

Kinetix 300 Drive (single-phase and three-phase) Power Specifications

Attribute	2097-V33PR1	2097-V33PR3	2097-V33PR5	2097-V33PR6
AC input voltage	120/240V rms single-phase or three-phase			
AC input frequency	48...62 Hz			
Main AC input current ⁽¹⁾ Nom (rms) 120V input Max inrush (0-pk) 120V input Nom (rms) 240V input Max inrush (0-pk) 240V input	5.0 A 136 A 3.0A 136 A	8.6 A 2.3 A 5.0A 2.3 A	15.0 A 2.3 A 8.7A 2.3 A	24.0 A 11.3 A 13.9 A 11.3 A
Integrated AC line filter	No	No	No	No
Control power back-up input voltage	20...26V DC			
Control power back-up input current Nom Max inrush (0-pk)	500 mA 30 A			
Continuous output current (rms)	2.0 A	4.0 A	8.0 A	12.0 A
Continuous output current (0-pk)	2.8 A	5.7 A	11.3 A	17.0 A
Peak output current (rms) ⁽²⁾	6.0 A	12.0 A	24.0 A	36.0 A
Peak output current (0-pk)	8.5 A	17.0 A	33.9 A	50.9 A
Continuous power output	0.50 kW	1.00 kW	2.00 kW	3.00 kW
Shunt On	390 V DC			
Shunt Off	375V DC			
Overvoltage	430V DC			
Short circuit current rating	100,000 A (rms) symmetrical			

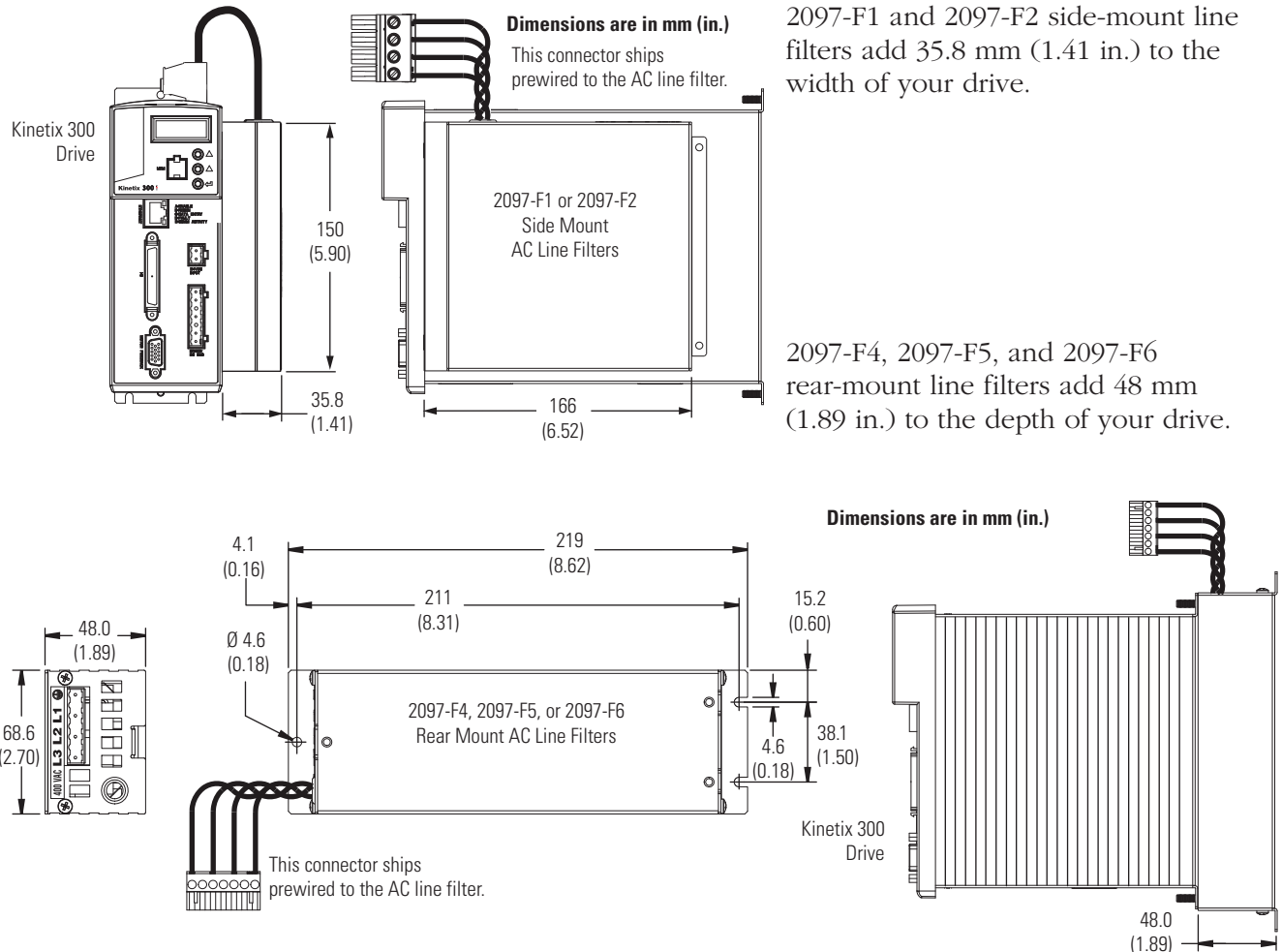
(1) Kinetix 300 drive modules are limited to 1 AC mains power cycling per minute.

