

35L SERIES**FASTEST, MOST FLEXIBLE
DESIGN RESPONSE****GENERAL SPECIFICATIONS**

| | |
|---------------------------------|------------------------|
| Step Angle | 7.5° / 15° / 18° |
| Step Accuracy | ± 0.5° / ± 1° / ± 1.2° |
| Operating Temperature | 100°C Max |
| Ambient Temperature Range | -20°C ~ +70°C |
| Insulation Resistance at 500Vdc | 100MΩ |
| Dielectric Withstanding Voltage | 650 ± 50 VRMS, 2 sec |

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The specifications in this publication are believed to be accurate and reliable. However, it is the responsibility of the product user to determine the suitability of Portescap products for a specific application. While defective products will be replaced without charge if promptly returned, no liability is assumed beyond such replacement.

Portescap Danaher Motion motors will not be CE marked where the Low Voltage Directive, the Electro-Magnetic Compatibility or other appropriate EU directives are not applicable - this is an EU legal requirement.

TECHNICAL SPECIFICATIONS

| | UNIPOLAR | | | | | |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Part Number | 35L020B1U-N | 35L020B2U-N | 35L024B1U-N | 35L024B2U-N | 35L048B1U-N | 35L048B2U-N |
| DC Op. Voltage | 5 | 12 | 5 | 12 | 5 | 12 |
| Resistance per Winding (ohms) | 11 | 64 | 11 | 64 | 11 | 64 |
| Inductance per Winding (mH) | 6.4 | 35 | 7.4 | 38 | 7.8 | 40 |
| Holding Torque* (mNm/oz-in) | 18.3 / 2.6 | 18.3 / 2.6 | 20 / 2.8 | 20 / 2.8 | 25 / 3.5 | 25 / 3.5 |
| Rotor Moment of Inertia (g.m ²) | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ |
| Detent Torque (mNm/oz-in) | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 |
| Step Angle | 18° | 18° | 15° | 15° | 7.5° | 7.5° |
| Step Angle Tolerance* | ± 1.2° | ± 1.2° | ± 1° | ± 1° | ± 0.5° | ± 0.5° |
| Steps per Rev.* | 20 | 20 | 24 | 24 | 48 | 48 |
| Max. Operating Temp. | 100°C | 100°C | 100°C | 100°C | 100°C | 100°C |
| Ambient Temp. Range | | | | | | |
| Operating | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C |
| Storage | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C |
| Bearing Type | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve |
| Insulation Resistance at 500Vdc | 100 megohms | 100 megohms | 100 megohms | 100 megohms | 100 megohms | 100 megohms |
| Dielectric Withstanding Voltage | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec |
| Weight (g/oz) | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 |
| Leadwires | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 |

