



川源（中国）机械有限公司
GSD Industrial Co.,Ltd.

GRB

三叶罗茨鼓风机

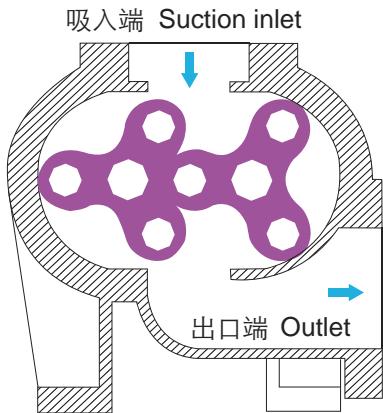


GRB three-lobe roots blower



GRB三叶罗茨鼓风机

GRB three-lobe roots blower



原理 Theory

GRB三叶罗茨风机是一种容积式风机，其压力可根据用户的要求在允许的范围内加以调节，在机壳内部设置有两组互朝相反方向回转的叶轮，在叶轮与叶轮，及叶轮与壳体间仅留极小缝隙的状态下回转。当叶轮经过吸入端时，与壳体之间捕捉一定量的空气，随叶轮旋转，空气侧移，压力逐渐升高再送至出口端。

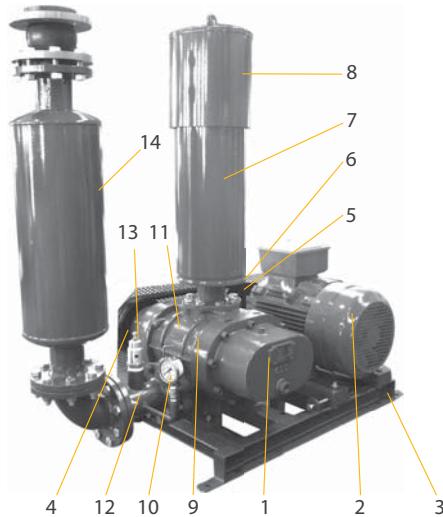
GRB is a displacement blower, the pressure can be adjusted according to the requirement of the user in allowing range, there are two impellers in the blower body which rotate in the opposite direction, in order to let the impeller rotate, there are some tiny gap between the impeller to body, impeller to impeller. When the impeller rotates through the suction inlet, it can gather an amount of air between the body and impeller, then the impeller go on rotating, and the air will be pressured, the pressure in the body will rise, finally the air has been send to the outlet.

特点 Features

- 风量和压力范围大。
 - 口径: 32mm-400mm (1.25 "-16")
 - 风量: 0.38-283m³/min (13-9985CFM)
 - 压力: 一段式GRB型可达8000mmAq (0.8kgf/cm²)
- 排出气体不含油污。
- 电脑动平衡校正，低振动低噪音。
- 风量稳定，压力变化对风量之影响小。
- 特殊叶轮设计，高效率省能源。
- 构造简单坚固，无故障。
- 使用一级研磨齿轮，精度高，寿命长，低噪音。
- 严格品质管理，标准化制品。
- 叶轮采用最新之龙门刨床六轴加工法，一次加工完成，使更换方便，其具有更高之精密度。
- Wide range of capacity and pressure.
Calibre: 32mm-400mm (1.25 "-16")
Capacity: 0.38-283m³/min (13-9985CFM)
Pressure: The pressure of one-stage GRB type up to
8000mmAq (0.8kgf/cm²)
- Delivers completely oil-free air.
- Low oscillation and low noise by dynamic balance which revised by computer.
- Smaller change in capacity against change in pressure.
- High efficiency due to special impeller design, great air-delivery low power.
- Simpler and solider structure, less trouble.
- Highest quality pilot & accurate great applied, long life and low noise assured.
- Standardized product with strict quality control.
- Our rotor has used the most advanced technic, one time for all working process of the six-shaft method, to enhance the precision.



外形结构图 Externality construction



No.	名称	Name
1	本机体	Blower body
2	电动机	Motor
3	底座	Foundation
4	皮带轮	Pulley
5	传动皮带	Driving belt
6	皮带护罩	Belt cover
7	入口消音器	Suction silencer
8	防雨盖	Rain cover
9	逆止阀	Check valve
10	缓冲管	Gauge Pipe
11	吐出压力表	Outlet pressure gauge
12	三通管	T-joint
13	泄压阀	Relief valve
14	出口消音器	Outlet silencer

注：GRB-32、GRB-40 机型不配出口消音器

Note: GRB-32\GRB-40 without outlet silencer

型号说明 Type description

GRB - 65



口径 (mm)

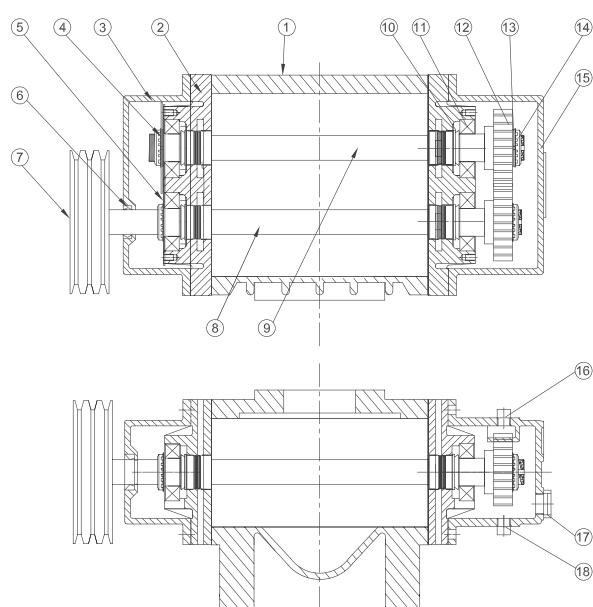
Diameter (mm)

