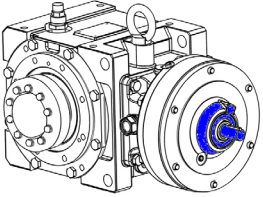
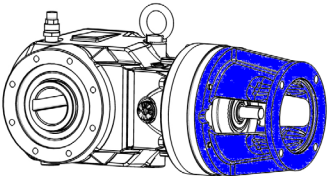
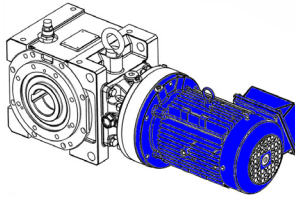
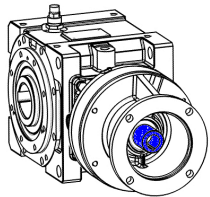


Cyclo® BBB 4 & 5 Series: Input & Output Options

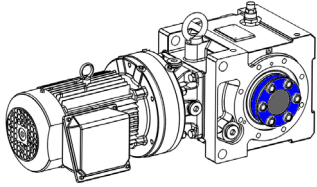
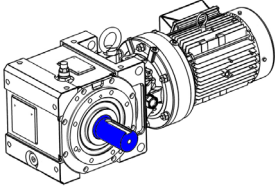
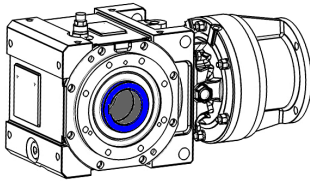
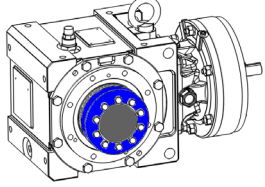
Purpose: This document describes the available input and output configurations for the BBB4 and BBB5 Series.

> Input Options

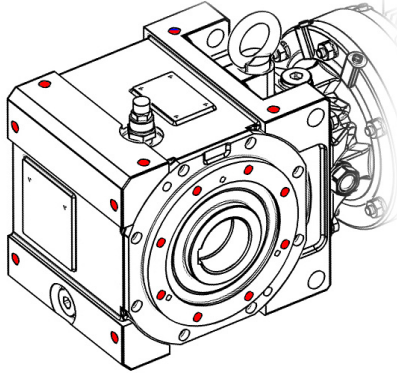
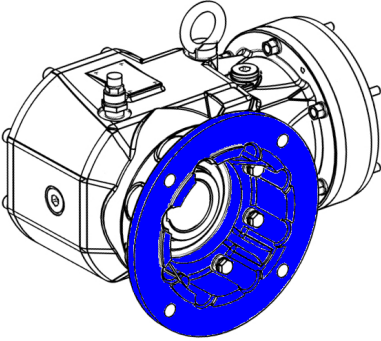
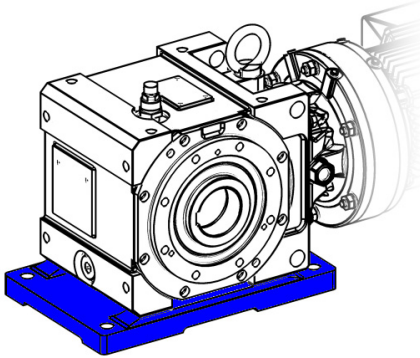
Free Input (no motor mount)	NEMA 'C' Face	Gearmotor (GM)	Quill (Hollow) Input																																																																																																												
																																																																																																															