* Measured with 2 phases energized

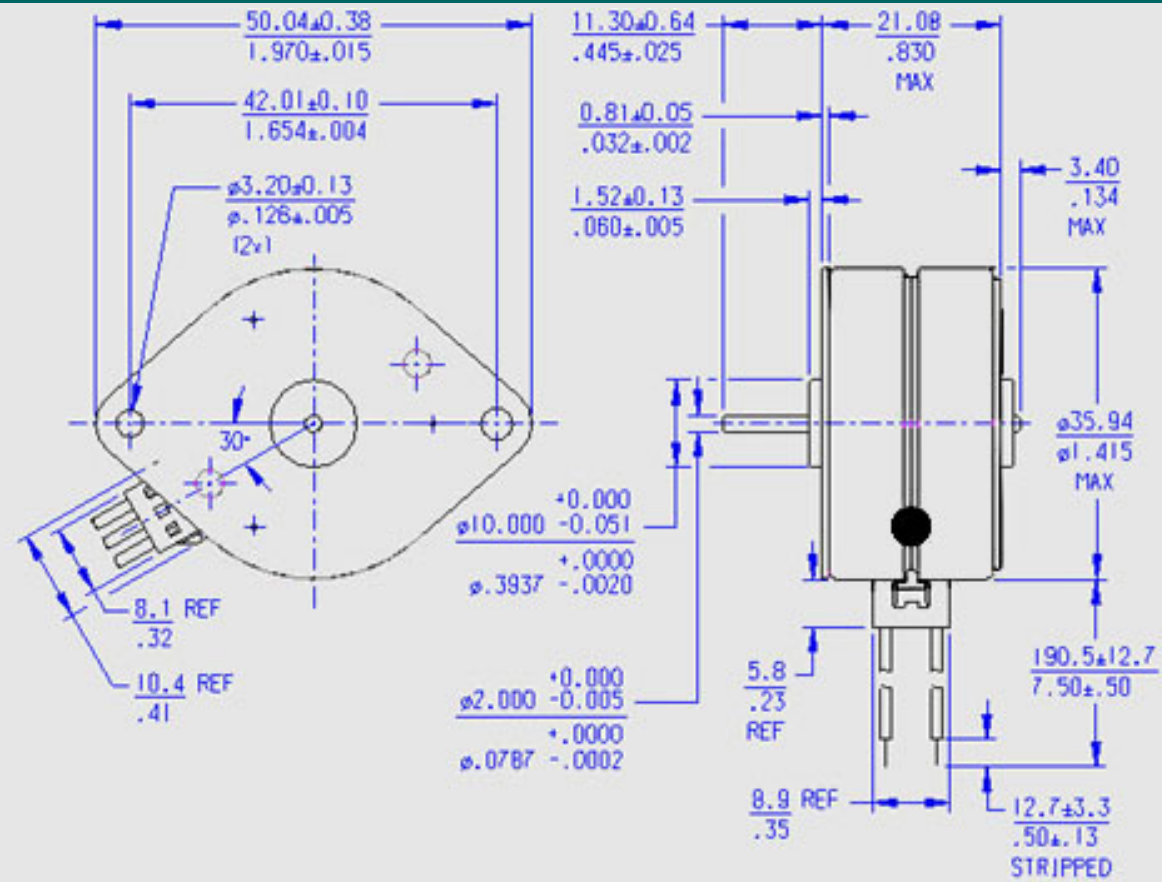
TECHNICAL SPECIFICATIONS

| | BIPOLAR | | | | | |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Part Number | 35L020B1B-N | 35L020B2B-N | 35L024B1B-N | 35L024B2B-N | 35L048B1B-N | 35L048B2B-N |
| DC Op. Voltage | 5 | 12 | 5 | 12 | 5 | 12 |
| Resistance per Winding (ohms) | 11 | 64 | 11 | 64 | 11 | 64 |
| Inductance per Winding (mH) | 13.2 | 60 | 14.2 | 65 | 15 | 72 |
| Holding Torque* (mNm/oz-in) | 21.8 / 3.3 | 21.8 / 3.3 | 25 / 3.5 | 25 / 3.5 | 28 / 4.0 | 28 / 4.0 |
| Rotor Moment of Inertia (g.m ²) | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ | 4 x 10 ⁻⁴ |
| Detent Torque (mNm/oz-in) | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 | 4.2 / 0.60 |
| Step Angle | 18° | 18° | 15° | 15° | 7.5° | 7.5° |
| Step Angle Tolerance* | ± 1.2° | ± 1.2° | ± 1° | ± 1° | ± 0.5° | ± 0.5° |
| Steps per Rev.* | 20 | 20 | 24 | 24 | 48 | 48 |
| Max. Operating Temp. | 100°C | 100°C | 100°C | 100°C | 100°C | 100°C |
| Ambient Temp. Range | | | | | | |
| Operating | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C | -20°C to 70°C |
| Storage | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C | -40°C to 85°C |
| Bearing Type | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve | Sintered bronze sleeve |
| Insulation Resistance at 500Vdc | 100 megohms | 100 megohms | 100 megohms | 100 megohms | 100 megohms | 100 megohms |
| Dielectric Withstanding Voltage | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec | 650 ± 50 VRMS, 2 sec |
| Weight (g/oz) | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 | 88 / 3.1 |
| Leadwires | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 | 26 AWG, UL Style 1430 |

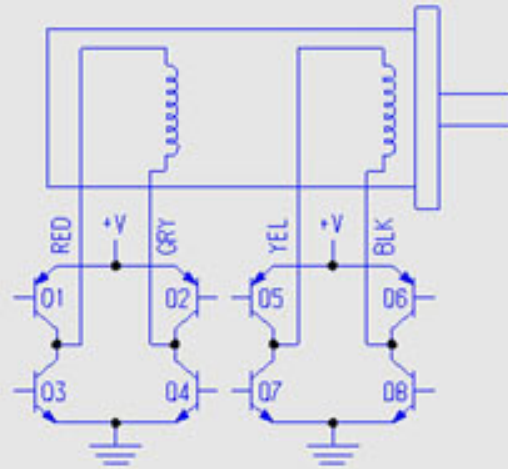
* Measured with 2 phases energized

MECHANICAL DIMENSIONS

UNITS = MM / INCHES



WIRING DIAGRAM

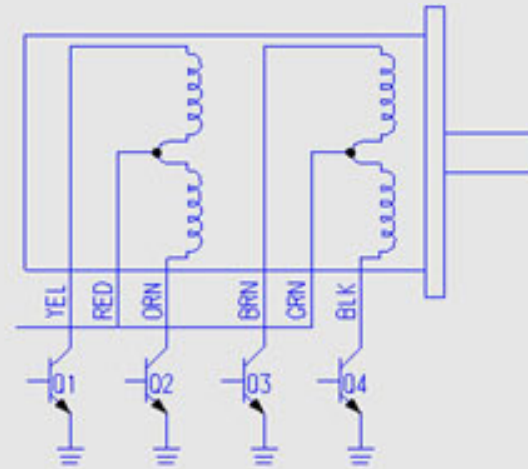


BIPOLAR

| STEP | 01-04 | 02-03 | 05-08 | 06-07 |
|------|-------|-------|-------|-------|
| 1 | ON | OFF | ON | OFF |
| 2 | ON | OFF | OFF | ON |
| 3 | OFF | ON | OFF | ON |
| 4 | OFF | ON | ON | OFF |
| 1 | ON | OFF | ON | OFF |

CW ROTATION ↓

↑ CCW ROTATION



UNIPOLAR

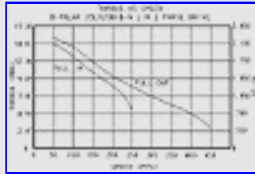
| STEP | 01 | 02 | 03 | 04 |
|------|-----|-----|-----|-----|
| 1 | ON | OFF | ON | OFF |
| 2 | ON | OFF | OFF | ON |
| 3 | OFF | ON | OFF | ON |
| 4 | OFF | ON | ON | OFF |
| 1 | ON | OFF | ON | OFF |

CW ROTATION ↓

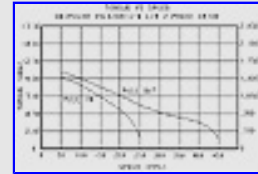
↑ CCW ROTATION

MOTOR DYNAMICS

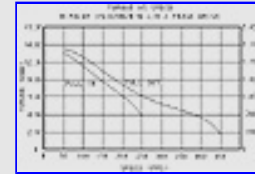
CLICK ON A THUMBNAIL TO MAGNIFY



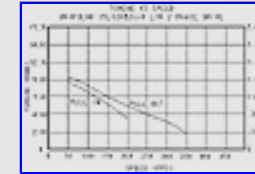
35L020B1B, Bipolar, L/R Drive



35L020B1U, Unipolar, L/R Drive



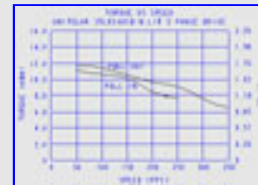
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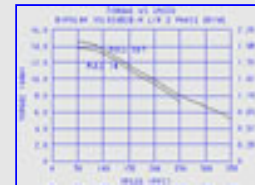
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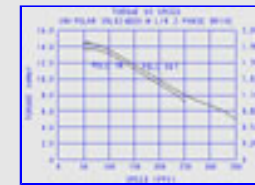
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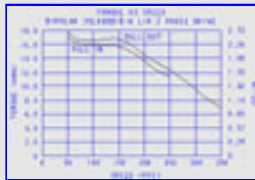
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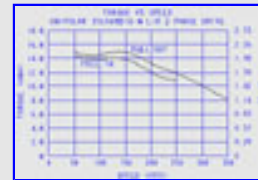
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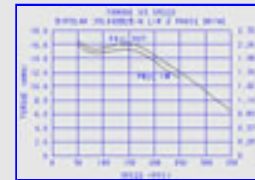
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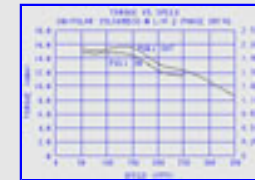
35L048B1B, Bipolar, L/R Drive