(2) Peak RMS current allowed for up to 2 seconds with a 50% duty cycle.

AC Line Filters

The Kinetix 300 drives were tested by using recommended line filters. Use of these filters is also needed to meet CE requirements. 2097-V32PR0, 2097-V32PR2, 2097-V32PR4 drives have integrated AC line filters.

AC Line Filter Dimensions



AC Line Filter Specifications

AC Line Filter Cat. No.	Mount	Voltage 50/60 Hz	Phase	Current A @ 40 °C (104 °F)	Power Loss W	Leakage Current mA	Weight, approx. kg (lb)	Kinetix 300 Drive ⁽¹⁾ Cat. No.
2097-F1	Side	120/240V AC	1 or 3	24.0	5.2	9.0	0.6 (0.13)	2097-V33PR6
2097-F2		480V AC	3	10.0	2.8			2097-V34PR6
2097-F4 ⁽²⁾	Rear	120/240V AC	1 or 3	4.40	1.2	1.0	0.8 (0.18)	2097-V33PR1
		480V AC	3					2097-V34PR3
2097-F5 ⁽²⁾				6.90	1.3			2097-V34PR5
2097-F6 ⁽²⁾		120/240V AC	1 or 3	15.0	4.1			2097-V33PR3
								2097-V33PR5

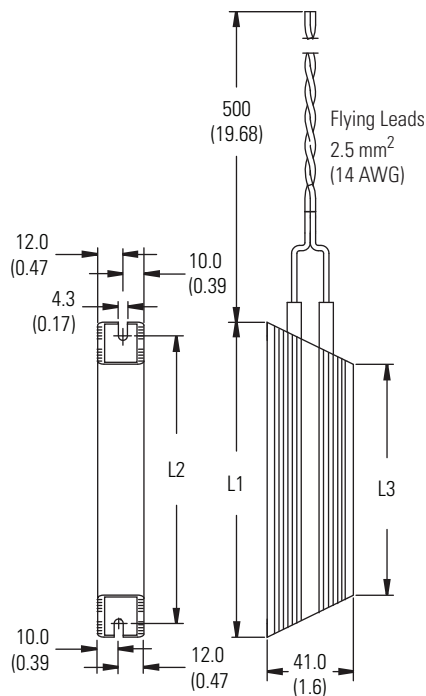
(1) Use 2090-XXLF-TC116 line filter for 2097-V31PR0 and 2097-V31PR2 drives. Refer to AC Line Filter Specifications on [page 463](#) for more information.

