

典型应用

TYPICAL APPLICATIONS

- 一般送风、回风或排风系统

General、air return or exhaust system
- 紧急排烟（建筑物、停车场等）

Emergency exhaust smoke(buildings, parkings, etc.)
- 餐厅排油烟

Restaurant smoke
- 高温气体排放

High temperature gas emission
- 爆炸性气体排放

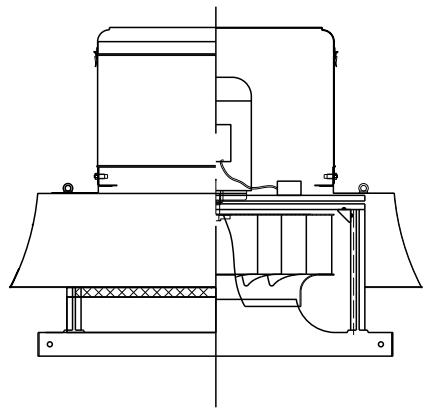
Explosive gas emission
- 腐蚀性气体排放

Corrosive gas emission
- 我们在空气输送领域的专业技术，能够帮助你提高系统运行效率。

For the technology in the air transport field, we can help you to improve the system efficiency.

型号说明

MODEL DESCRIPTION



RCR-D (直接传动) (Direct-drive)

RCR – 500 – D6 – 0.55

1

2

3

4

0.55:电机功率0.55kw
0.55:Motor power is 0.55kw

电机直联驱动，6极
Direct Drive, 6pole

500:风机型号，名义叶轮直径500mm
500:Nominal wheel diameter:500mm

RCR:离心式屋顶排风机
RCR:Roof Top Centrifugal Exhaust Fan

RCR-D (直接传动) (Direct-drive)			
消防	Smoke removal	可选	Optional
防爆	Explosion proof	可选	Optional
叶轮环氧	Wheel epoxy coated	可选	Optional
整机环氧	Fan epoxy coated	可选	Optional

曲线说明

CURVE EXPLANATION

- 每个型号风机由一组曲线表示不同转速下的性能。
- 粗曲线代表风机为直联型，即叶轮与电机直接连接（直联机型的型号已经在图中单独用箭头标出）。所有直联型号均应在叶轮直径后加字母D以及电机极数，其风机转速与电机极数的对应关系如附表所示。
- 细曲线代表使用皮带连接，通过选择两个皮带轮不同直径配比来得到所需转速，电机采用2、4、6极。
- 轴功率曲线显示风机实际耗用的电能。
- 声压级曲线显示距离风机1.5米处的噪声。

Catalogue introduction

- Each fan performance is symbolized by a group of curves for different RPM.
- The bolded curves indicate the fan is direct drive which means the wheel is installed on the motor shaft directly. All direct drive models shall have a suffix letter D followed by motor pole number (which is already marked on the drawing). The attached table shows motor RPM at different number of poles.
- The not-bolded curves means the fan is belt drive. The belt drive models establish different RPM by choosing different diameter of the 2 pulleys, while the motor is 2/4/6 pole.
- Shaft Power Curve displays the fan actual power consumption.
- The sound pressure level curve indicated the noise level at 1.5 meter distance.

选型举例：1800m³ /h,500Pa静压

- （1）自给定风量（图Q点：1800m³ /h）出发作垂直线，自给定静压（图P点：500Pa）作水平线，其交点（W）即为“工作点”。寻找离该点最接近的性能曲线（应为第13号曲线），其对应转速按照转速表应为2053转/分。
- （2）该垂直线与图2中相同编号的曲线交点为W1，从该点作水平线与轴功率曲线坐标轴相交，其交点E（约为0.42kw）即为实际功耗，代表工作所需的电能。根据该功率，应选择0.55kw电机。
- （3）该垂直线与图3中相同编号的曲线交点为W2，从该点作水平线与噪音曲线坐标轴的交点S（约为69dB(A)）即为声压级噪音。
- （4）根据上述步骤，该型号初步选定为RCR-300-0.55，皮带驱动，出厂转速设定2053RPM。如果希望功率或噪声更低，可参考大一档风机进行比较，但初投资会增加。
- （5）进一步地，如果需求为1800m³ /h、200Pa静压，则容易发现W3点距离8号加粗曲线（代表直联风机，1450RPM、4极电机）很接近，则按照箭头标明的型号为RCR-300D4配0.37kw电机，其性价比更高。

Example:1800M3/H,500Pa Static Pressure

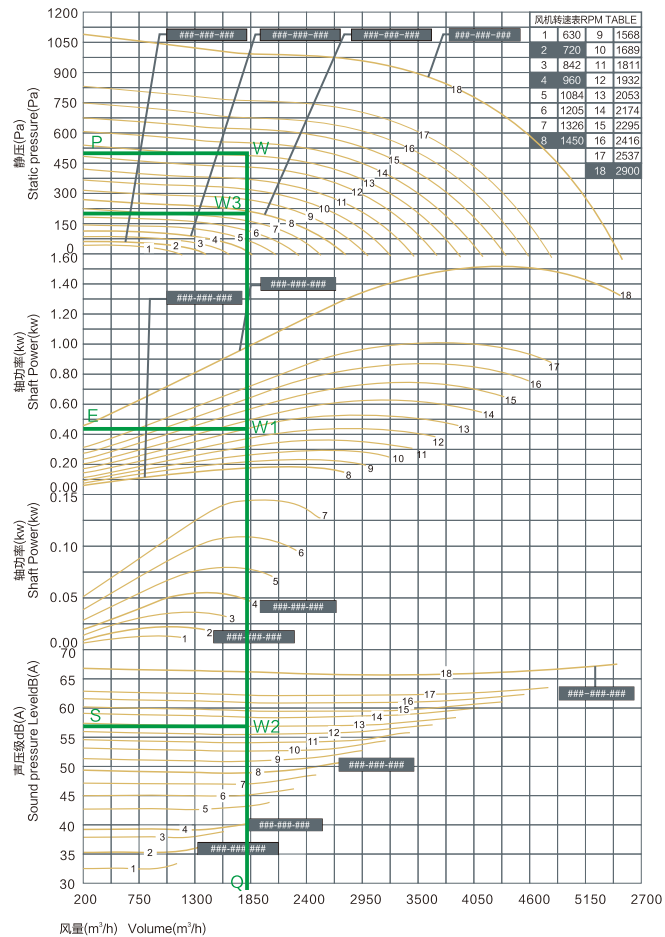
Step 1: From given volume (Point Q:1800M3/h) draw a vertical line upwards,from given static pressure (Point P:500Pa) draw a horizontal line to the right,the intersection point W is the working point.Find a fan curve close to the point,which would be curve No.13.As highlighted in the RPM table,it is 2053 RPM.

Step 2: The intersection point between the vertical line and the curve No.13 in diagram 2 is marked as point W1.Draw a horizontal line from point W1 to the left coordinate, which makes point E.The point E (about 0.42kW) is the shaft power. According to the shaft power ,a 0.55kW motor shall be equipped.

Step 3: The intersection point between the vertical line and the curve No.13 in diagram 2 is marked as point W2.Draw a horizontal line from point W2 to the left coordinate, which makes point S (about 69dB(A)).it is the fan sound pressure level.