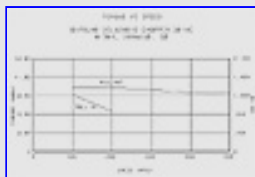
35L048B1U, Unipolar, L/R Drive



35L048B2B, Bipolar, L/R Drive



35L048B2U, Unipolar, L/R Drive



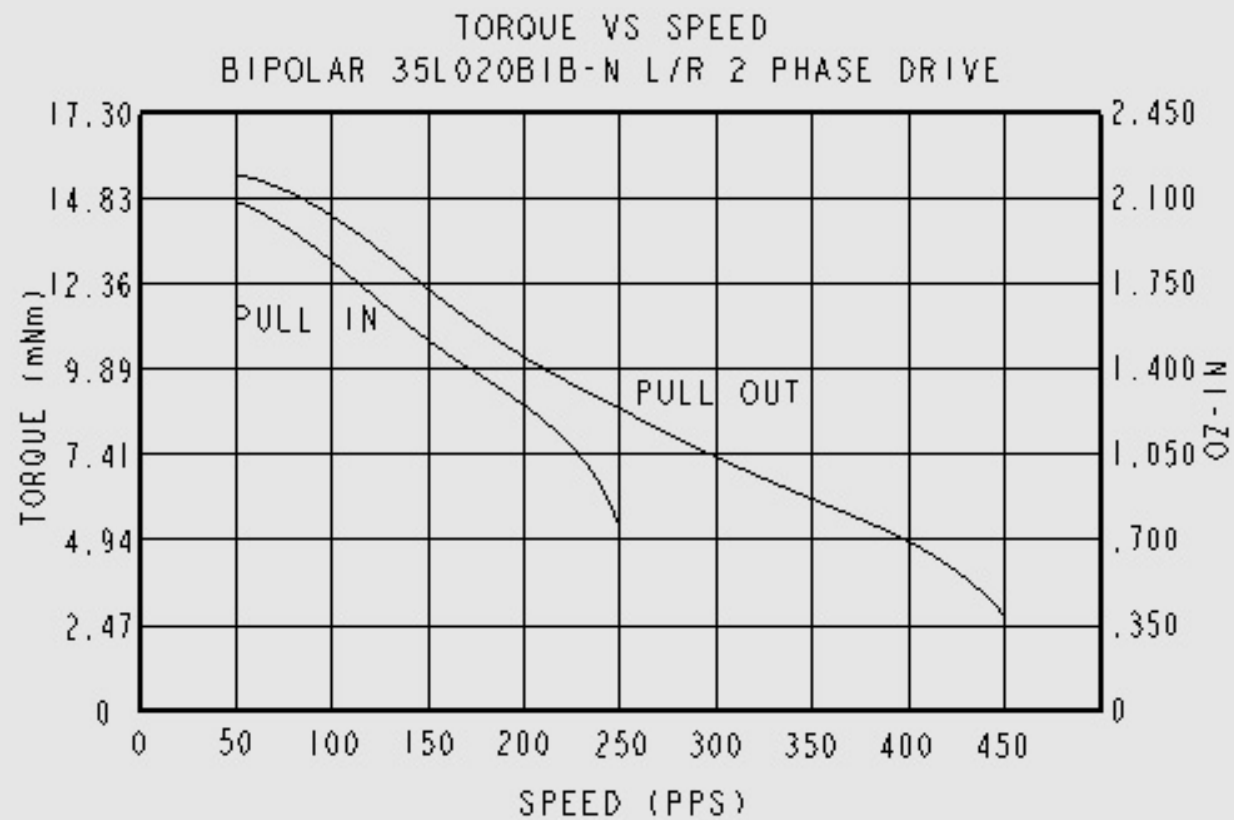