(2) This filter is rated for multiple voltage/phase line conditions.

Shunt Resistor Specifications

The Bulletin 2097 passive shunt resistor wires directly to the Kinetix 300 drive.

Shunt Resistor Dimensions



Dimensions are in mm (in.)

Shunt Resistor Cat. No.	L1	L2	L3
2097-R2	210 (8.3)	197 (7.7)	170 (6.7)
2097-R3	210 (8.3)	197 (7.7)	170 (6.7)
2097-R4	150 (5.9)	137 (5.4)	110 (4.3)
2097-R6	210 (8.3)	197 (7.7)	170 (6.7)
2097-R7	150 (5.9)	137 (5.4)	110 (4.3)

Shunt Resistor Power Specifications

Shunt Module Cat. No.	Specifications						Kinetix 300 Drive Cat. No.
	Resistance Ω	Continuous Power W	Peak Power kW	Peak Current A	D_Application, Max ⁽¹⁾ %	Weight kg (lb)	
2097-R2	20	150	7.6	19.5	1.97	0.3 (0.7)	2097-V32PR4 2097-V33PR5
2097-R3	30		5.1	13.0	2.96		2097-V33PR6
2097-R4	40	80	3.8	9.8	2.10	0.2 (0.4)	2097-V31PR0 2097-V31PR2 2097-V32PR0 2097-V32PR2 2097-V33PR1 2097-V33PR3
2097-R6	75	150	7.9	10.3	1.90	0.3 (0.7)	2097-V34PR5 2097-V34PR6
2097-R7	150	80	4.0	5.1	2.02	0.2 (0.4)	2097-V34PR3

(1) D_Application is the application duty cycle in percent. For the intermittent regeneration applications, use $D_{\text{Application}} = t/T$, where t is the duration when regeneration is needed and T is the time interval between two regenerations. Both t and T must use the same time units, for example, seconds.

Kinetix 300 General System Specifications

This section contains environmental, weight, power dissipation, circuit breaker/fuse, transformer, and contactor specifications. Also included are maximum feedback cable length specifications and dimensions for mounting your Kinetix 300 drive.

Environmental Specifications

Attribute	Operational Range	Storage Range (nonoperating)
Ambient temperature	0...40 °C (32...104 °F)	-10...70 °C (14...158 °F)
Relative humidity	5...95% noncondensing	5...95% noncondensing
Altitude	De-rate by 1% per 300 m (1000 ft) above 1500 m (5000 ft)	3000 m (9842 ft) during transport
Vibration	5...2000 Hz @ 2.5 g peak, 0.015 mm (.0006 in.) maximum displacement	
Shock	15 g, 11 ms half-sine pulse (3 pulses in each direction of 3 mutually perpendicular directions)	

Weight Specifications

Drive Cat. No.	Weight, approx. kg (lb)
2097-V31PRO	1.3 (2.9)
2097-V31PR2	1.5 (3.3)
2097-V32PRO	1.4 (3.1)
2097-V32PR2	1.7 (3.7)
2097-V32PR4	2.2 (4.9)
2097-V33PR1	1.3 (2.9)

Drive Cat. No.	Weight, approx. kg (lb)
2097-V33PR3	1.5 (3.3)
2097-V33PR5	2.0 (4.4)
2097-V33PR6	1.9 (4.2)
2097-V34PR3	1.5 (3.3)
2097-V34PR5	2.0 (4.4)
2097-V34PR6	1.8 (4.0)

Power Dissipation Specifications

Use this table to size an enclosure and calculate required ventilation for your Kinetix 300 drive system.

