400	54	122
2	LC-PLB-900-6T	3 ~ 380	50	905	11.0	32500	54	104
3	LC-PLB-900-8T	3 ~ 380	50	698	7.5	27800	54	94

Just used with soft starter or inverter drive

RCB

Roof Centrifugal Backward

Direct Drive / Belt Drive

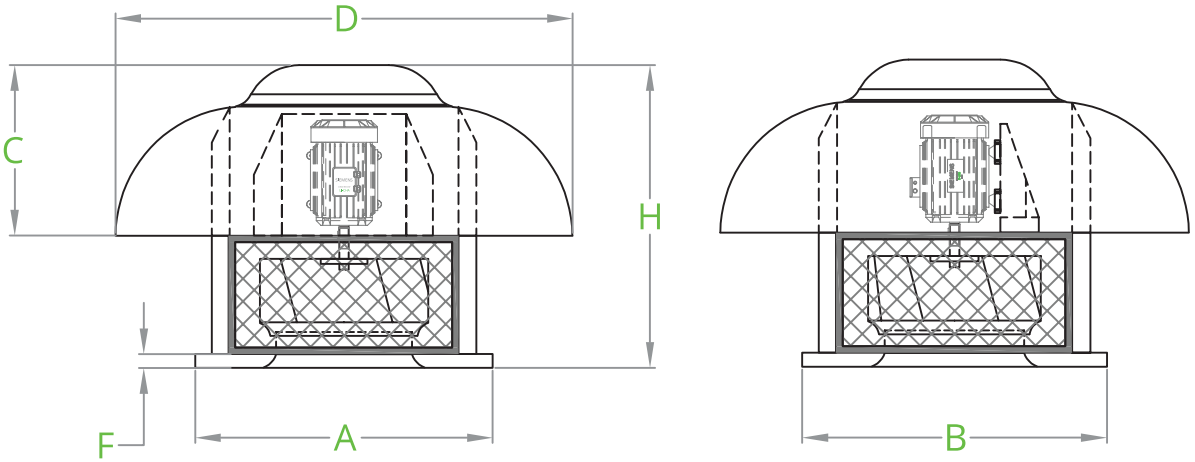
فن سقفی (پشت بامی)

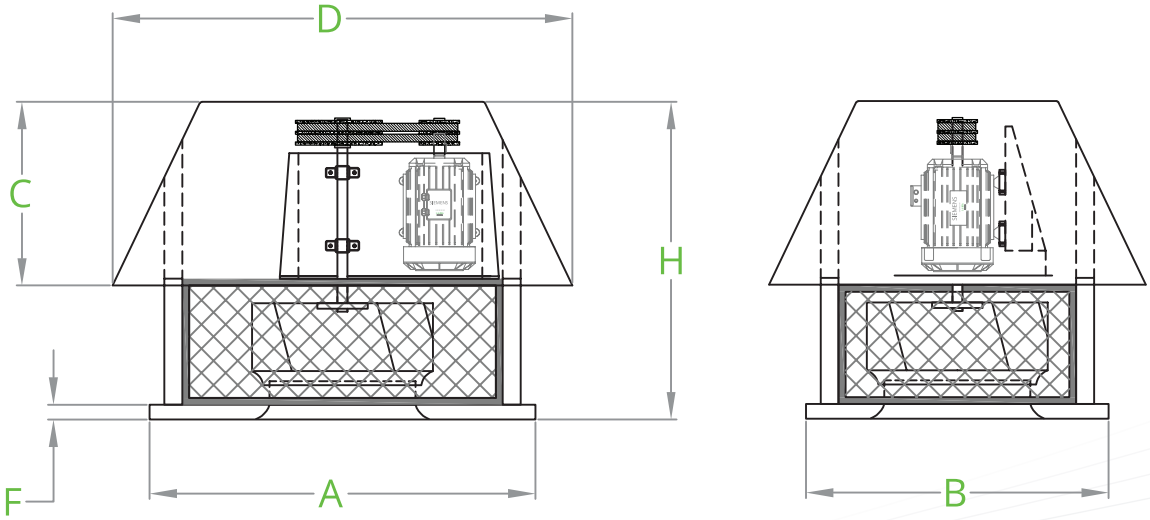
بکوارد انتقال قدرت مستقیم / پولی تسمه

RCB

فن سقفی بکوارد قدرت مستقیم / پولی تسمه

Model		Dimension (mm)					
		A	B	C	D	H	F
1	LC-RCB-175-D	380	380	230	570	350	25
2	LC-RCB-225-D	400	400	250	670	370	25
3	LC-RCB-280-D	410	410	260	760	470	25
4	LC-RCB-310-D	430	430	260	760	370	25
5	LC-RCB-310-B	530	430	260	760	470	25
6	LC-RCB-350-D	460	460	260	760	400	25
7	LC-RCB-350-B	560	460	260	760	510	25
8	LC-RCB-400-D	520	520	260	760	400	30
9	LC-RCB-400-B	620	520	240	700x800	510	30
10	LC-RCB-450-D	560	560	200	1000	410	30
11	LC-RCB-450-B	660	560	240	750x850	520	30
12	LC-RCB-500-D	640	640	200	1000	420	30
13	LC-RCB-500-B	740	640	250	850x1000	600	30
14	LC-RCB-560-D	700	700	200	1200	520	30
15	LC-RCB-560-B	800	700	250	850x1000	670	30
16	LC-RCB-630-D	740	740	200	1200	520	30
17	LC-RCB-630-B	840	740	300	1100x1100	670	30
18	LC-RCB-710-D	840	840	350	1100x1100	860	30
19	LC-RCB-710-B	940	840	350	1100x1200	860	30
20	LC-RCB-800-D	940	940	350	1200x1200	860	30
21	LC-RCB-800-B	1040	940	350	1200x1300	860	30
22	LC-RCB-900-D	1050	1050	350	1200x1200	940	40
23	LC-RCB-900-D	1120	1050	350	1200x1400	940	40
24	LC-RCB-1000-D	1120	1120	380	1350x1350	1000	40
25	LC-RCB-1000-D	1220	1120	380	1350x1550	1000	40


D
C
H
F
A
B


D
C
H
F
A
B

li-cha
HVAC & VENTILATION SYSTEM

RCB

فن سقفی بکوارد قدرت مستقیم / پولی تسمه

Model		Power (kW)	Voltage (V)	Speed (RPM)	Sound (dB)	K=1.2 Static Pressure (Pa) Air Flow (m3/h)					
						A	B	C	D	H	F
1	LC-RCB-175-4 S/ T-D/B	0.12	220/380	1415	52	590	560	505	-	-	-
2	LC-RCB-175-2 S/ T-D/B	0.18	220/380	2988	59	780	755	742	710	660	-
3	LC-RCB-225-4 S/ T-D/B	0.12	220/380	1440	52	580	558	521	495	-	-
4	LC-RCB-225-2 S/ T-D/B	0.18	220/380	3050	60	990	945	928	898	790	-
5	LC-RCB-280-6 T-D/B	0.37	380	900	56	680	625	605	595	-	-
6	LC-RCB-280-4 S/ T-D/B	0.25	220/380	1415	60	850	815	795	764	-	-
7	LC-RCB-280-2 S/ T-D/B	0.55	220/380	2950	64	1150	786	697	578	418	-
8	LC-RCB-315-6 T-D/B	0.37	380	900	58	1315	1274	1050	921	-	-
9	LC-RCB-315-4 S/ T-D/B	0.37	220/380	1430	61	1770	1700	1625	1512	1460	1340
10	LC-RCB-315-2 S/ T-D/B	0.75	220/380	2900	66	3950	3490	3360	3250	3130	3090
11	LC-RCB-350-6 T-D/B	0.37	380	900	60	1660	1580	1490	1425	1380	-
12	LC-RCB-350-4 S/ T-D/B	0.37	220/380	1430	63	2680	2250	2140	2090	1990	1840
13	LC-RCB-400-6 T-D/B	0.37	380	900	61	1880	1804	1768	1712	1590	-
14	LC-RCB-400-4 S/ T-D/B	0.75	220/380	1440	64	3980	3845	3796	3715	3666	3490
15	LC-RCB-450-6 T-D/B	0.55	380	900	63	2650	2590	2515	2345	2190	1940

Model		Power (kW)	Voltage (V)	Speed (RPM)	Sound (dB)	Static Pressure (Pa) Air Flow (m^3/h)					
						A	B	C	D	H	F
16	LC-RCB-450-4 S/ T-D/B	1.1	220/380	1405	66	4950	4790	4650	4544	4288	4105
17	LC-RCB-500-6 T-D/B	1.1	380	900	66	4680	4545	4350	4290	4105	3903
18	LC-RCB-500-4 S/ T-D/B	1.5	220/380	1401	69	7080	6915	6745	6615	6480	6378
19	LC-RCB-560-6 T-D/B	1.5	380	910	68	6780	6415	6148	5955	5880	5688
20	LC-RCB-560-4 T-D/B	2.2	220/380	1415	72	11500	10990	9880	9611	9345	9018
21	LC-RCB-630-6 T-D/B	3.0	380	900	70	10150	9750	9270	8960	8615	8444
22	LC-RCB-630-4 T-D/B	3.0	380	1410	75	17150	16890	16150	15860	15260	14940
23	LC-RCB-710-6 T-D/B	3.0	380	900	72	15150	14950	14150	13874	13745	13560
24	LC-RCB-710-4 T-D/B	5.5	380	1400	97	28650	28140	27753	26880	25405	24404
25	LC-RCB-800-6 T-D/B	5.5	380	905	91	29880	29950	29470	28890	27715	25640
26	LC-RCB-900-8 T-D/B	4.0	380	700	82	28150	26980	25450	23230	22440	20850
27	LC-RCB-900-6 T-D/B	5.5	380	905	96	34440	36840	36880	35980	34450	32780
28	LC-RCB-1000-8 T-D/B	5.5	380	700	88	33150	32180	31400	30100	27940	26750
29	LC-RCB-1000-6 T-D/B	7.5	380	915	98	39480	38950	38280	37660	36470	35105

Utility and Supplier Centrifugal Forward Fans

Single & Double Inlet / Direct & Belt Drive

فن سانتریفیوژ یوتیلیتی و ساپلایر فوروارد

ورودی یک طرفه و دو طرفه/ مستقیم و پولی تسمه

فن سانتریفیوژ یوتیلیتی با پروانه مدل فوروارد (Forward Curve) در دو نوع ورودی یک طرفه و دوطرفه ، با تنوع بسیار بالا در ظرفیت هوادهی و فشار استاتیکی ، از پرکاربردترین انواع فن‌های سانتریفیوژ در سیستم های تهویه صنعتی و هوارسان‌ها میباشند. این نوع فن مطابق با الگو طرح شرکت NicotralGebhardt آلمان با دو نوع انتقال قدرت مستقیم و پولی تسمه (Direct Drive & Belt Drive) می‌باشد.

برخی از شاخص های فنی این مدل، قابلیت ساخت بدنه و پروانه از جنس ورق گالوانیزه یا فولاد کربن یا استنلس استیل ، پوشش کامل رنگ پودری الکترواستاتیک کوره‌ای، گریل محافظ دهانه ورودی ، شاسی دوبل و لرزه گیر، پایه رگلاژ تسمه ،قابلیت نصب بالانس دمپر یا لوورال دمپر، قابل سفارش با حالات مختلف جهت دهانه ورودی و خروجی هوا و همچنین متعلقات جانبی مورد نیاز با توجه به نیاز مشتری از جمله تجهیزات کنترلی ، مکانیکال و الکتریکال اشاره نمود.

SDF - D

Centrifugal Supplier Forward Fan

Double Inlet / Direct Drive

فن سانتریفیوژ ساپلایر فوروارد

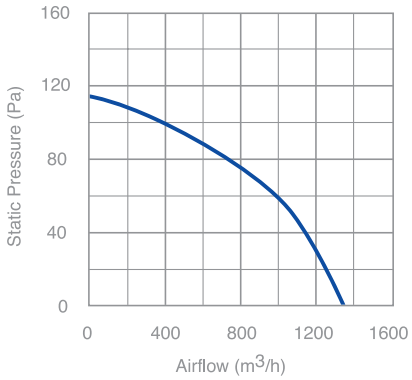
ورودی دوطرفه با انتقال قدرت مستقیم

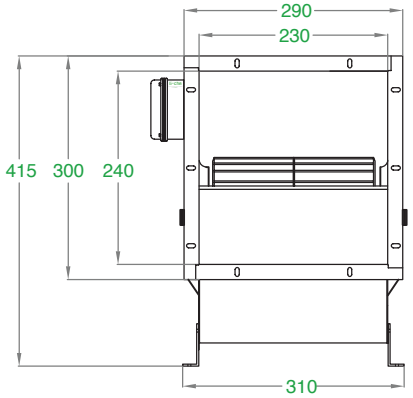
li-cha
HVAC & VENTILATION SYSTEM

SDF 200X200

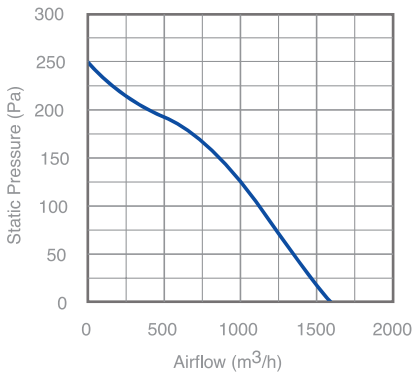
فن سانتریفیوژ ساپلایر فوروارد

NO.1

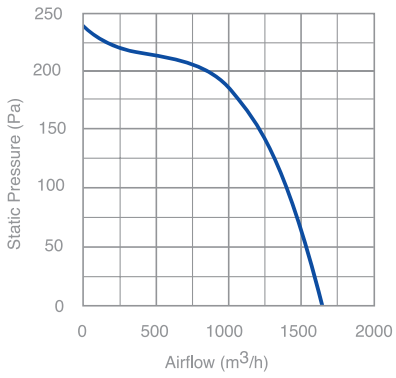


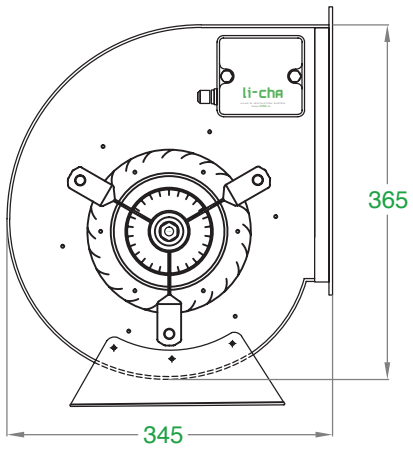


NO.2



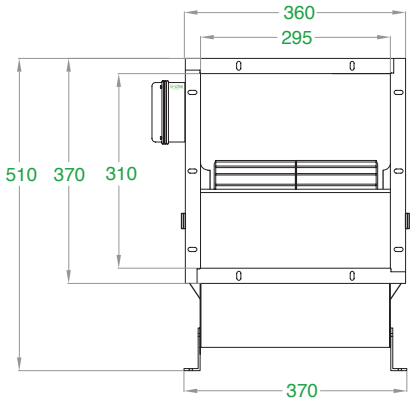
NO.3

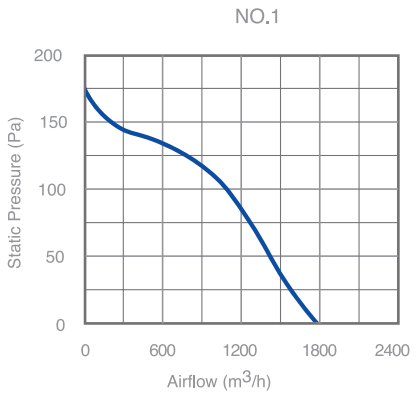


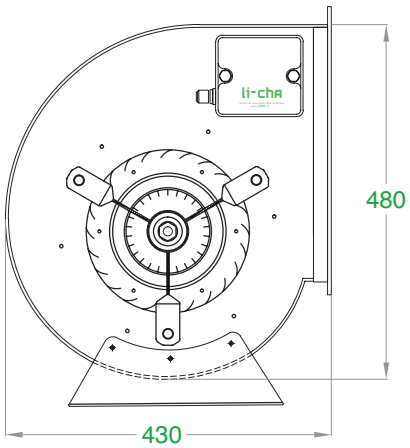


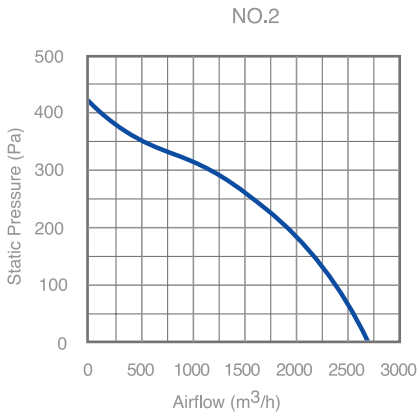
Technical data		Nominal voltage	Frequency	Speed	Power input	Current	Max Air flow (free delivery)	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	A	m^3/h	IP	dB (A)
1	LC-SDF-200X200-6S-D	1 ~ 220	50	915	0.22	0.97	1370	54	50
2	LC-SDF-200X200-4S-D	1 ~ 220	50	1355	0.33	1.5	1620	54	61
3	LC-SDF-200X200-4T-D	3 ~ 380	50	1380	0.34	0.83	1680	54	61

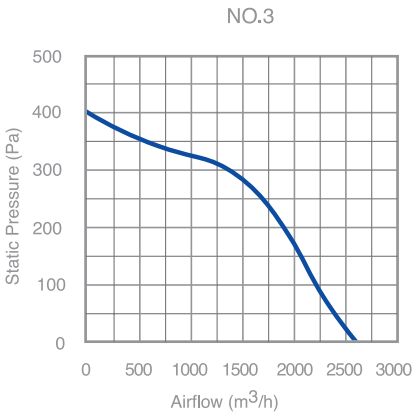
SDF 250X250







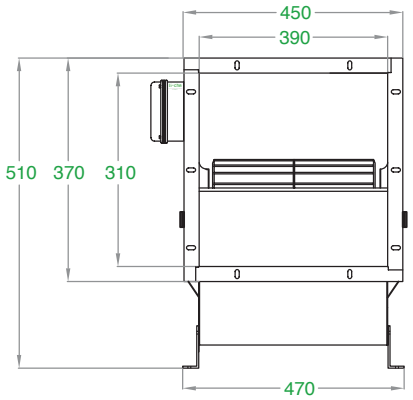


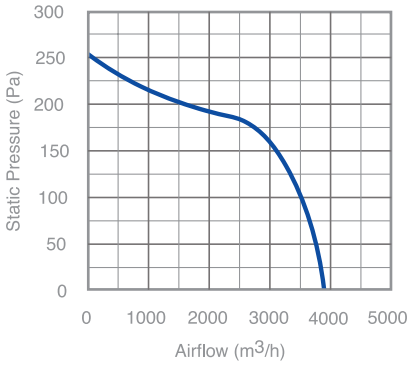


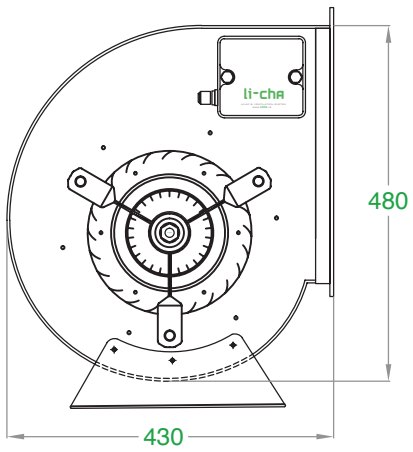
Technical data		Nominal voltage	Frequency	Speed	Power input	Current	Max Air flow (free delivery)	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	A	m^3/h	IP	dB (A)
1	LC-SDF-250X250-6S-D	1 ~ 220	50	835	0.43	2	1740	54	57
2	LC-SDF-250X250-4S-D	1 ~ 220	50	1380	0.75	3.55	2750	54	64
3	LC-SDF-250X250-4T-D	3 ~ 380	50	1355	0.67	1.35	2620	54	64

SDF 250X300

فن سانتریفیوژ ساپلایر فوروارد

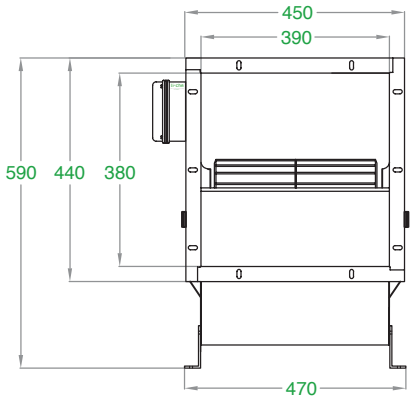


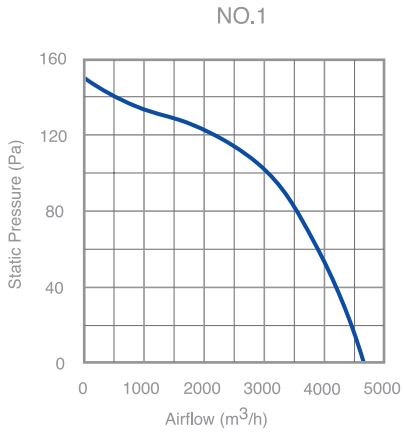


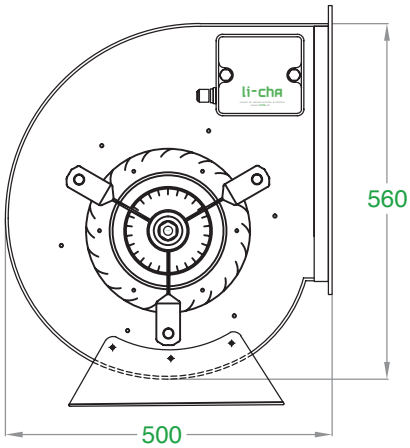


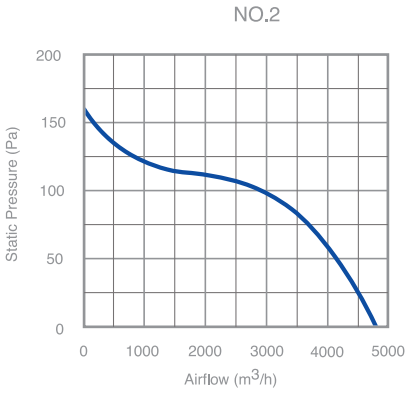
Technical data		Nominal voltage	Frequency	Speed	Power input	Current	Max Air flow (free delivery)	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	A	m^3/h	IP	dB (A)
1	LC-SDF-250X300-6S-D	1 ~ 220	50	835	0.75	3.5	3150	54	69

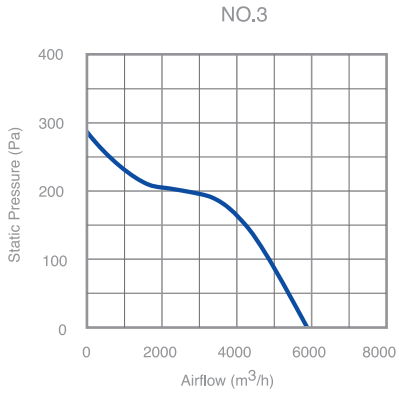
SDF 300X300









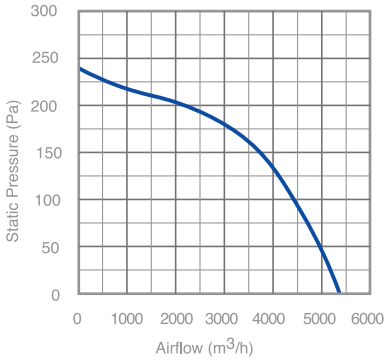


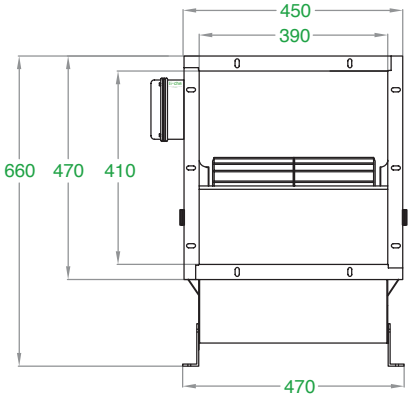
Technical data		Nominal voltage	Frequency	Speed	Power input	Current	Max Air flow (free delivery)	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	A	m^3/h	IP	dB (A)
1	LC-SDF-300X300-8S-D	1 ~ 220	50	680	0.62	3.2	4650	54	67
2	LC-SDF-300X300-8T-D	3 ~ 380	50	695	0.55	1.65	4900	54	67
3	LC-SDF-300X300-6T-D	3 ~ 380	50	855	0.96	1.92	6000	54	69