35L020B1B, Bipolar, Chopper Drive

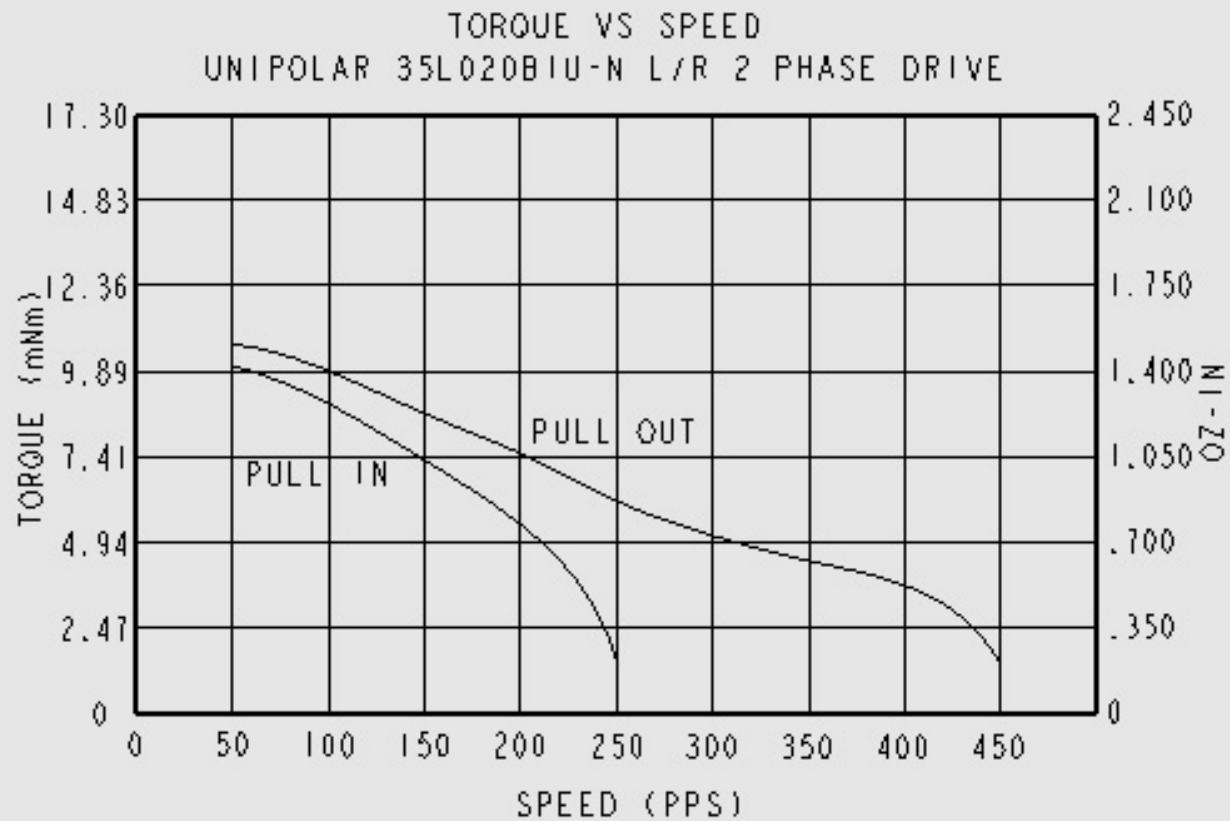


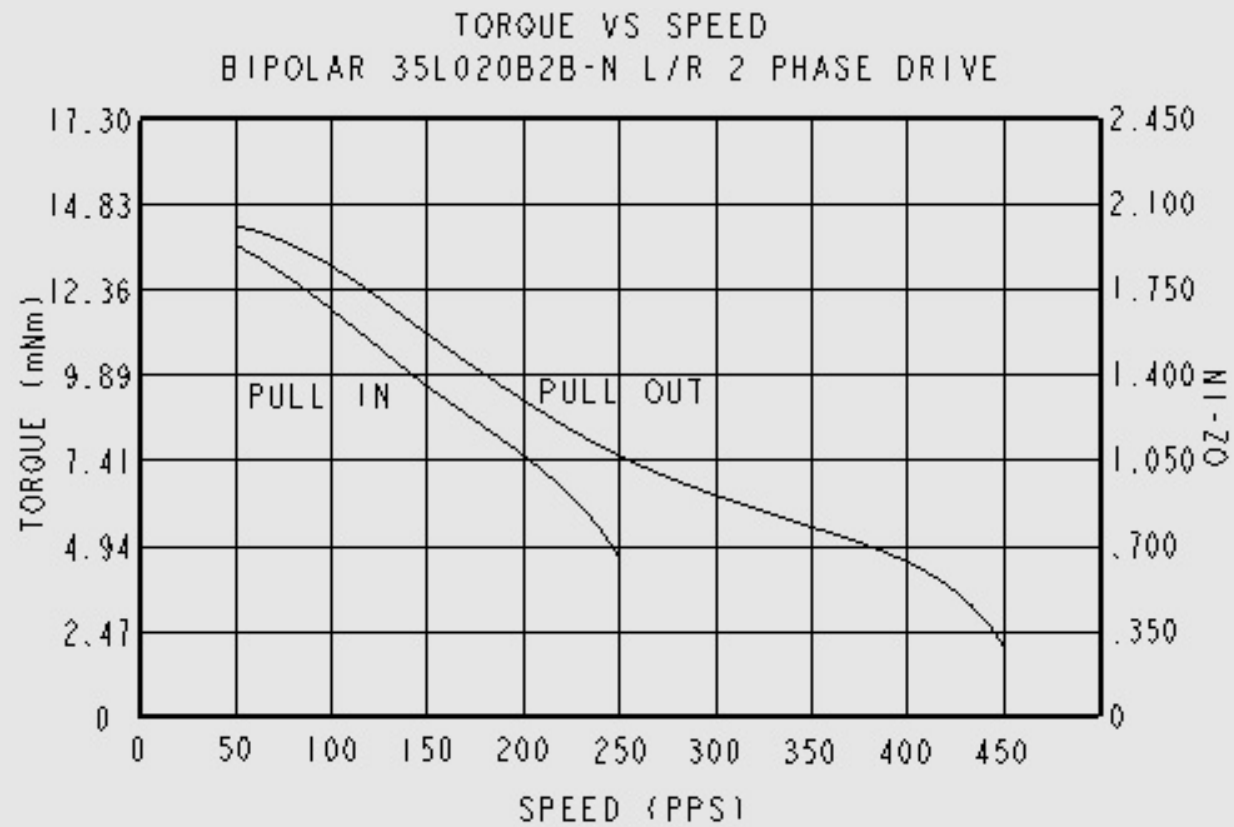
35L024B1B, Bipolar, Chopper Drive

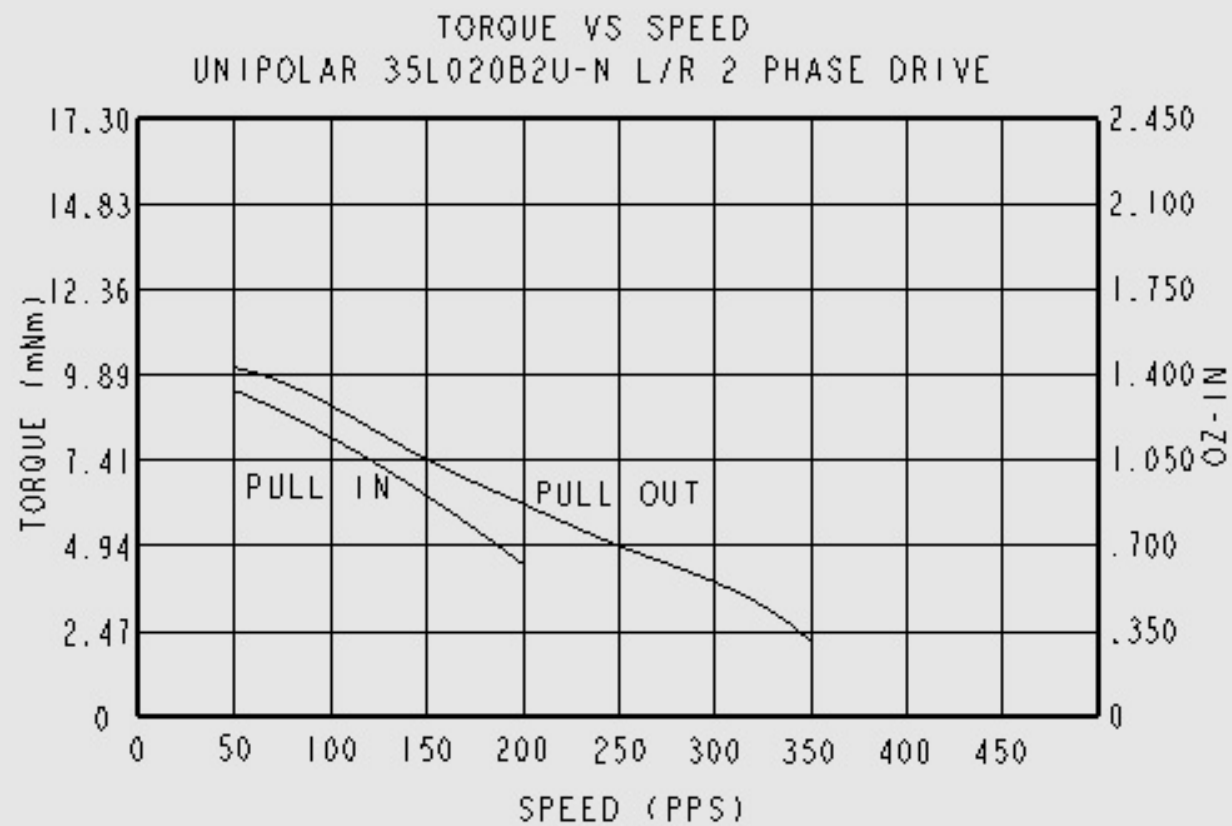