Drive Cat. No.	Loss, Max W
2097-V31PRO	28
2097-V31PR2	39
2097-V32PRO	28
2097-V32PR2	39
2097-V32PR4	67
2097-V33PR1	28

Drive Cat. No.	Loss, Max W
2097-V33PR3	39
2097-V33PR5	67
2097-V33PR6	117
2097-V34PR3	39
2097-V34PR5	58
2097-V34PR6	99

Circuit Breaker/Fuse Specifications

While circuit breakers offer some convenience, there are limitations for their use. Circuit breakers do not handle high current inrush as well as fuses.

Make sure the selected components are properly coordinated and meet acceptable codes including any requirements for branch circuit protection. Evaluation of the short-circuit available current is critical and must be kept below the short-circuit current rating of the circuit breaker.

Use class CC or T fast-acting current-limiting type fuses, 200,000 AIC, preferred. Use Bussman KTK-R, JJN, JJS or equivalent. Thermal-magnetic type breakers preferred. The following fuse examples and Allen-Bradley circuit breakers are recommended for use with Kinetix 300 drives.

Fuse and Circuit Breaker Specifications

Drive Cat. No.	Mains VAC		
	Bussman Fuse	Allen Bradley Circuit Breaker ⁽¹⁾	
		Disconnect ⁽²⁾	Magnetic Contactor ⁽³⁾
2097-V31PR0	KTK-R-20 (20 A)	1492-SP3D300	140M-F8T-C32
2097-V31PR2			
2097-V32PR0			
2097-V32PR2			
2097-V32PR4	LPJ-45SP (45 A)	1492-SP3D400	140M-F8E-C45
2097-V33PR1	KTK-R-20 (20 A)	1492-SP3D300	140M-D8T-C20
2097-V33PR3			
2097-V33PR5			
2097-V33PR6	KTK-R-30 (30 A)	N/A	140U-F8T-C32
2097-V34PR3	KTK-R-20 (20 A)	1492-SP3D400	140M-F8T-C32
2097-V34PR5			
2097-V34PR6			

(1) When using Bulletin 1492 circuit protection devices, the maximum short circuit current available from the source is limited to 5000 A.

(2) Use fully-rated short-circuit protection circuit breaker for device branch circuit protection only when there is an upstream fully-rated breaker.

(3) Fully-rated breaker for overload current and short circuit rating.

Contactors Ratings

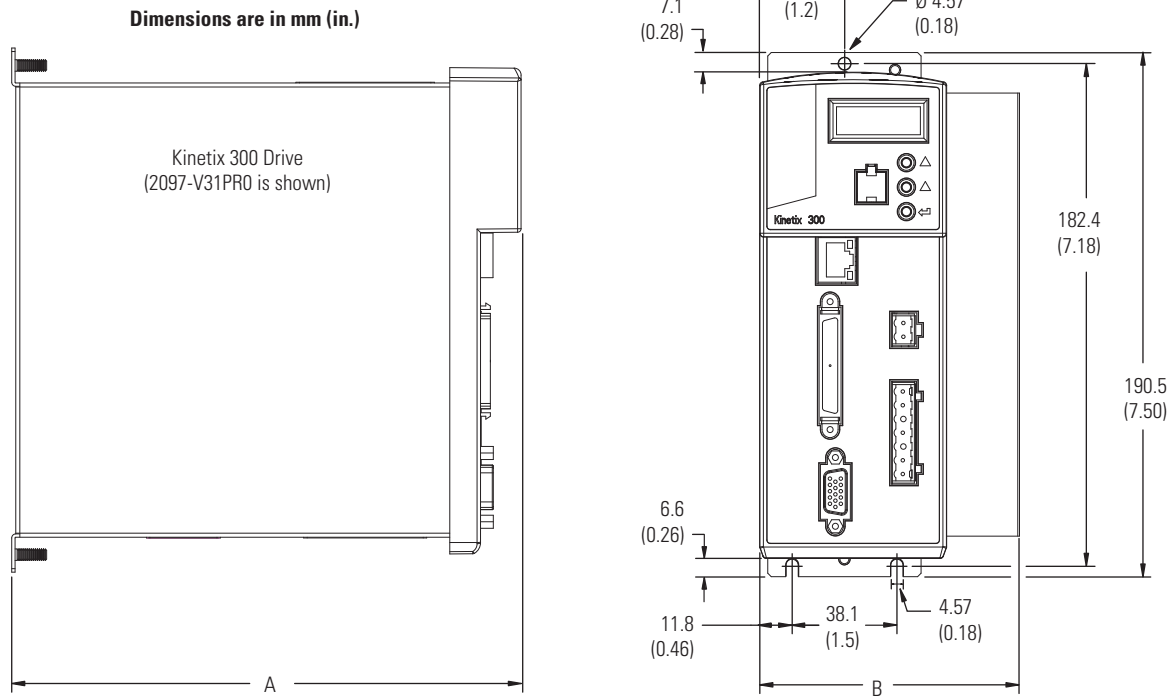
This table lists the recommended contactor ratings for Kinetix 300 Drive.