三叶罗茨风机

Three-lobe roots blower

结构简图 Construction

No.	名称	Name	材质 Material	
			GB	JIS
1	鼓风机本体	Casing	HT250	FC250
2	轴承座	Bearing housing	HT250	FC250
3	油箱	Oil box	HT250	FC250
4	甩油片	Oil splash	Q235	SS400
5	轴承固定片	Bearing washer	Q235	SS400
6	骨架油封	Framework oil seal	NBR	NBR
7	皮带轮	Pulley	HT250	FC250
8	主动叶轮	Drive rotor	HT250	FC250
9	被动叶轮	Driven rotor	HT250	FC250
10	V型油封	V-ring	NBR	NBR
11	轴承	Bearing	GCr15	SUJ2
12	齿轮	Gear	20CrMnTi	20CrMnTi
13	止动垫圈	Lock washer	Q235	SS400
14	止动螺母	Lock nut	45	S45C
15	齿轮箱	Gear box	HT250	FC250
16	加油栓塞	Lubrication plug	45	S45C
17	润滑油面计	Oil gauge	Assembly	Assembly
18	泄油栓塞	Purge plug	45	S45C



注：不同机型结构略有不同。

Note: Different model has a little difference.



单位换算表 Conversion table

PRESSURE	atm	kPa	bar	lbt/in ² (psi)	kgf/cm ²	in Hg	ftAq	mmHg(Torr)	mmAq
1 atm	1	101.325	1.01325	14.696	1.0333	29.921	33.914	760	10333
1 kPa	0.0099	1	0.01	0.145	0.0102	0.295	0.335	7.5	102
1 bar	0.9869	100	1	14.504	1.0198	29.53	33.47	750	10198
1 lbt/in ² (psi)	0.068	6.894	0.0689	1	0.0703	2.036	2.308	51.71	703
1 kgf/cm ²	0.968	98.062	0.981	14.228	1	28.96	32.82	735.53	10000
1 inHg	0.0334	3.3863	0.0339	0.491	0.0345	1	1.133	25.4	345.3
1 ftAq	0.0295	2.99	0.0299	0.434	0.0305	0.882	1	22.42	304.8
1 mmHg(Torr)	0.013	0.1338	0.00138	0.019	0.0014	0.04	0.045	1	13.6
1 mmAq	0.000097	0.0098	0.000098	0.0014	0.0001	0.003	0.0033	0.074	1

CAPACITY	m ³ /min	l/min	cm ³ /s	in ³ /s	ft ³ /min(cfm)
1 m ³ /min	1	1000	16667	1016	35.288
1 l/min	0.001	1	16.67	1.02	0.0353
1 cm ³ /s	0.00006	0.06	1	0.061	0.002
1 in ³ /s	0.00098	0.983	16.39	1	0.035
1 ft ³ /min(cfm)	0.028	28.32	471.95	28.8	1

压力常用换算公式

Pressure Conversion Formula

$$1 \text{ kPa} = 1000 \text{ Pa} = 1000 \text{ N/m}^2$$

$$1 \text{ mbar} = 10.198 \text{ mmAq}$$

$$1 \text{ mmHg(Torr)} = 133.8 \text{ Pa}$$

性能表使用须知 Working directions of performance table

- 性能参数表示鼓风机之型式、口径、回转数、吐出压力、实际进口风量、轴动力。
- 性能参数为标准吸入状态之空气量(温度20°C, 绝对压力1.0332kgf/cm², 相对湿度65%)。
- 基准状态(温度0°C, 绝对压力1.0332kgf/cm²)的风量，一般以Nm³/min表示。
- 不同状态进口风量的换算:
$$Q_2 = Q_1 \times \frac{P_1}{P_2} \times \frac{273+T_2}{273+T_1}$$

Q₁: 绝对压力P₁(mmAq) 摄氏温度T₁(°C)状态的风量(m³/min)

Q₂: 绝对压力P₂(mmAq) 摄氏温度T₂(°C)状态的风量(m³/min)

- 电机功率一般为轴功率的1.1~1.3倍。
- 性能参数误差约5%。

1. The performance parameter indicate the type, caliber, revolutions, discharge pressure, actual inlet air capacity and shaft power of the blower.

2. The performance parameter indicate the air quantity in standard suction condition (20°C temperature, absolute pressure 1.0332 kgf/cm² and relative humidity 65%).

