Purpose: This document describes the available input and output configurations for the BBB4 and BBB5 Series.

> Input Options

<table>
<thead>
<tr>
<th>Free Input (no motor mount)</th>
<th>NEMA ‘C’ Face</th>
<th>Gearmotor (GM)</th>
<th>Quill (Hollow) Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability: All BBB4 Sizes</td>
<td>Availability: All BBB4 Sizes</td>
<td>Integral unit with motor. Motor is mounted and supplied by Sumitomo. Motor shaft is integral to BBB input and cannot be replaced by a C-face motor. Available capacities:</td>
<td>Availability: All BBB4 Sizes</td>
</tr>
<tr>
<td>Adapter used to mount industry standard motors. Utilizes a coupling connection between motor and input shaft, typically a flexible jaw type coupling. Standard motor frame sizes:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5Z10 56C-184TC</td>
<td>5Z10 ½ - 15Hp</td>
<td>5Z10 56C-184TC</td>
<td>5Z10 56C-184TC</td>
</tr>
<tr>
<td>5Z12 56C-215TC</td>
<td>5Z12 ½ - 15Hp</td>
<td>5Z12 56C-215TC</td>
<td>5Z12 56C-215TC</td>
</tr>
<tr>
<td>4A10 56C-184TC</td>
<td>4A10 ½ - 3Hp</td>
<td>4A10 56C-184TC</td>
<td>4A10 56C-184TC</td>
</tr>
<tr>
<td>4A12 / 5A12 56C-215TC</td>
<td>4A12 / 5A12 ½ - 3Hp</td>
<td>4A12 / 5A12 56C-215TC</td>
<td>4A12 / 5A12 56C-215TC</td>
</tr>
<tr>
<td>4A14 / 5A14 182TC-256TC</td>
<td>4A14 / 5A14 1.5 - 20Hp</td>
<td>4A14 / 5A14 182TC-256TC</td>
<td>4A14 / 5A14 182TC-256TC</td>
</tr>
<tr>
<td>4B12 / 5B12 143TC-256TC</td>
<td>4B12 / 5B12 ½ - 7Hp</td>
<td>4B12 / 5B12 143TC-256TC</td>
<td>4B12 / 5B12 143TC-256TC</td>
</tr>
<tr>
<td>4B14 / 5B14 182TC-256TC</td>
<td>4B14 / 5B14 2 - 20Hp</td>
<td>4B14 / 5B14 182TC-256TC</td>
<td>4B14 / 5B14 182TC-256TC</td>
</tr>
<tr>
<td>4B16 / 5B16 182TC-256TC</td>
<td>4B16 / 5B16 3 - 30Hp</td>
<td>4B16 / 5B16 182TC-256TC</td>
<td>4B16 / 5B16 182TC-256TC</td>
</tr>
<tr>
<td>4B17 / 5B17 182TC-256TC</td>
<td>4B17 / 5B17 5 - 40Hp</td>
<td>4B17 / 5B17 182TC-256TC</td>
<td>4B17 / 5B17 182TC-256TC</td>
</tr>
<tr>
<td>4C12 / 5C12 182TC-256TC</td>
<td>4C12 / 5C12 5 - 60Hp</td>
<td>4C12 / 5C12 182TC-256TC</td>
<td>4C12 / 5C12 182TC-256TC</td>
</tr>
<tr>
<td>4C14 / 5C14 182TC-326TC</td>
<td>4C14 / 5C14 7.5 - 60Hp</td>
<td>4C14 / 5C14 182TC-326TC</td>
<td>4C14 / 5C14 182TC-326TC</td>
</tr>
<tr>
<td>4C16 / 5C16 182TC-326TC</td>
<td>4C16 / 5C16 10 - 75Hp</td>
<td>4C16 / 5C16 182TC-326TC</td>
<td>4C16 / 5C16 182TC-326TC</td>
</tr>
<tr>
<td>4C17 / 5C17 182TC-326TC</td>
<td>4C17 / 5C17 10 - 75Hp</td>
<td>4C17 / 5C17 182TC-326TC</td>
<td>4C17 / 5C17 182TC-326TC</td>
</tr>
<tr>
<td>4D12 / 5D12 182TC-326TC</td>
<td>4D12 / 5D12 10 - 75Hp</td>
<td>4D12 / 5D12 182TC-326TC</td>
<td>4D12 / 5D12 182TC-326TC</td>
</tr>
<tr>
<td>4D14 / 5D14 182TC-326TC</td>
<td>4D14 / 5D14 10 - 75Hp</td>
<td>4D14 / 5D14 182TC-326TC</td>
<td>4D14 / 5D14 182TC-326TC</td>
</tr>
<tr>
<td>4D16 / 5D16 182TC-326TC</td>
<td>4D16 / 5D16 10 - 75Hp</td>
<td>4D16 / 5D16 182TC-326TC</td>
<td>4D16 / 5D16 182TC-326TC</td>
</tr>
<tr>
<td>4E12 / 5E12 182TC-326TC</td>
<td>4E12 / 5E12 10 - 75Hp</td>
<td>4E12 / 5E12 182TC-326TC</td>
<td>4E12 / 5E12 182TC-326TC</td>
</tr>
<tr>
<td>4E14 / 5E14 182TC-326TC</td>
<td>4E14 / 5E14 10 - 75Hp</td>
<td>4E14 / 5E14 182TC-326TC</td>
<td>4E14 / 5E14 182TC-326TC</td>
</tr>
<tr>
<td>4E16 / 5E16 182TC-326TC</td>
<td>4E16 / 5E16 10 - 75Hp</td>
<td>4E16 / 5E16 182TC-326TC</td>
<td>4E16 / 5E16 182TC-326TC</td>
</tr>
<tr>
<td>4F12 / 5F12 182TC-326TC</td>
<td>4F12 / 5F12 10 - 75Hp</td>
<td>4F12 / 5F12 182TC-326TC</td>
<td>4F12 / 5F12 182TC-326TC</td>
</tr>
<tr>
<td>4F14 / 5F14 182TC-326TC</td>
<td>4F14 / 5F14 10 - 75Hp</td>
<td>4F14 / 5F14 182TC-326TC</td>
<td>4F14 / 5F14 182TC-326TC</td>
</tr>
<tr>
<td>4F16 / 5F16 182TC-326TC</td>
<td>4F16 / 5F16 7.5 - 60Hp</td>
<td>4F16 / 5F16 182TC-326TC</td>
<td>4F16 / 5F16 182TC-326TC</td>
</tr>
<tr>
<td>4F18 / 5F18 7.5 - 60Hp</td>
<td>4F18 / 5F18 7.5 - 60Hp</td>
<td>4F18 / 5F18 7.5 - 60Hp</td>
<td>4F18 / 5F18 7.5 - 60Hp</td>
</tr>
<tr>
<td>4F19 / 5F19 7.5 - 60Hp</td>
<td>4F19 / 5F19 7.5 - 60Hp</td>
<td>4F19 / 5F19 7.5 - 60Hp</td>
<td>4F19 / 5F19 7.5 - 60Hp</td>
</tr>
</tbody>
</table>