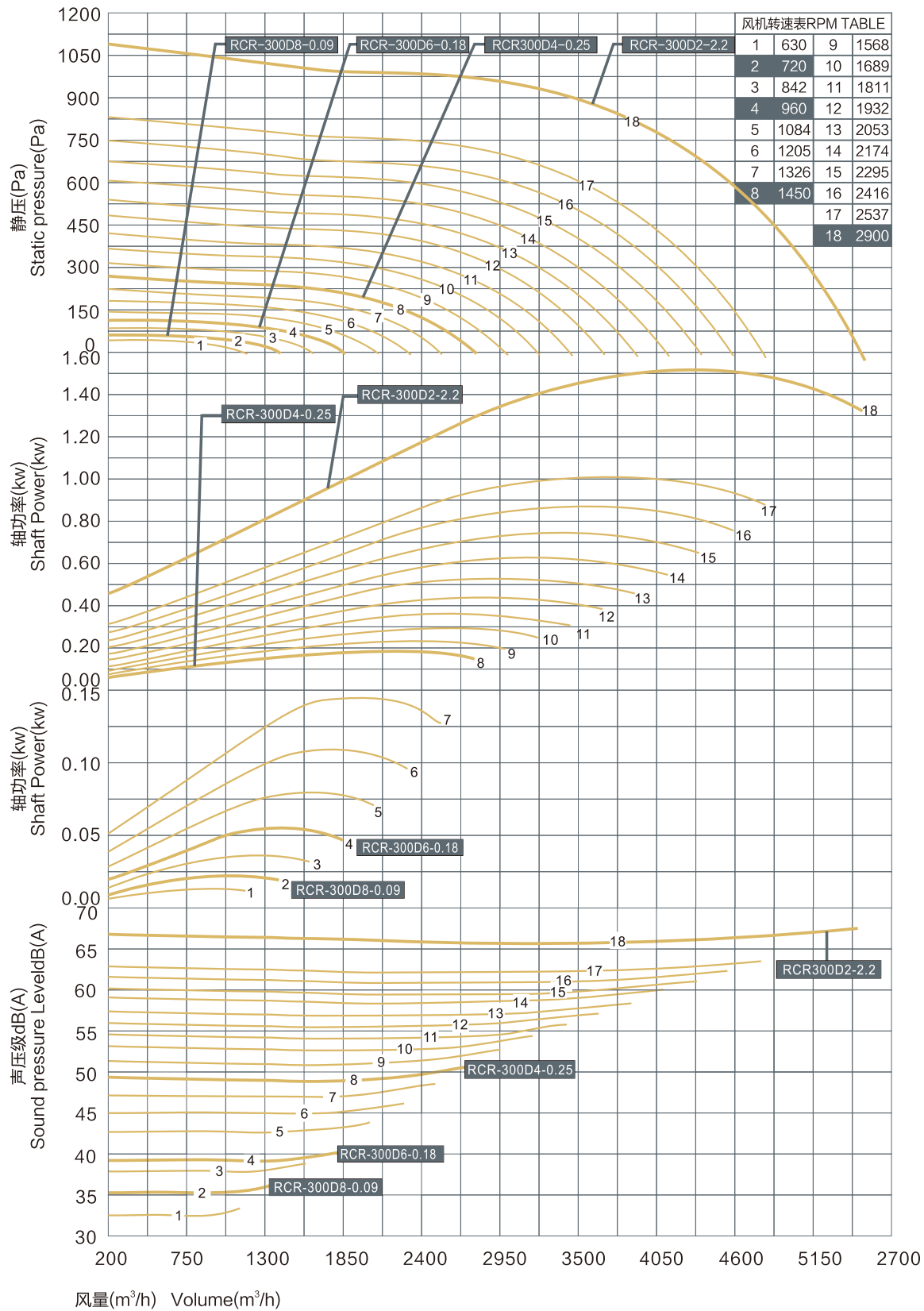
Step 4: According to above steps, the primary model selection would be RCR-300-0.55,belt drive,and factory set to 2053RPM.If lower shaft power or noise is expected,you may compare with another larger fan.However a larger fan would increase primary investment.

Step 5: Furthermore,if customer needs 8000M3/H at 200Pa static pressure,you would find point W' is close to curve No.8(bolded,indicates 1450 RPM 4 pole direct drive).Then a direct drive fan (RTC-300D4-0.37) can be selected which would be more economic.