3. The reference air capacity (0°C temperature and absolute pressure 1.0332kgf/cm²) is generally indicated in Nm³/min.

4. The inlet air capacity can be converted as following.

$$Q_2 = Q_1 \times \frac{P_1}{P_2} \times \frac{273+T_2}{273+T_1}$$

Q₁: Air capacity (m³/min) based on absolute pressure P₁(mmAq) and temperature T₁(°C)

Q₂: Air capacity (m³/min) based on absolute pressure P₂(mmAq) and temperature T₂(°C)

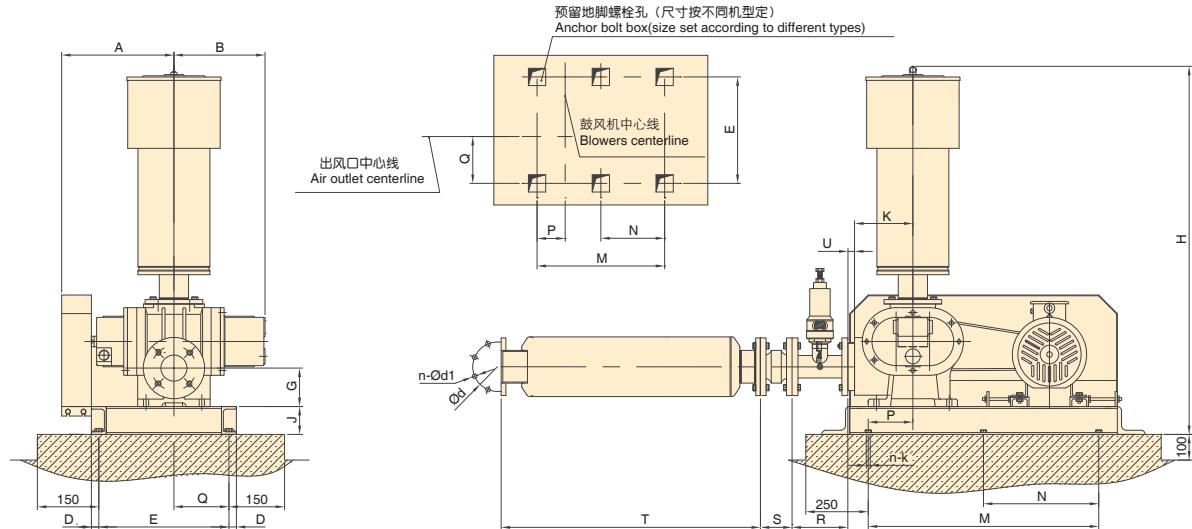
5. The motor power is 1.1~1.3 multiple of shaft power.

6. The error of the parameter is about 5%.



外形尺寸图 (配用卧式出口消音器)

Installation dimensions (horizontal outlet silencer)



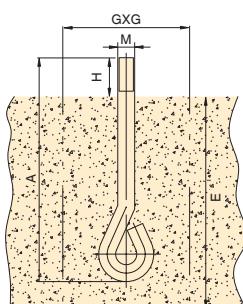
单位: Unit(mm)

型号 Type	A	B	D	E	G	H	J	K	M	N	P	Q	R	S	T	U	d	n-Ød1	n-k
GRB-32	132.5	173	20	290	93	313	56	95	400	-	20	137	-	-	-	96	-	-	4-M10x160
GRB-40	235	238	25	350	104	741	56	140	500	-	98	95	150	-	-	18	110	4-Ø18	4-M12x160
GRB-50	300	278	20	412	103.5	921	80	140	520	-	93	211	150	105	595	18	125	4-Ø18	4-M12x160
GRB-65	323	308	20	412	104	924	80	152	520	-	93	188.5	150	115	595	18	145	4-Ø18	4-M12x160
GRB-80	383	340	20	482	106.5	1241	80	180	700	-	80	238	180	135	795	22	160	8-Ø18	4-M12x160
GRB-100	426	390	20	482	110	1245	80	180	700	-	98	195	180	150	795	22	180	8-Ø18	4-M16x220
GRB-125A	485	370.5	24	602	135	1840	100	250	950	-	178	291	250	165	1260	22	210	8-Ø18	4-M16x220
GRB-125	505	430.5	24	602	157.5	1835	100	262	950	-	182	271	250	165	1260	22	210	8-Ø18	4-M16x220
GRB-150	564	485.5	24	602	163.5	1860	100	250	950	-	182	212	250	180	1260	22	240	8-Ø23	4-M16x220
GRB-200A	519.5	465	30	790	198	2285	160	358	1300	650	313	480.5	250	210	1645	25	295	8-Ø23	6-M20x300
GRB-200	565	515	30	940	194	2285	160	345	1300	650	310	580	250	210	1645	25	295	8-Ø23	6-M20x300
GRB-250	695	590	30	940	216	2520	160	356	1400	700	270	490	250	230	1750	38	350	12-Ø23	6-M20x300
GRB-300A	805	723	30	940	255	2660	160	360	1500	750	248	470	300	250	1850	38	400	12-Ø23	6-M20x300
GRB-300	840	627.5	35	1030	300	2955	250	510	2000	1000	321	487	300	250	1850	38	400	12-Ø23	6-M20x300
GRB-350	946	767	35	1110	300	3367	250	510	2000	1000	325	550	350	255	2500	38	460	16-Ø23	6-M30x400
GRB-400	1020	837	35	1110	300	3663	250	510	2000	1000	325	440	350	255	2700	42	515	16-Ø26	6-M30x400