SDF 380X300

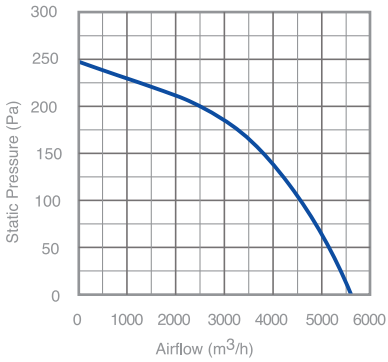
فن سانتریفیوژ ساپلایر فوروارد

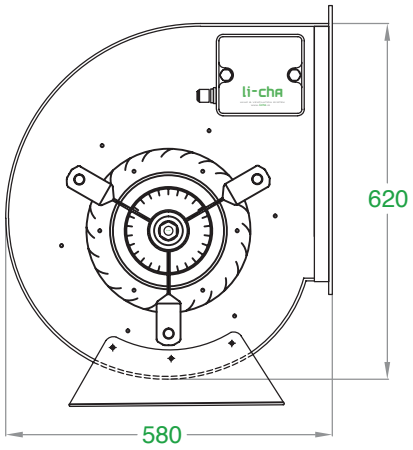
NO.1





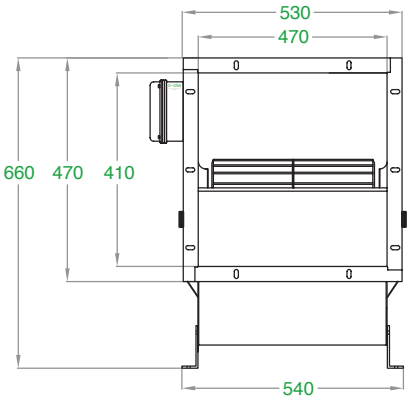
NO.2

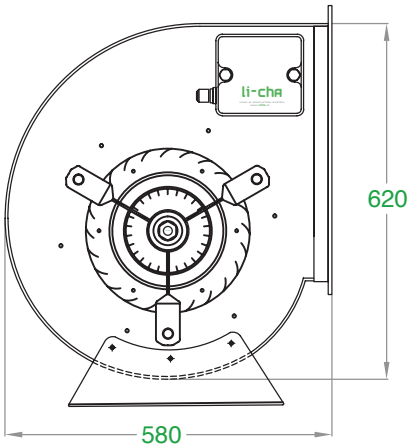


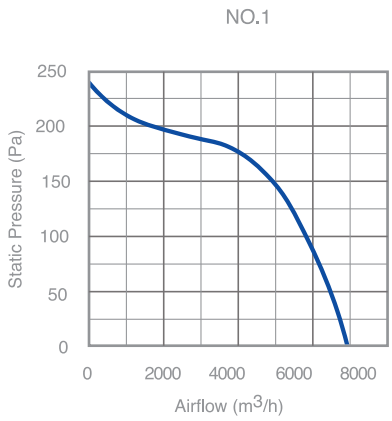


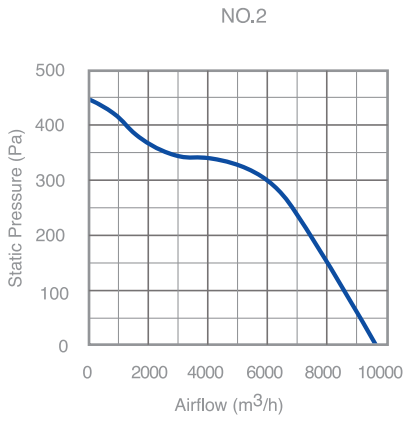
Technical data		Nominal voltage	Frequency	Speed	Power input	Current	Max Air flow (free delivery)	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	A	m^3/h	IP	dB (A)
1	LC-SDF-380X300-8S-D	1 ~ 220	50	650	0.88	4.52	5400	54	69
2	LC-SDF-380X300-8T-D	3 ~ 380	50	660	0.91	2.4	5600	54	69

SDF 380X380









Technical data		Nominal voltage	Frequency	Speed	Power input	Current	Max Air flow (free delivery)	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	A	m^3/h	IP	dB (A)
1	LC-SDF-380X380-8S-D	1 ~ 220	50	660	1.1	5.3	7050	54	70
2	LC-SDF-380X380-6T-D	3 ~ 380	50	860	0.91	4.9	9750	54	79

SDF - B

Centrifugal Supplier Forward Fan

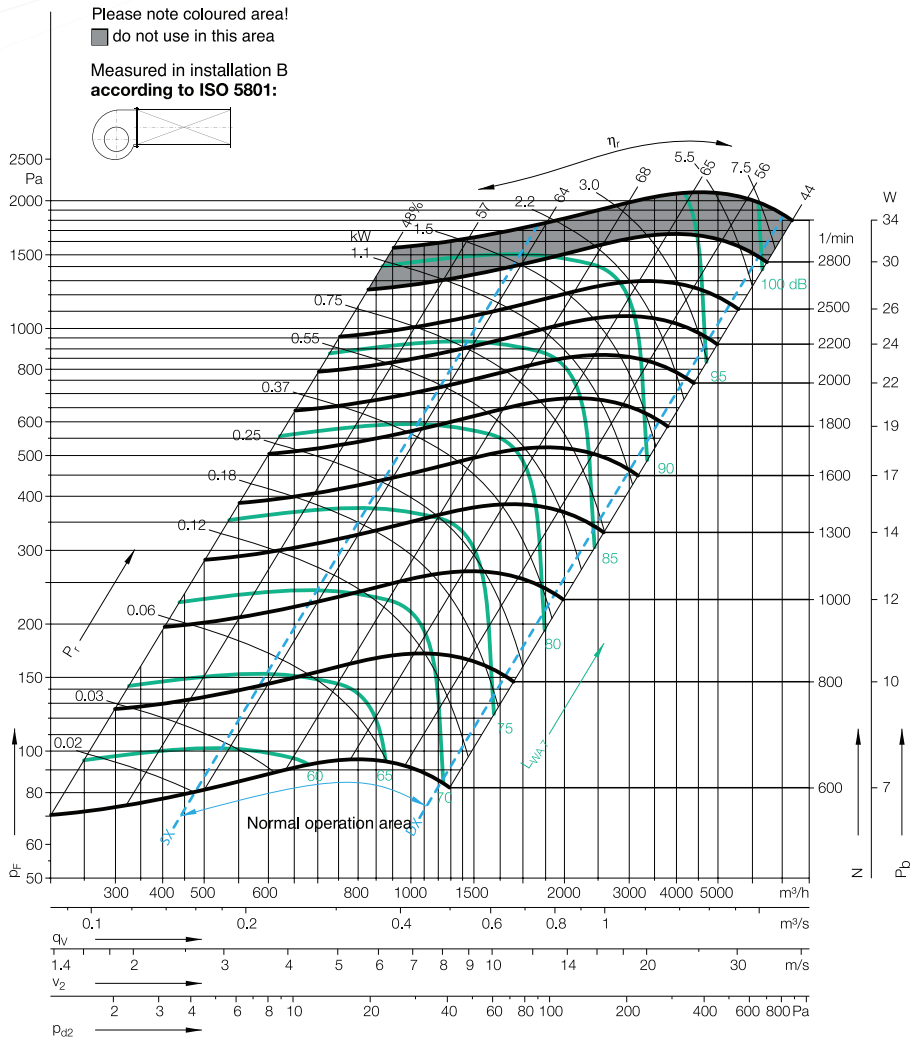
Double Inlet / Belt Drive

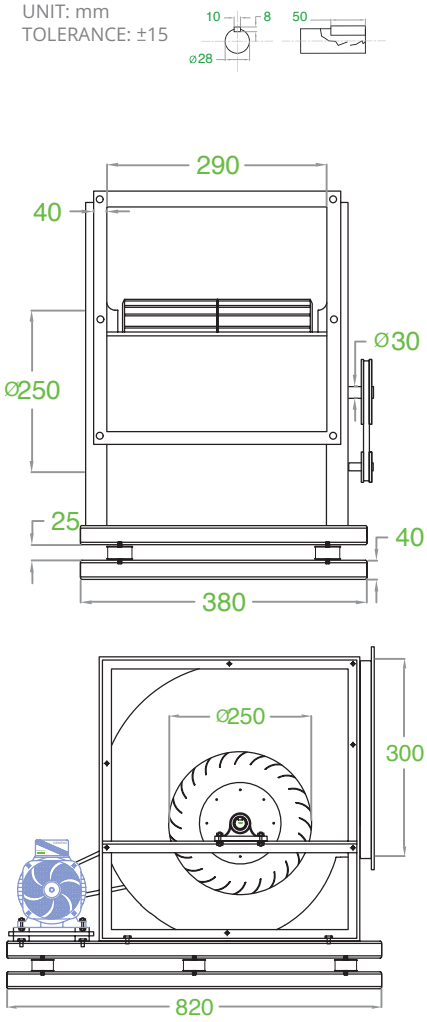
فن سانتریفیوژ ساپلایر فوروارد

ورودی دوطرفه با انتقال قدرت پولی و تسمه

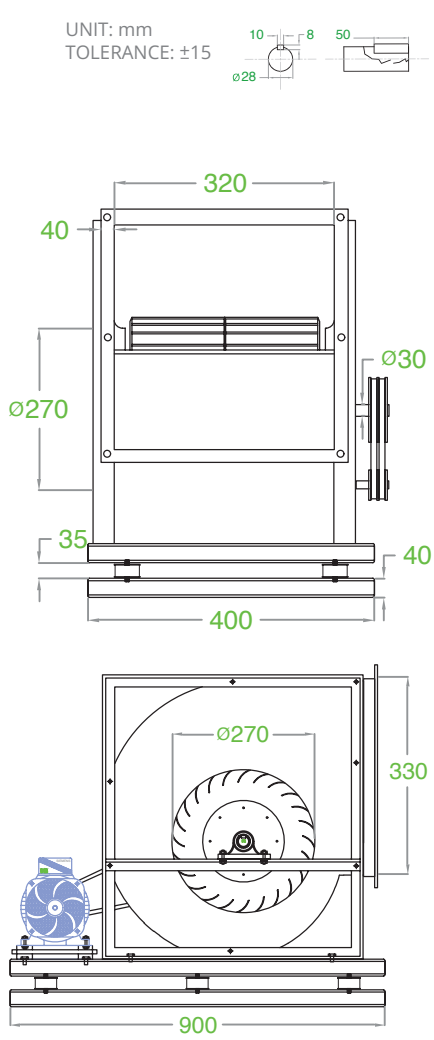
SDF 280

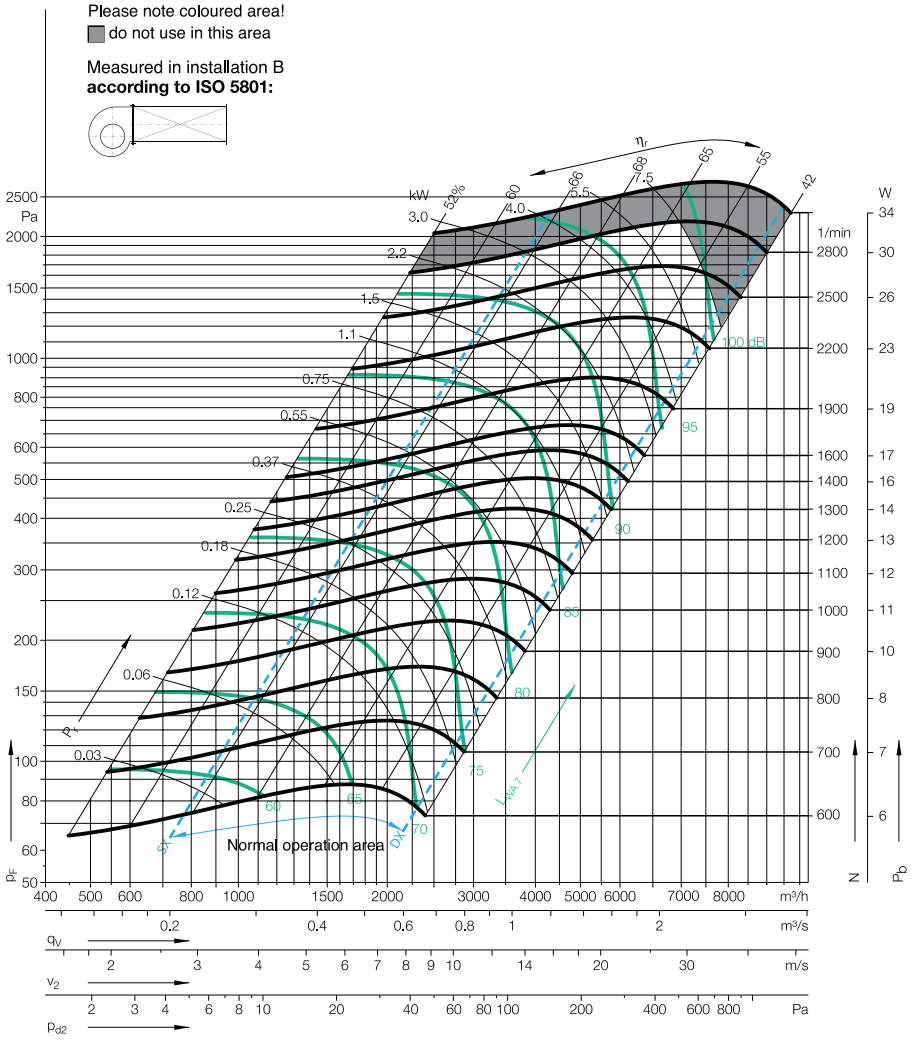
فن سانتریفیوژ ساپلایر فوروارد





Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-280	3 ~ 380	50	600~1400	3.0~4.0	1500~4400	140~400	54 or 55	70 in max rpm

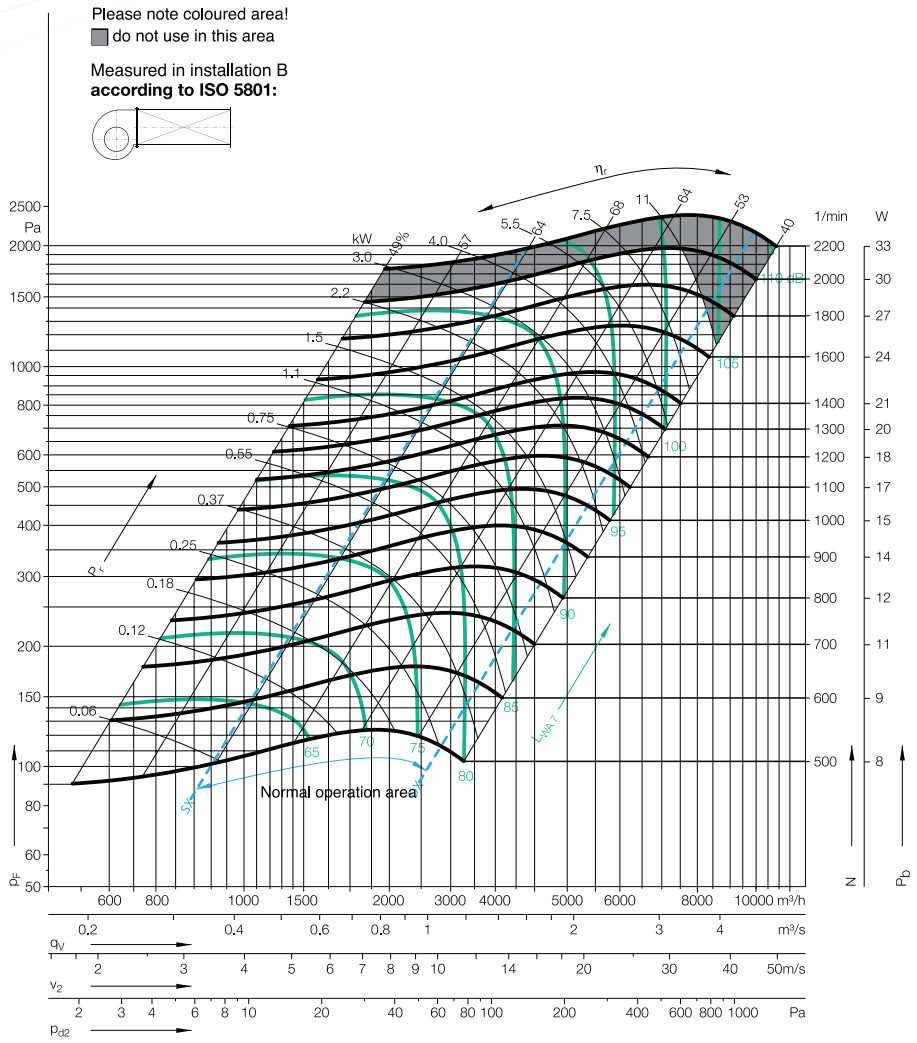


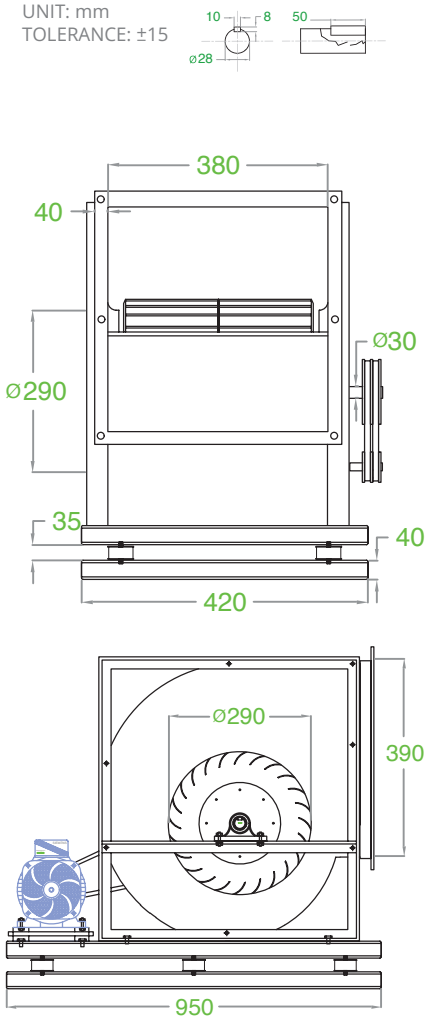


Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-315	3 ~ 380	50	560~1280	1.1~2.2	1700~5250	140~450	54 or 55	74 in max rpm

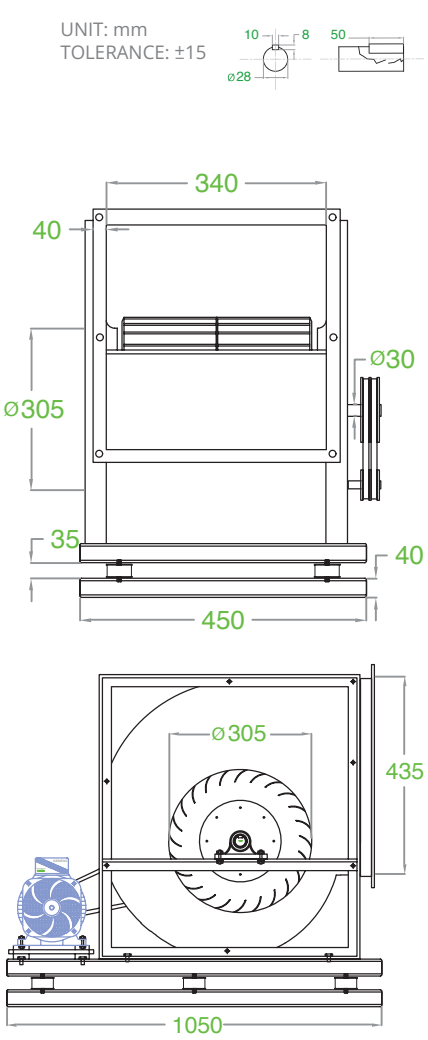
SDF 350

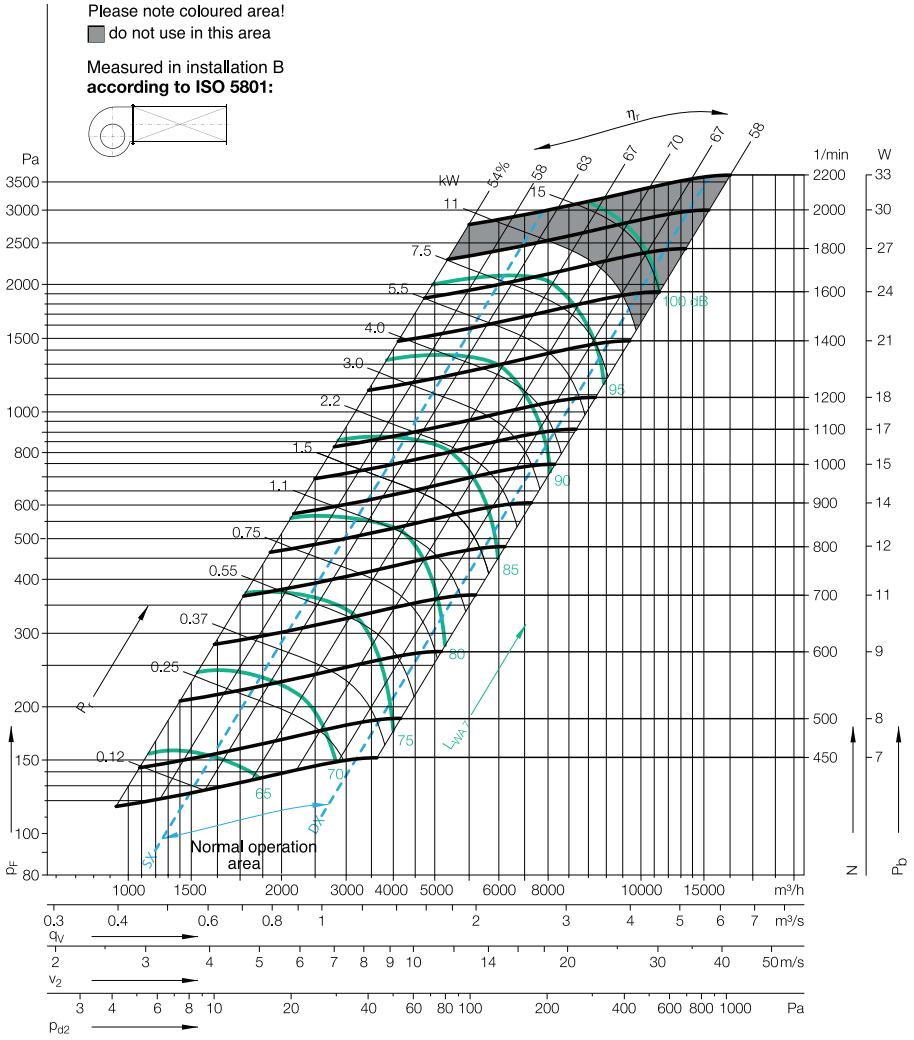
فن سانتریفیوژ ساپلایر فوروارد





Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-350	3 ~ 380	50	550~1120	1.5~3.0	2400~6400	150~450	54 or 55	78 in max rpm

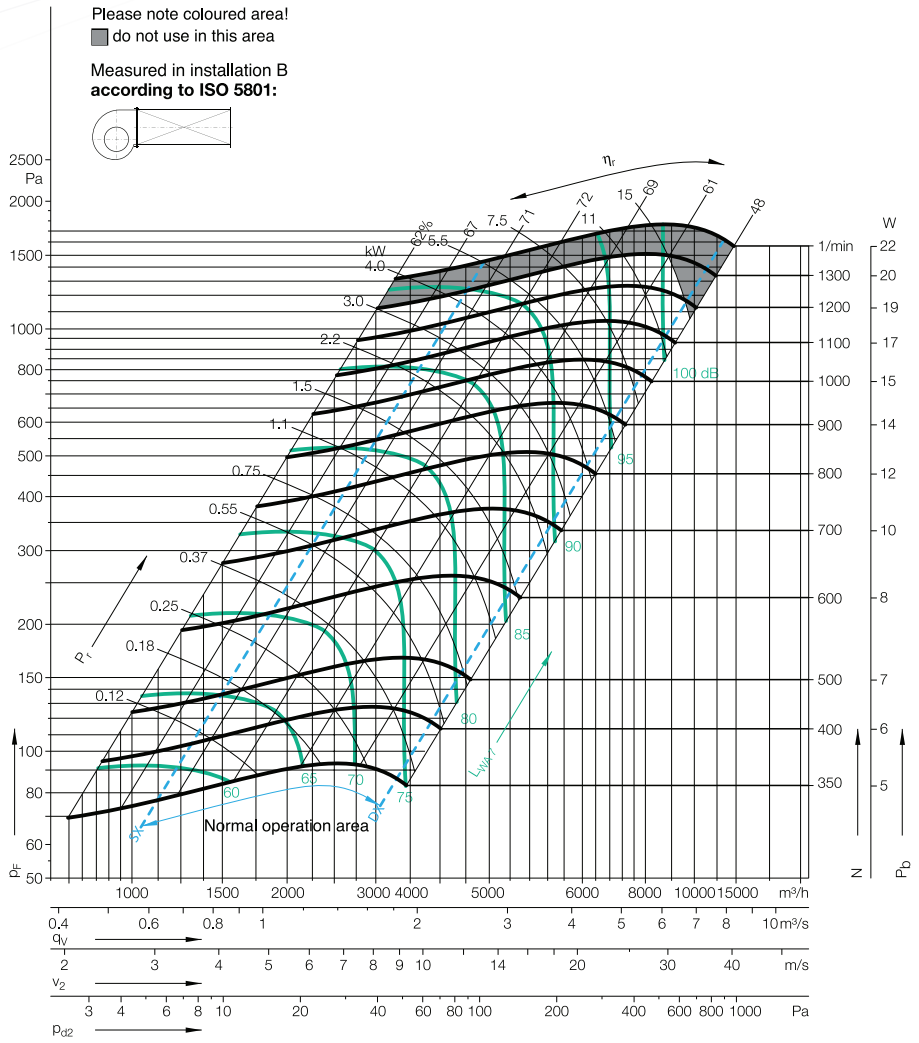




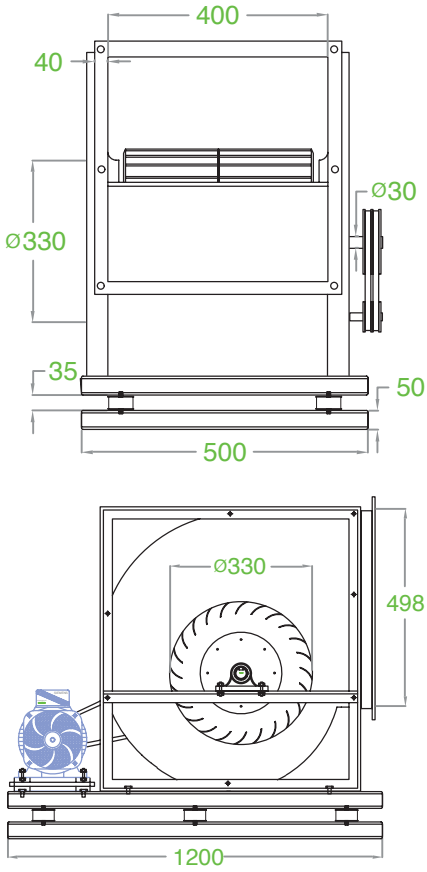
Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-400	3 ~ 380	50	500~1050	2.2~4.0	4400~9600	180~500	54 or 55	80 in max rpm