RCR 300 离心屋顶排风机

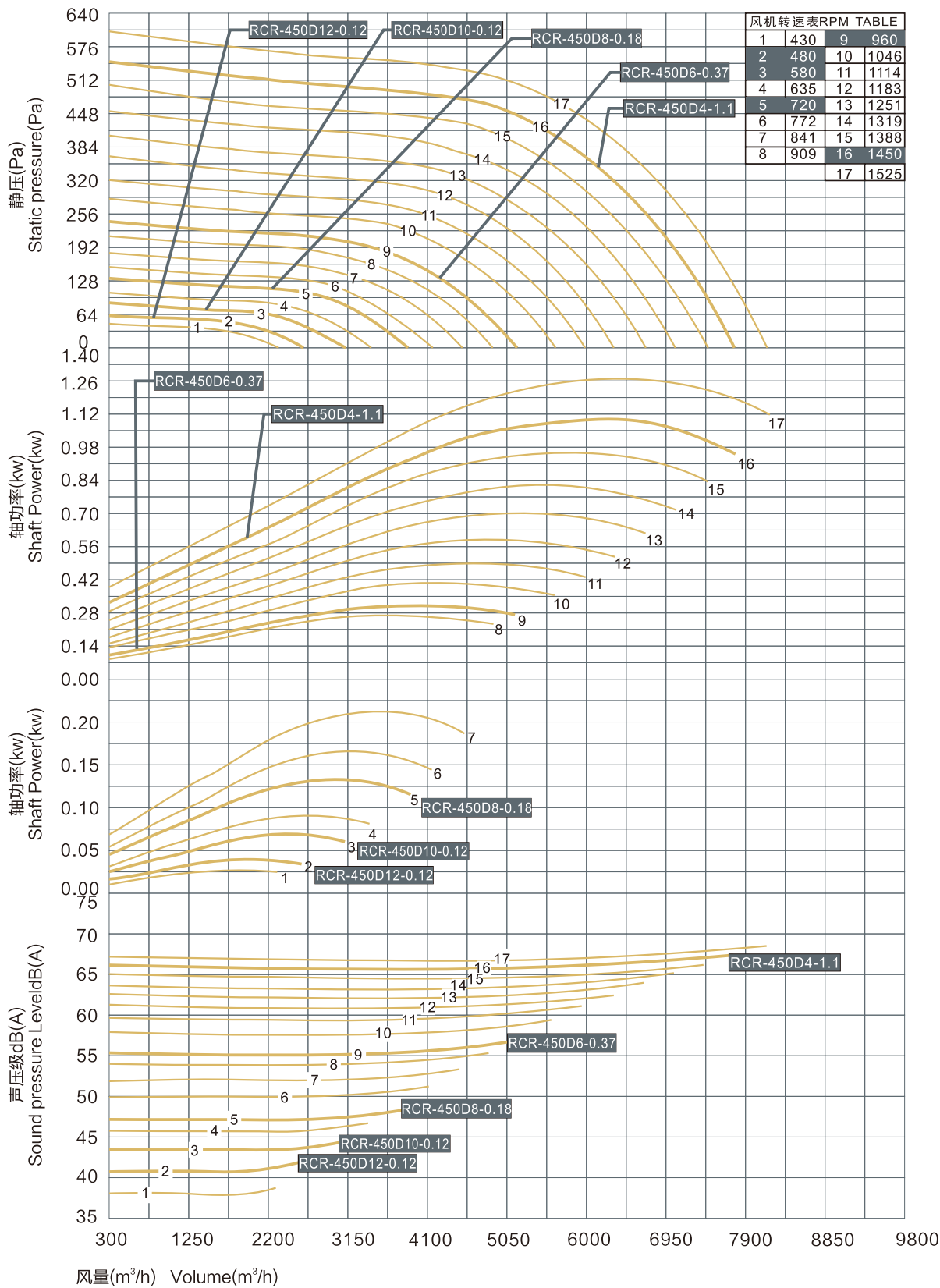
RCR 300 centrifugal roof exhaust fan



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RCR 450 离心屋顶排风机

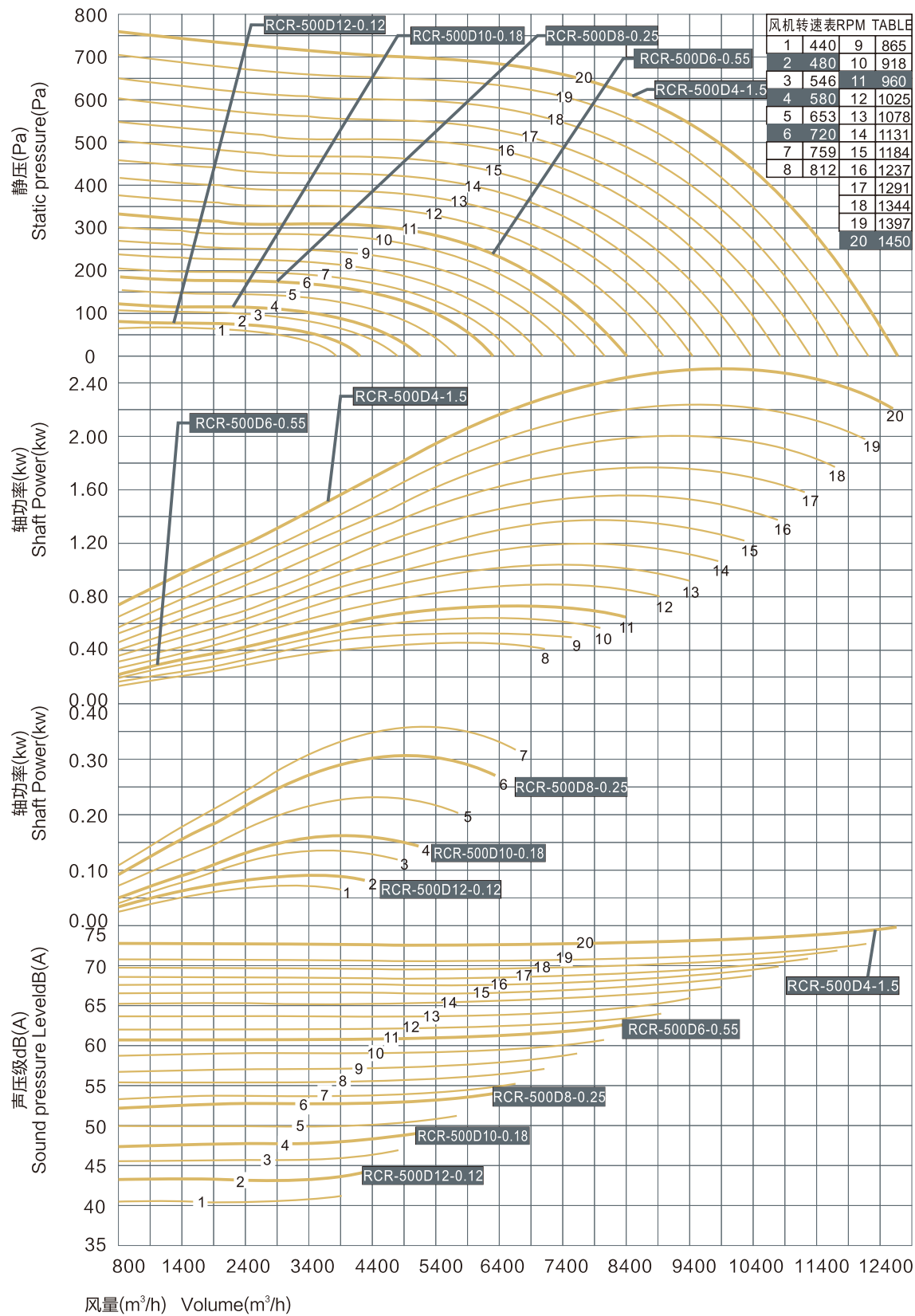
RCR 450 centrifugal roof exhaust fan



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RCR 500 离心屋顶排风机

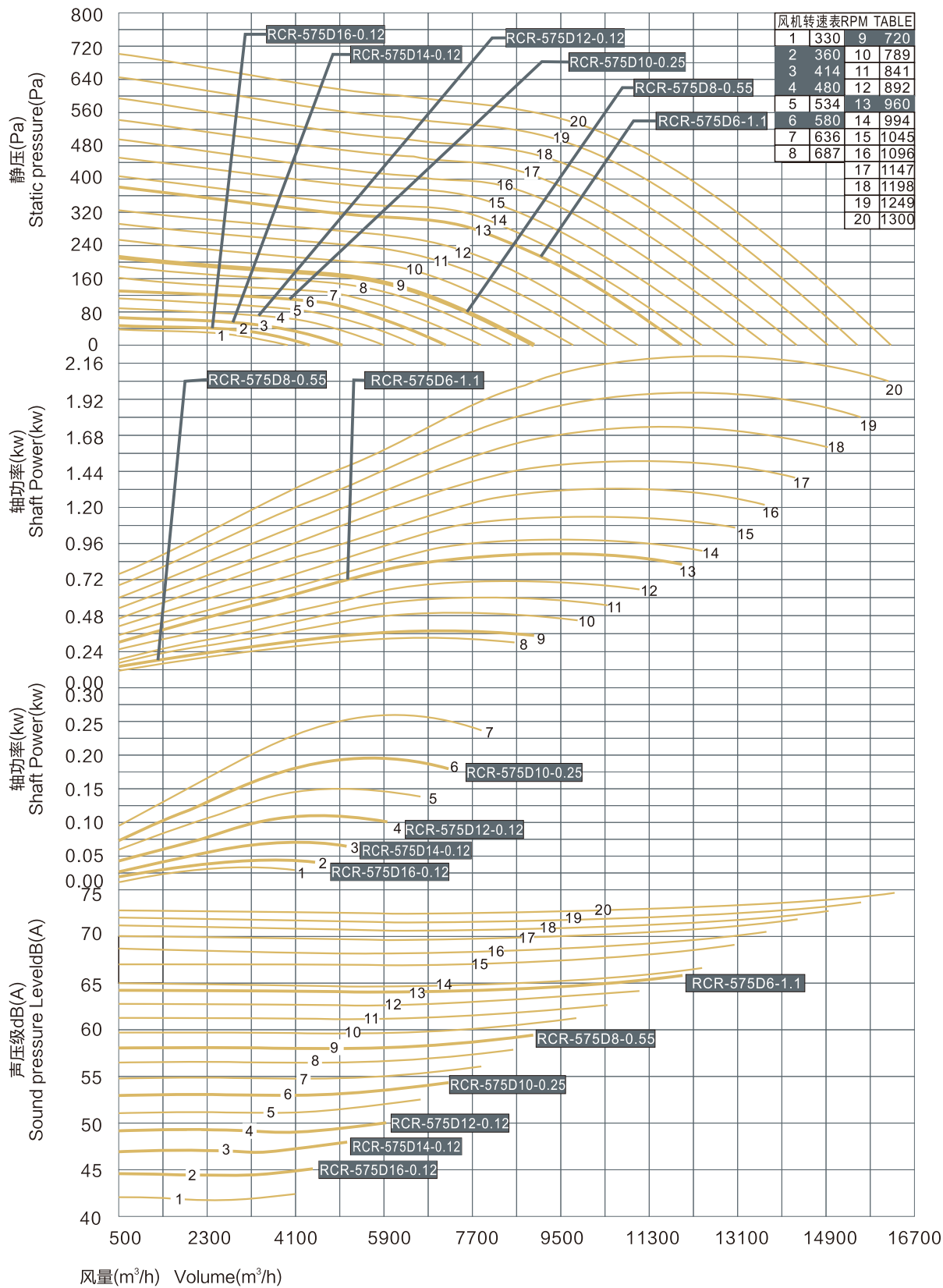
RCR 500 centrifugal roof exhaust fan



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RCR 575 离心屋顶排风机

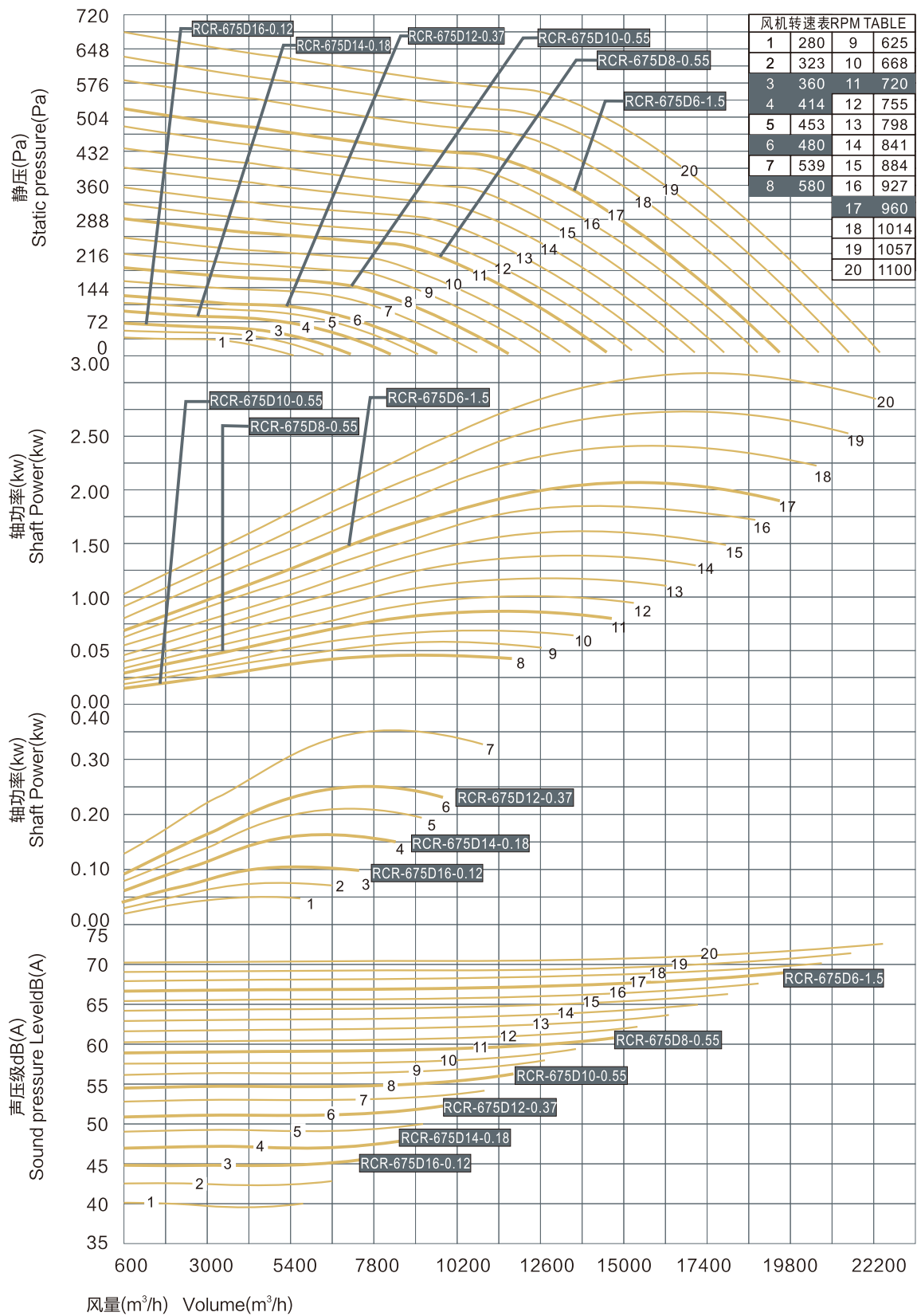
RCR 600 centrifugal roof exhaust fan



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RCR 675 离心屋顶排风机

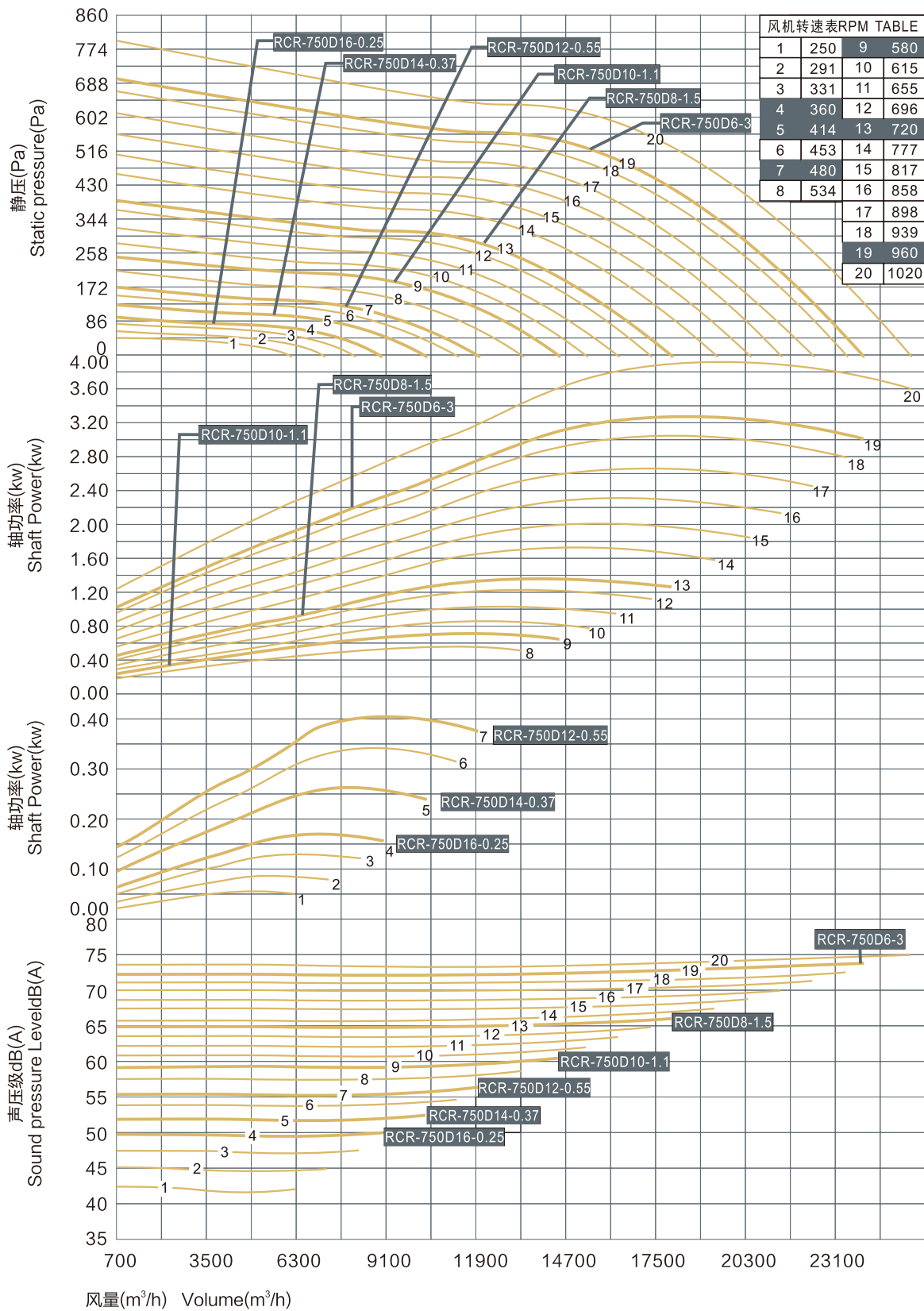
RCR 675 centrifugal roof exhaust fan