地脚螺栓

Anchor bolt

单位: Unit(mm)



地脚螺栓 M Anchor bolt GB799-88	A	H	E	GxG	适用型号 Application type
M10	160	32	224	100x100	GRB-32
M12	160	36	224	100x100	GRB-40,50,65,80
M16	220	45	275	120x120	GRB-100,125(A),150
M20	300	55	345	150x150	GRB-200(A),250,300(A)
M30	400	72	428	200x200	GRB-350,400

注: 1.图注E为最小尺寸, 根据安装的土壤情况, 应适当加深。

2.GxG为二次浇灌前的预留孔尺寸。

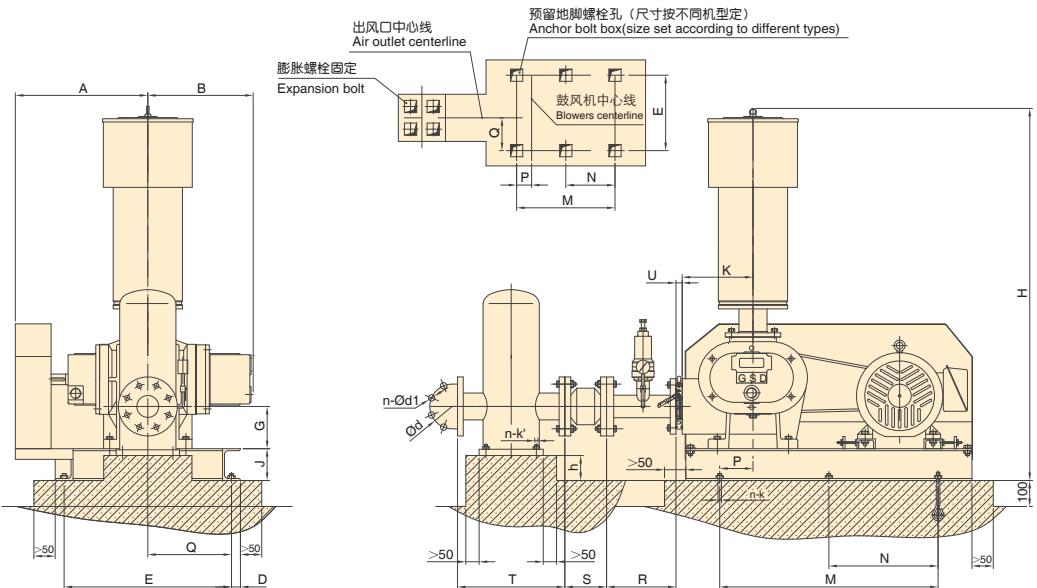
Note:1. The note E on the drawing is the minimum size, it shall be deepened properly according to the soil condition in the installation place.

2. GxG is the size of the preformed holes for the secondary casting.



外形尺寸图 (配用立式出口消音器)

Installation dimensions (vertical outlet silencer)



单位: Unit(mm)

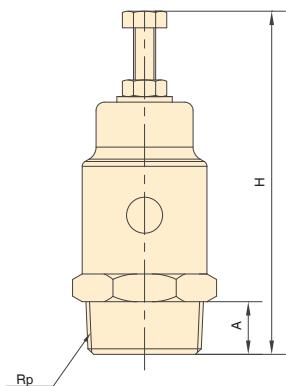
型号 Type	A	B	D	E	G	H	h	J	K	M	N	P	Q	R	S	T	U	d	n-Ød1	n-k	n-k'
GRB-50	300	278	20	412	103.5	921	63.5	80	140	520	-	93	211	150	105	300	18	125	4-Ø18	4-M12x160	4-M12x120
GRB-65	323	308	20	412	104	924	54	80	152	520	-	93	188.5	150	115	350	18	145	4-Ø18	4-M12x160	4-M12x120
GRB-80	383	340	20	482	106.5	1241	41.5	80	180	700	-	80	238	180	135	400	22	160	8-Ø18	4-M12x160	4-M12x120
GRB-100	426	390	20	482	110	1245	35	80	180	700	-	98	195	180	150	450	22	180	8-Ø18	4-M16x220	4-M12x120
GRB-125A	485	370.5	24	602	135	1840	45	100	250	950	-	178	291	250	165	500	22	210	8-Ø18	4-M16x220	4-M12x120
GRB-125	505	430.5	24	602	157.5	1835	67.5	100	262	950	-	182	271	250	165	500	22	210	8-Ø18	4-M16x220	4-M12x120
GRB-150	564	485.5	24	602	163.5	1860	53.5	100	250	950	-	182	212	250	180	600	22	240	8-Ø23	4-M16x220	4-M12x120
GRB-200A	519.5	465	30	790	198	2285	102	160	358	1300	650	313	480.5	250	210	672	25	295	8-Ø23	6-M20x300	4-M12x120
GRB-200	565	515	30	940	194	2285	98	160	345	1300	650	310	580	250	210	672	25	295	8-Ø23	6-M20x300	4-M12x120

注: 口径250mm(含)以上机型, 不配置立式出口消音器。

Note: Above DN250(included) diameter of GRB blower, can not be configured with vertical outlet silencer.