SDF 450

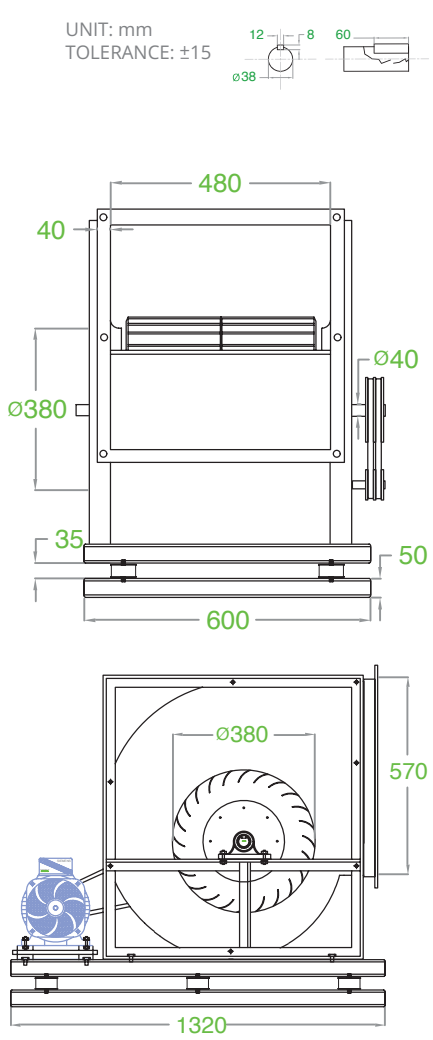
فن سانتریفیوژ ساپلایر فوروارد

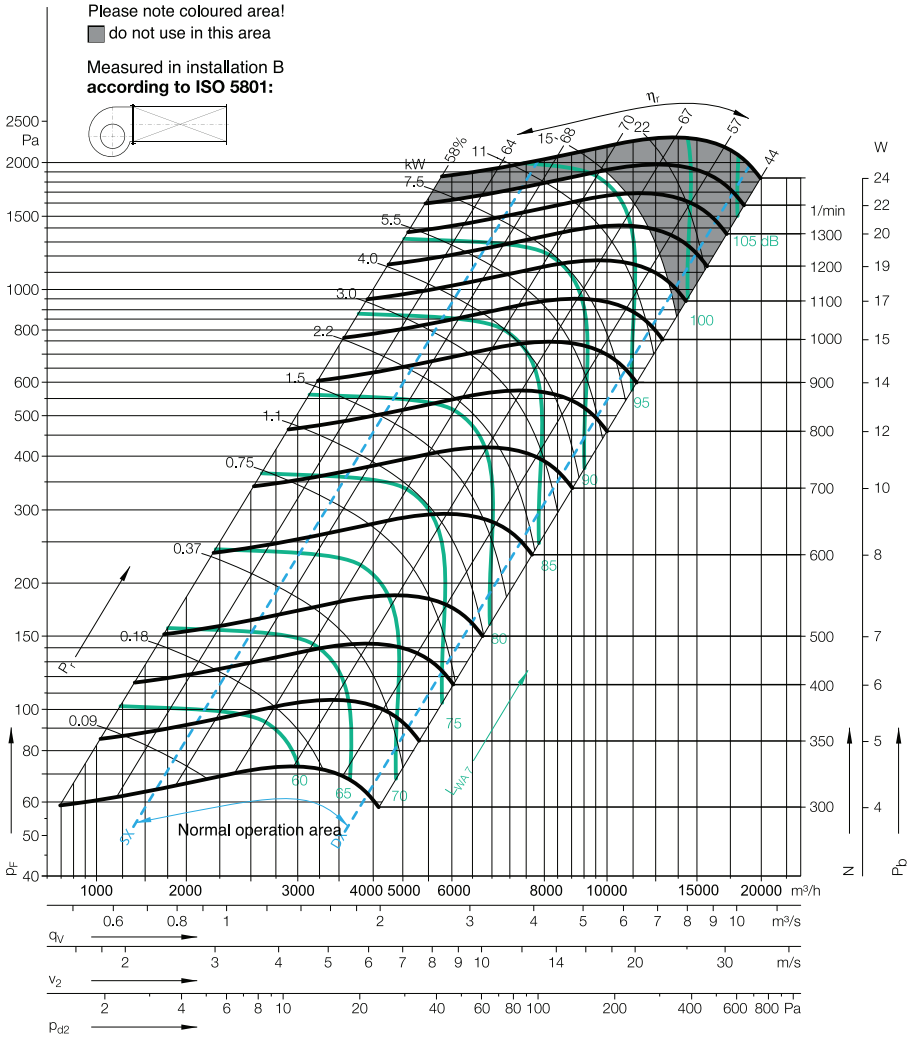






Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-450	3 ~ 380	50	480~1000	4.0~5.5	7800~12400	200~540	54 or 55	86 in max rpm

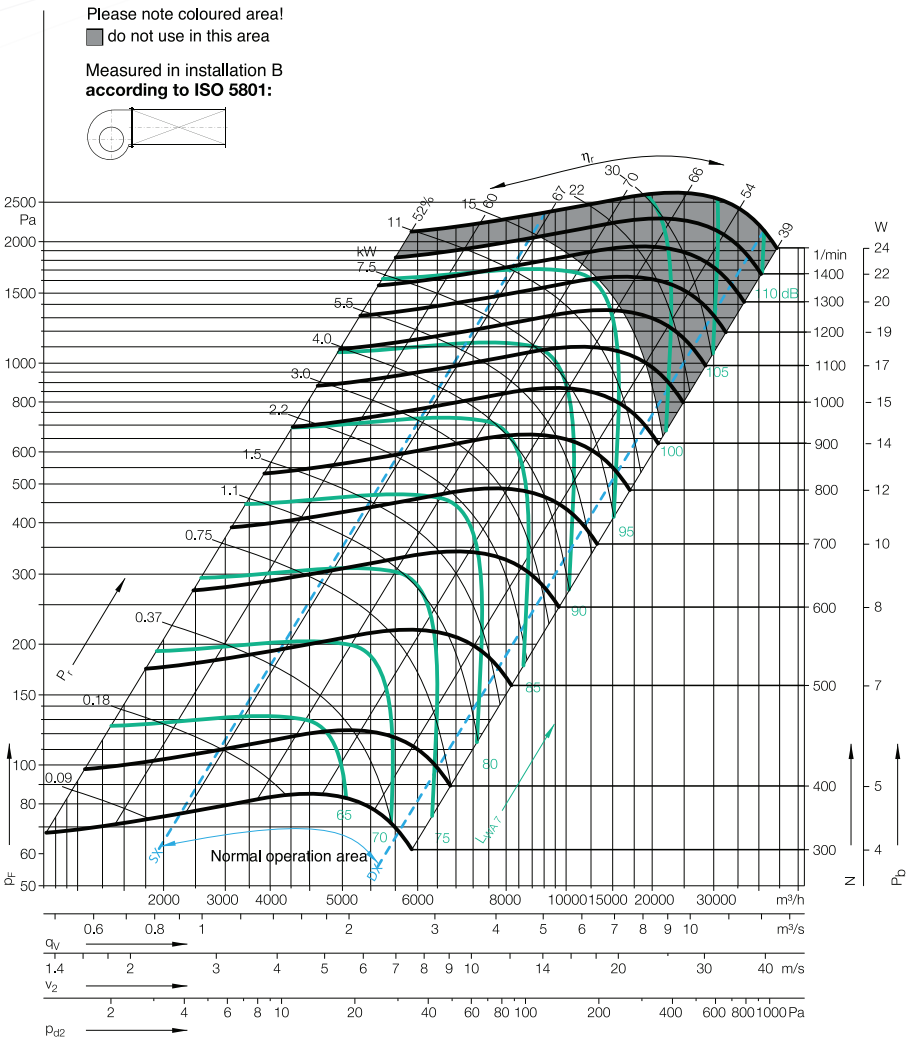


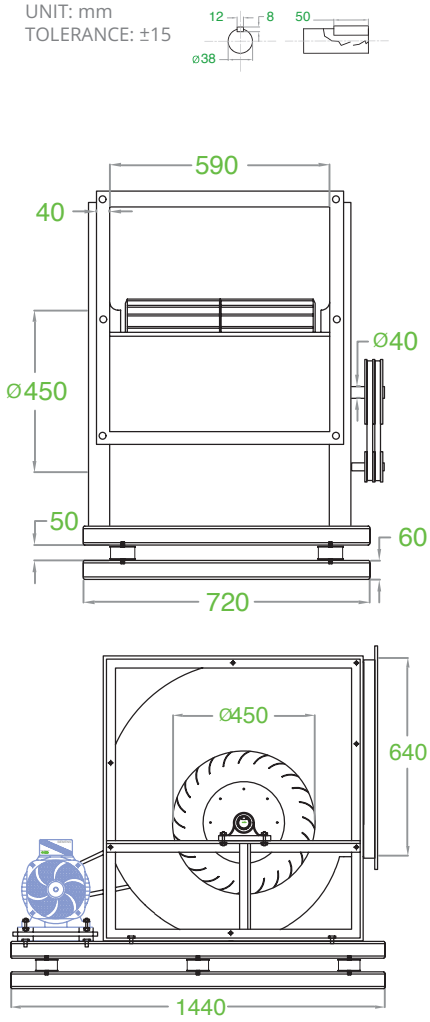


Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-500	3 ~ 380	50	450~950	4.0~7.5	7800~15400	250~560	54 or 55	88 in max rpm

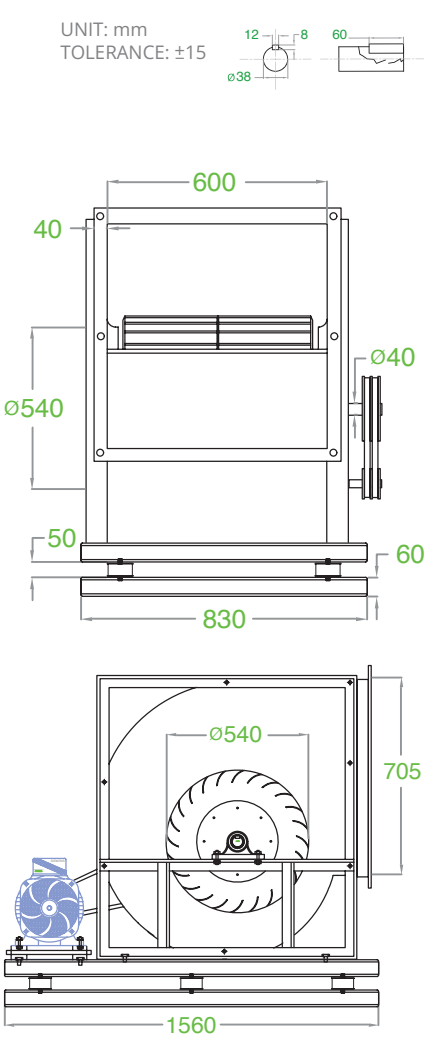
SDF 560

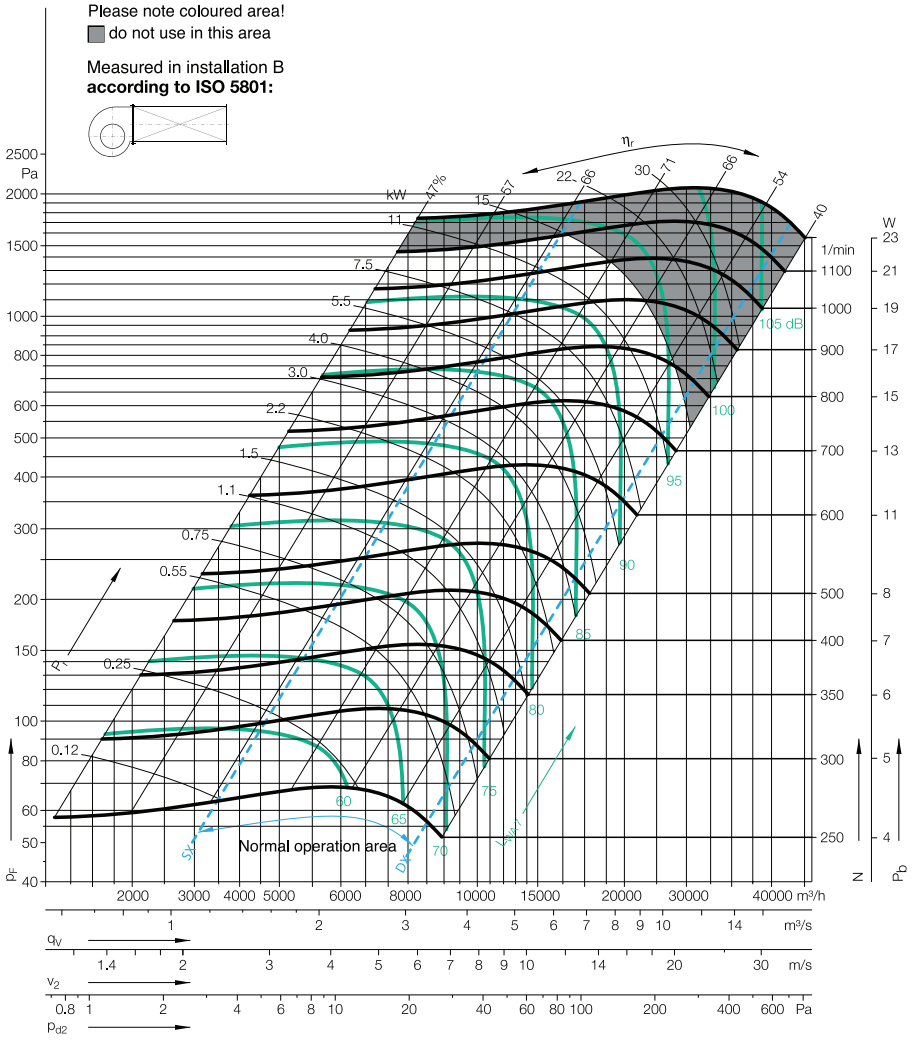
فن سانتریفیوژ ساپلایر فوروارد





Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-560	3 ~ 380	50	400~920	5.5~11.0	10200~19500	280~600	54 or 55	95 in max rpm



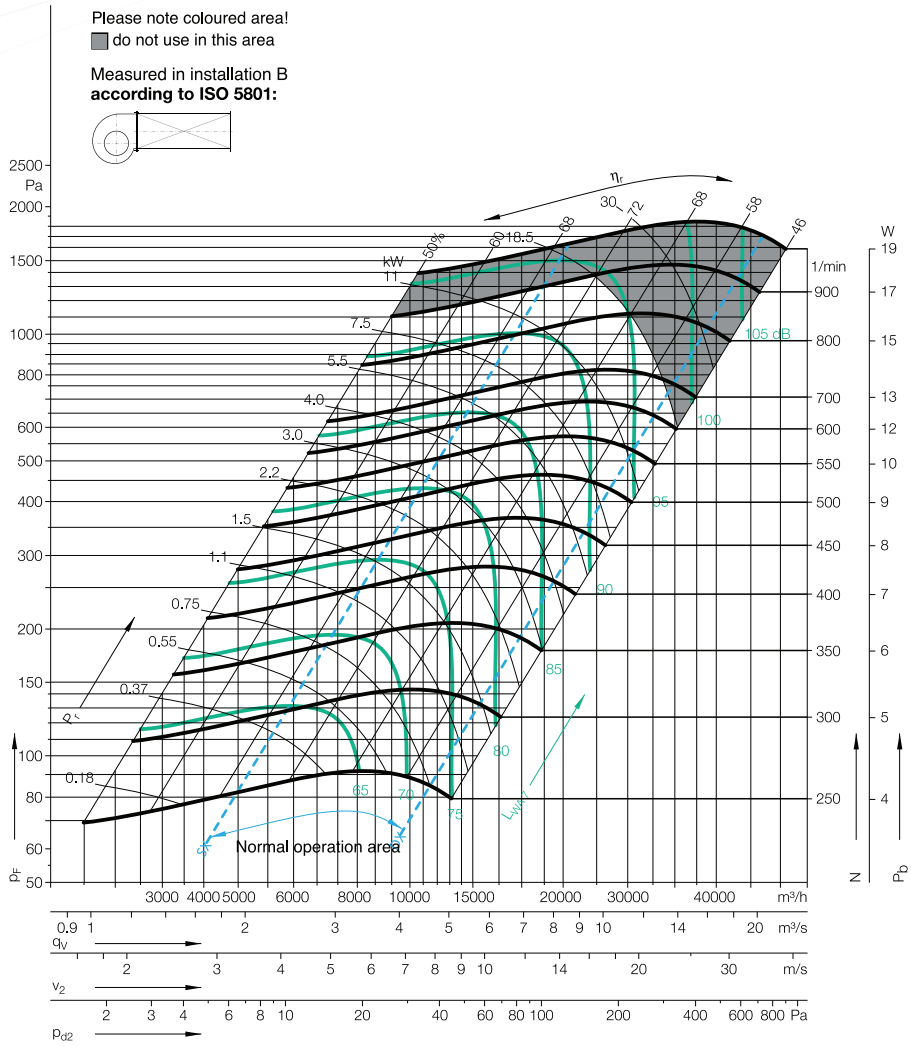


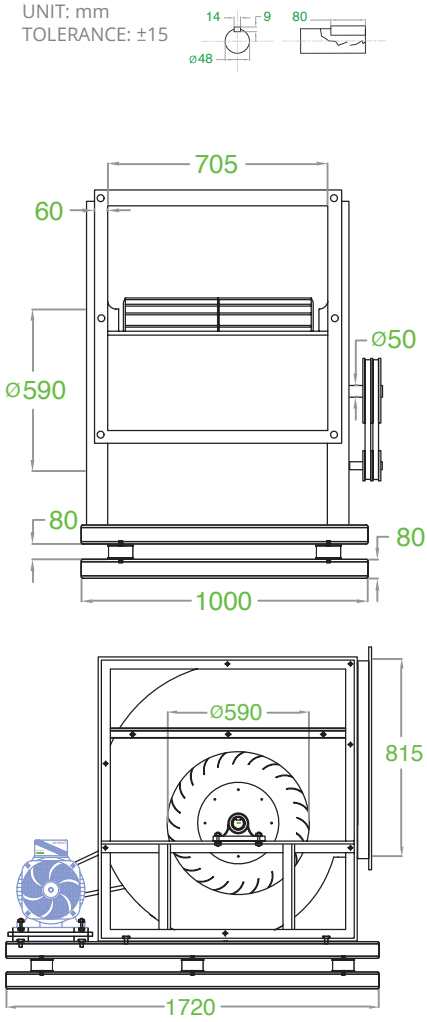
Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-630	3 ~ 380	50	350~840	11.0~15.0	14500~28500	300~620	54 or 55	100 in max rpm

li-cha
HVAC & VENTILATION SYSTEM

SDF 710

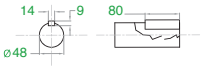
فن سانتریفیوژ ساپلایر فوروارد

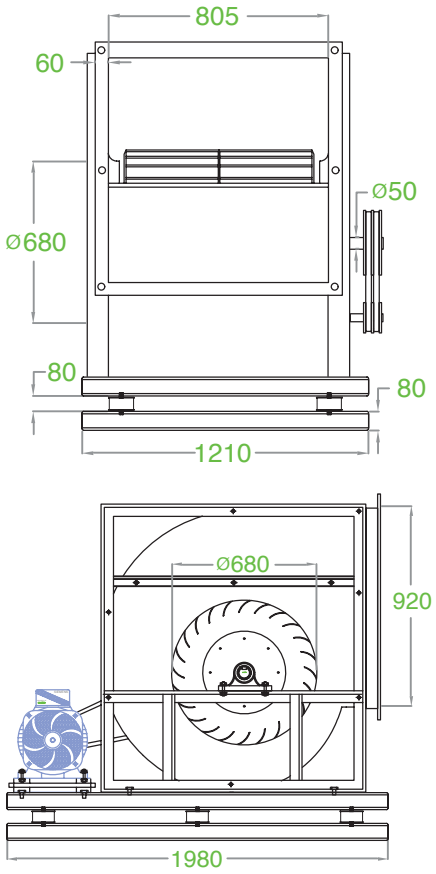




Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-710	3 ~ 380	50	300~760	11.0~18.5	18500~44000	320~650	54 or 55	105 in max rpm

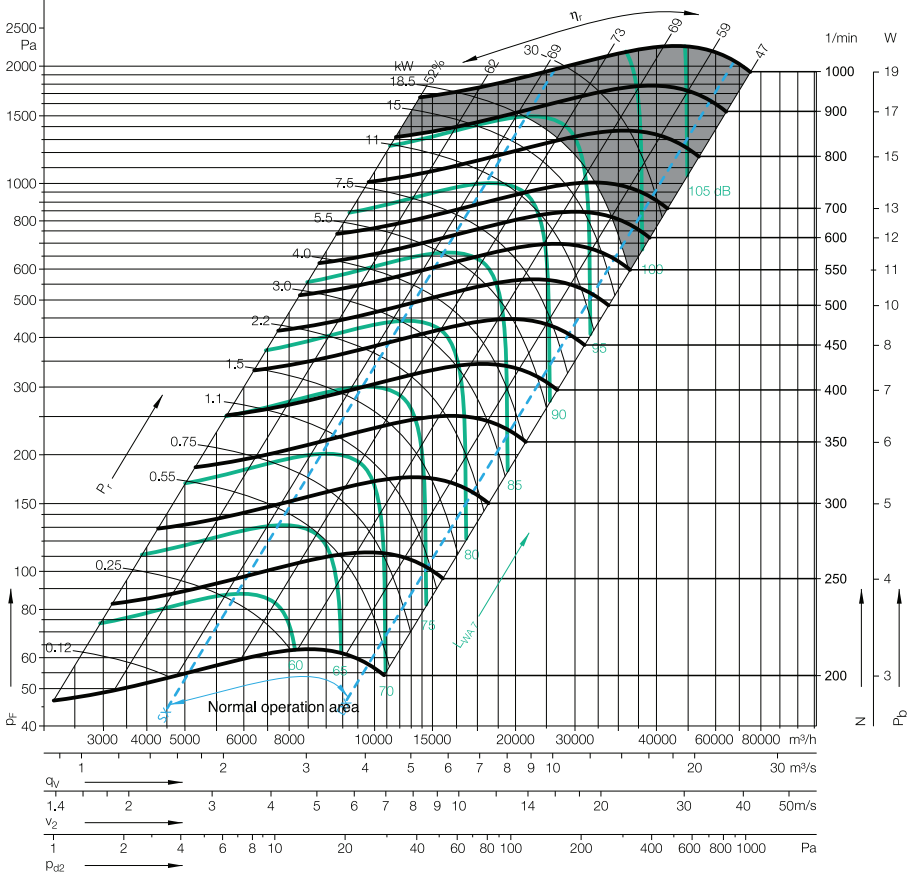
UNIT: mm
TOLERANCE: ±15





Please note coloured area!
do not use in this area

Measured in installation B
according to ISO 5801:

