Backward Curved Medium-Pressure Centrifugal Fans

Innovation Make Us Different

创新让我们与众不同
Shanghai Grade-FE Blower Equipment Co., Ltd. is one of the most advanced fan companies in China. In all that we do we are committed to the construction of an excellent product and the provision of outstanding customer service.


Base on the 40 years American serious mature manufactring and designing idear, Shanghai Grade-FE Blower Equipment Co., Ltd. product quality is a tradition. From our first day we have devoted our best efforts to the production of high grade fan equipment.Every day we strive to improve.

Each application determines the selection of each fan we build. Our design engineering staff provides bearing load analysis, finite element analysis, AutoCAD drawings, and thirty years of design experience for each fan we manufacture. Performance and Sound Testing has been performed on each of our different fan lines.

Our sales representatives are located coast-to-coast across the China continent. Backed by the factory sales team, Shanghai Grade-FE Blower Equipment Co., Ltd. representatives are ready to provide product information and application advice whenever you need it.
Series BCLS
Centrifugal Fans
后弯叶片式中压离心风机

The Design BCLS Centrifugal Backward Curved Industrial fans are highly efficient and stable operating fans suited for a wide range of rigorous industrial applications. Due to the broad capabilities of the Design BCLS fan this bulletin contains only limited performance information. Further information on extended performance and custom fans is available from your Northern Blower sales representative.

BCLS系列的设计秉承了离心后弯式工业风机的高效率和稳定运行特点可以适合宽泛的工业领域的运用，由于宽泛的性能表现本样本上的数据也只是包括了部分的性能参数。如果需要特殊的设计和特定的工况下的性能要求，你可以咨询您本地就近的诺森风机公司的代理商。

Industrial supply and exhaust:

- Thermal Oxidizers 热氧化排风
- Baghouses 布袋式除尘系统
- Scrubbers 洗气塔后段排风
- Forced Draft 工业正压送风
- Induced Draft 工业引风排风
- Combustion Air Supply 燃烧气体输送
- Pulp and Paper Machines 纸浆及造纸机械
- Drying Kilns 干燥炉排风

Shanghai Grade-FE Blower Equipment Co., Ltd certifies that the BCLS fans shown herein are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.
**Design Features**

**Flanged Outlet**
Punched flange to facilitate the bolting of duct connections.

**Backward Curved Wheel**
Superior combination of efficient operation and rugged, dependable performance.

**Bearings**
Heavy duty split pillow-block ball or spherical roller bearings sized for a generous B-10 life.

**Shaft**
Turned ground and polished or fully machined to close tolerance.

**Shaft Seal**
Used to reduce leakage through the shaft hole in the housing.

**Housing**
Rugged heavy gauge all welded steel housing with substantial framing sections for maximum rigidity. Standard features include flanged outlet, shaft seal and gasketted housing split on sizes 4900 and larger.
Shafts and Bearings

Shafts
Selected to have suitable strength and operate well below the first critical speed for each maximum class condition.

Bearings

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Fan Size Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 1 - SISW</td>
<td>20 - 0</td>
</tr>
<tr>
<td>A 8 - SISW</td>
<td>20 - 0</td>
</tr>
<tr>
<td>A 9 - SISW</td>
<td>20 - 0</td>
</tr>
</tbody>
</table>

Models 18, and 30 only. Refer to pages 21 and 22 for maximum arrangement 9 motor frame sizes.

Temperature

Operating Temperatures to 40

Antifriction, grease lubricated, self aligning ball or roller types, solid or split housing, manufactured to internationally adopted standards by companies having worldwide acceptance and support services. Bearings are selected for continuous belt driven operation with a generous bearing life throughout each full class range.

Standard Features

- Split Pillow Block Ball or Roller Bearings
- Integral Bearing Pedestal
- Punched langed utlet
- Shaft Seal
- Quick Release Access door
- Slip it Inlet
Rigid steel frame to provide a common mounting platform for fan and motor. May be ordered with spring isolators and motor slide base.

An Inlet Box provides smooth aerodynamic airflow into the fan inlet. The Inlet Box is designed as a bolt-on accessory to the fan. Inlet dampers also are available in conjunction with the Inlet Box for efficient air volume control.

The coupling guard encloses the coupling from the face of the motor to the outboard bearing. The Shaft and Bearing guard encloses the shaft and bearings from the inboard bearing to just beyond the outboard bearing.

Access door raised beyond scroll surface to provide room for insulation on exterior of fan housing. Insulated door plug surface is flush with inside of housing scroll.