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RCR 750 离心屋顶排风机

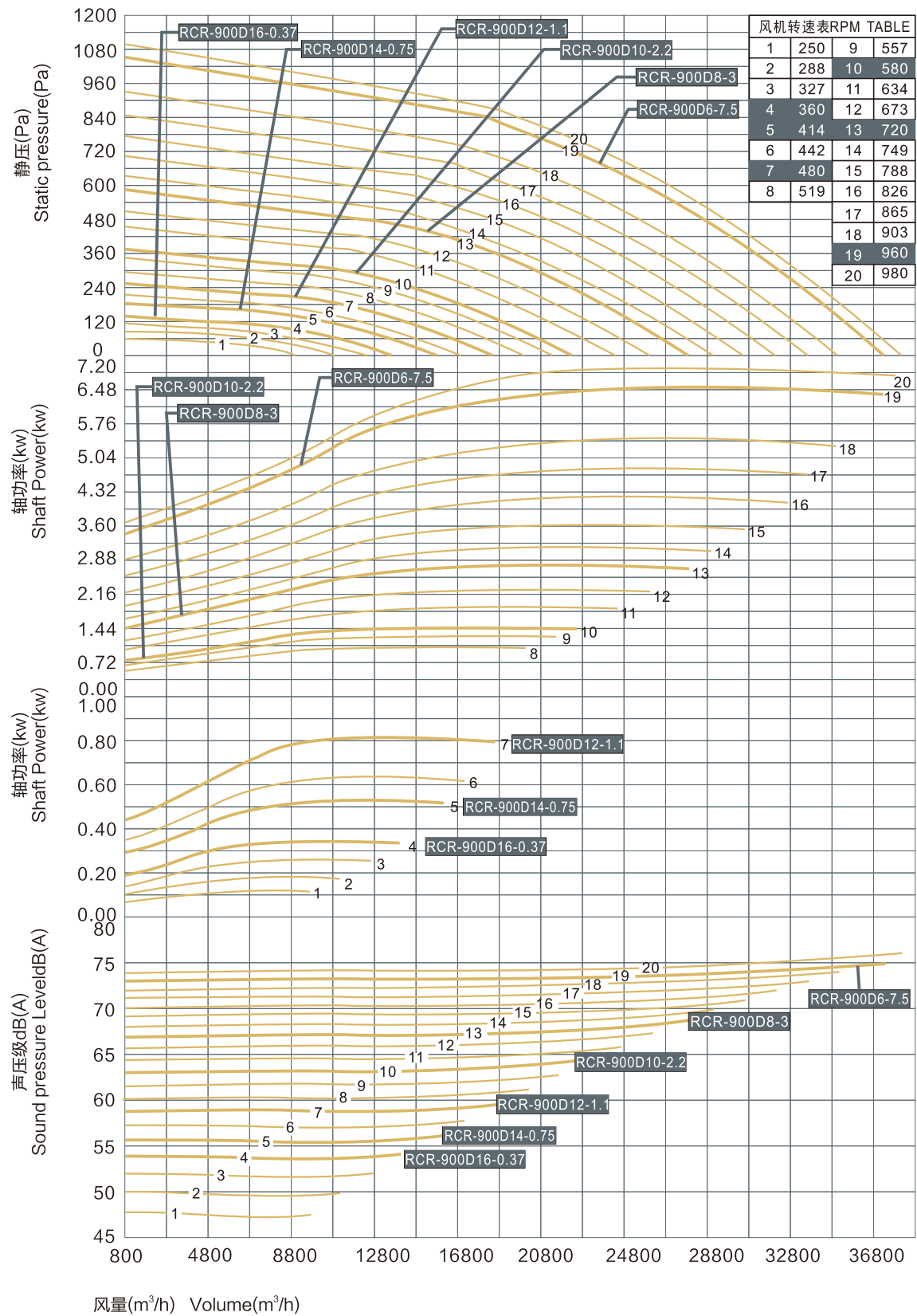
RCR 750 centrifugal roof exhaust fan



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RCR 900 离心屋顶排风机

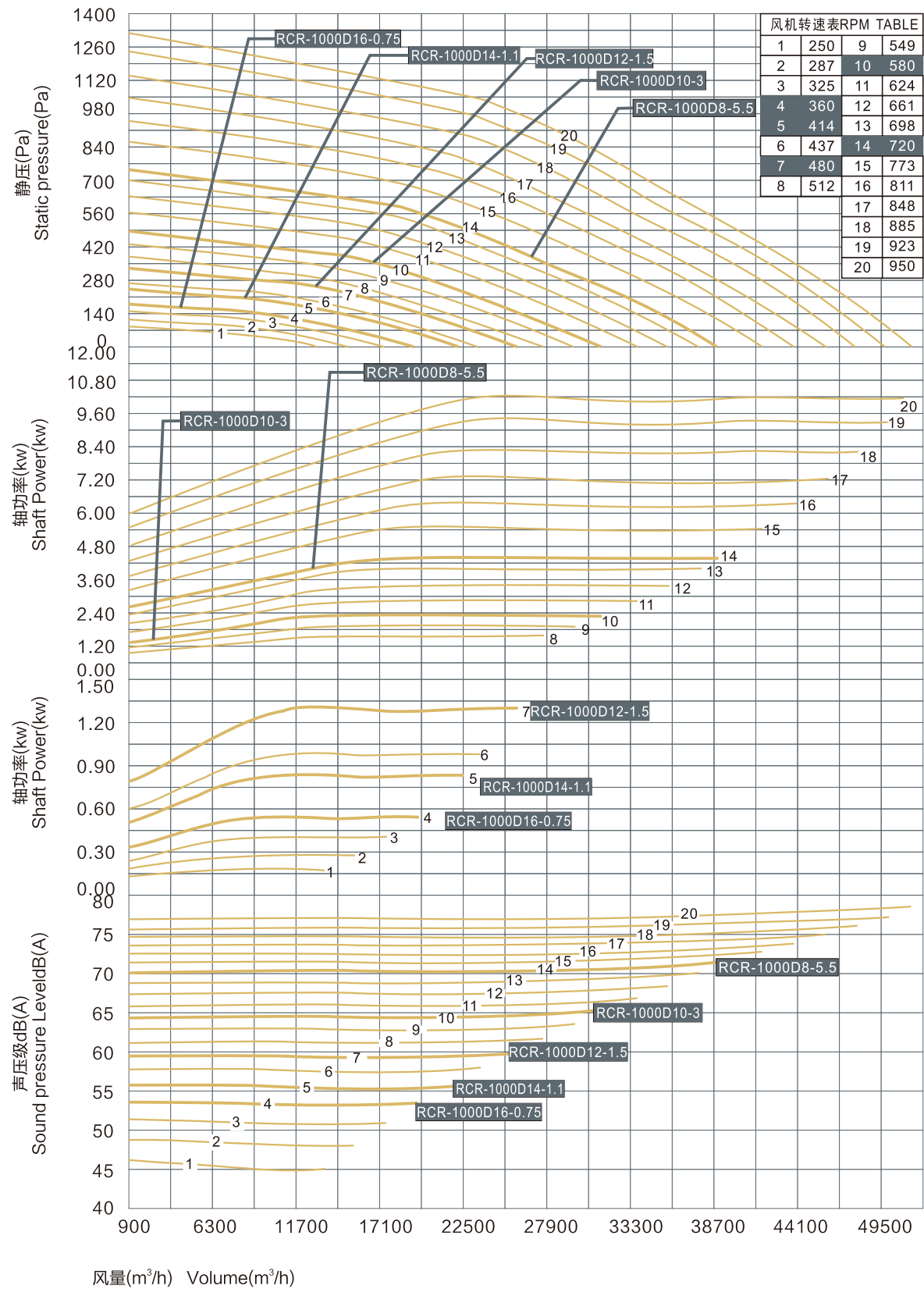
RCR 900 centrifugal roof exhaust fan



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RCR 1000 离心屋顶排风机

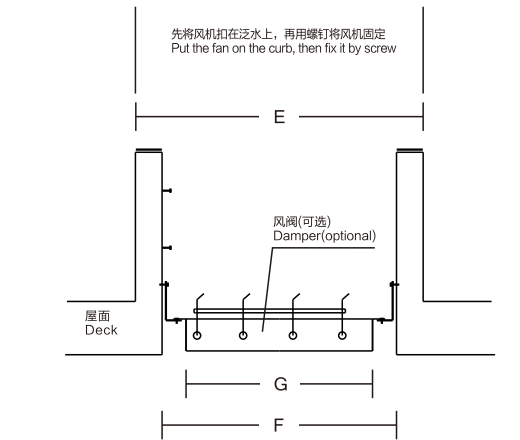
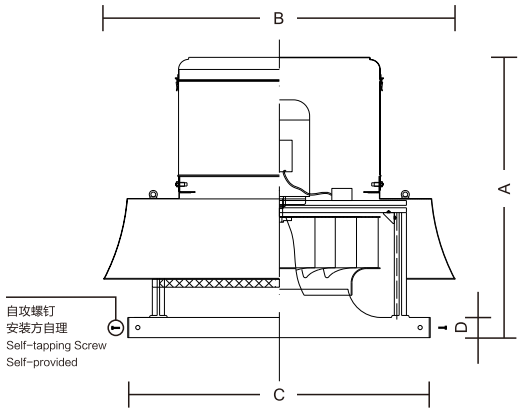
RCR 1000 centrifugal roof exhaust fan



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- 1.屋顶泛水高度H一般由设计工程师提供。厂家建议为≥250mm，依据当地的降水量而定。
- 2.屋顶风机所用的减震垫及安装止回风阀所需的角钢一般由施工方现场配置；厂家的标准产品中不包含这些材料。
- 3.减震垫厚度根据风机的厚度而定，要求能够承受风机的重量而不发生大的变形，一般厚度在5–8mm。