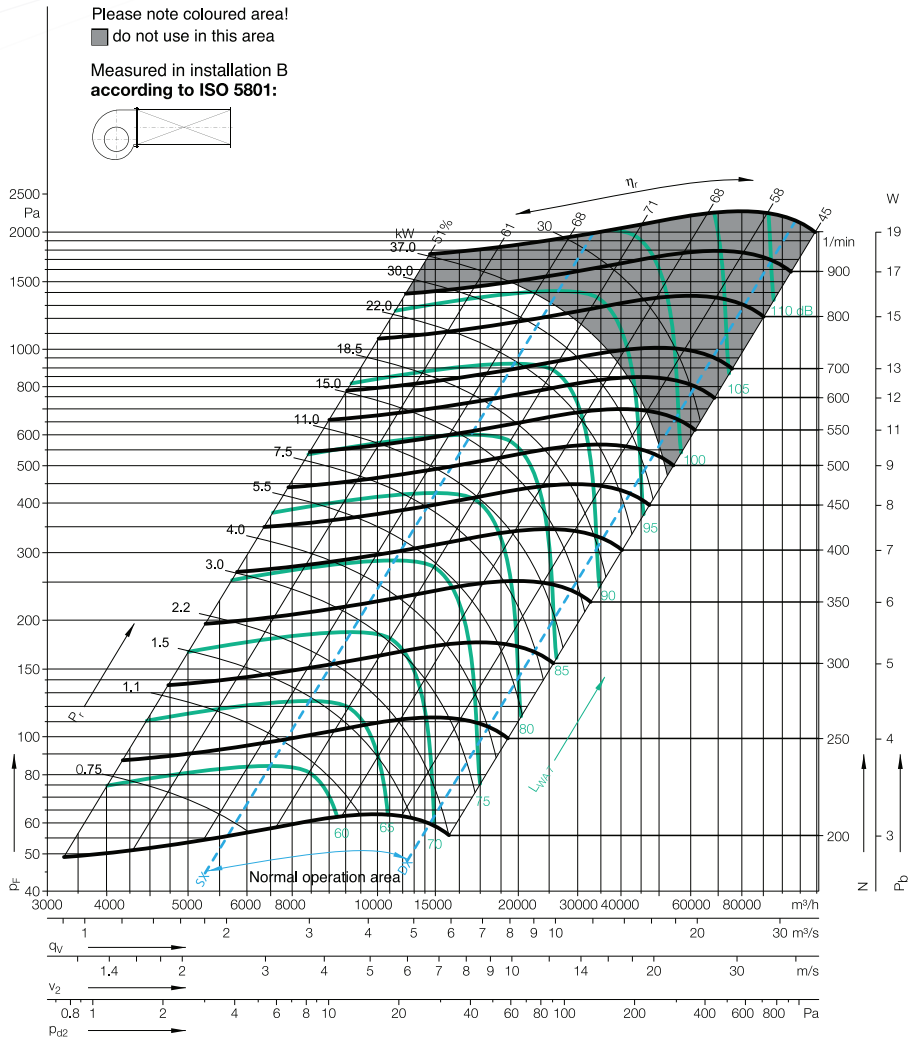


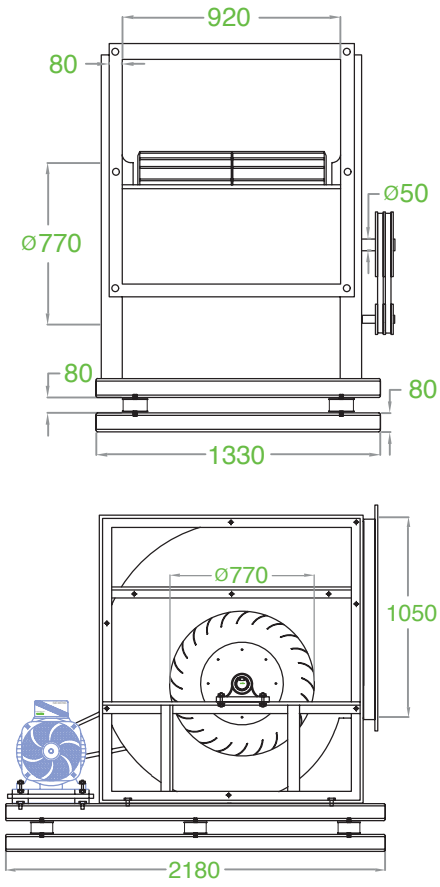
Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-800	3 ~ 380	50	250~690	15.0~22.0	22000~59000	400~680	54	109 in max rpm

li-cha
HVAC & VENTILATION SYSTEM

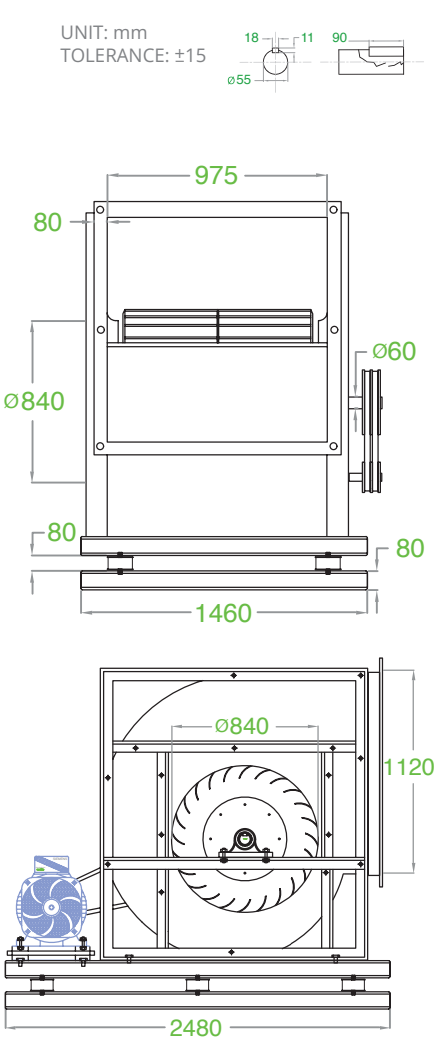
SDF 900

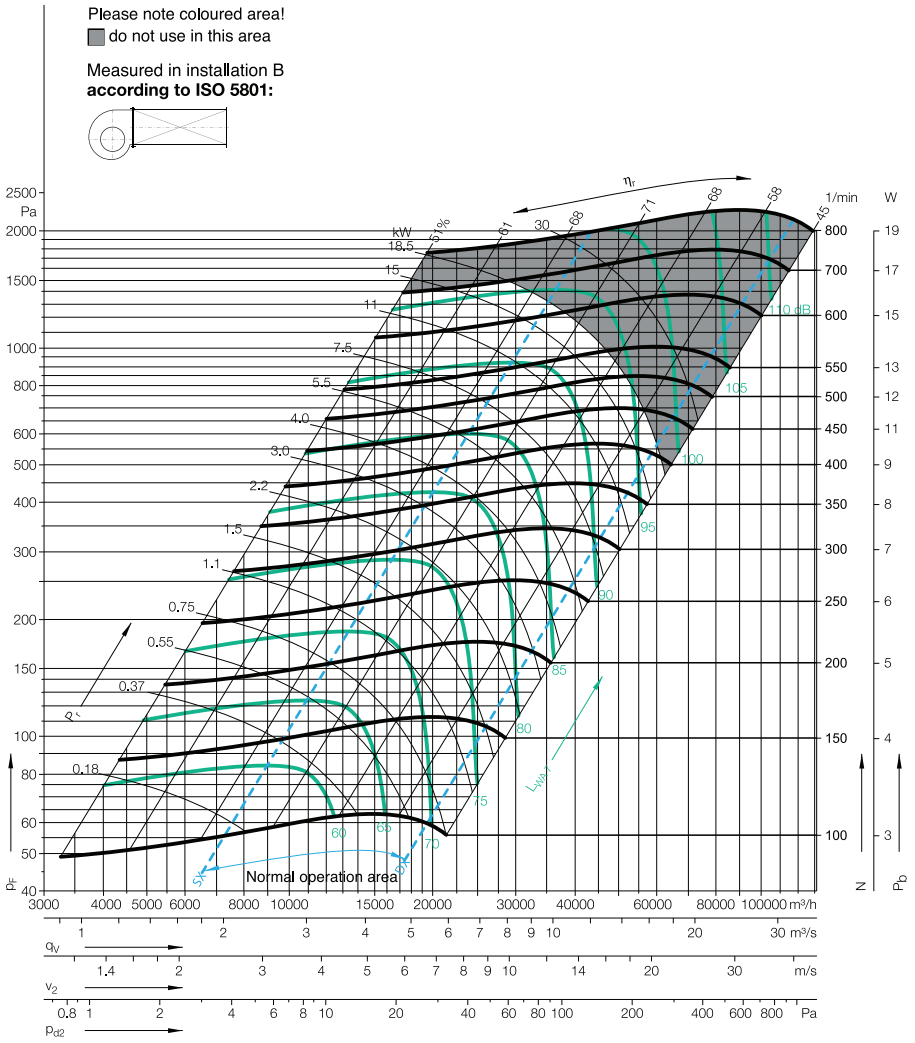
فن سانتریفیوژ ساپلایر فوروارد





Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-900	3 ~ 380	50	210~595	18.5~30.0	36500~68000	500~750	54	119 in max rpm





Technical data	Nominal voltage	Frequency	Speed Range	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Protective	Sound pressure level
Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
LC-SDF-1000	3 ~ 380	50	188~488	22.0~37.0	42600~79000	550~800	54	128 in max rpm

USF - B

Centrifugal Utility Forward Fan

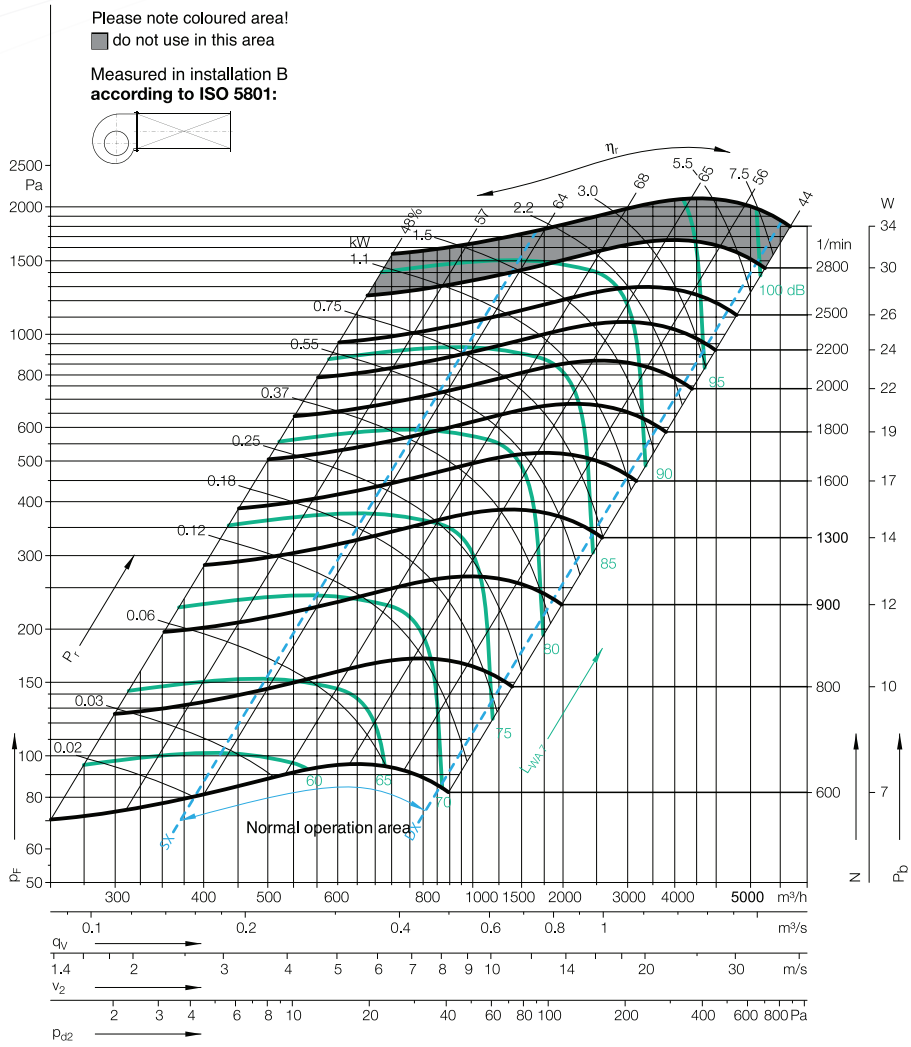
Single Inlet / Belt Drive

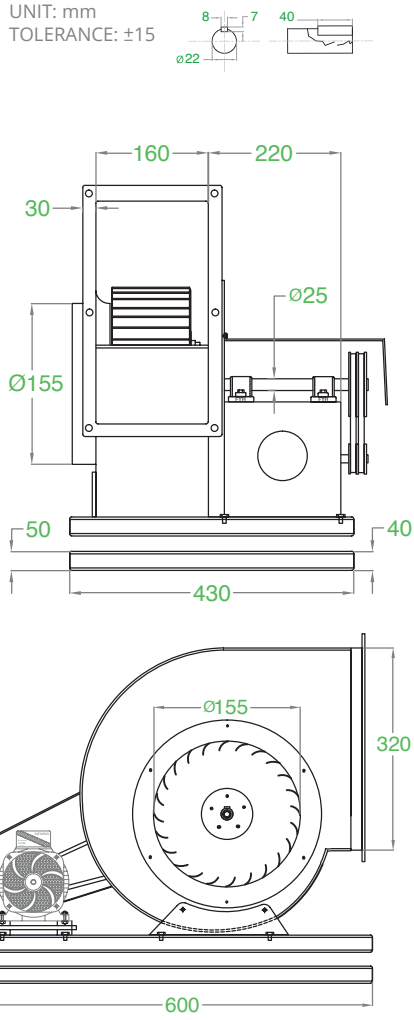
فن سانتریفیوژ یوتیلیتی فوروارد

ورودی یک‌طرفه با انتقال قدرت پولی و تسمه

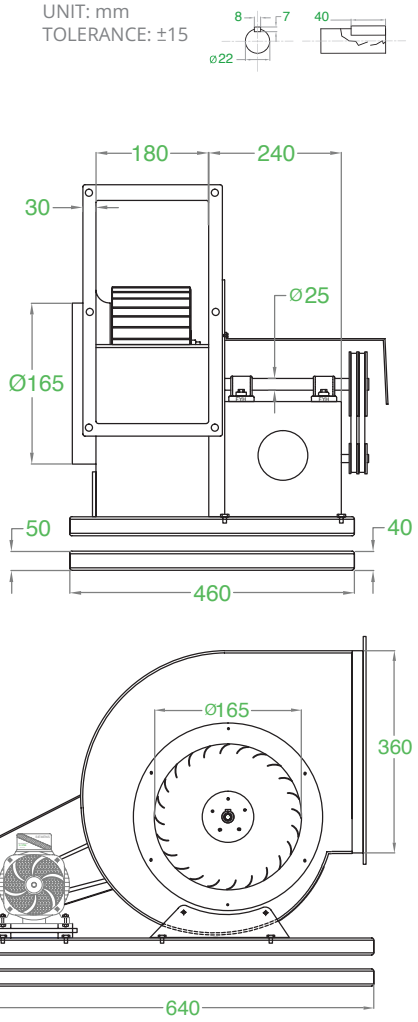
USF 250

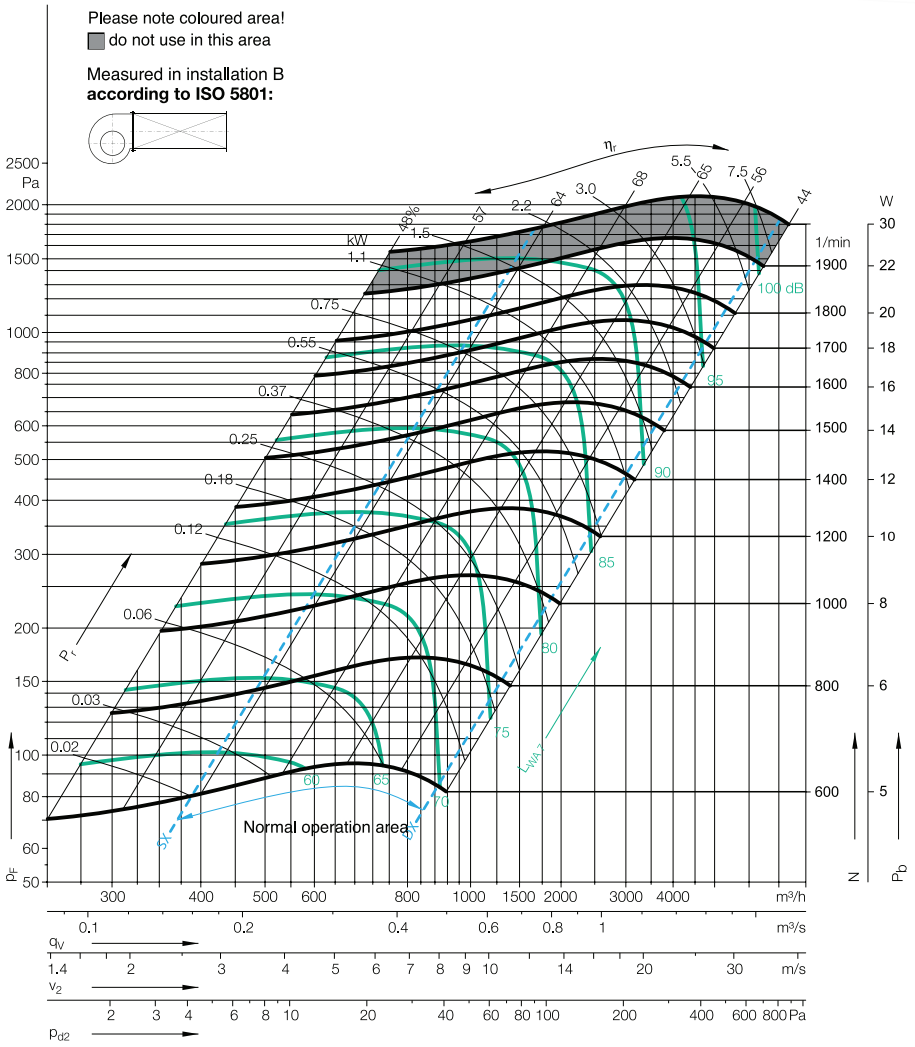
فن سانتریفیوژ یوتیلیتی فوروارد





Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-250-4S-B	1 ~ 220	50	600~1200	0.37~0.75	500~2300	50~220	54 or 55	62 in max rpm
2	LC-USF-250-4T-B	3 ~ 380	50	600~1200	0.37~0.75	500~2300	50~220	54 or 55	60 in max rpm



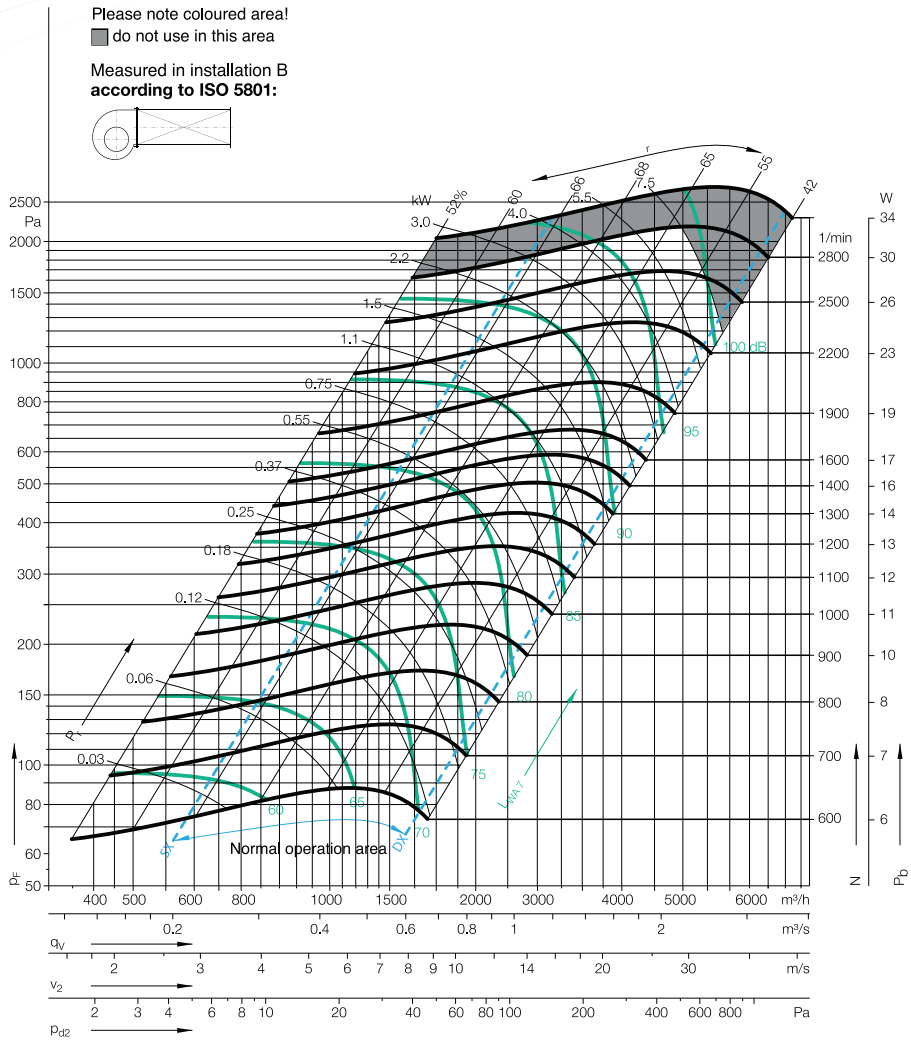


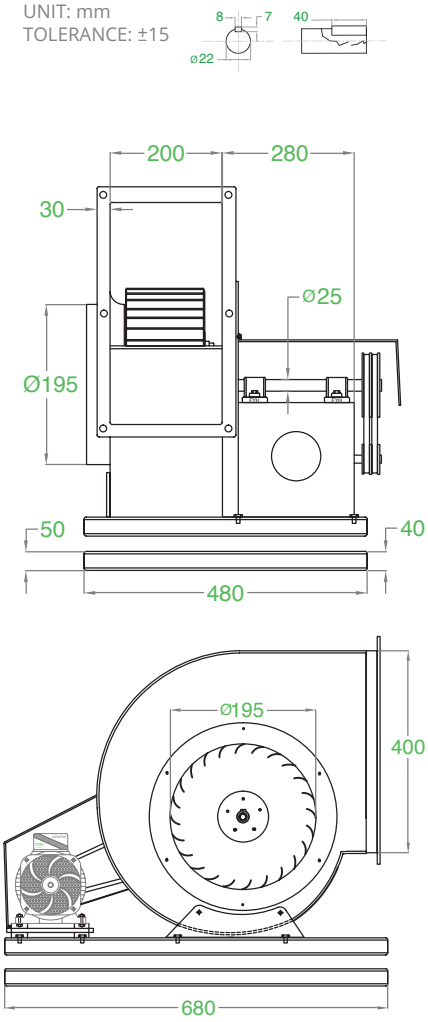
Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-280-4S-B	1 ~ 220	50	580~1150	0.37~1.1	600~2800	55~230	54 or 55	63 in max rpm
2	LC-USF-280-4T-B	3 ~ 380	50	580~1150	0.37~0.75	600~2800	55~230	54 or 55	62 in max rpm

li-cha
HVAC & VENTILATION SYSTEM

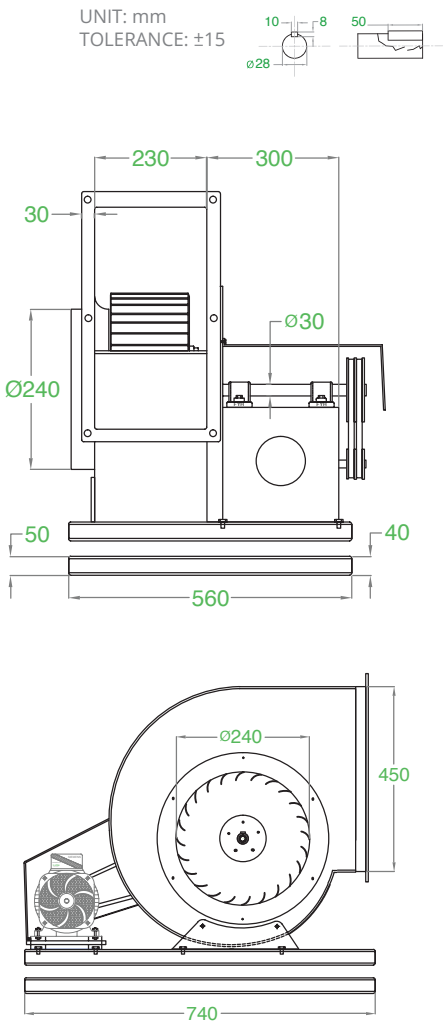
USF 315

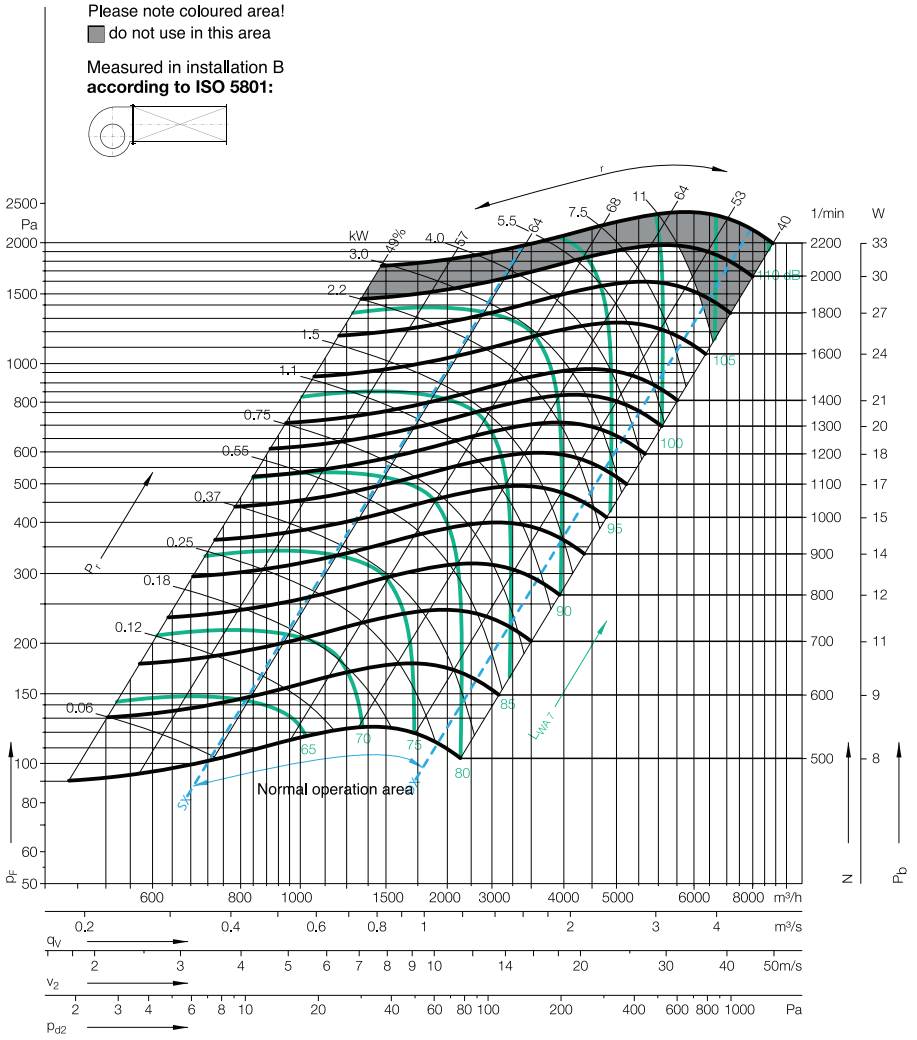
فن سانتریفیوژ یوتیلیتی فوروارد





Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-315-4S-B	1 ~ 220	50	560~1050	0.55~1.5	750~3200	60~250	54 or 55	66 in max rpm
2	LC-USF-315-4T-B	3 ~ 380	50	560~1050	0.55~1.5	750~3200	60~250	54 or 55	65 in max rpm