The hinged option adds hinges to the standard Quick Release Access Door. Both the standard and Hinged Quick Release Access Doors are mounted flush to the fan scroll and are secured with quick release handles.

Posed Blade outlet dampers are the least expensive air volume control device. Northern Blower outlet dampers have punched flanges on both ends to allow for convenient fan and duct connections. Outlet dampers are available for operating temperatures to 400°C.
轴心冷却风扇
**Cooling Wheel**
分半式的轴心冷却风扇安装于内轴心和机壳机间，可有效防止轴上传热和键壳
辐射热作用于轴心上。同时配有散热叶片，保护轴心免于高温。

Split aluminum wheel mounted between the inboard bearing and the fan housing.
Protects the inboard bearing from shaft conveyed heat and housing radiated heat.
Supplied with protective guard as standard. Required for high temperature application. See Page.

皮带保护罩
**Belt Guard**
全封闭皮带罩配有重型金属网罩及快速开启螺栓，安全色规格及转速测量可以选择使用。

Enclosed on all sides, for safe operation, with a mesh cover and quick release fasteners. Tachometer holes and safety colour coatings also available.

进风口调节阀
**Variable Inlet Vanes**
变角度进风口调节可以以最小的损耗提供准确的风量输出。风机运行平稳，无论进风阀
在全开还是全闭的状态下，手动式或自动式开关进风阀为可选件，正常可耐温150℃，
特殊耐温至350℃的可咨询工厂。

The coupling guard encloses the coupling from the face of the motor to the outboard bearing. The Shaft and Bearing guard encloses the shaft and bearings from the inboard bearing to just beyond the outboard bearing.

**Accessories**

进风口法兰
**Flanged Inlet**
开孔的进风口法兰可以方便进风管和风机的连接。

Punched flanges to facilitate the bolting of duct connections to the fan inlet and outlet.

进风口防护网
**Inlet Screen**
进风钢制防护网可以有效防止杂物进入风机制，同时拥有可以方便的拆装设计。

Steel screen mounted to the inlet cone. Screens are split where required for easy removal.

其他配件
**Additional Accessories**
- Spark Resistant Construction
- Protective coatings
- Split Housings
- Standard Sizes 4900-8900
- Special Metals
- Spares
- High Temperature Construction
- Insulation lips
- Mounted flange package
- Square flanged inlet
- Stainless steel construction
Power rating does not include transmission losses.

Performance ratings do not include the effects of appurtenances (accessories).

Values shown are for inlet LwIA sound power levels for:

Installation Type B: free inlet, ducted outlet.

The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
1. 功率额定值不包括传输(动)损失。
   Power rating does not include transmission losses.
2. 各项性能额定值不包括附属物(附件)的影响。
   Performance ratings do not include the effects of appurtenances (accessories).
3. 所示值为安装类型 B：自由入口，管道出口的声功率级 (入口 LwiA)。额定值不包括管道端部校正影响。
   Values shown are for inlet LwiA sound power levels for:
   Installation Type B: free inlet, ducted outlet.
   The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
1. 功率额定值不包括传输（动）损失。
Power rating does not include transmission losses.

2. 各项性能额定值不包括附属物（附件）的影响。
Performance ratings do not include the effects of appurtenances (accessories).

3. 所示值为安装类型B：自由入口，管道出口的声功率级（入口LwIA）。额定值不包括管道端部校正影响。所示A加权声性能额定值已按AMCA国际标准301计算。
Values shown are for inlet LwIA sound power levels for:
Installation Type B: free inlet, ducted outlet.
The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
1. 功率额定值不包括传输 (动) 损失。
Power rating does not include transmission losses.

2. 各项性能额定值不包括附 属物 (附件) 的影响。
Performance ratings do not include the effects of appurtenances (accessories).

3. 所示值为安装类型 B：自 由入口，管道出口的声功率 级 (入口 LWA)。额定值 不包括管道端部校正影响。 所示 A 加权声音信能额定值 已按 AMCA International 标 准 301 计算。
Values shown are for inlet LWA sound power levels for:
Installation Type B: free inlet, ducted outlet. The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
**Performance Data**

**BCLS 402**

<table>
<thead>
<tr>
<th>n (rpm)</th>
<th>u (m/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2460</td>
<td>131.6</td>
</tr>
<tr>
<td>2000</td>
<td>107.0</td>
</tr>
<tr>
<td>1540</td>
<td>82.4</td>
</tr>
<tr>
<td>1080</td>
<td>57.8</td>
</tr>
<tr>
<td>600</td>
<td>32.1</td>
</tr>
</tbody>
</table>

1. 功率额定值不包括传输 (动) 损失。
Power rating does not include transmission losses.