泄压阀

Relief valve



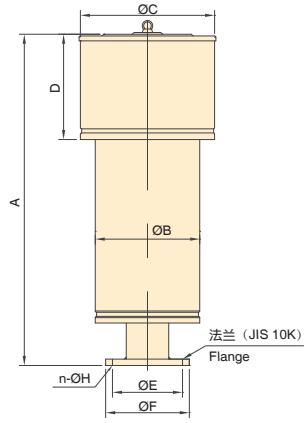
型号 Type	A	H	适用机型 Application type	重量 Weight (kg)
SV 1/2"	15	91.5	GRB-32	0.3
SV 1 1/2"	19	145	GRB-40,50,65,80	0.3
SV 2"	24	185	GRB-100,125(A),150	1
SV 3"	30	230	GRB-200(A),250	1.6
SV100	90	490	GRB-300(A)	29
SV150	95	490	GRB-350,400	38.4

注: SV100、SV150为法兰连接, 参照JB/T 1.0MPa法兰标准。

Note: Type SV100\SV150 is connect with flange. Refer to JB/T 1.0MPa.



入口消音器 Suction silencer

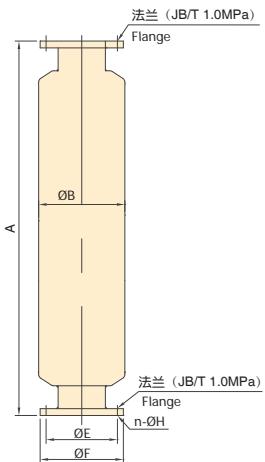


型号 Type	A	B	C	D	E	F	n-ØH	重量 Weight (kg)	适用型号 Application type
SS32	113	-	105	-	-	-	-	4	GRB-32
SS40	400	133	150	220	105	140	4-Ø14	7	GRB-40
SS50	550	133	150	220	120	155	4-Ø19	10	GRB-50
SS65	550	159	190	280	140	175	4-Ø19	12	GRB-65
SS80	820	219	245	280	150	185	8-Ø19	21	GRB-80
SS100	820	245	273	330	175	210	8-Ø19	27	GRB-100
SS125	1310	273	310	350	210	250	8-Ø23	45	GRB-125(A)
SS150	1310	299	340	370	240	280	8-Ø23	52	GRB-150
SS200	1500	330	380	370	290	330	12-Ø23	81	GRB-200(A)
SS250	1700	400	480	550	355	400	12-Ø25	98	GRB-250
SS300	1825	500	600	650	400	445	16-Ø25	135	GRB-300(A)
SS350	2237	550	676	700	445	490	16-Ø25	200	GRB-350
SS400	2533	600	720	750	510	560	16-Ø27	250	GRB-400

注: SS32为1"Rp连接方式

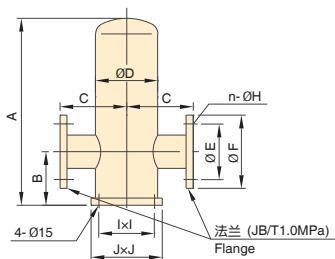
Note: Type SS32 is connect with Rp thread standard 1".

卧式出口消音器 Horizontal outlet silencer



型号 Type	A	B	C	D	E	F	n-ØH	重量 Weight (kg)	适用型号 Application type
DS50	595	159	125	160	4-Ø18	12			GRB-50
DS65	595	159	145	180	4-Ø18	13.5			GRB-65
DS80	795	219	160	195	8-Ø18	24			GRB-80
DS100	795	219	180	215	8-Ø18	25			GRB-100
DS125	1260	290	210	245	8-Ø18	48			GRB-125(A)
DS150	1260	290	240	280	8-Ø23	51			GRB-150
DS200	1645	356	295	335	8-Ø23	79			GRB-200(A)
DS250	1750	405	350	390	12-Ø23	98			GRB-250
DS300	1850	484	400	440	12-Ø23	140			GRB-300(A)
DS350	2500	560	460	500	16-Ø23	280			GRB-350
DS400	2700	610	515	565	16-Ø26	340			GRB-400

立式出口消音器 Vertical outlet silencer



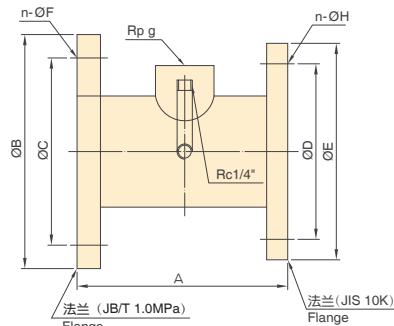
型号 Type	A	B	C	D	E	F	n-ØH	I	J	重量 Weight (kg)	适用型号 Application type
VDS50	420	120	150	140	125	160	4-Ø18	125	160	19.0	GRB-50
VDS65	480	130	175	191	145	180	4-Ø18	170	210	27.0	GRB-65
VDS80	595	145	200	216	160	195	8-Ø18	190	235	36.9	GRB-80
VDS100	660	155	225	267	180	215	8-Ø18	230	280	51.8	GRB-100
VDS125	800	190	250	280	210	245	8-Ø18	240	300	65.9	GRB-125(A)
VDS150	920	210	300	356	240	280	8-Ø22	290	376	99.6	GRB-150
VDS200	1050	256	325	406	295	335	8-Ø22	350	425	131.5	GRB-200(A)

注: 口径250mm(含)以上机型, 不配置立式出口消音器。

Note: Above DN250(included) diameter of GRB blower, can not be configured with vertical outlet silencer.