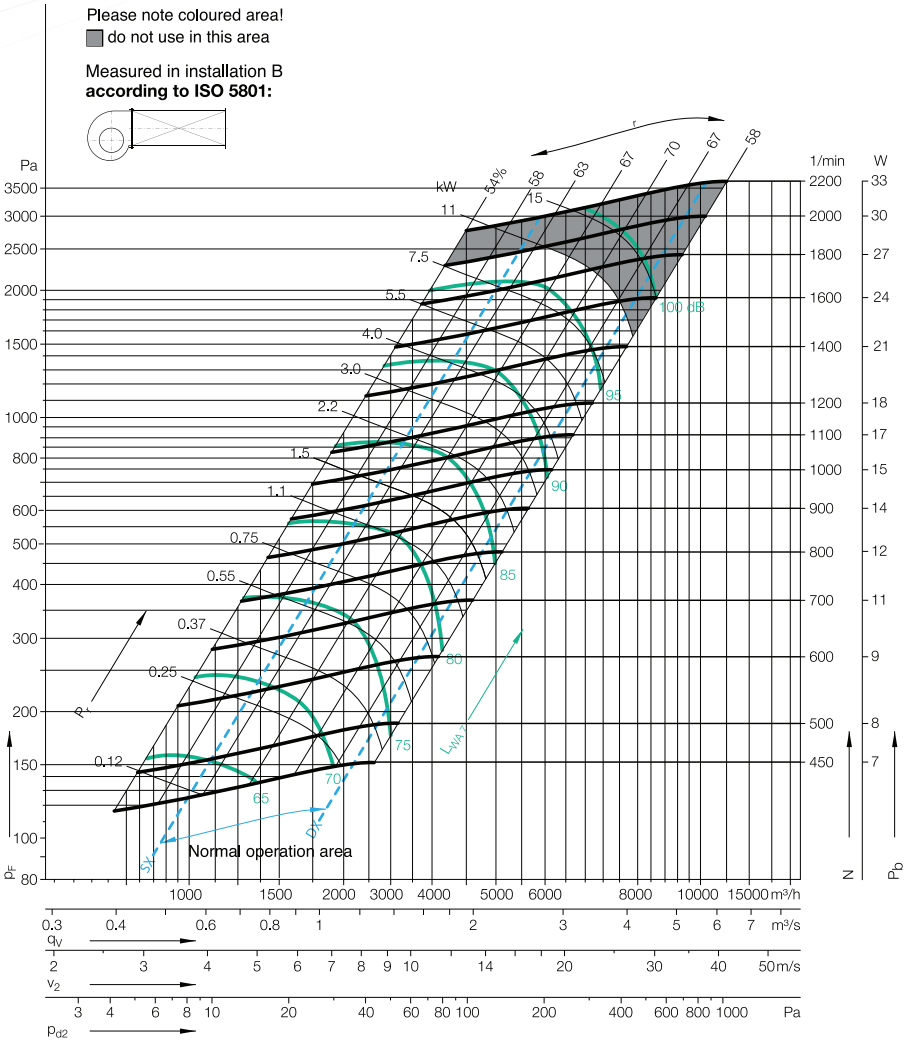


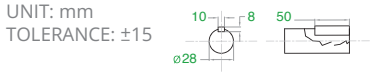


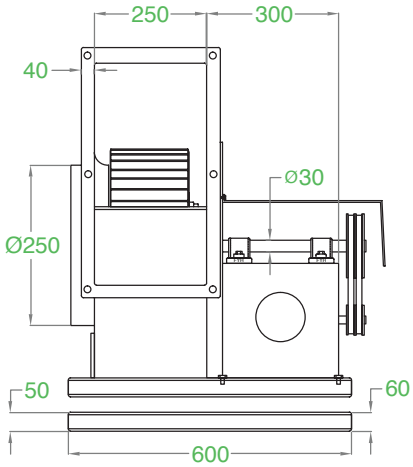
Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-350-4S-B	1 ~ 220	50	520~890	0.75~1.5	1200~4100	70~300	54 or 55	70 in max rpm
2	LC-USF-350-4T-B	3 ~ 380	50	520~900	0.75~1.5	1200~4800	70~300	54 or 55	69 in max rpm

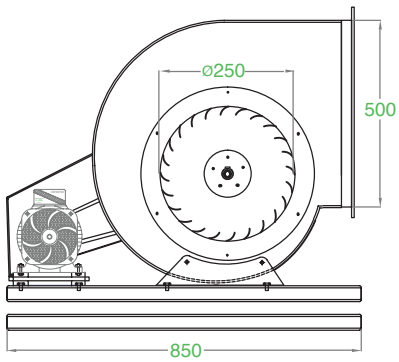
USF 400

فن سانتریفیوژ یوتیلیتی فوروارد

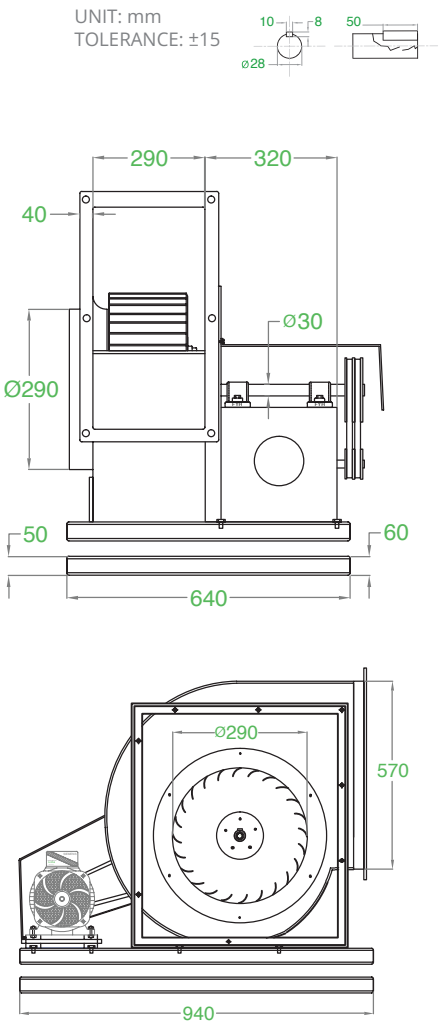


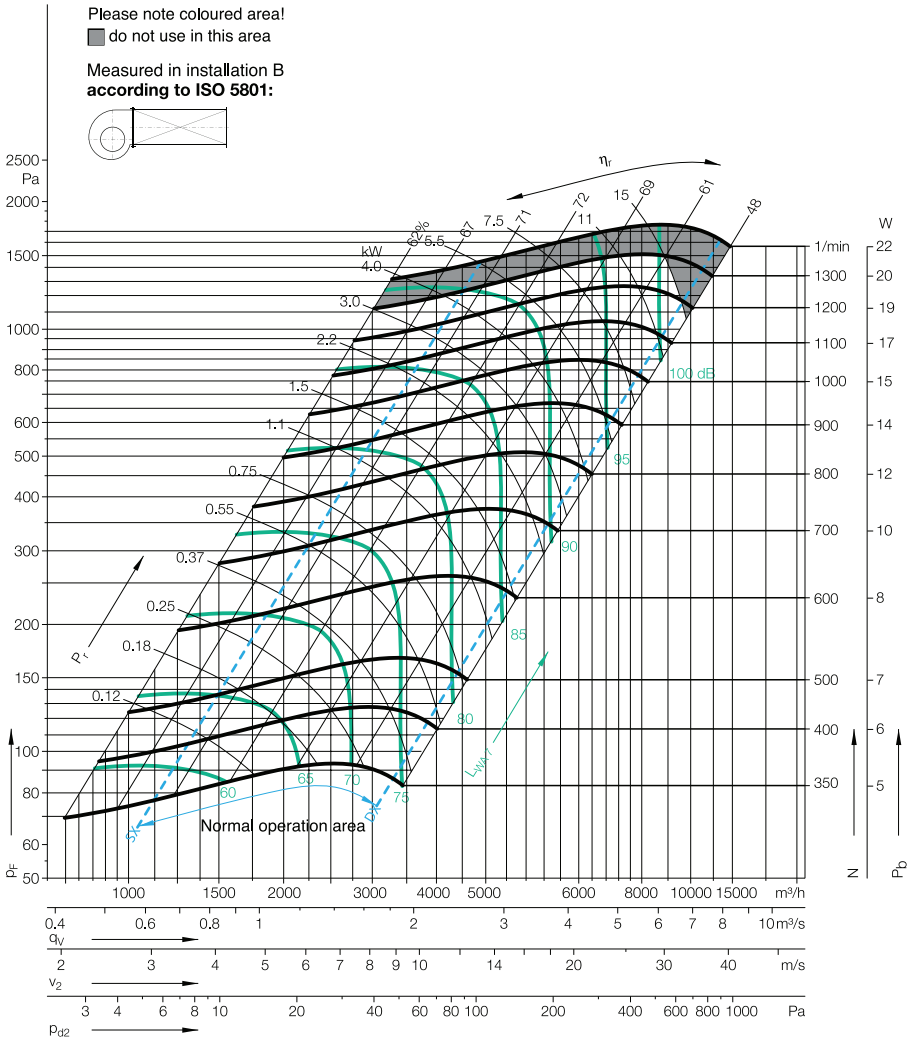






Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-400-4S-B	1 ~ 220	50	480~800	1.1~2.2	2200~5200	90~340	54 or 55	73 in max rpm
2	LC-USF-400-4T-B	3 ~ 380	50	480~840	1.1~2.2	2200~6100	90~340	54 or 55	72 in max rpm

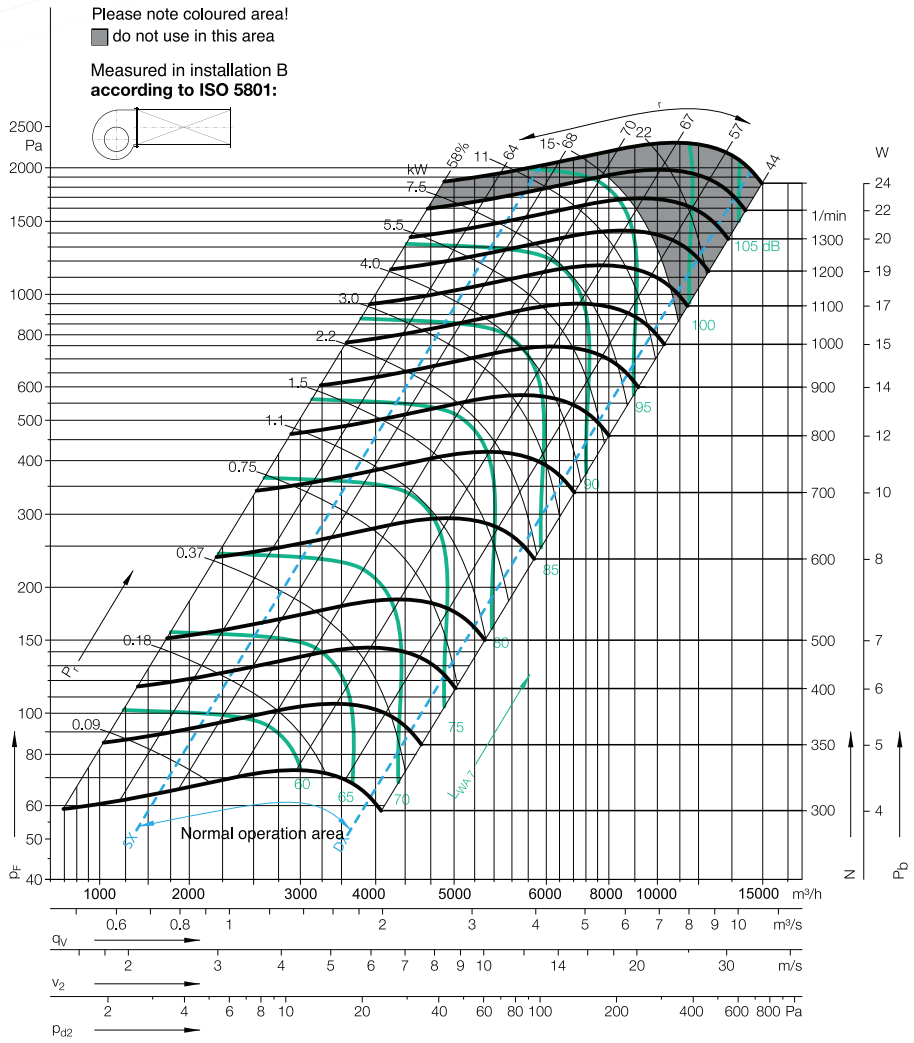


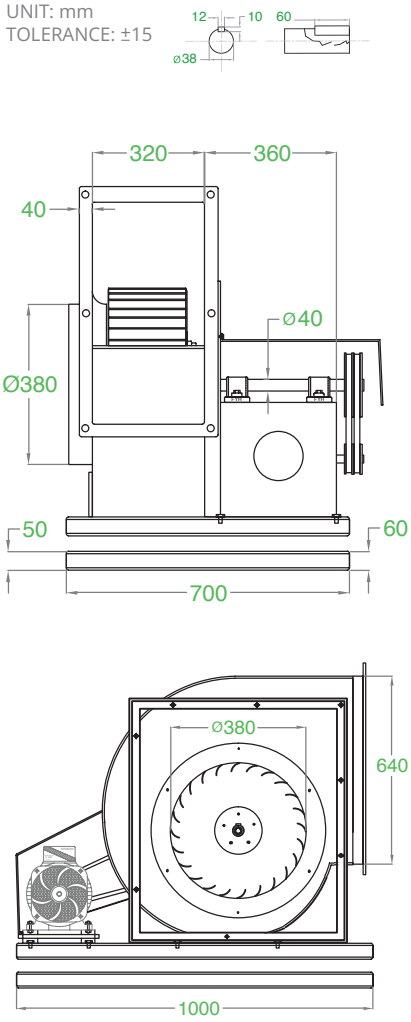


Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-450-4T-B	3 ~ 380	50	450~750	1.5~3.0	3400~7800	110~360	54 or 55	79 in max rpm

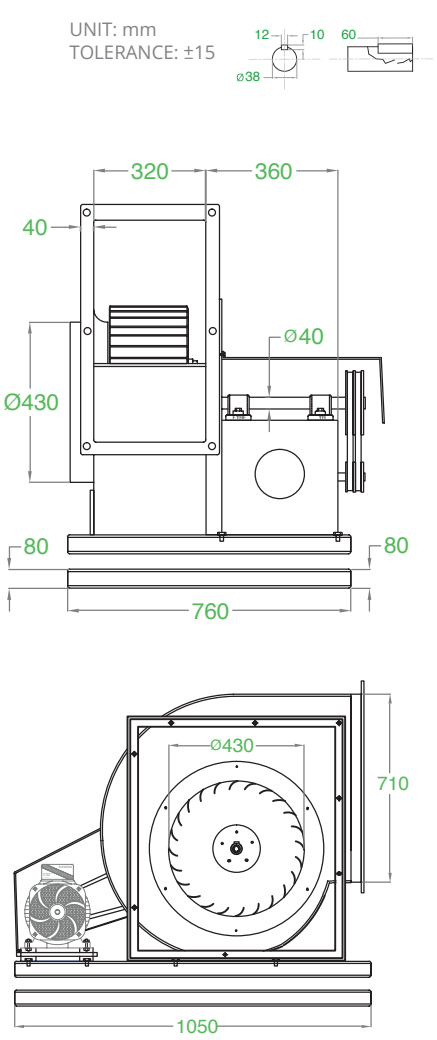
USF 500

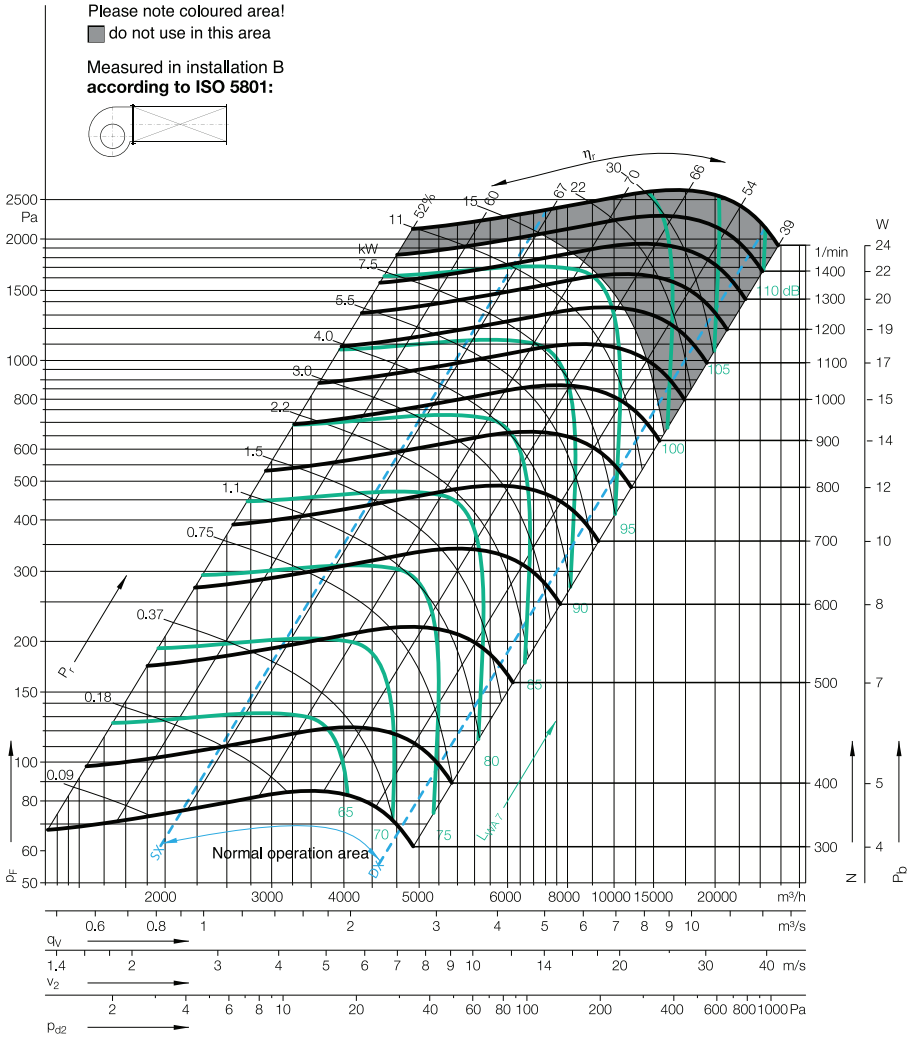
فن سانتریفیوژ یوتیلیتی فوروارد





Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-500-4T-B	3 ~ 380	50	420~710	2.2~4.0	4900~9800	150~400	54 or 55	84 in max rpm

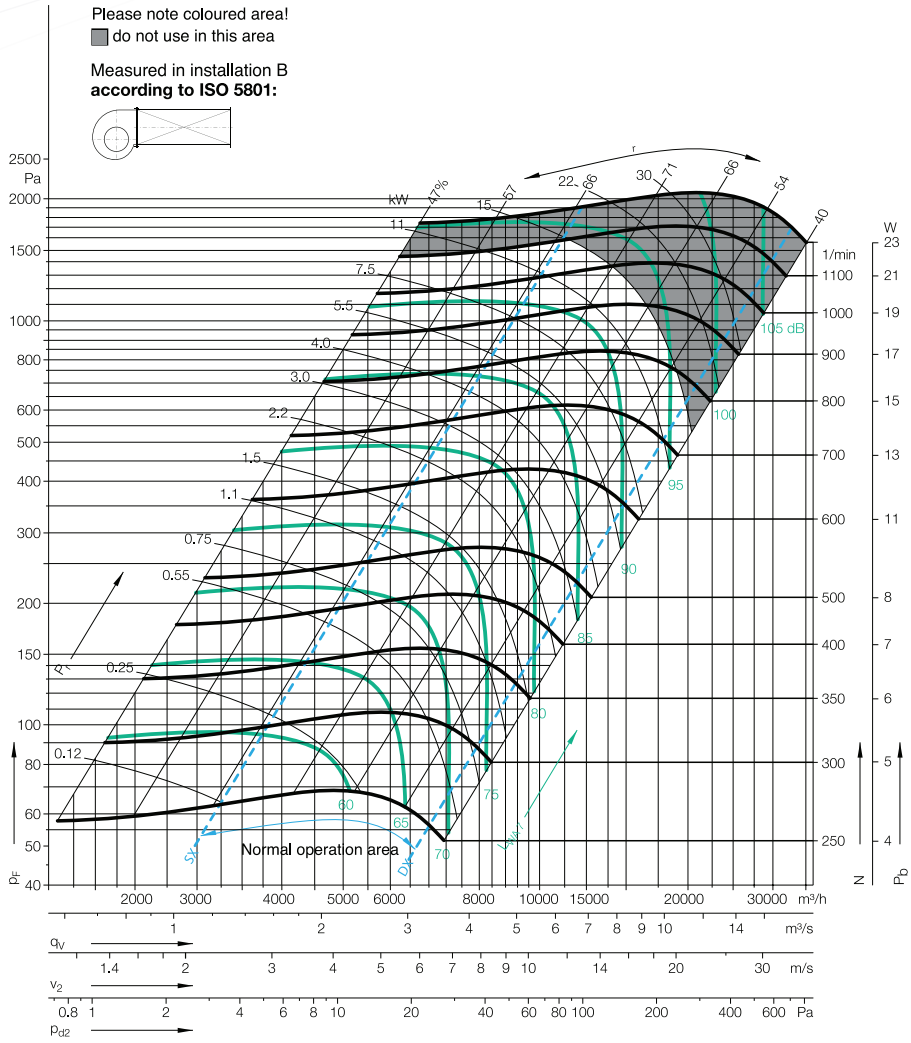


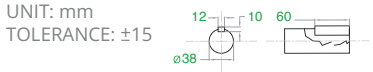


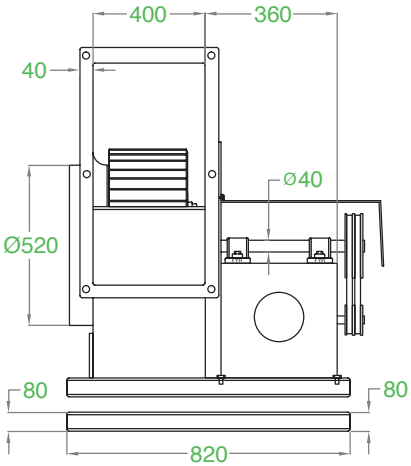
Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-560-4T-B	3 ~ 380	50	360~650	3.0~5.5	6800~14000	180~430	54 or 55	88 in max rpm