- 1.The roof curb height shall be defined by design engineer. We suggest the height shall be 300mm–500mm according to local rainfall.
- 2.Isolation pads, steel angels and screws for roof fans in this drawing are not included in the material lists of standard products by "ROYAL POWER".
- 3.The rubber isolation pads should be chosen according to the maximum weight of the fan they can bear without any deformation.



■ 以下尺寸适用于所有类型RCR

The below dimensions apply to all RCR types.

型号 Model	A(mm)	ΦB(mm)	C(mm)	D(mm)	重量 (kg)
RCR-300	550(max)	680	500	52	11
RCR-355	600(max)	680	600	52	13
RCR-450	660(max)	860	750	52	16
RCR-500	680(max)	860	750	52	17
RCR-575	760(max)	1080	750	52	22
RCR-675	820(max)	1080	900	52	23.5
RCR-750	930(max)	1280	1100	53	49
RCR-800	1000(max)	1280	1100	53	52
RCR-900	1150(max)	1460	1200	53	80
RCR-1000	1220(max)	1460	1250	53	89

■ 上表所列风机重量未含电机，电机重量请参考下表。

The weight in the above tables does not include that of motor.
Refer motor weight to the table below.

功率(kW) 功率(kW)	极数(poles) 电机重量 (kg) Motor Weight(kg)				
	2P	4P	6P	8P	10P
0.09	2.6	3.2	4.2	5.6	
0.12	3	3.7	4.5	6	11
0.18	4	4.2	5.6	9.4	08
0.25	4.2	5	6	10.1	10
0.37	4.7	5.8	6.8	12.5	15
0.55	6	6.5	9.6	15.3	22
0.75	7	9.1	10	17.2	25
1.1	10	11	14.4	19.5	27
1.5	11.2	14.4	15.5	25.5	30
2.2	14.5	17.6	19.8	34.2	39
3	15	22.5	30	40	45
4	24	27.3	47.6	59	54
5.5	29.3	35.7	50.7	69	
7.5	41.3	48.6	67.6	87	
11	52.5	64	87		