35L048B1B, Bipolar, Chopper Drive





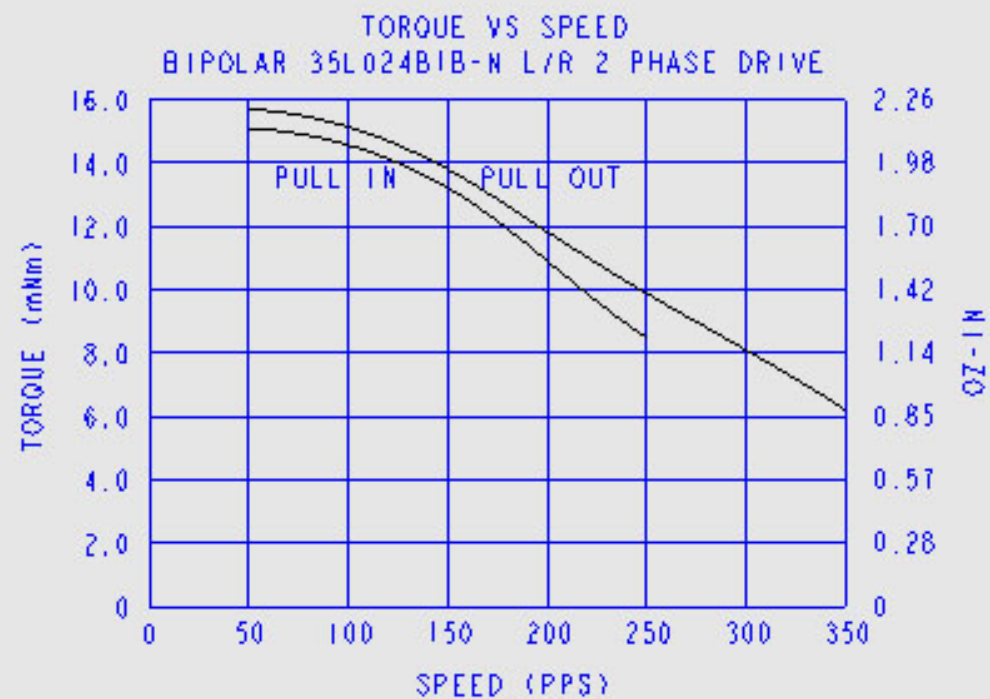


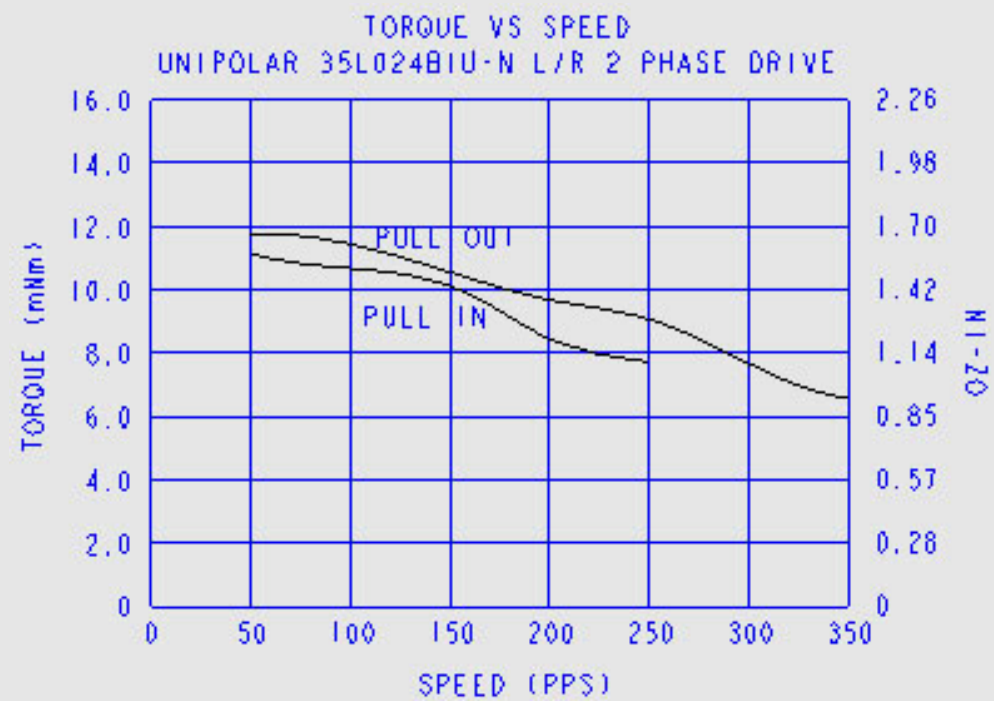


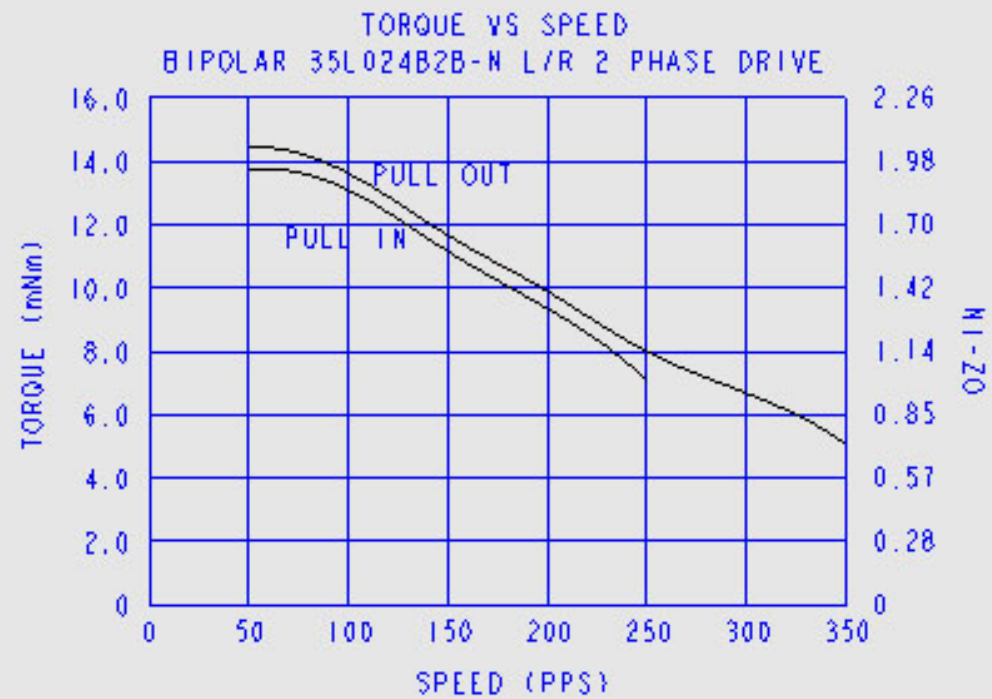
MOTOR DYNAMICS

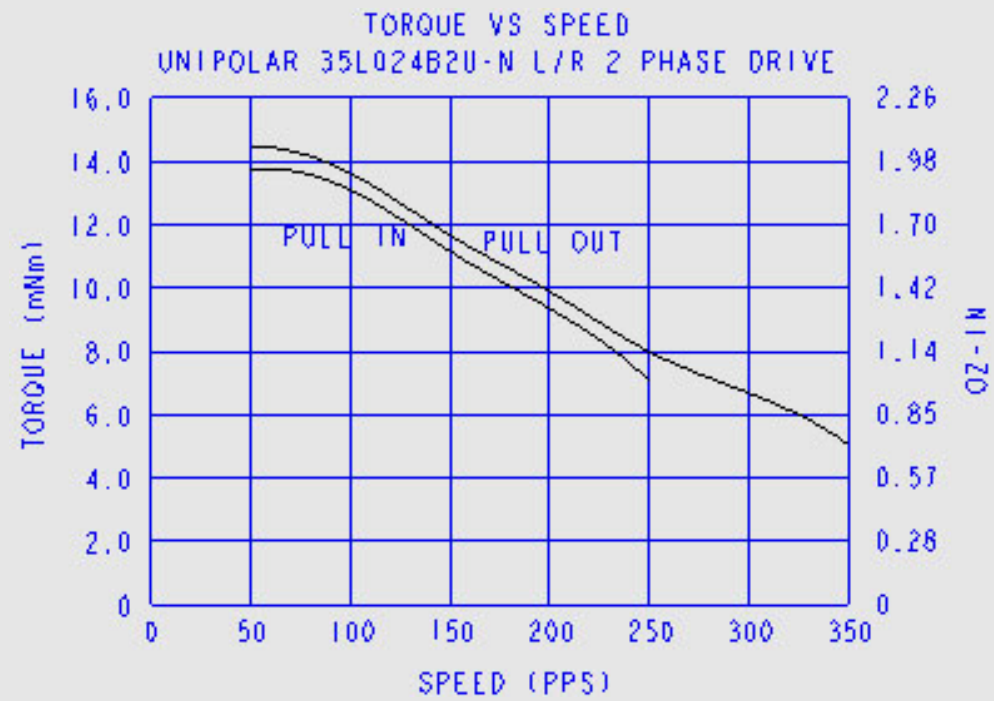