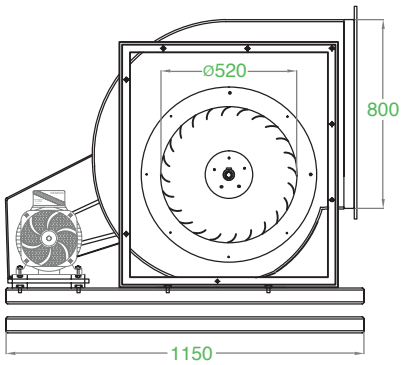
USF 630

فن سانتریفیوژ یوتیلیتی فوروارد

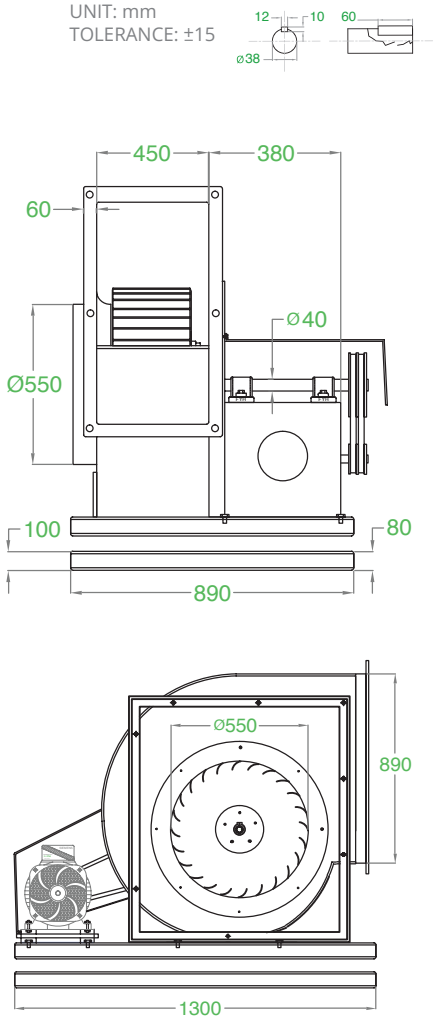


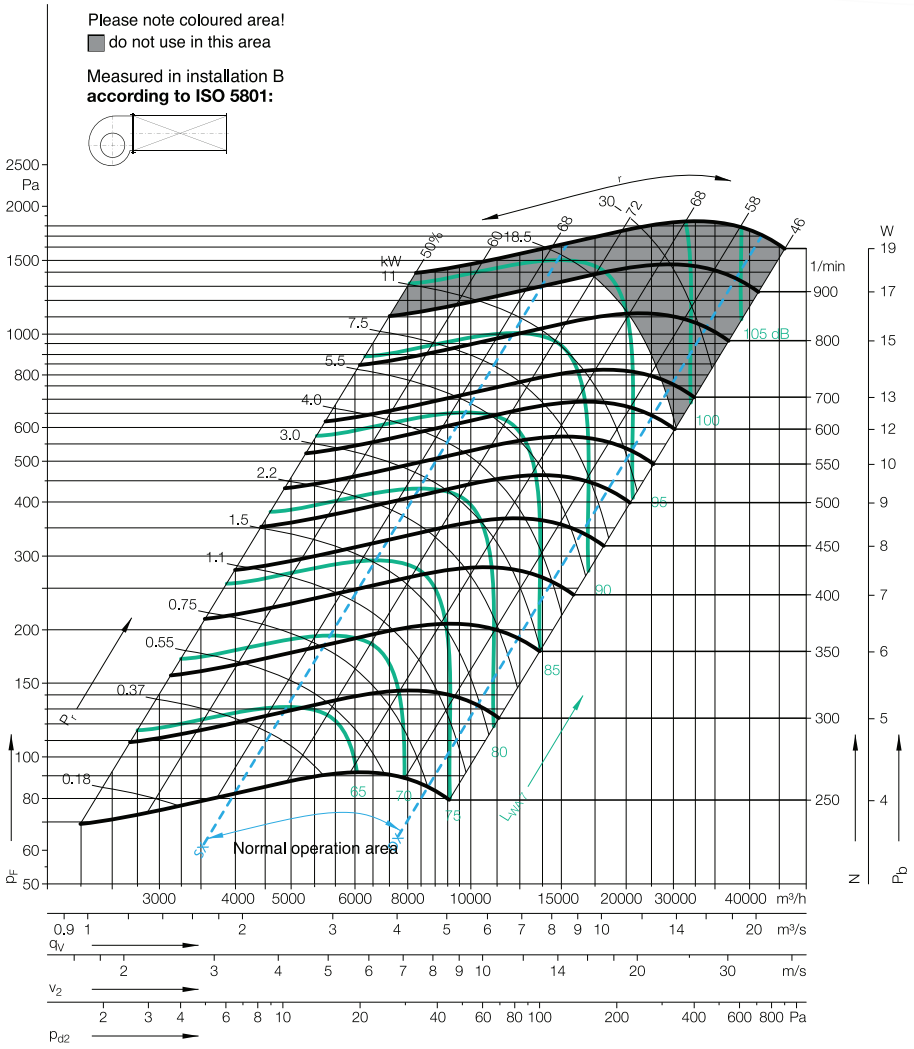






Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-630-4T-B	3 ~ 380	50	330~610	4.0~7.5	9500~17500	180~430	54 or 55	90 in max rpm



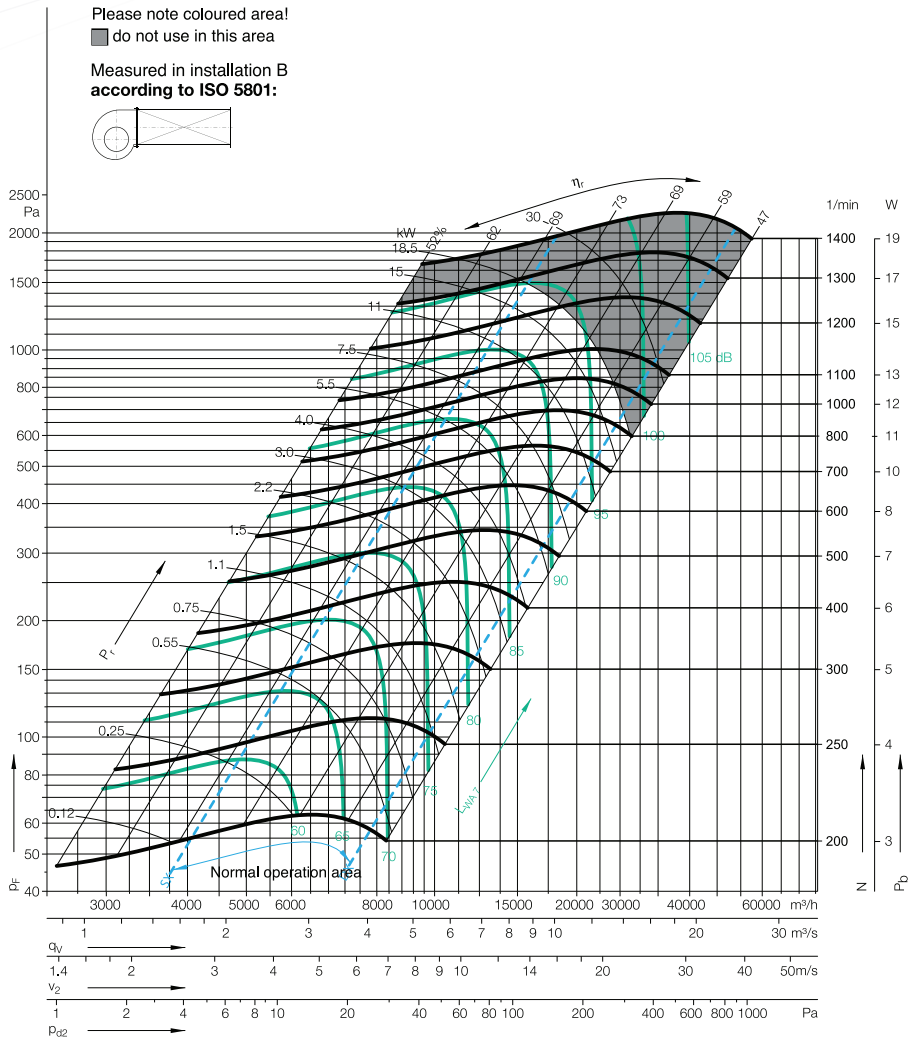


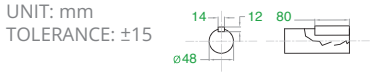
Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-710-4T-B	3 ~ 380	50	300~550	5.5~11.0	12500~20200	200~480	54 or 55	92 in max rpm

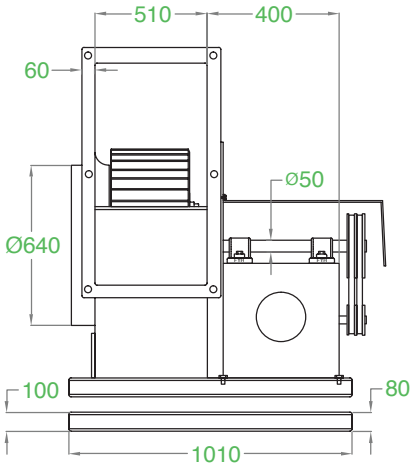
li-cha
HVAC & VENTILATION SYSTEM

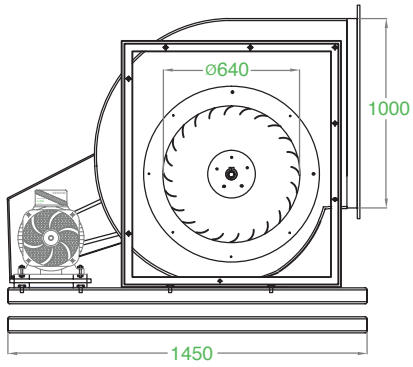
USF 800

فن سانتریفیوژ یوتیلیتی فوروارد

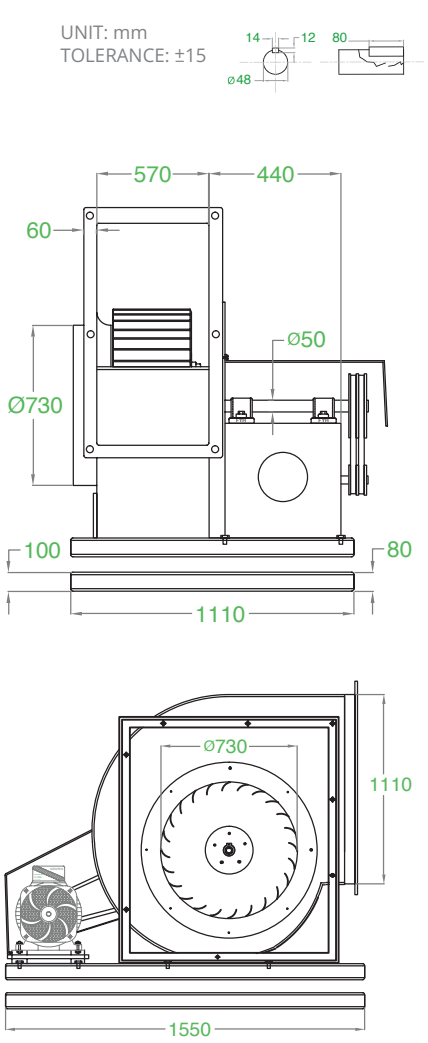


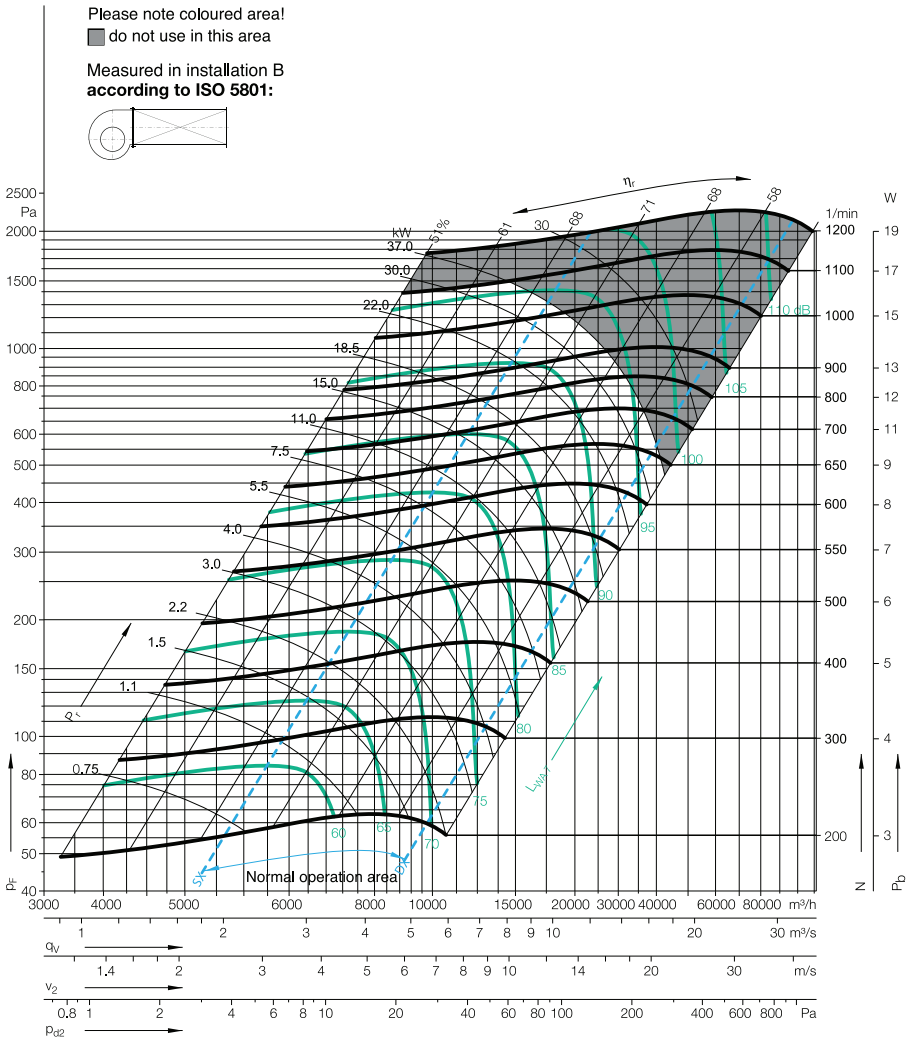






Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-800-4T-B	3 ~ 380	50	250~500	5.5~11.0	18500~27000	230~530	54 or 55	98 in max rpm

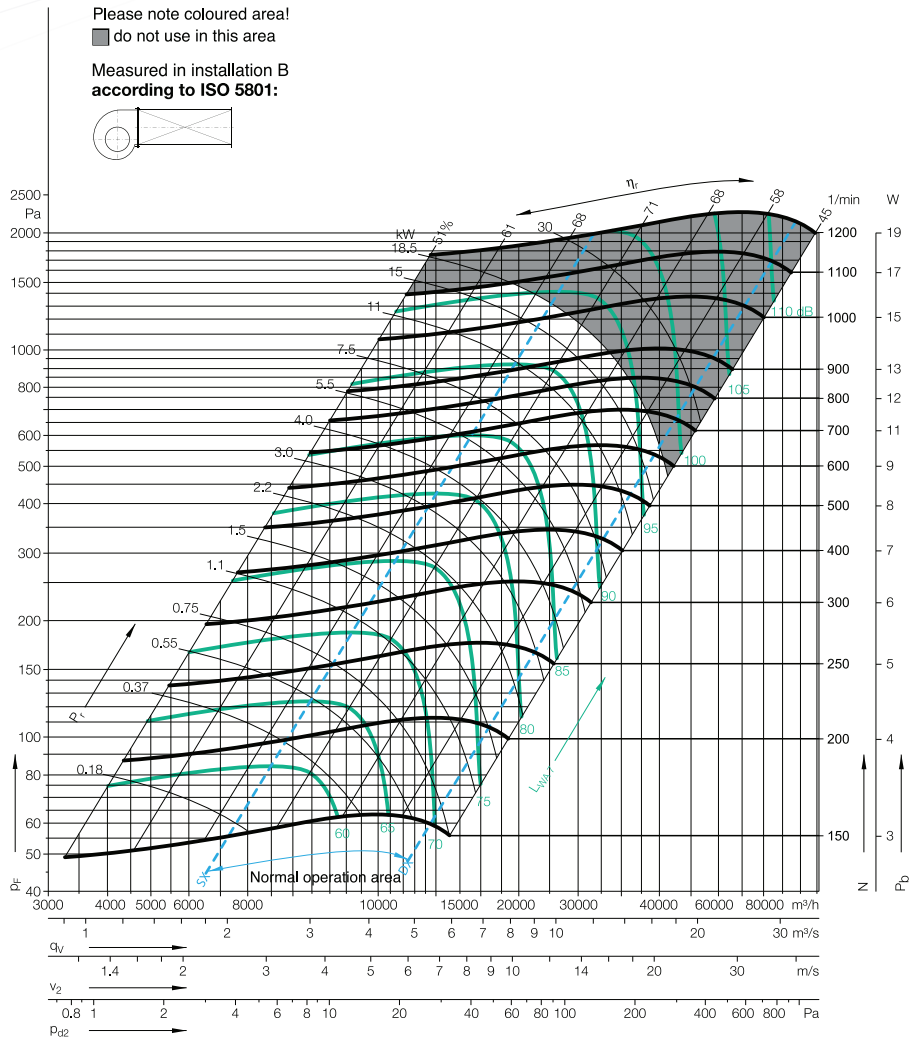


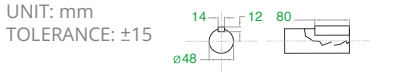


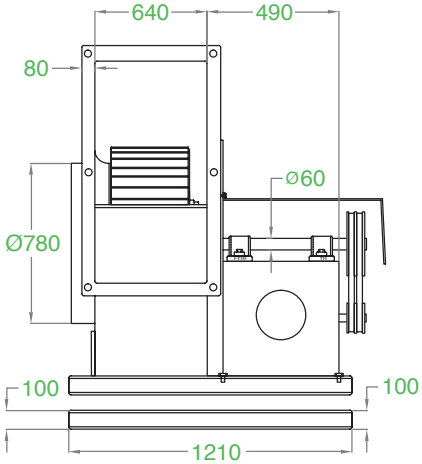
Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-900-4T-B	3 ~ 380	50	200~415	7.5~15.0	21500~32000	260~600	54	105 in max rpm

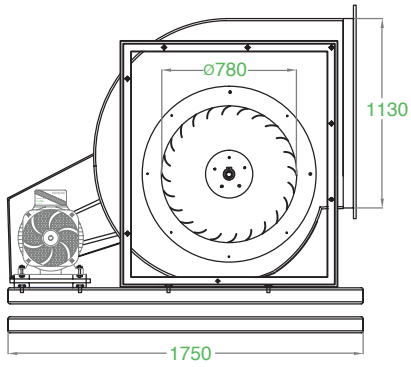
USF 1000

فن سانتریفیوژ یوتیلیتی فوروارد









Technical data		Nominal voltage	Frequency	Speed	Power input	Max Air flow (free delivery)	Static Pressure Tange	Motor Classification	Sound pressure level
No	Model	PH-Volt	Hz	rpm	kW	m^3/h	Pa	IP	dB (A)
1	LC-USF-1000-4T-B	3 ~ 380	50	180~390	11.5~18.5	26000~45000	300~640	54	112 in max rpm

Note

Smoke Management System

سیستم‌های تهویه و تخلیه دود

سیستم‌های تهویه و تخلیه دود در فضاهای بسته با کاربری های پرخطر از جمله پارکینگ ، از موضوعات بسیار حیاتی در بخش ایمنی می‌باشند. زیرا دود ناشی از حریق بسیار خطرناکتر و کشنده تر از خود حریق بوده و افراد حاظر در فضای دچار حریق در مدت کوتاهی میتوانند جان خود را به دلیل خفگی ازدست بدهند.

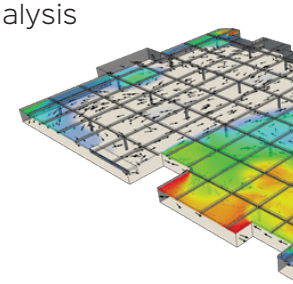
با توجه به اهمیت موضوع سازمان آتش نشانی تهران و سایر شهرهای بزرگ، تعبیه سیستم تهویه و تخلیه دود را برای ساختمان ها با معیارهای مربوطه الزام نموده و شرکت هوای سبز کاسپین جزء شرکت‌های مجری مورد تایید و فروشنده تجهیزات تخلیه دود سازمان آتش نشانی تهران می‌باشد.

سامانه تهویه و تخلیه دود یک سیستم یکپارچه با تجهیزات الکتریکال و مکانیکال بوده که می‌بایست به صورت هماهنگ و سناریو محور وارد عمل شده و دود حاصل از حریق را در سریع ترین زمان ممکن تخلیه کند.

طراحی و شبیه سازی ، اخذ تاییدیه نقشه از سازمان، واردات فن های تخلیه دود کلاس F۳۰۰ و F۴۰۰ ، تولید انواع فن‌های هوای تازه ، جت فن‌های سقفی آکسیال و سانتریفیوژ ، تابلو برق قدرت و فرمان ، سیستم مانیتورینگ HMI ، سنسورهای آنالوگ تشخیص مونوکسیدکربن، پرده‌های دود بند ، دمپرهای موتوری و ... بخشی از تجهیزات این سیستم بوده که به صورت یکپارچه و هماهنگ می‌بایست در خدمت ایمن سازی ساختمان برای ساکنین و نیروهای آتش نشانی در زمان اطفای حریق قرار گیرند. تمامی خدمات مربوط به این حوزه با در اختیار داشتن تیم با تجربه و متخصص شرکت هوای سبز کاسپین به صورت کامل از طراحی تا راه اندازی و تایید سازمان توسط انجام می‌پذیرد .

Smoke Managment System

CFD Analysis



Radial Jet Fan



Axial Jet Fan



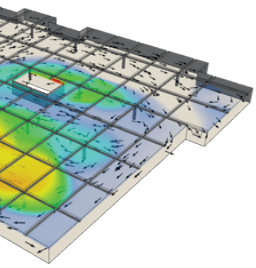


Instalation & Cold Smoke Test





Motorized Damper



Exhaust Fan





Supply Fan



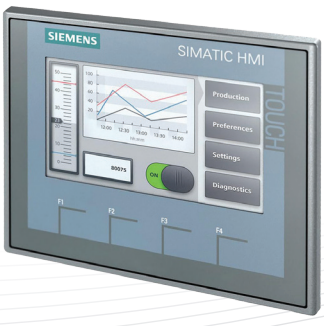
Central Control Panel

Smoke Curtain





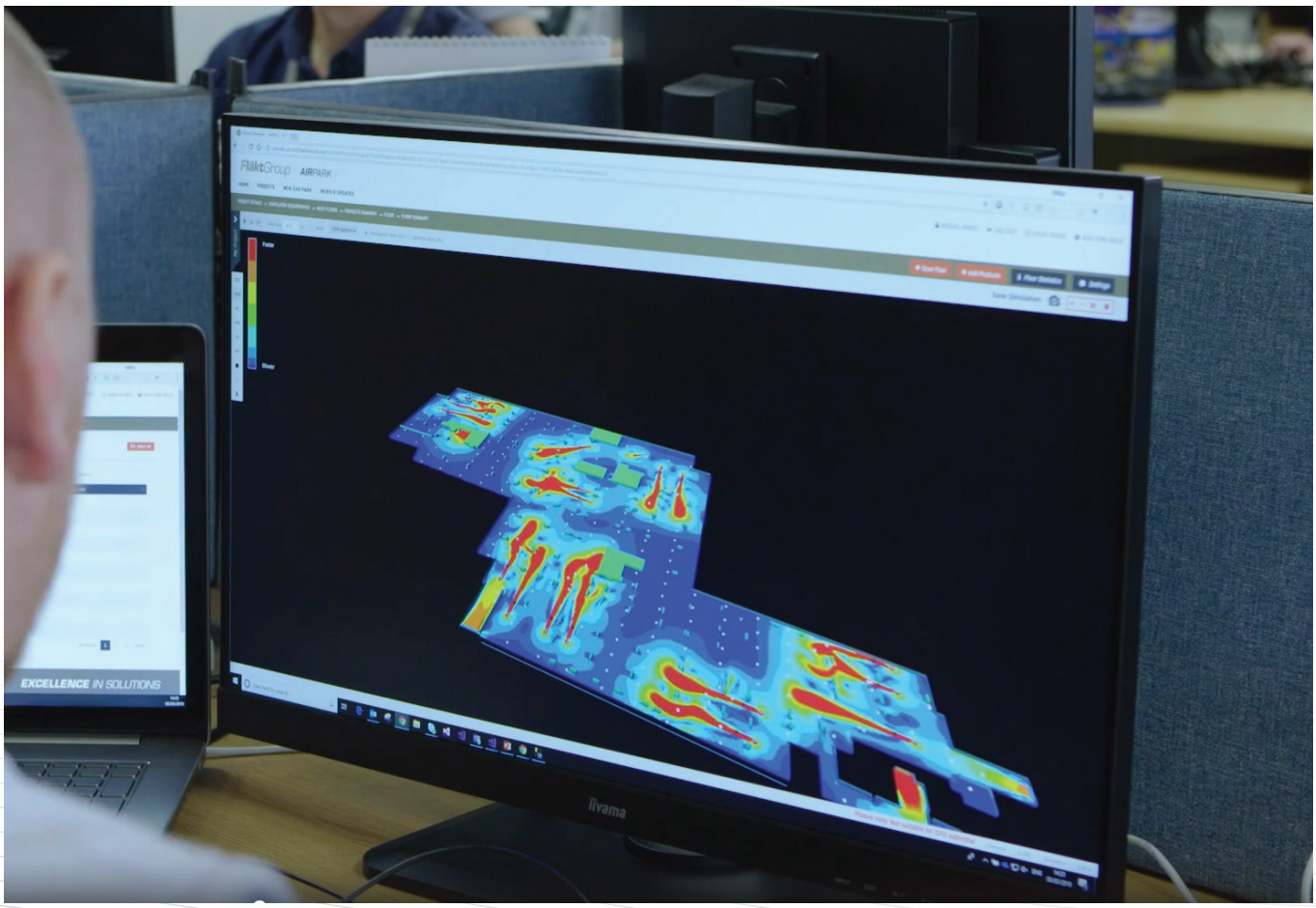
CO Sensor



HMI (Monitoring)