Comparatively, this has the longest overall unit length but typically offers the user the most flexibility in supply of alternative motors.

Motor can be supplied and mounted by Sumitomo.
Cyclo® BBB 4 & 5 Series: Input & Output Options (Continued)

> Output Shaft Options

<table>
<thead>
<tr>
<th>Taper Grip® Bushing (TGB)</th>
<th>Solid Output Shaft</th>
<th>Keyed Hollow Shaft</th>
<th>Shrink Disc Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Availability:</strong> All BBB4 Sizes</td>
<td><strong>Availability:</strong> All BBB4 Sizes</td>
<td><strong>Availability:</strong> All BBB4 Sizes</td>
<td><strong>Availability:</strong> All BBB4 Sizes All BBB5 Sizes</td>
</tr>
</tbody>
</table>

The TGB is a proprietary keyless bushing which provides a powerful, slip-free connection from the BBB hollow shaft to user driven shaft. Reducer requires the bushing to mount on the driven shaft. TGB is supplied exclusively by Sumitomo in inch or metric sizes. Bore ranges by frame size:

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Bore Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ø1.6875 – 2.1875&quot;</td>
</tr>
<tr>
<td>B</td>
<td>Ø1.9375 – 2.4375&quot;</td>
</tr>
<tr>
<td>C</td>
<td>Ø2.1875 – 2.9375&quot;</td>
</tr>
<tr>
<td>D</td>
<td>Ø2.4375 – 3.4375&quot;</td>
</tr>
<tr>
<td>E</td>
<td>Ø2.9375 – 3.9375&quot;</td>
</tr>
<tr>
<td>F</td>
<td>Ø3.9375 – 4.9375&quot;</td>
</tr>
</tbody>
</table>