■ 以下尺寸适用于所以类型RCR

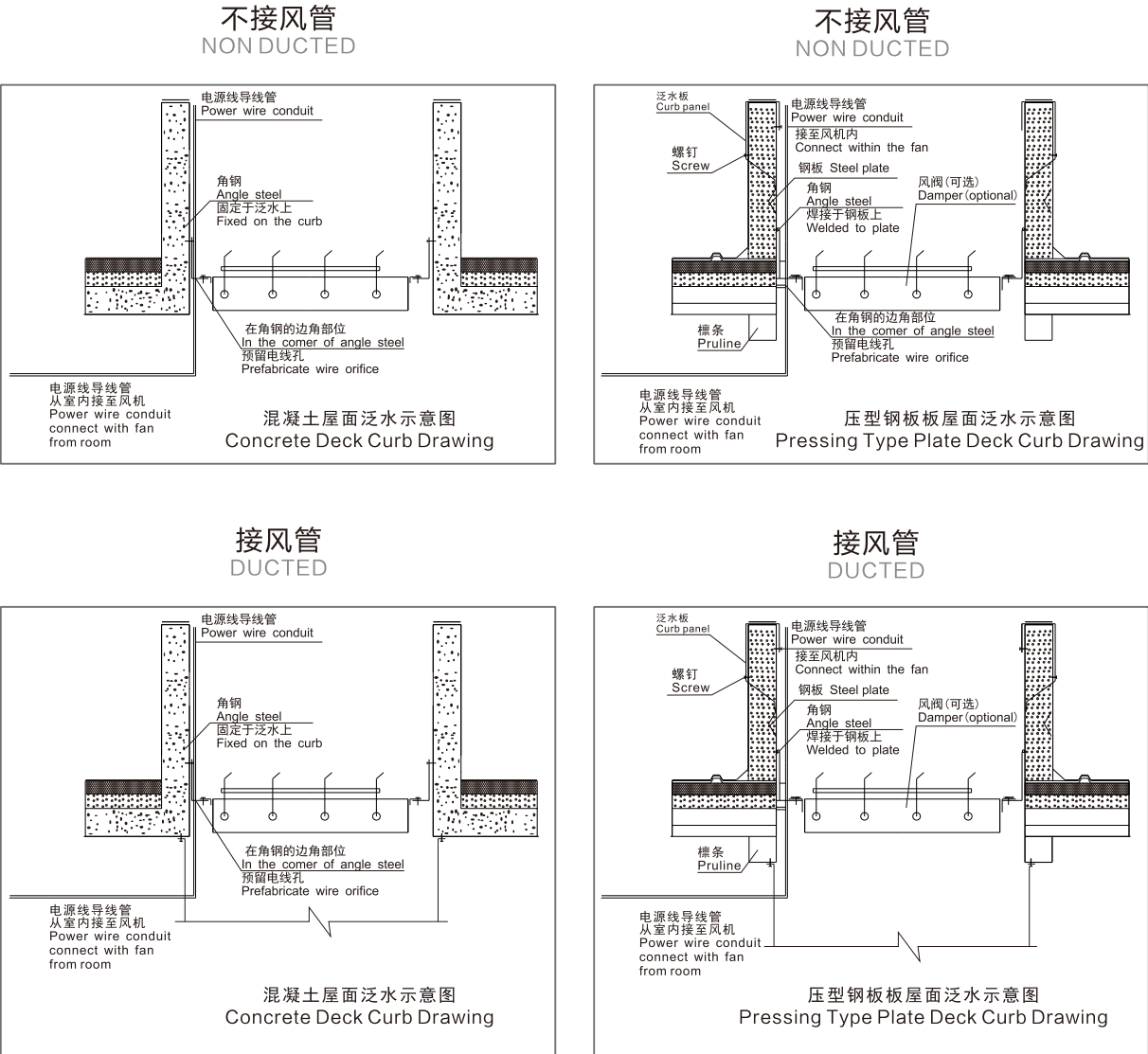
The below dimensions apply to all RCR types.

型号 Model	泛水外沿尺寸E (mm)	屋顶开洞尺寸F (mm) (钢制泛水)	屋顶开洞尺寸F (mm) (混凝土泛水)	止回风阀尺寸G(mm) Damper Size
	Curb Edge Distance	Roof Opening Size	Roof Opening Size	
RCR-300	490×490	390×390	330×330	300×300
RCR-450	740×740	640×640	580×580	500×500
RCR-500	740×740	640×640	580×580	500×500
RCR-575	740×740	640×640	580×580	500×500
RCR-675	890×890	790×790	730×730	650×650
RCR-750	1090×1090	990×990	930×930	800×800
RCR-900	1190×1190	1090×1090	1030×1030	900×900
RCR-1000	1240×1240	1140×1140	1080×1080	950×950

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■ 泛水作法

Roof Curb Fabrication Detail



■ 泛水施工

Roof curb fabrication

“泛水”是屋顶的一种建筑结构，即在屋顶开洞的外则向上翻起的防水翻口。
泛水的制作及工艺过程由工程承包商负责，图一、图二仅供参考。
根据材料不同，泛水侧壁应采用不同的厚度；混凝土侧壁厚度应采用70–80mm为宜，钢结构则在30–50mm即可。

Roof curb is a kind of structure on the roof, that is, The contractor is only the only party who is responsible for the fabrication and procedure of the roof curb, figure 1 and figure 2 are for reference only. The thickness of curb wall shall be different according to the material. For concrete wall the thickness shall be between 70–80mm, while for steel structure between 30–50mm.

对于泛水上缘与风机接触的部分，必须采用厚度适合的减震垫（消防型为石棉减震垫），同时起到密封的作用，其厚度以风机压上后仍保持弹性良好为宜。

可以采用市售的减震垫裁减而成，由施工单位提供。

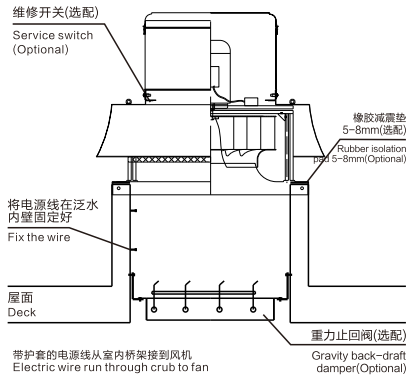
As ti the mater where the fan contacts the curb in the top, a linear rubber vibration isolation pad（smoke removal type needs asbestos isolation pad）shall be applied and also acts as seal.The thickness of the pad shall be decided according ti the thickness if it still maintains proper elasticity after fan is seated.The pad could be cut by typical carpet type isolation pads from market and shall be provided by contractor.

风机的固定

How to mount the fan

安装时将风机下部的泛水帽扣在泛水上，在侧面用自攻螺丝固定，如图一、图二所示。风机安装后必须保持水平，禁止倾斜。

Put the fan curb on the curb, and fix it at all four sides by self-tapping screw as shown by figure 1 and figure 2. The fan must be rept level.



图一：RCR非消防型风机安装图
Figure1:RCR non smoke removal fan installation drawing

电源接线

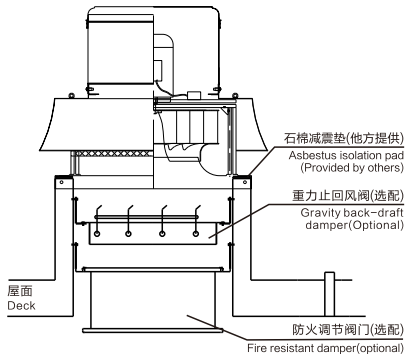
Power supply wiring

风机作普通排风和防爆排风时，接线由泛水内部向上，经过风机提供的穿线管接入电机，如图一所示。作消防排烟时，风机电源接线通过电机腔的接线预留孔从屋面接入电机，如图二所示。

As general and explorer proof exhaust fan, wring starts inside the curb and is connected with motor through the tube provided by fan as thown by figure 1.As smoke removal fan, wiring stars on the roof and is connected with motor through provided hole in motor chamer as shown by figure 2.

接线完毕后，必须通电试转，并严格按照机器上标注的转向箭头检查转向，如果相反，则对换三项中任意两项。禁止风机反向运转！

The rolation must be checked by connecting the electric power strictly according to the direction mark on the machine after the wiring is done.If reveres, inter-change any 2 of the 3 phase lines.Fan reves rotation is forbidden.