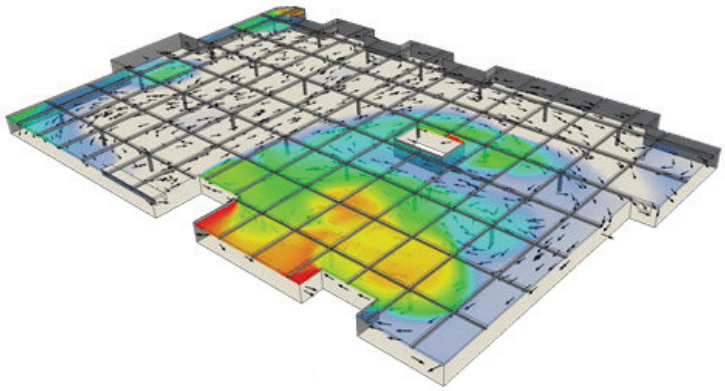
CFD (Computational Fluid Dynamics)

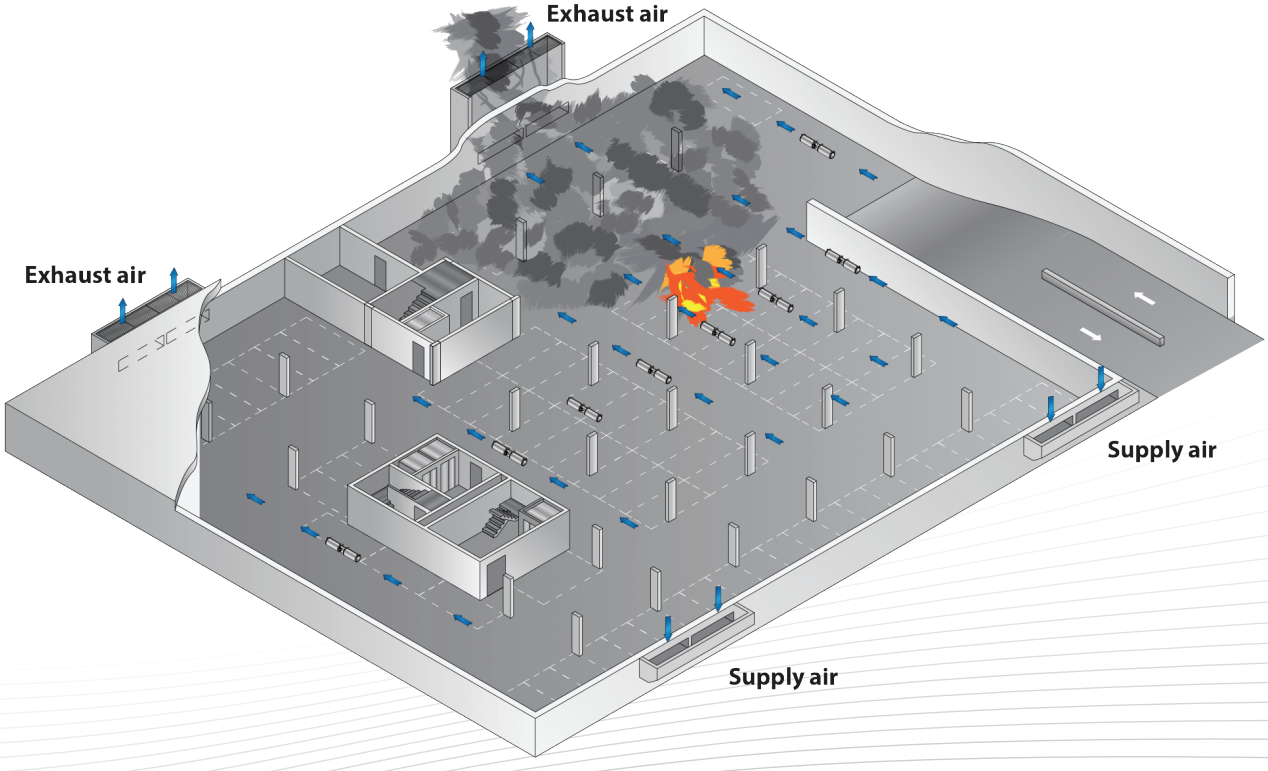
In order to see the operability of the designed jet fan ventilation project and to determine the jet fan positions precisely, a 3-D model of the relevant parking lot is made.
Under the defined conditions, a fluid dynamics simulation is performed. The simulation is performed using an internationally recognized software. According to the simulation results, the number and placement of jet fans can be optimized. As a result of the CFD study; airflow details, air velocity profiles, and smoke distribution that will occur in the parking lot are presented in detailed reports.



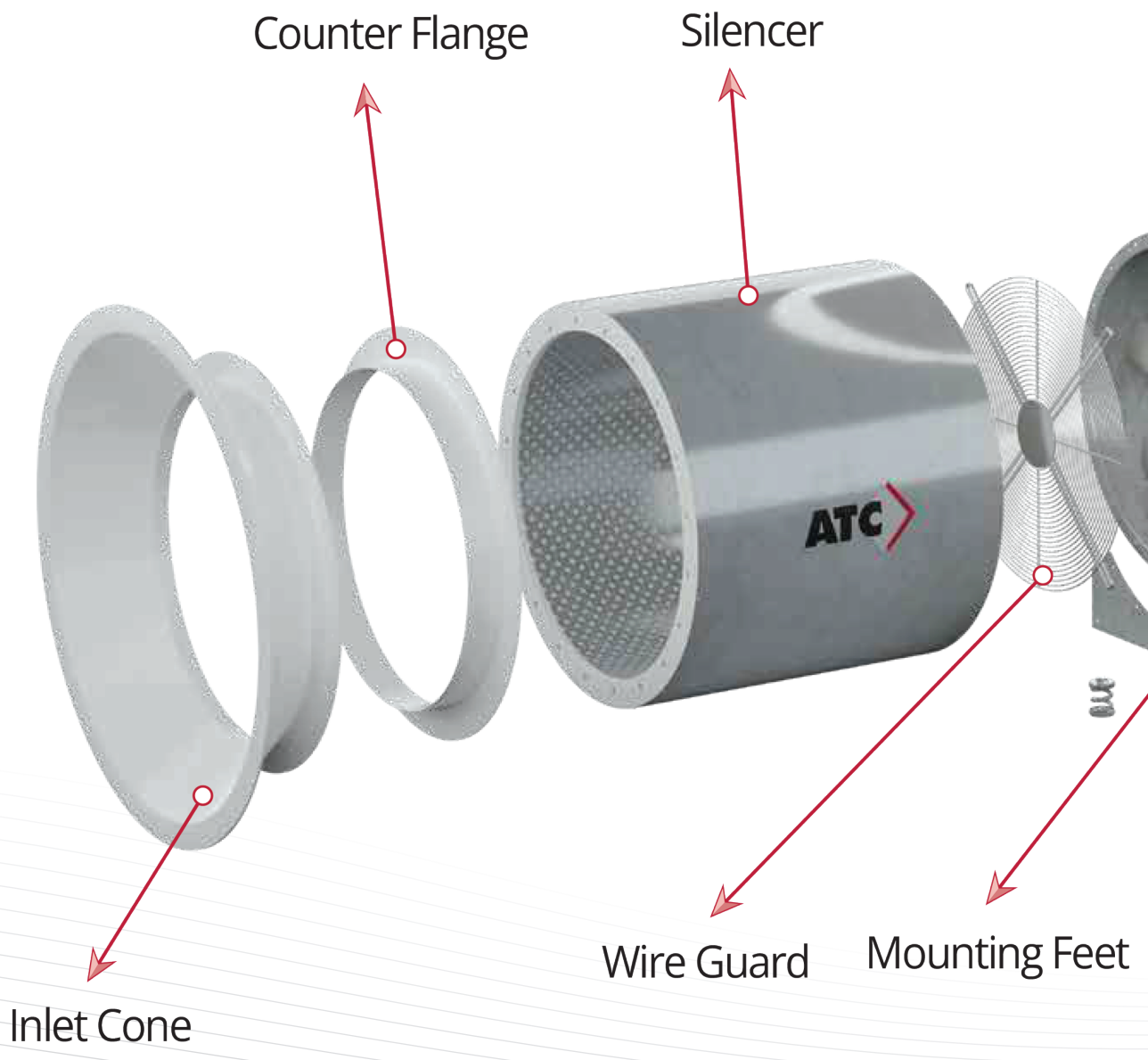
در سیستم های تهویه و تخلیه دود پارکینگ به منظور مشاهده عملکرد و کارایی آن ، یک مدل سه بعدی از پارکینگ با درنظر گرفتن هندسه و تمامی موانع معماری ساخته میشود . و طبق طراحی اولیه شبیه سازی سیالاتی(CFD) با استفاده از یک نرم افزار معتبر بین المللی انجام شده و پس از مشاهده نتایج آن در مواردی همچون مدت زمان تخلیه دود، شعاع دید ، سرعت هوا در سطح مقطع های بحرانی، نقاط کور، جزئیات جریان هوا ، وضعیت مسیرهای فرار و الگوی توضیع دود بررسی و در گزارشی مفصل ارئه میشود .

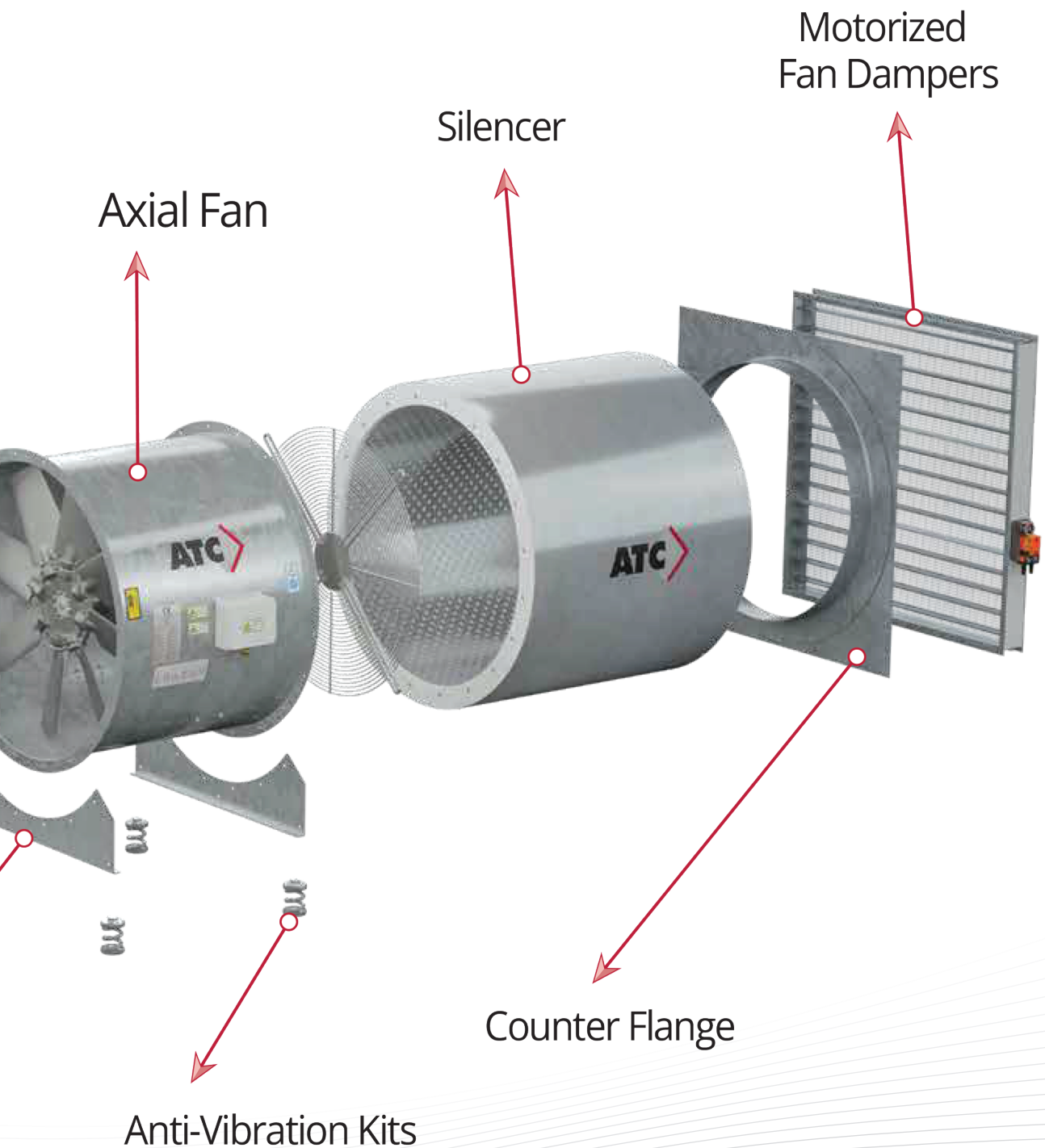
سپس به منظور بهینه کردن سیستم تخلیه دود، اصلاحات طراحی از قبیل تعداد و محل قرارگیری جت فن ها و افزایش و کاهش ظرفیت ساپلای و اگزاست و موارد مشابه انجام میگردد تا به طرح ایده آل نسبت به معماری آن پروژه دست یابیم.





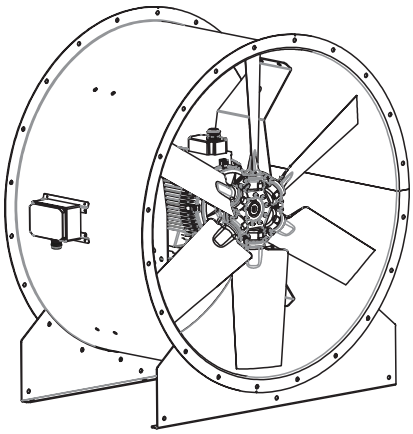
Axial Fan Accessories Used in Jet Fan Systems



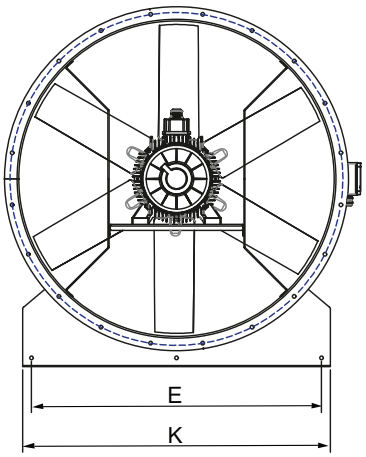

Motorized
Fan Dampers
Silencer
Axial Fan
ATC
ATC
Counter Flange
Anti-Vibration Kits

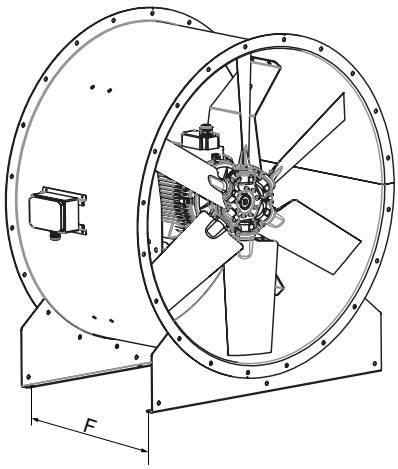
li-cha
HVAC & VENTILATION SYSTEM

Axial Fan Range



Axial Fan Model	Max. Airflow (m^3/h)	Max. Fan Speed (rpm)	Number of Blades	Min. Power (kW)	Max. Power (kW)	–20 °C to +40 °C	300 °C to 120 Min.
AL–315	4200	3000	5	0.75	1.5	✓	
AL–355	6700	3000	6	0.75	1.5	✓	
AL–400	9200	3000	7	1.1	3	✓	
AL–450	13900	3000	7	1.1	5.5	✓	
AL–500	18700	3000	8	1.5	11	✓	
AL–560	28400	3000	8	1.5	15	✓	
	27650	3000	6	3	15		✓
AL–630	38800	3000	8	1.5	22	✓	
	38300	3000	6	3	22		✓
AL–710	56500	3000	8	1.5	30	✓	
	53600	3000	6	2.2	30		✓
AL–800	39250	1500	8	2.2	30	✓	
	39250	1500	8	2.2	30		✓
AL–900	57100	1500	8	3	37	✓	
	57100	1500	8	3	37		✓
AL–1000	82540	1500	10	4	37	✓	
	82300	1500	8	4	37		✓
AL–1120	117000	1500	10	4	55	✓	
	113000	1500	8	4	45		✓
AL–1250	151000	1500	10	5.5	55	✓	
	136600	1500	8	5.5	45		✓
AL–1400	164000	1500	10	7.5	55	✓	

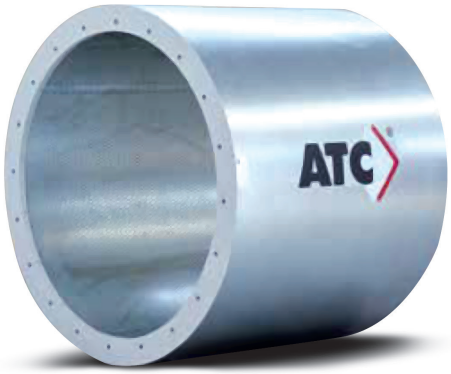


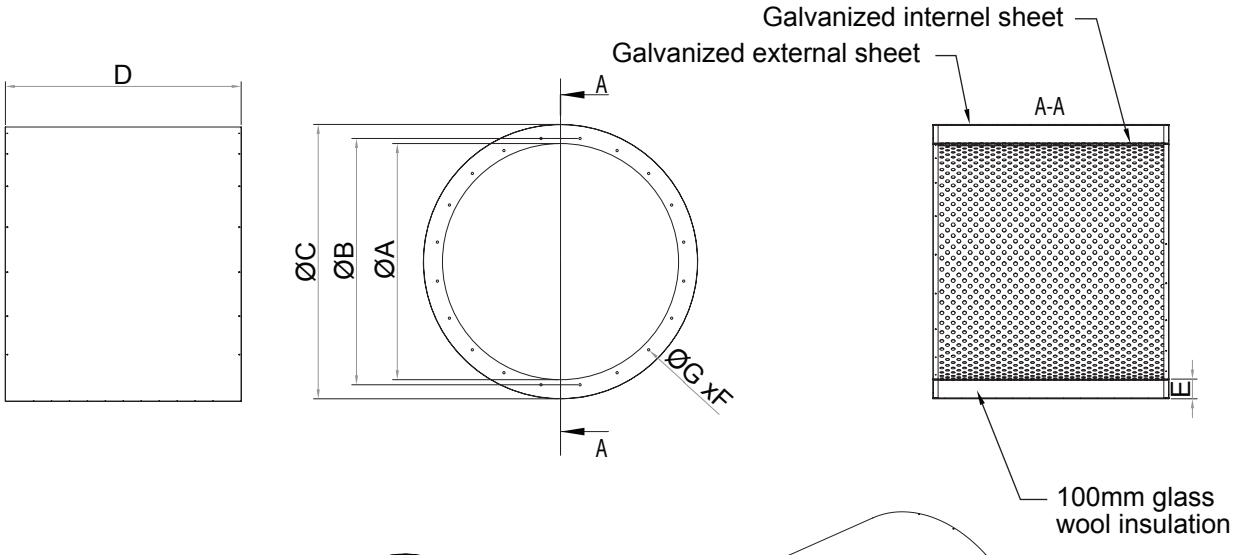


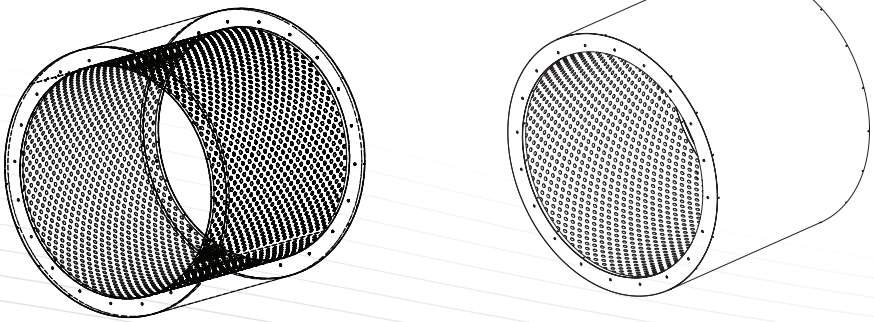
Axial Fan Model	Fan Frame	Max. Motor Frame	ϕD	ϕD1	ϕD2	ϕH	ϕH2	n	E	F	L	K
AL–315	L	100L	315	365	425	10	10	8	420	450	500	500
AL–355	L	100L	355	405	465	10	10	8	420	450	500	500
AL–400	L	100L	400	450	510	10	10	8	420	450	500	500
AL–450	M	90L	450	500	560	10	10	8	420	500	550	500
AL–450	L	100L - 132S	450	500	560	10	10	8	420	600	650	500
AL–500	M	100L	500	560	610	10	10	12	580	500	550	650
AL–500	L	112M - 160M	500	560	610	12	12	12	580	650	700	650
AL–560	M	112M	560	620	670	12	12	12	580	550	600	650
AL–560	L	132S - 160L	560	620	670	12	12	12	580	700	750	650
AL–630	M	132M	630	690	740	12	12	12	720	600	650	750
AL–630	L	160 - 180L	630	690	740	12	12	16	720	750	800	750
AL–710	M	132M	710	770	820	12	12	16	720	600	650	750
AL–710	L	160 - 200L	710	770	820	12	12	16	720	800	850	750
AL–800	M	132M	800	860	910	12	12	16	770	600	650	850
AL–800	L	160 - 200L	800	860	910	12	12	16	770	800	850	850
AL–900	M	132M	900	970	1010	15	15	16	770	600	650	850
AL–900	L	160 - 225S	900	970	1010	15	15	16	770	850	900	850
AL–1000	M	132M	1000	1070	1110	15	15	16	770	600	650	850
AL–1000	L	160 - 225S	1000	1070	1110	15	15	16	770	850	900	850
AL–1120	M	180M	1120	1190	1230	15	15	20	1150	700	750	1220
AL–1120	L	180L - 225M	1120	1190	1230	15	15	20	1150	900	950	1220
AL–1250	M	180M	1250	1320	1360	15	15	20	1150	700	750	1220
AL–1250	L	180L - 250M	1250	1320	1360	15	15	20	1150	950	1000	1220
AL–1400	L	250M	1400	1470	1510	15	15	20	1150	1000	1050	1220

Silencer

Depending on the project and specification details, silencers can be used on the inlet or discharge side.

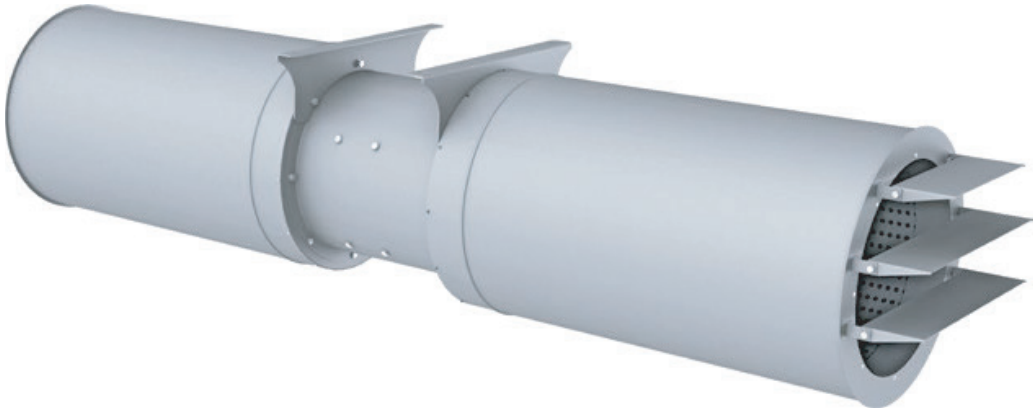






Silencer Model	ϕA (mm)	ϕB (mm)	ϕC (mm)	D (mm)	E (mm)	F	ϕG (mm)
ATC A PZS 315	315	365	515	315	100	8	M8
ATC A PZS 355	355	405	555	355	100	8	M8
ATC A PZS 400	400	450	600	400	100	8	M8
ATC A PZS 450	450	500	650	450	100	8	M8
ATC A PZS 500	500	560	700	500	100	12	M8
ATC A PZS 560	560	620	760	560	100	12	M10
ATC A PZS 630	630	690	830	630	100	12	M10
ATC A PZS 710	710	770	910	710	100	16	M10
ATC A PZS 800	800	860	1000	800	100	16	M10
ATC A PZS 900	900	970	1110	910	100	16	M12
ATC A PZS 1000	1000	1070	1200	1000	100	16	M12
ATC A PZS 1120	1120	1190	1320	1120	100	20	M12
ATC A PZS 1250	1250	1320	1450	1250	100	20	M12
ATC A PZS 1400	1400	1470	1600	1400	100	20	M12

Axial Jet Fan - Technical Data



WHAT IS JET FAN

Unlike the conventional ventilation system which occupies lots of space with air ducts, jet fans push air horizontally for air flow. They can be used to control, direct and extract the air in parking lots, tunnels and other large spaces. They provide air flow practically and efficiently without air ducts. Since JAXI is heat resistant it can work in fire which enables smoke extraction in fire.