三通管 "T"-joint

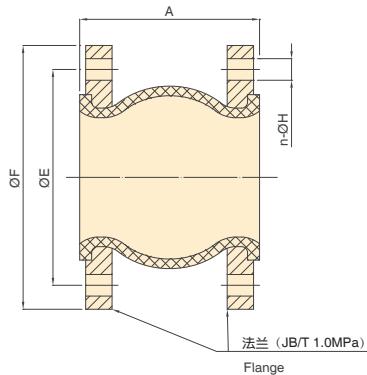


型号 Type	A	B	C	n-OF	D	E	n-OH	g	重量 Weight (kg)	适用型号 Application type
HJ40	150	145	110	4-Ø18	120	155	4-Ø19	1½"	5.5	GRB-40
HJ50	150	160	125	4-Ø18	120	155	4-Ø19	1½"	5.8	GRB-50
HJ65	150	180	145	4-Ø18	140	175	4-Ø19	1½"	7.5	GRB-65
HJ80	180	195	160	8-Ø18	150	185	8-Ø19	1½"	9	GRB-80
HJ100	180	215	180	8-Ø18	175	210	8-Ø19	2"	11.5	GRB-100
HJ125	250	245	210	8-Ø18	210	250	8-Ø23	2"	15.5	GRB-125(A)
HJ150	250	280	240	8-Ø23	240	280	8-Ø23	2"	18	GRB-150
HJ200	250	335	295	8-Ø23	290	330	12-Ø23	3"	23	GRB-200(A)
HJ250	250	390	350	12-Ø23	355	400	12-Ø25	3"	30	GRB-250
HJ300	300	440	400	12-Ø23	400	445	16-Ø25	DN100	45	GRB-300(A)
HJ350	350	500	460	16-Ø23	445	490	16-Ø25	DN150	59	GRB-350
HJ400	350	565	515	16-Ø26	510	560	16-Ø27	DN150	72	GRB-400

注: DN100、150为法兰连接, 参考JB/T 1.0MPa规范尺寸。

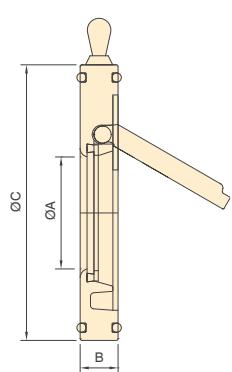
Note: Type DN100\150 is connect with flange. Refer to JB/T 1.0MPa.

弹性接头 Flexible connector



型号 Type	A	E	F	n-OH	重量 Weight (kg)	适用型号 Application type
KXT50	105	125	160	4-Ø18	3.72	GRB-50
KXT65	115	145	180	4-Ø18	4.68	GRB-65
KXT80	135	160	195	8-Ø18	5.5	GRB-80
KXT100	150	180	215	8-Ø18	6.7	GRB-100
KXT125	165	210	245	8-Ø18	8.3	GRB-125(A)
KXT150	180	240	280	8-Ø23	12	GRB-150
KXT200	210	295	335	8-Ø23	14	GRB-200(A)
KXT250	230	350	390	12-Ø23	18.6	GRB-250
KXT300	250	400	440	12-Ø23	27.5	GRB-300(A)
KXT350	255	460	500	16-Ø23	34	GRB-350
KXT400	255	515	565	16-Ø26	47	GRB-400

逆止阀 Check valve



型号 Type	A	B	C	重量 Weight (kg)	适用型号 Application type
DCV-50	37	18	102.5	1	GRB-40, GRB-50
DCV-65	45	18	122.5	1.4	GRB-65
DCV-80	52	22	132	0.8	GRB-80
DCV-100	65	22	158	0.9	GRB-100
DCV-125	90	22	190	1.2	GRB-125(A)
DCV-150	115	22	215	1.5	GRB-150
DCV-200	160	25	268	2.6	GRB-200(A)
DCV-250	180	38	325	12.5	GRB-250
DCV-300	213	38	375	18.5	GRB-300(A)
DCV-350	246	38	435	23.5	GRB-350
DCV-400	278	42	487	32	GRB-400



如蒙洽询请指示下列各项：
For further details, please fulfill the chart below.