Kinetix 300 Drive (120/240V) Cat. No.	Contactors
2097-V31PR0	100-C30x10 (AC coil) 100-C30Zx10 (DC coil)
2097-V31PR2	
Kinetix 300 Drive (240V) Cat. No.	
2097-V32PR0	100-C30x10 (AC coil) 100-C30Zx10 (DC coil)
2097-V32PR2	
2097-V32PR4	100-C37x10 (AC coil) 100-C23Zx10 (DC coil)
2097-V33PR1	100-C23x10 (AC coil) 100-C23Zx10 (DC coil)
2097-V33PR3	
2097-V33PR5	
2097-V33PR6	100-C30x10 (AC coil) 100-C30x10 (DC coil)
Kinetix 300 Drive (480V) Cat. No.	
2097-V34PR3	100-C37x10 (AC coil) 100-C23Zx10 (DC coil)
2097-V34PR5	
2097-V34PR6	

Transformer Specifications for Control Input Power

Attribute	Value (460V system)
Input volt-amperes	750VA
Input voltage	460V AC
Output voltage	120...240V AC

Kinetix 300 Drive Dimensions



Cat. No.	A mm (in.)	B mm (in.)
2097-V31PR0	185.1 (7.29)	68.0 (2.68)
2097-V31PR2	185.1 (7.29)	68.5 (2.70)
2097-V32PR0	229.6 (9.04)	68.0 (2.68)
2097-V32PR2	229.6 (9.04)	68.5 (2.70)
2097-V32PR4	229.6 (9.04)	86.8 (3.42)
2097-V33PR1	185.1 (7.29)	68.0 (2.68)