<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>This option provides a shaft projection which is connected to the motor by a coupling, belt or chain. This option is required for adjustable top mount or shovel base (scoop) mount. Inch and metric shaft sizes are available.</p>	<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>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:</p> <table border="1"> <tr><td>5Z10</td><td>48C-184TC</td></tr> <tr><td>5Z11</td><td>56C-184TC</td></tr> <tr><td>5Z12</td><td>143TC-215TC</td></tr> <tr><td>4A10</td><td>48C-184TC</td></tr> <tr><td>4A11 / 5A11</td><td>56C-184TC</td></tr> <tr><td>4A12 / 5A12</td><td>143TC-215TC</td></tr> <tr><td>4A14 / 5A14</td><td>182TC-256TC</td></tr> <tr><td>4B12 / 5B12</td><td>56C-145TC</td></tr> <tr><td>4B14 / 5B14</td><td>143TC-145TC</td></tr> <tr><td>4B16 / 5B16</td><td>182TC-326TC</td></tr> <tr><td>4C14 / 5C14</td><td>143TC-256TC</td></tr> <tr><td>4C16 / 5C16</td><td>143TC-326TC</td></tr> <tr><td>4C17 / 5C17</td><td>182TC-326TC</td></tr> <tr><td>4D16</td><td>143TC-326TC</td></tr> <tr><td>4D17/18</td><td>182TC-326TC</td></tr> <tr><td>4E17/18</td><td>182TC-326TC</td></tr> <tr><td>4E19</td><td>213TC-326TC</td></tr> <tr><td>4F18</td><td>182TC-326TC</td></tr> <tr><td>4F19</td><td>213TC-326TC</td></tr> </table> <p>Comparatively, this has the longest overall unit length but typically offers the user the most flexibility in supply of alternative motors.</p> <p>Motor can be supplied and mounted by Sumitomo.</p>	5Z10	48C-184TC	5Z11	56C-184TC	5Z12	143TC-215TC	4A10	48C-184TC	4A11 / 5A11	56C-184TC	4A12 / 5A12	143TC-215TC	4A14 / 5A14	182TC-256TC	4B12 / 5B12	56C-145TC	4B14 / 5B14	143TC-145TC	4B16 / 5B16	182TC-326TC	4C14 / 5C14	143TC-256TC	4C16 / 5C16	143TC-326TC	4C17 / 5C17	182TC-326TC	4D16	143TC-326TC	4D17/18	182TC-326TC	4E17/18	182TC-326TC	4E19	213TC-326TC	4F18	182TC-326TC	4F19	213TC-326TC	<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>Integral unit with motor. Motor is mounted and supplied by Sumitomo. For reference, motor shaft is integral to BBB input and cannot be replaced by a C-face motor. Available capacities:</p> <table border="1"> <tr><td>5Z10</td><td>¼ - 5Hp</td></tr> <tr><td>5Z11</td><td>½ - 10Hp</td></tr> <tr><td>5Z12</td><td>½ - 15Hp</td></tr> <tr><td>4A10</td><td>¼ - 3Hp</td></tr> <tr><td>4A11 / 5A11</td><td>½ - 5Hp</td></tr> <tr><td>4A12 / 5A12</td><td>½ - 15Hp</td></tr> <tr><td>4A14 / 5A14</td><td>1.5 - 20Hp</td></tr> <tr><td>4B12 / 5B12</td><td>½ - 7.5Hp</td></tr> <tr><td>4B14 / 5B14</td><td>¾ - 20Hp</td></tr> <tr><td>4B16 / 5B16</td><td>2 - 30Hp</td></tr> <tr><td>4C14 / 5C14</td><td>1 - 20Hp</td></tr> <tr><td>4C16 / 5C16</td><td>1 - 40Hp</td></tr> <tr><td>4C17 / 5C17</td><td>5 - 40Hp</td></tr> <tr><td>4D16</td><td>3 - 30 Hp</td></tr> <tr><td>4D17</td><td>5 - 40Hp</td></tr> <tr><td>4D18</td><td>5 - 60Hp</td></tr> <tr><td>4E17</td><td>5 - 40Hp</td></tr> <tr><td>4E18</td><td>5 - 60Hp</td></tr> <tr><td>4E19</td><td>10 - 75Hp</td></tr> <tr><td>4F18</td><td>5 - 60Hp</td></tr> <tr><td>4F19</td><td>7.5 - 75Hp</td></tr> </table> <p>Comparatively, this has the shortest overall length. The tradeoff is that motor options are limited to those available thru Sumitomo.</p>	5Z10	¼ - 5Hp	5Z11	½ - 10Hp	5Z12	½ - 15Hp	4A10	¼ - 3Hp	4A11 / 5A11	½ - 5Hp	4A12 / 5A12	½ - 15Hp	4A14 / 5A14	1.5 - 20Hp	4B12 / 5B12	½ - 7.5Hp	4B14 / 5B14	¾ - 20Hp	4B16 / 5B16	2 - 30Hp	4C14 / 5C14	1 - 20Hp	4C16 / 5C16	1 - 40Hp	4C17 / 5C17	5 - 40Hp	4D16	3 - 30 Hp	4D17	5 - 40Hp	4D18	5 - 60Hp	4E17	5 - 40Hp	4E18	5 - 60Hp	4E19	10 - 75Hp	4F18	5 - 60Hp	4F19	7.5 - 75Hp	<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>Quill input is also referred to as hollow input. The unit is supplied with a hollow input shaft suitable for direct mounting a NEMA industry standard flanged 'C-Face' motor. Standard motor frame sizes:</p> <table border="1"> <tr><td>5Z10</td><td>56C-156TC</td></tr> <tr><td>5Z11</td><td>56C-184TC</td></tr> <tr><td>5Z12</td><td>56C-215TC</td></tr> <tr><td>4A10</td><td>56C-145TC</td></tr> <tr><td>4A11 / 5A11</td><td>56C-184TC</td></tr> <tr><td>4A12 / 5A12</td><td>56C-215TC</td></tr> <tr><td>4A14 / 5A14</td><td>143TC-256TC</td></tr> <tr><td>4B12 / 5B12</td><td>56C-215TC</td></tr> <tr><td>4B14 / 5B14</td><td>143TC-256TC</td></tr> <tr><td>4B16 / 5B16</td><td>182TC-256TC</td></tr> <tr><td>4C14 / 5C14</td><td>143TC-256TC</td></tr> <tr><td>4C16 / 5C16</td><td>143TC-326TC</td></tr> <tr><td>4C17 / 5C17</td><td>182TC-256TC</td></tr> <tr><td>4D16</td><td>182TC-256TC</td></tr> </table> <p>Comparatively, this option is shorter than the C-Face while providing the user flexibility with non-Sumitomo motors.</p> <p>Motor can be supplied and mounted by Sumitomo.</p>	5Z10	56C-156TC	5Z11	56C-184TC	5Z12	56C-215TC	4A10	56C-145TC	4A11 / 5A11	56C-184TC	4A12 / 5A12	56C-215TC	4A14 / 5A14	143TC-256TC	4B12 / 5B12	56C-215TC	4B14 / 5B14	143TC-256TC	4B16 / 5B16	182TC-256TC	4C14 / 5C14	143TC-256TC	4C16 / 5C16	143TC-326TC	4C17 / 5C17	182TC-256TC	4D16	182TC-256TC
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Cyclo® BBB 4 & 5 Series: Input & Output Options (Continued)