This option provides an inch or metric shaft projection which is connected to the driven equipment by a coupling, belt or chain. Couplings, belts and roller chain can be supplied by Sumitomo. Standard shaft diameters by Frame size:

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Bore Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ø2.000&quot;</td>
</tr>
<tr>
<td>B</td>
<td>Ø2.000&quot;</td>
</tr>
<tr>
<td>C</td>
<td>Ø2.375&quot;</td>
</tr>
<tr>
<td>D</td>
<td>Ø2.375&quot;</td>
</tr>
<tr>
<td>E</td>
<td>Ø2.750&quot;</td>
</tr>
<tr>
<td>F</td>
<td>Ø3.000&quot;</td>
</tr>
<tr>
<td>G</td>
<td>Ø3.4375&quot;</td>
</tr>
<tr>
<td>H</td>
<td>Ø4.500&quot;</td>
</tr>
</tbody>
</table>

This option provides an inch or metric hollow output shaft for direct mounting to the customer driven shaft. This option requires a key and keyway to transmit torque. Standard bores by Frame size:

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Bore Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ø2.000&quot;</td>
</tr>
<tr>
<td>B</td>
<td>Ø2.000&quot;</td>
</tr>
<tr>
<td>C</td>
<td>Ø2.375&quot;</td>
</tr>
<tr>
<td>D</td>
<td>Ø2.375&quot;</td>
</tr>
<tr>
<td>E</td>
<td>Ø2.750&quot;</td>
</tr>
<tr>
<td>F</td>
<td>Ø3.000&quot;</td>
</tr>
<tr>
<td>G</td>
<td>Ø3.4375&quot;</td>
</tr>
<tr>
<td>H</td>
<td>Ø4.500&quot;</td>
</tr>
</tbody>
</table>

Shrink Disc is a device which uses a clamping force (friction) to transmit torque. The major benefit of using a shrink disc is that no shaft key or keyways are required. Standard bores by Frame size (based on standard metric bores):

<table>
<thead>
<tr>
<th>Frame Size</th>
<th>Bore Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Ø2.000&quot;</td>
</tr>
<tr>
<td>B</td>
<td>Ø2.500&quot;</td>
</tr>
<tr>
<td>C</td>
<td>Ø3.000&quot;</td>
</tr>
<tr>
<td>D</td>
<td>Ø3.500&quot;</td>
</tr>
<tr>
<td>E</td>
<td>Ø4.000&quot;</td>
</tr>
<tr>
<td>F</td>
<td>Ø4.500&quot;</td>
</tr>
</tbody>
</table>

Note: Ø 2 = Bore at Shrink Disc side Ø 1 = Bore at Driven Shaft Side

> Output Mounting Options

<table>
<thead>
<tr>
<th>Housing Mount</th>
<th>Output Flange</th>
<th>Foot Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Availability:</strong> All BBB4 Sizes</td>
<td><strong>Availability:</strong> All BBB4 Sizes All BBB5 Sizes</td>
<td><strong>Availability:</strong> All BBB4 Sizes</td>
</tr>
</tbody>
</table>

This option is in reference to the standard housing casing which can be used to mount to the bottom, top, back, left side or right side of the bevel gear case directly to the machinery or equipment. This variable is used when either the output flange or foot mount option are not used.

This option provides a solid flange - centered on the output shaft - used as a pilot to align and mount the reducer to a machine or structure. Can be used on both hollow and solid shaft projections. Flange pilot and bolt circle conform to FF series Flanges per IEC60072-1 frame sizes, sometimes referenced as BS Flanges:

<table>
<thead>
<tr>
<th>Flange Style</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A / 5A</td>
<td>IEC215</td>
</tr>
<tr>
<td>4B / 5B</td>
<td>IEC265</td>
</tr>
<tr>
<td>4C / 5C</td>
<td>IEC300</td>
</tr>
<tr>
<td>4D</td>
<td>IEC400</td>
</tr>
<tr>
<td>4E</td>
<td>IEC600</td>
</tr>
</tbody>
</table>

Note: Not Available with Shrink Disc or TGB options.

This option provides a solid, flanged base for mounting the gearbox. This option provided a mounting bolt pattern which is larger than the gearbox bevel housing, providing mounting stability for rugged applications. The mounting plate can be mounted on the bottom, top or back end of the bevel gear case.

Note: Consult Factory when using foot mount with hollow shaft units.