客户：
Customer _____

承办人员：
Undertaker _____

工程名称：
Name of project _____

工程地点：
Address of project _____

电话：
Telephone _____

传真：
Fax _____

* 用途 Usage	<input type="checkbox"/> 压缩用 Compression		<input type="checkbox"/> 真空用 Vacuum
* 当地状况 Local condition	海拔m Elevation		最高相对湿度% Max relative humidity
	当地大气压力(MPa) Local atmospheric pressure		最高气温(°C) Max air temperature
* 气体性质 Gas character	名称 Name		温度(°C) Temperature
	成份 Constituents		各组分比例 Ratio of constituent
风机参数 Blower's parameter	* 风量(m³/min) Capacity		口径(mm) Diameter
	* 风压(mmAq) Pressure		转速(r/min) Speed
电机参数 Motor's parameter	型式 Type		电压(V) Voltage
	功率(kW) Power		频率(Hz) Frequency
	极数 Pole		其它 Others
安装位置 Location	<input type="checkbox"/> 室内安装 Indoor install	<input type="checkbox"/> 遮雨棚式室外安装 Camping outdoor install	<input type="checkbox"/> 其它 Others_____
* 传动方式 Driving mode	<input type="checkbox"/> 皮带传动(标准型) Belt-driven(Standard)		<input type="checkbox"/> 直联传动 Direct drive
其它要求 Other requirement			

备注：1.以上资料请尽可能完整填写。

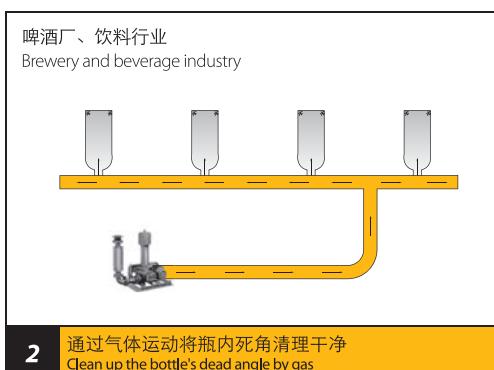
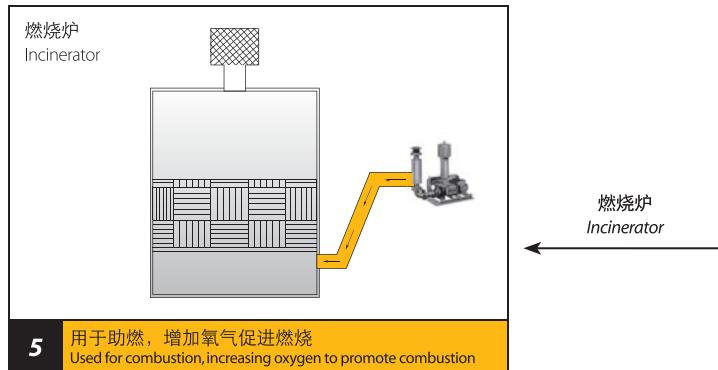
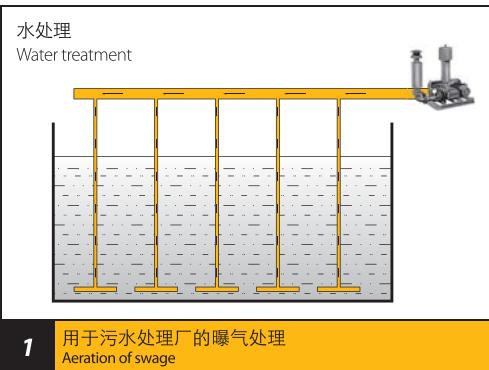
2.项目前加注“*”者，请务必填写。

Notes: 1. Please fill in the parameter lists as complete as possible.

2. The item with “*” must be filled.

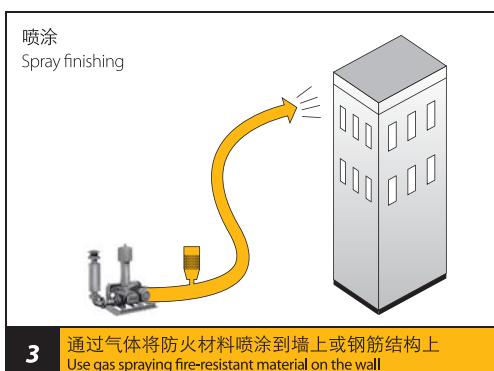


用途说明 Applications



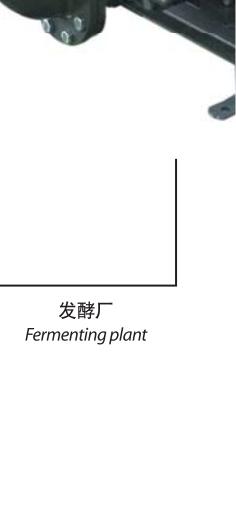
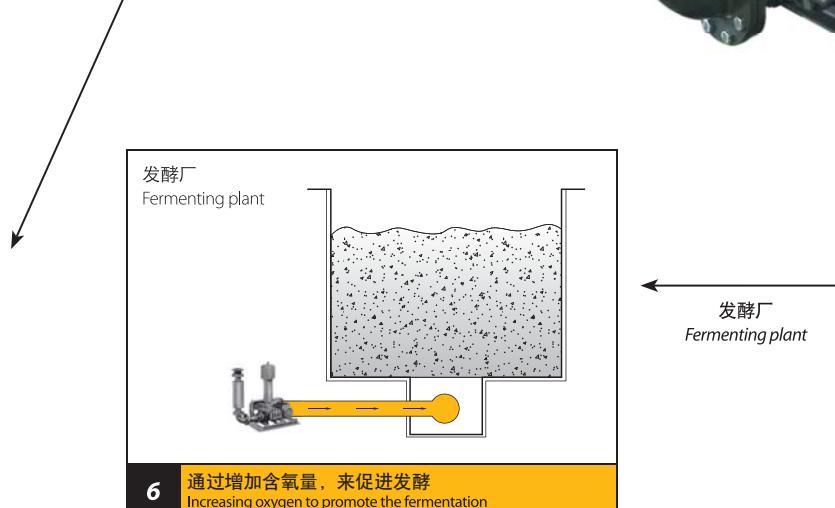
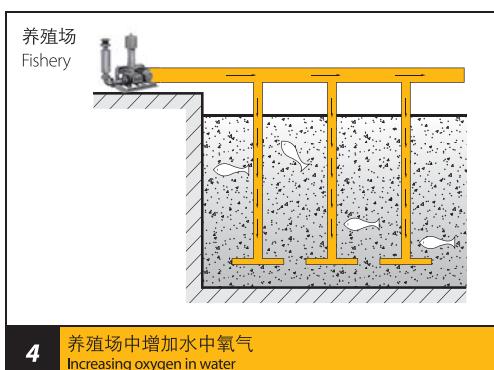
水处理
Water treatment