> Output Shaft Options

Taper Grip® Bushing (TGB)	Solid Output Shaft	Keyed Hollow Shaft	Shrink Disc Type																																																						
																																																									
<p>Availability: All BBB4 Sizes</p> <p>The TGB is a proprietary keyless bushing which provides a powerful, <i>slip-free</i> 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:</p> <table border="1"> <tr><td>A</td><td>Ø1.6875 – 2.1875"</td></tr> <tr><td>B</td><td>Ø 1.9375 – 2.4375"</td></tr> <tr><td>C</td><td>Ø 2.1875 – 2.9375"</td></tr> <tr><td>D</td><td>Ø 2.4375 – 3.4375"</td></tr> <tr><td>E</td><td>Ø 2.9375 – 3.9375"</td></tr> <tr><td>F</td><td>Ø 3.9375 – 4.9375"</td></tr> </table>	A	Ø1.6875 – 2.1875"	B	Ø 1.9375 – 2.4375"	C	Ø 2.1875 – 2.9375"	D	Ø 2.4375 – 3.4375"	E	Ø 2.9375 – 3.9375"	F	Ø 3.9375 – 4.9375"	<p>Availability: All BBB4 Sizes</p> <p>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:</p> <table border="1"> <tr><td>A</td><td>Ø2.000"</td></tr> <tr><td>B</td><td>Ø 2.875"</td></tr> <tr><td>C</td><td>Ø 3.125"</td></tr> <tr><td>D</td><td>Ø 3.625"</td></tr> <tr><td>E</td><td>Ø 4.375"</td></tr> <tr><td>F</td><td>Ø 4.750"</td></tr> </table>	A	Ø2.000"	B	Ø 2.875"	C	Ø 3.125"	D	Ø 3.625"	E	Ø 4.375"	F	Ø 4.750"	<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>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:</p> <table border="1"> <tr><td>A</td><td>Ø2.000"</td></tr> <tr><td>B</td><td>Ø 2.375"</td></tr> <tr><td>C</td><td>Ø 2.750"</td></tr> <tr><td>D</td><td>Ø 3.250"</td></tr> <tr><td>E</td><td>Ø 3.4375"</td></tr> <tr><td>F</td><td>Ø 4.500"</td></tr> </table>	A	Ø2.000"	B	Ø 2.375"	C	Ø 2.750"	D	Ø 3.250"	E	Ø 3.4375"	F	Ø 4.500"	<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>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):</p> <table border="1"> <tr><td>A</td><td>Ø₂ - 2.17"</td><td>Ø₁ - 2.20"</td></tr> <tr><td>B</td><td>Ø₂ - 2.56"</td><td>Ø₁ - 2.60"</td></tr> <tr><td>C</td><td>Ø₂ - 2.95"</td><td>Ø₁ - 2.99"</td></tr> <tr><td>D</td><td>Ø₂ - 3.35"</td><td>Ø₁ - 3.39"</td></tr> <tr><td>E</td><td>Ø₂ - 3.94"</td><td>Ø₁ - 3.98"</td></tr> <tr><td>F</td><td>Ø₂ - 4.72"</td><td>Ø₁ - 4.76"</td></tr> </table> <p>Note: Ø₂ = Bore at Shrink Disc side Ø₁ = Bore at Driven Shaft Side</p>	A	Ø ₂ - 2.17"	Ø ₁ - 2.20"	B	Ø ₂ - 2.56"	Ø ₁ - 2.60"	C	Ø ₂ - 2.95"	Ø ₁ - 2.99"	D	Ø ₂ - 3.35"	Ø ₁ - 3.39"	E	Ø ₂ - 3.94"	Ø ₁ - 3.98"	F	Ø ₂ - 4.72"	Ø ₁ - 4.76"
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> Output Mounting Options

Housing Mount	Output Flange	Foot Mount														
																
<p>Availability: All BBB4 Sizes</p> <p>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.</p>	<p>Availability: All BBB4 Sizes All BBB5 Sizes</p> <p>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 B5 Flanges:</p> <table border="1"> <tr><td>SZ</td><td>IEC215</td></tr> <tr><td>4A / 5A</td><td></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></td></tr> <tr><td>4E</td><td>IEC400</td></tr> <tr><td>4F</td><td>IEC600</td></tr> </table> <p>Note: Not Available with Shrink Disc or TGB options.</p>	SZ	IEC215	4A / 5A		4B / 5B	IEC265	4C / 5C	IEC300	4D		4E	IEC400	4F	IEC600	<p>Availability: All BBB4 Sizes</p> <p>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.</p> <p>Note: Consult Factory when using foot mount with hollow shaft units.</p>
SZ	IEC215															
4A / 5A																
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4C / 5C	IEC300															
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4E	IEC400															
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