CHART INDEX





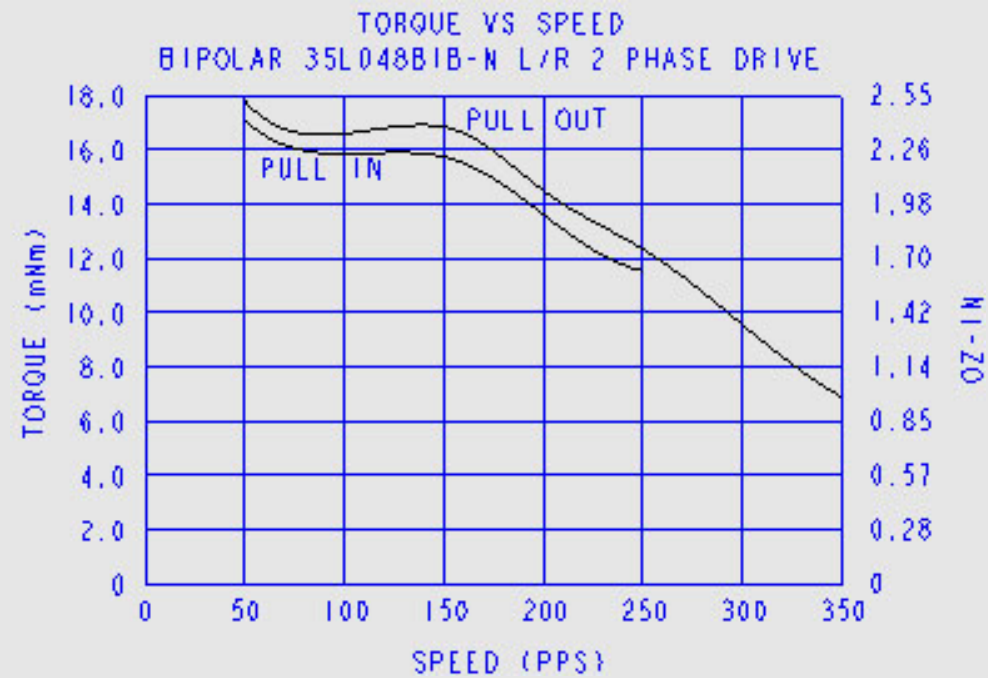




MOTOR DYNAMICS



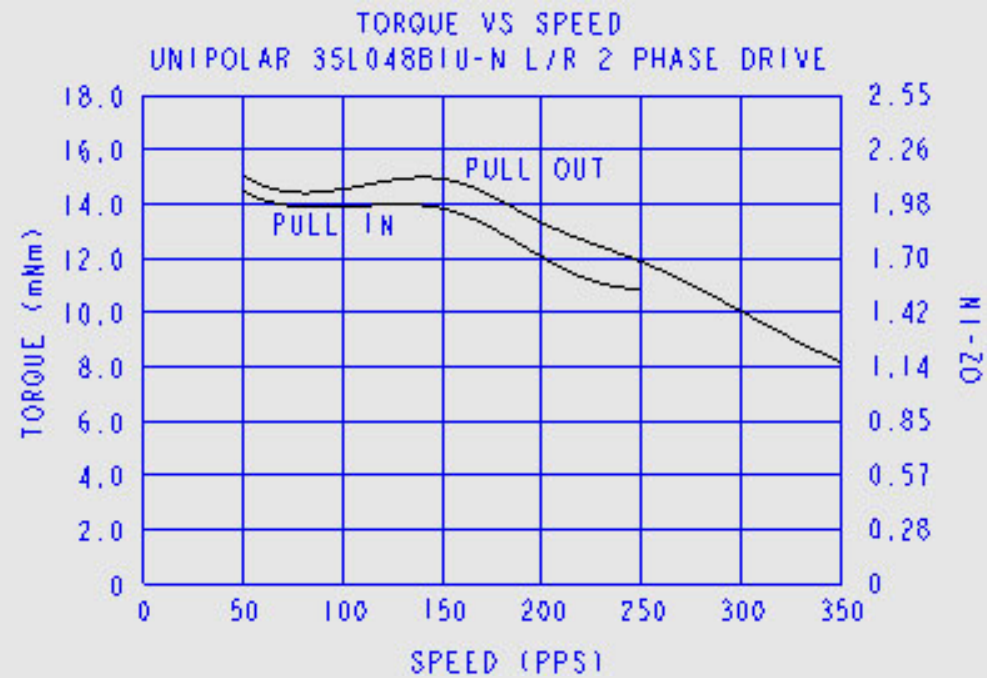
CHART INDEX



MOTOR DYNAMICS



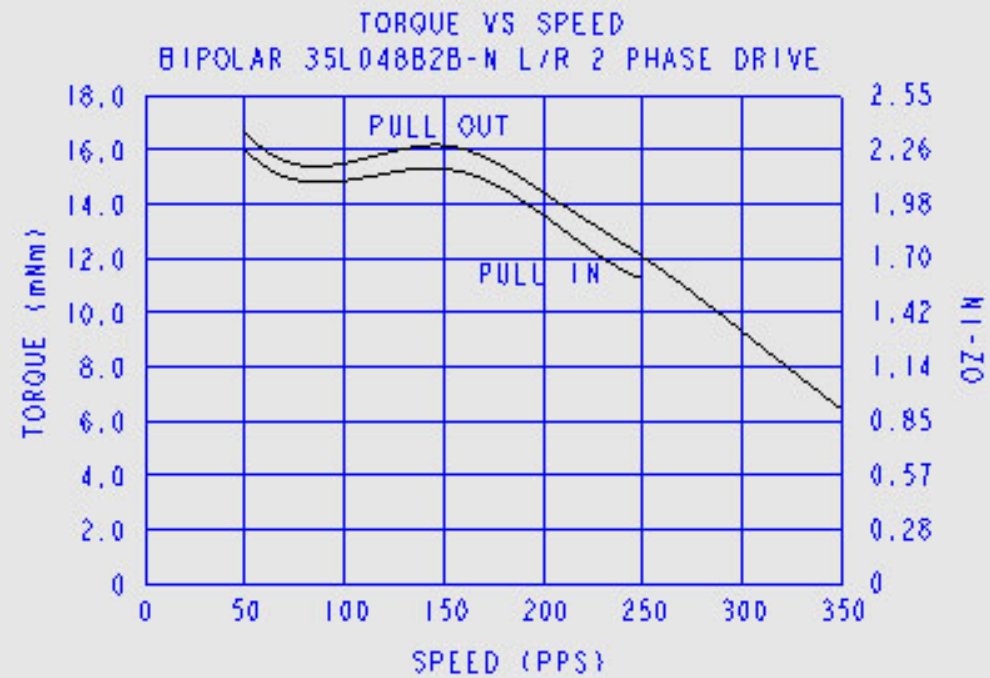