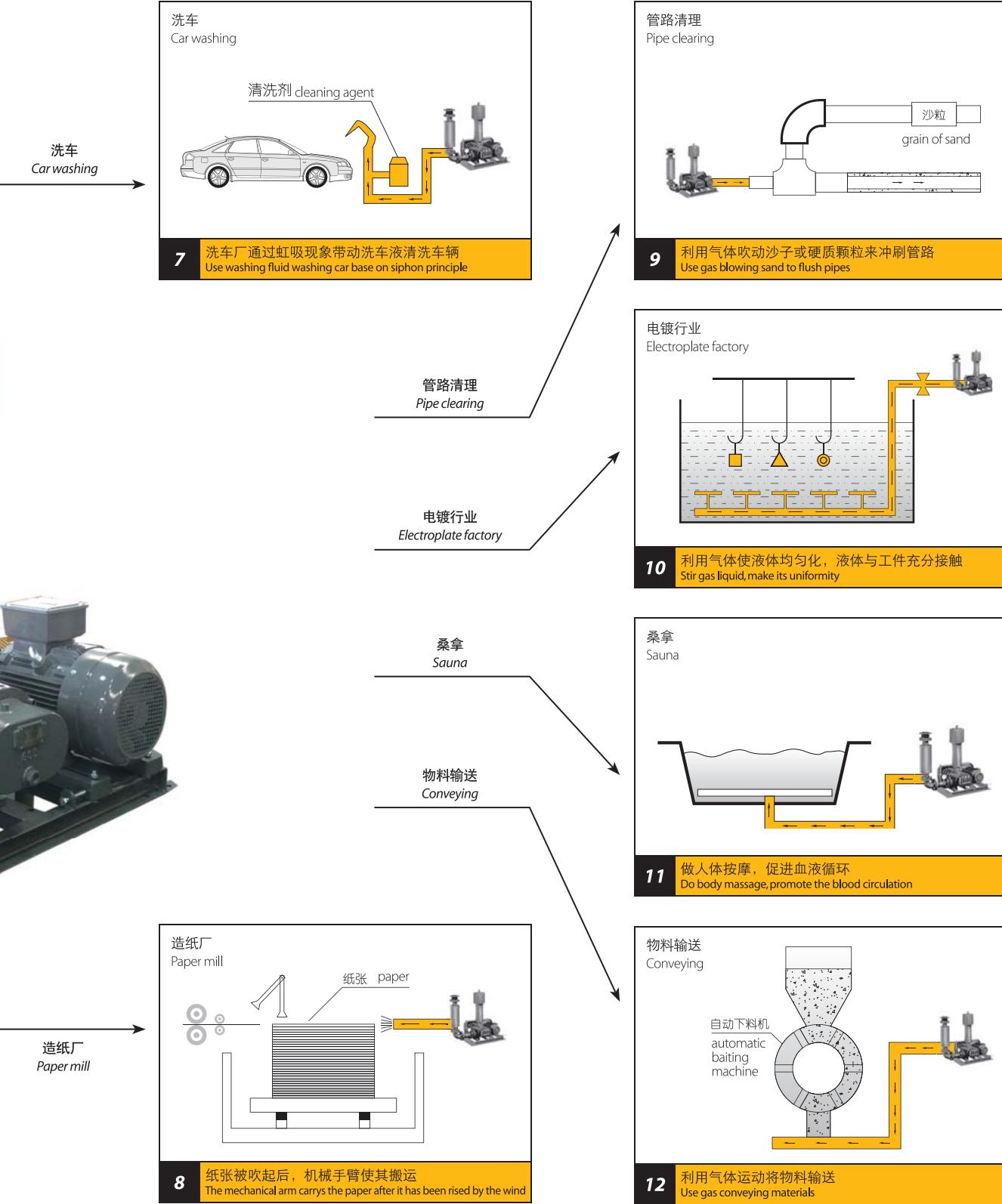
啤酒厂、饮料行业
Brewery and beverage industry



喷涂
Spray finishing

养殖场
Fishery





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- 搅拌机系列
- 推流器系列



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- 曝气机系列
- 曝气盘系列
- 曝气管系列



风机系列

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