2. 各项性能额定值不包括附属性物 (附件) 的影响。
Performance ratings do not include the effects of appurtenances (accessories).

3. 所示值为安装类型 B: 自由入口, 垂直出口的声功率级 (入口 LwiA)。额定值不包括管道端部校正影响。
所示 A 加权声音性能额定值已按 AMCA International 标准 301 计算。
Values shown are for inlet LwiA sound power levels for:
Installation Type B: free inlet, ducted outlet.
The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
n max (rpm): 2231
Class IV: 1888<n<2231
Class III: 1631<n<1888
Class II: 1202<n<1631
Class I: n<1202

<table>
<thead>
<tr>
<th>n (rpm)</th>
<th>u (m/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2230</td>
<td>131.9</td>
</tr>
<tr>
<td>1830</td>
<td>108.3</td>
</tr>
<tr>
<td>1430</td>
<td>84.6</td>
</tr>
<tr>
<td>1030</td>
<td>60.9</td>
</tr>
<tr>
<td>600</td>
<td>35.5</td>
</tr>
</tbody>
</table>

1. 功率额定值不包括传输(动)损失。
   Power rating does not include transmission losses.

2. 各项性能额定值不包括附属物（附件）的影响。
   Performance ratings do not include the effects of appurtenances (accessories).

3. 所示值为安装类型 B: 自由入口，管道出口的声功率级（入口 LwIA）。额定值不包括管道端部校正影响。
   Values shown are for inlet LwIA sound power levels for:
   Installation Type B: free inlet, ducted outlet.

The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
Performance Data

FEG80

BCLS 490

n max (rpm): 2027
Class IV: 1780<n<2027
Class III: 1481<n<1780
Class II: 1092<n<1481
Class I: n<1092

<table>
<thead>
<tr>
<th>n (rpm)</th>
<th>u (m/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>131.7</td>
</tr>
<tr>
<td>1640</td>
<td>106.9</td>
</tr>
<tr>
<td>1260</td>
<td>82.1</td>
</tr>
<tr>
<td>880</td>
<td>57.4</td>
</tr>
<tr>
<td>500</td>
<td>32.6</td>
</tr>
</tbody>
</table>

1. 功率额定值不包括传输
(动)损失。
Power rating does not
include transmission
losses.

2. 各项性能额定值不包括附
属物（附件）的影响。
Performance ratings do not
include the effects of
appurtenances
(accessories).

3. 所示值为安装类型B：自
由入口，管道出口的声功率
级（入口LwIA）。额定值
不包括管道端部校正影响。
所示A加权声性能额定值
已按AMCA国际标
准301计算。
Values shown are for inlet
LwIA sound power levels
for:
Installation Type B: free
inlet, ducted outlet.
The A-weighted sound
ratings shown have been
calculated per AMCA
International Standard 301.
1. 功率额定值不包括传输
(动)损失。
Power rating does not
include transmission
losses.

2. 各项性能额定值不包括附
属物(附件)的影响。
Performance ratings do not
include the effects of
appurtenances
(accessories).

3. 所示值为安装类型 B: 自
由入口,管道出口的声功率
级（入口 LWA）。
所示值不包括管道端部校正影响。
Values shown are for inlet
Lwa sound power levels
for:
Installation Type B: free
inlet, ducted outlet.

The A-weighted sound
ratings shown have been
calculated per AMCA
International Standard 301.
1. Power rating does not include transmission losses.

2. Performance ratings do not include the effects of appurtenances (accessories).

3. Values shown are for inlet LwIA sound power levels for:

   Installation Type B: free inlet, ducted outlet.

   The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
1. 功率额定值不包括传输（动）损失。
   Power rating does not include transmission losses.
2. 各项性能额定值不包括附属物（附件）的影响。
   Performance ratings do not include the effects of appurtenances (accessories).
3. 所示值为安装类型 B：自由入口，管道出口的声功率级（入口 LwIA）。额定值不包括管道端部校正影响。
   Values shown are for inlet LwIA sound power levels for:
   Installation Type B: free inlet, ducted outlet.
   The A-weighted sound ratings shown have been calculated per AMCA International Standard 301.
Backward Curved Medium-Pressure Centrifugal Fans

NORTHING®
Air Control Solutions

专业制造商
上海冠带通风节能设备有限公司
Shanghai Grade-Fe Blower Equipment Co., Ltd.
No.2579 Sihu Road, Fengxian, Shanghai, P.R.C.
Zip Code: 201417  86-21-57458332, 86-21-57458331 15021225180
2018年5月第一版
BCLS Rev.1 May-2018