图二：RCR消防型风机安装图
Figure2:RCR smoke removal fan installation drawing

可选配件

OPTIONAL ACCESSORIES

重力式止回风阀/Gravity back-draft damper

铝制叶片，钢制外框。风机开启的同时自动打开,风机关闭时,由于重力作用自动关闭,保持车间密闭。无需电力,免维护。
Aluminum blades with steel frames. Open automatically when the fan is turned on. and closed by the effect of gravity after the fan switched off.

维修开关（不适用于防爆场合）/Maintenance switch (does not apply to hazardous areas)

装在风机内部或屋顶靠近风机的区域，维护风机时刻可紧急切断电源，确保人生安全。（不建议用于日常操控风机后停工作）
Service Switch is mounted inside the fan or on the roof close to the fan, The power supply shall be urgently cut to ensure the personnel safety while repairing the fan.(It is supposed to start/stop the fan for daily operation)

钢制泛水转接头/Steel curb adapter:

用于屋顶泛水尺寸已定或完成。并且与皇家动力产品不符时进行转接，以避免重新制作泛水，可“大转小”或“小转大”，订货时需注明目前的泛水尺寸。
The curb adapter is ordered when roof curb is already made or the size is fixed to match"Royal power"RTC fan. The adapter can be converted from big to small or small to big. However, existing roof curb size must be required in the order.

70℃/280℃防火调节阀（消防用）/ 70℃/280℃ fire damper（for smoker removal）

平时呈常开状态，空气温度达到70度或280度时，熔断器动作，阀门自动关闭，同事输出信号反馈到控制系统，除防火功能外，同时具备风量调节的功能。
The regulator is always open. Once the temperature reaches 70℃ or 280℃, the valve could automatically close and the signal will be sent out to the control system at the same time, Except for fire resisting, it has the function of adjusting air volume.

橡胶减震器（非消防用）/Rubber isolation pad (not for smoker removal)

置于泛水与泛水帽之间，防水密封，有效减少震动，降低噪音，延长风机寿命。
The rubber isolation pad is located between curb and curb cap, which is waterproof and sealed and can effectively reduce vibration, lower noise and extend performance life of fan.

防腐涂层/Anti-corrosion coating

根据排放气体成分不同,选择相应的防腐镀层,提高风机的抗腐蚀能力。
Coating type is determined by applied environment.

技术标准

SPECIFICATION

质量标准

Quality Standards

离心屋顶排风机应按照空气运动与控制协会第210和300标准进行检测并通过其认证，风机参数应是以风机整机进行试验检测所得数据，每套风机出厂时均应贴有AMCA空气动力特性和噪音的特许认证标签。

Centrifugal roof exhaust fans shall be tested and certifeied in accordance with AMCA Standard 210&300.Each fan shall bear AMCA Sound & Performance Seal.

风机类型

Fan Type

风机类型应为离心屋顶排风机，采用铝制后倾离心式叶轮。叶轮进口拉瓦尔喷管截面应呈圆弧型确保与风机入口拉瓦尔喷管过渡顺畅。叶轮应经过静态和动态平衡，达到国际标准ISO1940 G2.5。

Fan shall be rooftop centriufudal type with aluminum backward inclined centrifugal wheel.The inlet Venturi shall have round curved section to smoothly transit the air to the wheel cone.The wheel shall be statically and dynamically balanced to Level G2.5 in accordance with ISO Standard NO.1940.

■风机材料

Fan material

风机外壳，叶轮和泛水帽应采用铝合金。风机整体应为银白色以便与建筑相协调。

The fan housing, wheel and curd shall be produced by aluminum alloy.And the exterior color of the fan shall be silver white to be harmony with the building.

■电机

motor

电机应与风机负载紧密配合，防护等级IP54，绝缘等级F级。电机轴承应为滚珠轴承并且免润滑。电机和驱动机构应置于气流之外，以避免气流中的油脂或灰尘的堆积。电机腔应当使用不锈钢搭扣固定以方便维护。

Motor shall be carefully matched to the fan load with IP54 and insulation class F. The motor bearings shall be lubrication-free ball bearing type. Motor and drives shall be mounted on vibration isolators, and out of the air stream to avoid grease or dirt accumulation. Motor chamber shall be fixed through stainless steel clips for easy access.

■结构

Structure

风帽：应当兼顾以耐受较大的风载荷，其结构形式应能够防止大雨或融雪时漏水。

The hood shall be rigid enough to bear heavy load and protect the fan from leaking of heavy rain or snow melting.

电机、驱动机构和叶轮的支撑板：应使用防腐处理钢板，静止使用与外壳相同的材料以确保强度。立柱应使用铝合金棒保证支撑的稳固。

Motor ,drives and support panel shall use an anti-corrosion treated steel panel. Using the same material as that of the housing is prohibited. The column shall be aluminum stick to make sure the support is stable.

内部导线管：风机内部应设导线管，便于通过泛水内部将电源线引向电机腔。（限非消防型）

Internal wiring conduit : Fan shall be furnished with a conduit to lead the power supply wiring though the curb to the motor chamber. (Limited to non smoke removal type)

泛水帽带安装孔：风机泛水帽侧面应钻有安装孔。风机通过该安装孔固定。

Roof curb caps with mounting holes : the roof curb cap shall have pre-drilled holes at its side by which the fan could be fixed.

镀锌防鸟网：应使用镀锌的坚固格栅，在风机停止运行时阻止鸟兽通过出风口进入机体。

Galvanized bird screen: Galvanized bird screen shall be furnished to protect the fan's discharge from birds when the fan is not running.

■消防风机及认证（仅适用于消防排烟）

Smoke removal fan with certificate (apply to smoke removal only)

该风机作为消防风机应当通过JB/T10563-2006《一般用途离心通风机技术条件》检验，应保证常规性能符合标准要求，并提供拥有检查资质的机构出具的检测报告。同时该类型风机还必须经国家认可的消防安全检测机构按照GA211-1999《消防排烟风机耐高温实验方法》检验，在主风道介质温度为280℃时必须能够连续运行30分钟以上，保证耐高温性能符合标准要求，并提供拥有相关资质的机构出具的检测报告。

The centrifugal cabinet fan must be tested OK in accordance with the “General Usage of Centrifugal Fan Technical Specification ” (China National Standard JB/T10563-2006) on term of general performance . A test report issued by licensed authorities shall be provided .The fan must be tested according to “Fire Fighting Smoke Removal Fan High Temperature Testing Method ” (China National Standard GA211-1999) by qualified fire safety testing organizations. The high temperature resistance performance-running continuously for over 30 minutes when the main duct air temperature is 280?-must be identified by presenting an official certificate.

■新鲜空气冷却电机

Fresh air cooling motor

应从不含有所排空气的区域引入新鲜冷空气进入电机所在的腔体来冷却电机。新鲜空气应由风机附属叶轮通过电机罩下的缝隙引入。

Fresh air shall be drawn into the motor compartment from an area free of discharge contaminants to cool the motor and drive. The fresh air shall be guided into the motor chamber through auxiliary wheel blades to the gap below the motor cover

■铭牌

Nameplate

永久固定的标牌上应标有清晰可辨的风机编号，型号和产品序列号（即每台机器的唯一身份证明），从而可保证客户方便的查

Each fan bear a permanently fixed aluminum nameplate clearly containing fan number, product model and serial number. The serial number shall be unique ID for each fan, so that customers have an easy access to finding out the records of used parts.

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