CHART INDEX

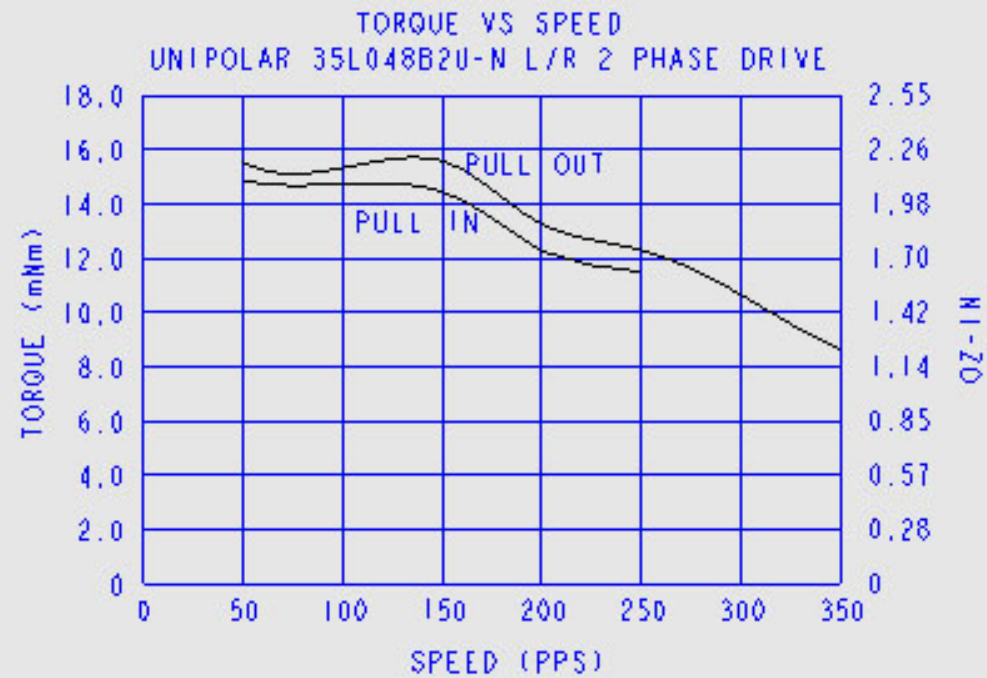


MOTOR DYNAMICS



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TORQUE VS SPEED

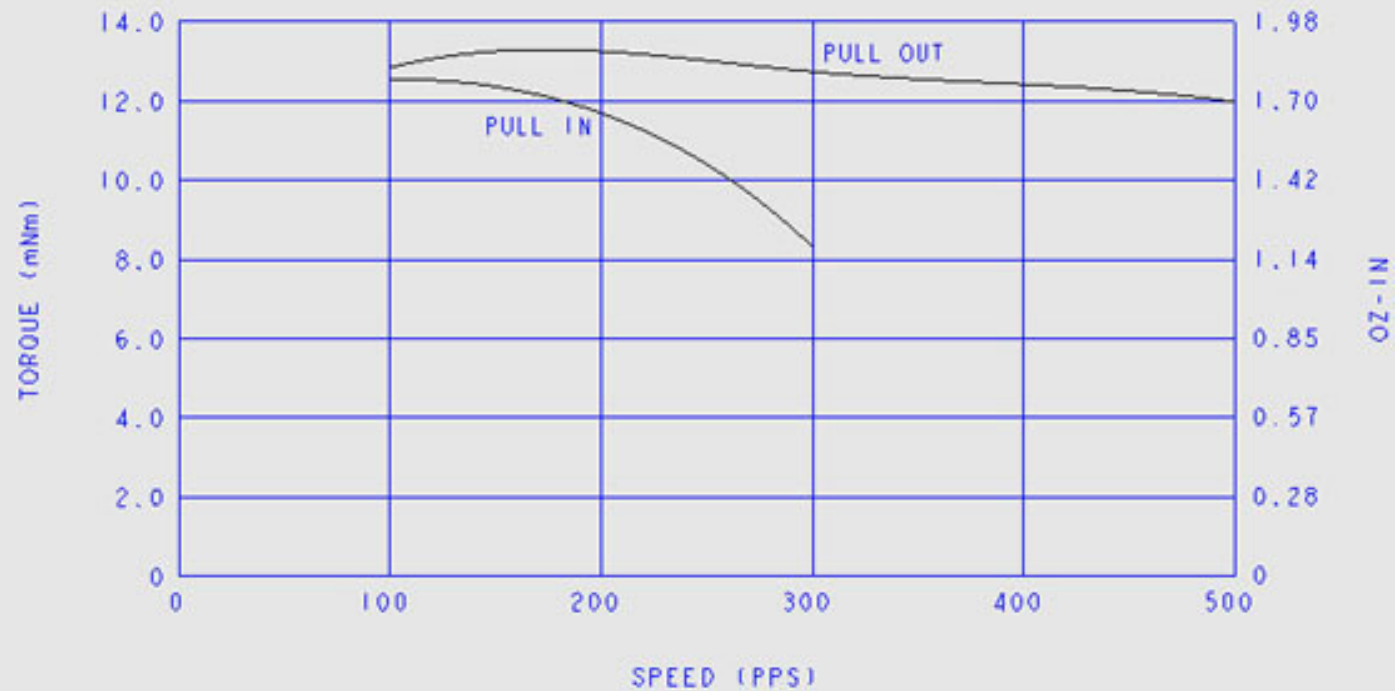
BIPOLAR 35L020B1B CHOPPER DRIVE
@ 36V, 300mA/ϕ, 2ϕ





TORQUE VS SPEED

BIPOLAR 35L024BIB CHOPPER DRIVE
@ 36V, 300mA/ϕ, 2ϕ





TORQUE VS SPEED

BIPOLAR 35L048B1B CHOPPER DRIVE
⊕ 36V, 300mA/ϕ, 2ϕ