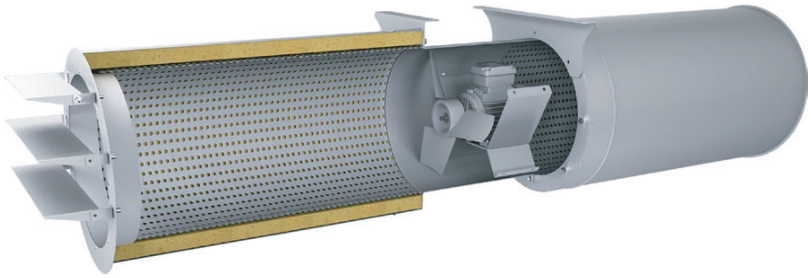
Advantages

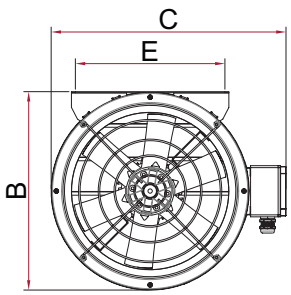
- Works in two different revolutions
- Extracts smoke during and after fire
- Provides help to firefighters.
- Helps to extract residents safely during fire
- Doesn't obscure other systems (sprinklers, electric lines etc.)
- Since it occupies small space it can be used low height areas
- Doesn't obscure vision of surveillance cameras
- Consumes lower energy comparing to conventional systems since it doesn't work constantly and there is no pressure loss in the air ducts.
- Setup cost is low.

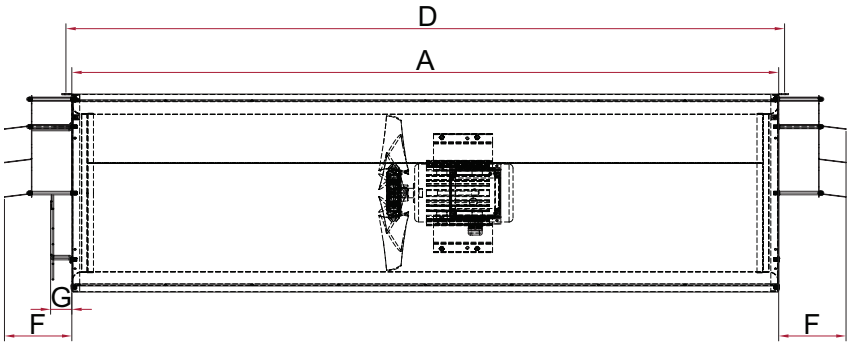
Model Name	Motor Power F300°C–2hr (kW)	Current (A)	Fan Speed (rpm)	Fan Airflow (m^3/sn)	Thrust (N)	Sound Pressure (dbA–3m/45°)	Weight (kg)
JA–35/40–U Uni–Directional Jet Fan							
JA–352–01–U	1.23 /0.28	2.89/0.874	2880/1440	1.97/0.98	48/12	64/49	56
JA–352–02–U	1.73 /0.43	3.91/1.25	2880/1440	2.05/1.03	50/13	66/50	62
JA–402–02–U	1.73 /0.43	3.91/1.25	2880/1440	2.68/1.34	68/17	67/51	68
JA–402–03–U	2.53 /0.58	5.32/1.69	2880/1440	2.89/1.44	80/20	73/55	73
JA–35/40–R Reversible Jet Fan							
JA–352–01–R	1.23 /0.28	2.89/0.874	2880/1440	1.97/0.98	48/12	64/49	57
JA–352–02–R	1.73 /0.43	3.91/1.25	2880/1440	2.05/1.03	50/13	66/50	63
JA–402–02–R	1.73 /0.43	3.91/1.25	2880/1440	2.68/1.34	68/17	67/51	69
JA–402–03–R	2.53 /0.58	5.32/1.69	2880/1440	2.89/1.44	80/20	73/55	74

Options

- DEFLECTOR
- CFD ANALYSIS
- JET FAN SYSTEM AUTOMATION
- BIDIRECTIONAL FAN









Fan Type	A (mm)	B (mm)	B (mm)	D (mm)	E (mm)	F (mm)	G (mm)
JA–352–01–U	1800	459	551	1850	370	170	46
JA–352–02–U	1800	459	551	1850	370	170	46
JA–402–02–U	1800	504	595	1850	370	170	46
JA–402–03–U	1800	504	595	1850	370	170	46
JA–352–01–R	1800	459	551	1850	370	170	-
JA–352–02–R	1800	459	551	1850	370	170	-
JA–402–02–R	1800	504	595	1850	370	170	-
JA–402–03–R	1800	504	595	1850	370	170	-

Radial Jet Fan - Technical Data



WHAT IS Radial JET FAN

Unlike the axial jet fan, radial jet fan pulls air from the bottom instead of back. Since it has thinner build it is a viable solution to the places with height problem.

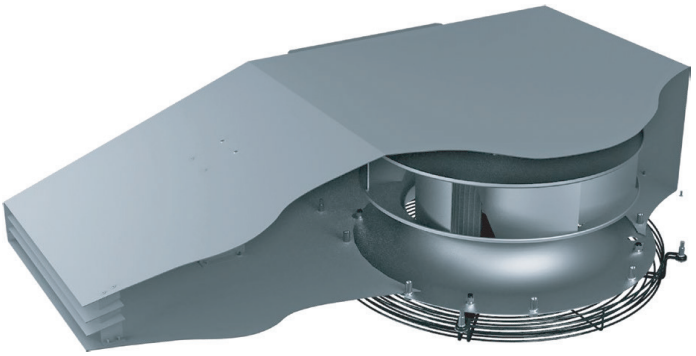
Advantages

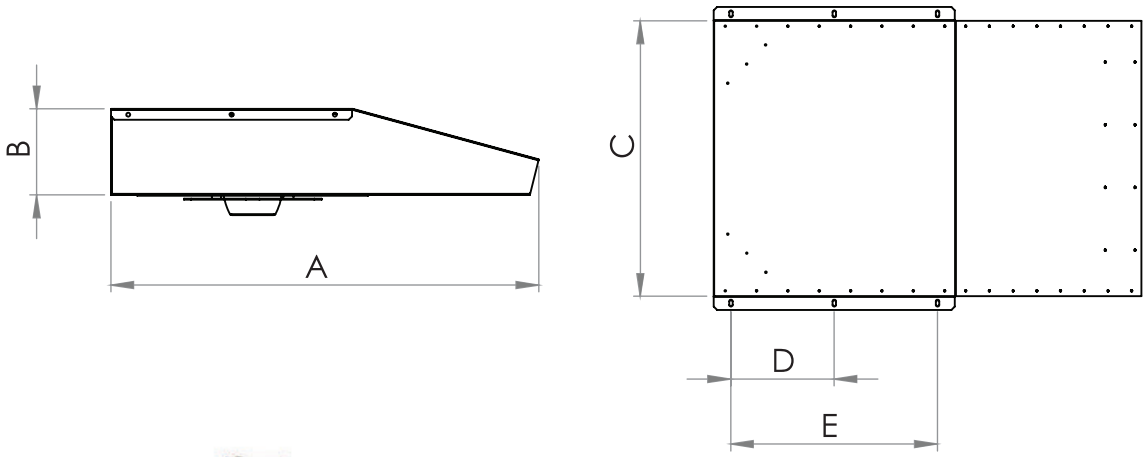
- Works in two different revolutions
- Extracts smoke during and after fire
- Provides help to firefighters.
- Helps to extract residents safely during fire
- Doesn't obscure other systems (sprinklers, electric lines etc.)
- Since it occupies small space it can be used low height areas
- Doesn't obscure vision of surveillance cameras
- Consumes lower energy comparing to conventional systems since it doesn't work constantly and there is no pressure loss in the air ducts.
- Setup cost is low.

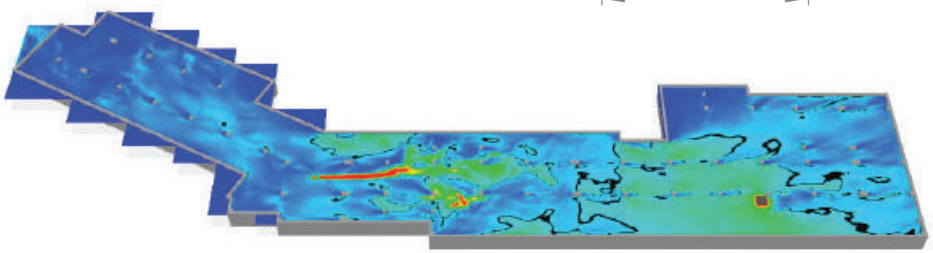
Model	Thrust Force (N)	REV (rpm)	Power (kW)	Noise Level (dB(A)–1m)
JR 50	13 - 50	750 - 1500	0.30 - 1.20	38 - 54
JR 70	19 - 70	750 - 1500	0.55 - 2.20	43 - 58
JR 90	25 - 90	750 - 1500	0.55 - 2.20	46 - 62

Options

- DEFLECTOR
- CFD ANALYSIS
- JET FAN SYSTEM AUTOMATION

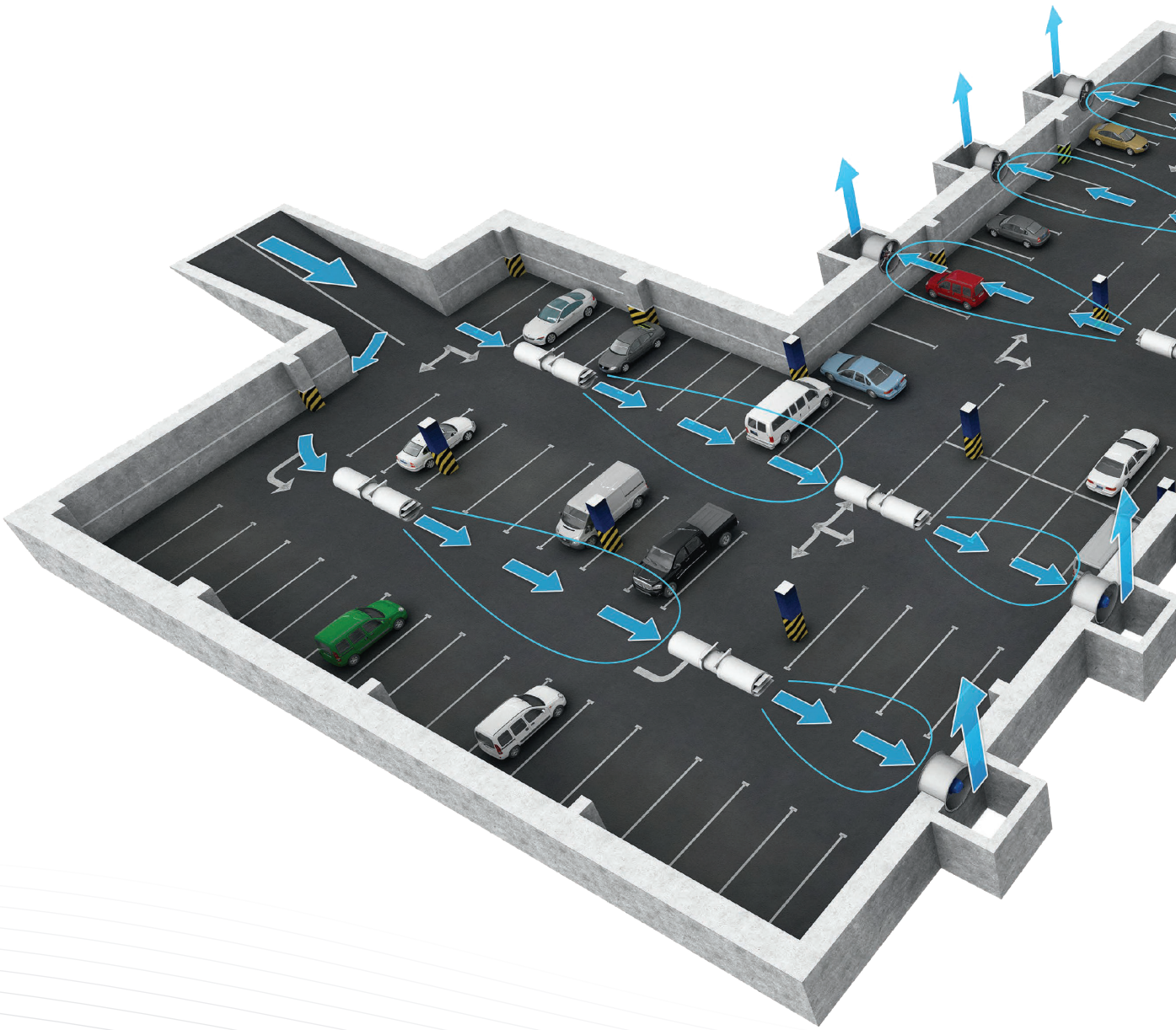


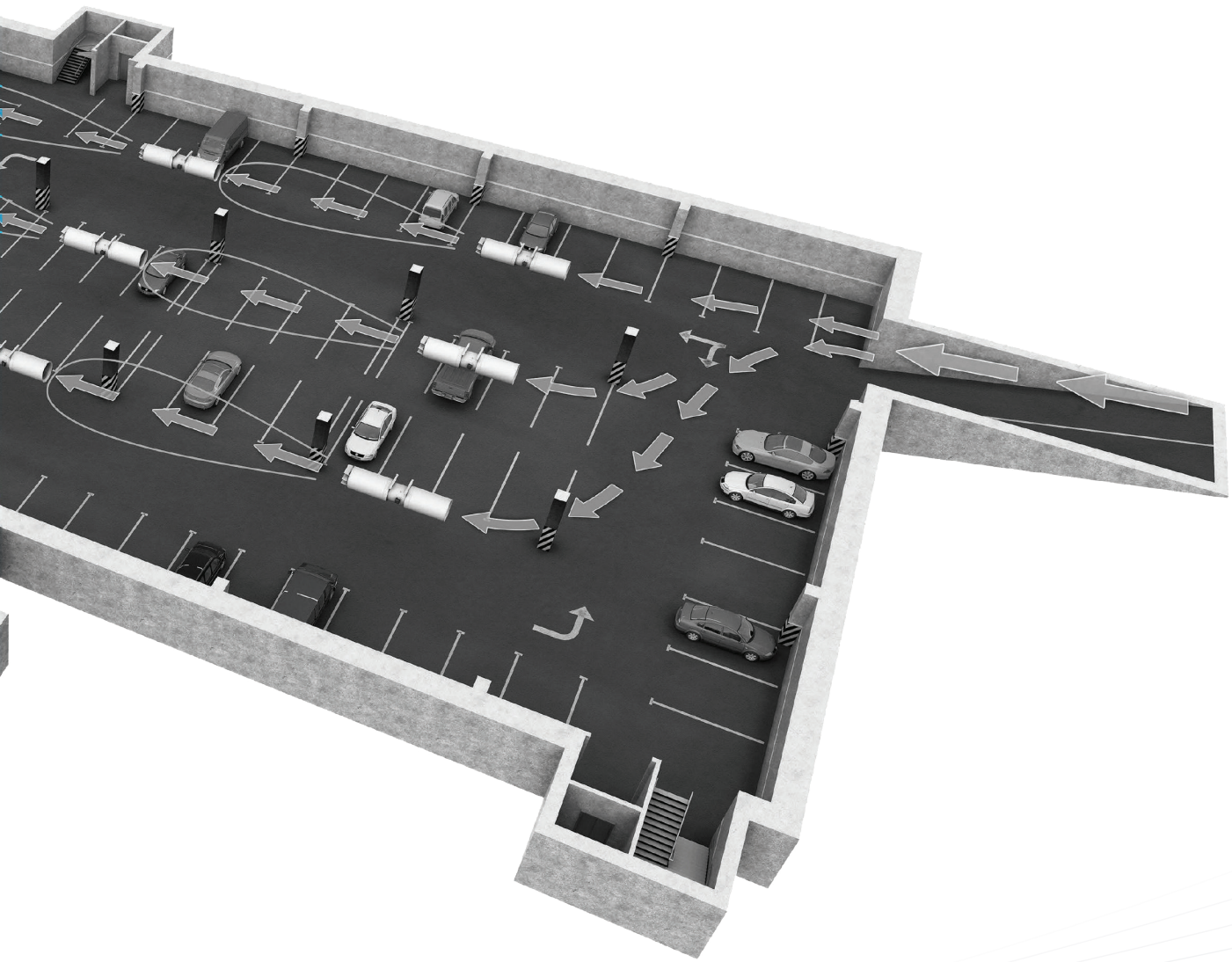




Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
JR 50	1215	250	800	300	600
JR 70	1300	300	840	300	600
JR 90	1300	300	840	300	600

Underground Parking Ventilation Example

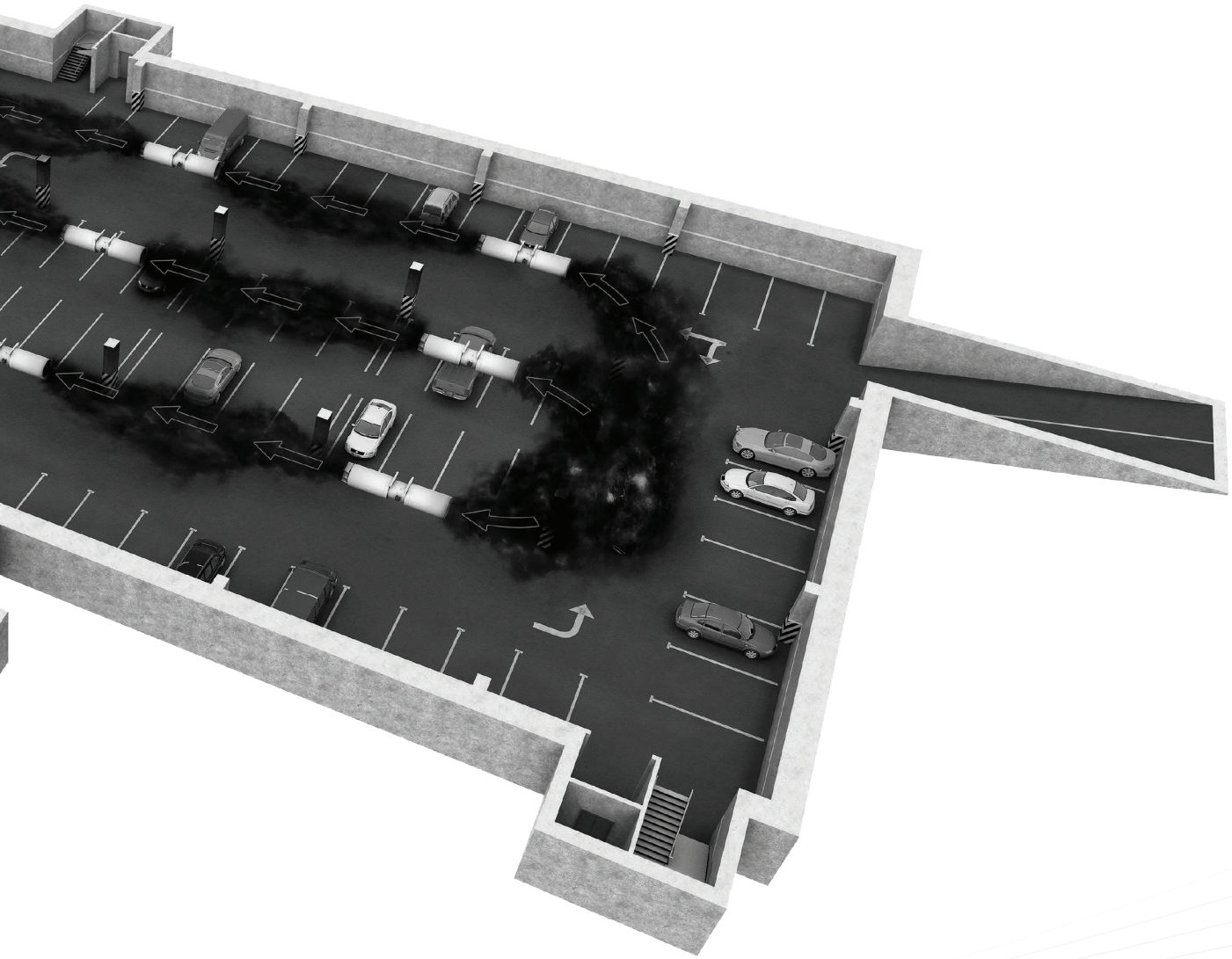


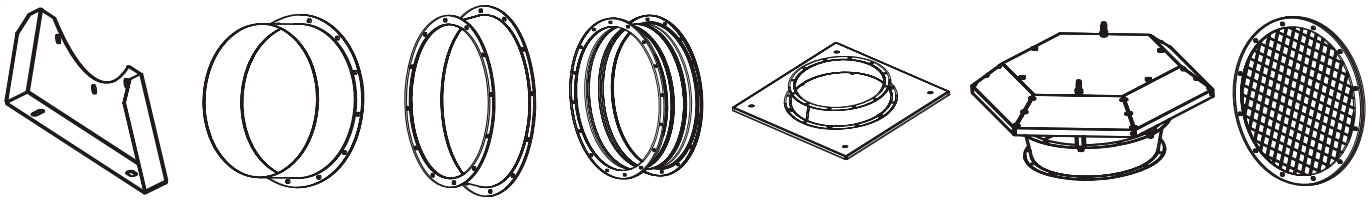


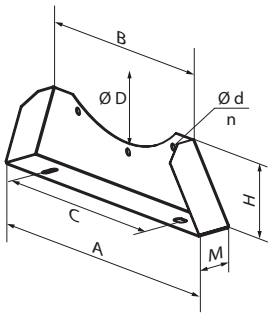
li-cha
HVAC & VENTILATION SYSTEM

Underground Parking Smoke Extraction Example



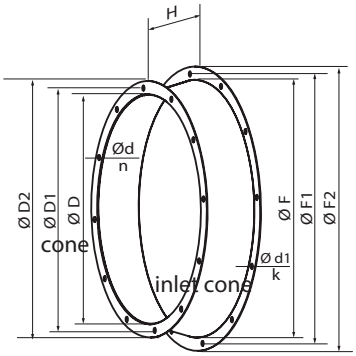






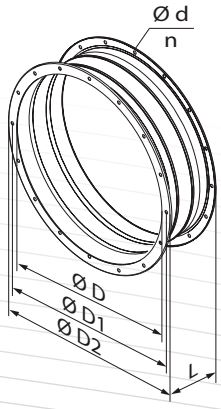
Maunthing feet

• **Purpose**
Used for mounting the fans to the fl oor, walls or ceiling.
• **Design**
The carrier consists of two brackets.
The unit is made of steel with a polymer coating.



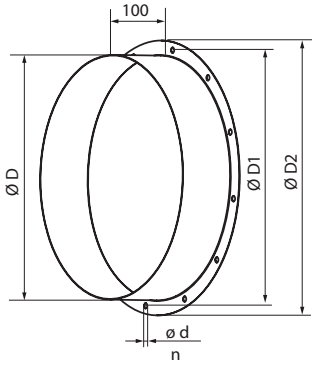
Counter Flange

• **Purpose**
The inlet cone should be installed upstream of the fan to improve the air fl ow parameters. However, it becomes a must in the absence of ducting attached to the fan inlet. The inlet cone helps reduce the fan dynamic pressure and increase the static component of the total fan pressure. The unit can be used in combination with the SZ-Axis-P protective mesh which must be one size larger than the unit.
• **Design**
The unit has two fl anges and is made of steel with a polymer coating.



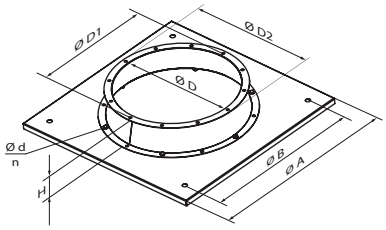
Flexible joint

• **Purpose**
Flexible joints cancel out any potential vibrations transmitted by the fans or air handling units to the air ducting as well as partially compensate for the air duct assembly deformations caused by temperature variation.
• **Design**
The fl exible joints are formed by two fl anges joined with vibration-cancelling material and are made of zinc-plated sheets and PVC tape reinforced with polyamide fabric. The joints are not intended to withstand any signifi cant mechanical loads and, therefore, may not be used as load-bearing structures.



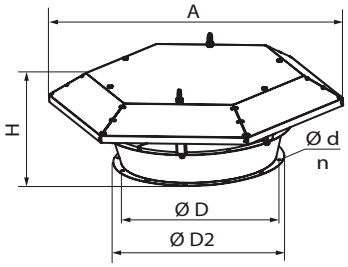
Flange

• **Purpose**
Enables attaching round ducts of appropriate size to the fan.
• **Design**
The unit is made of steel with a polymer coating.



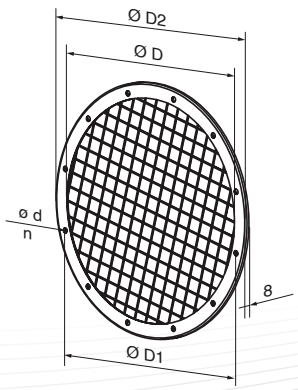
Roof adapter

• **Purpose**
The unit is used for mounting Axis-P on rooftops.
• **Design**
The unit is made of steel with a polymer coating.



Hood

• **Purpose**
Ensures trouble-free operation of Axis-P fans on rooftops.
• **Design**
The unit is made of steel with a polymer coating.



Protective mesh

• **Purpose**
Protects the fans against foreign objects.
• **Design**
Protective mesh with 25x25 mm cells.

IT’S ALL IN THE DETAILS

همه چیز در جزئیات است ...