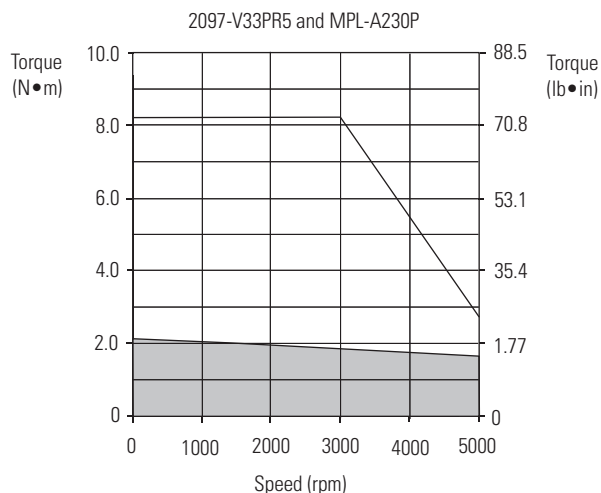
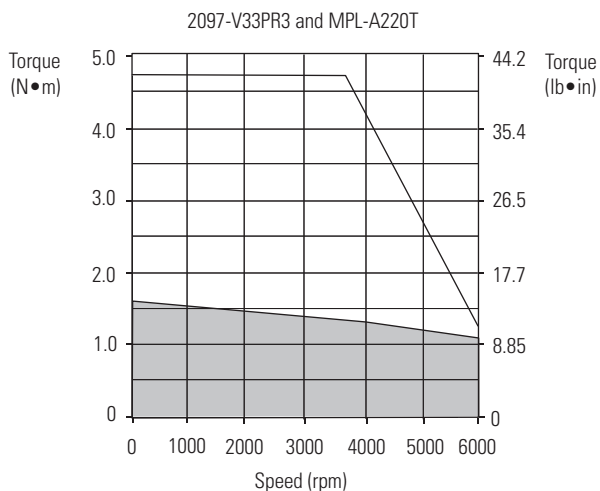
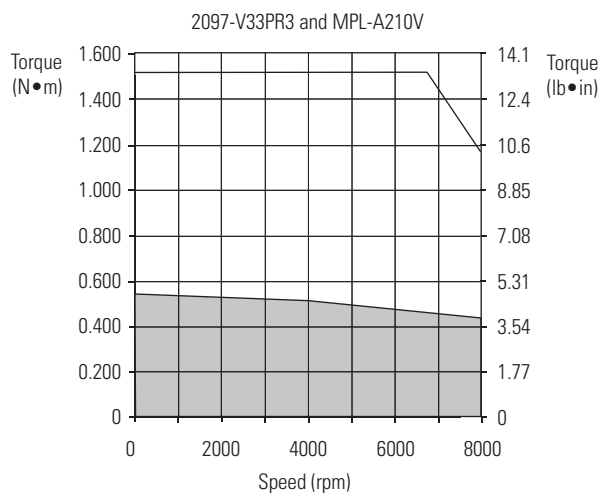
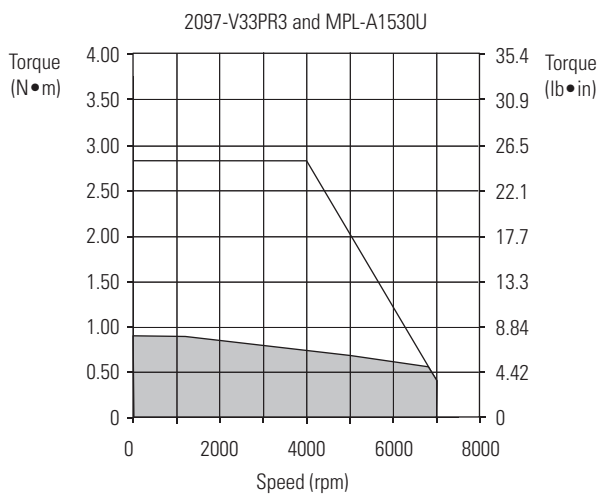
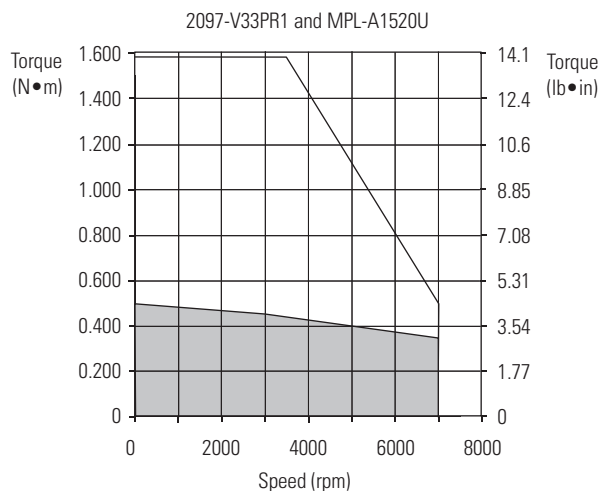
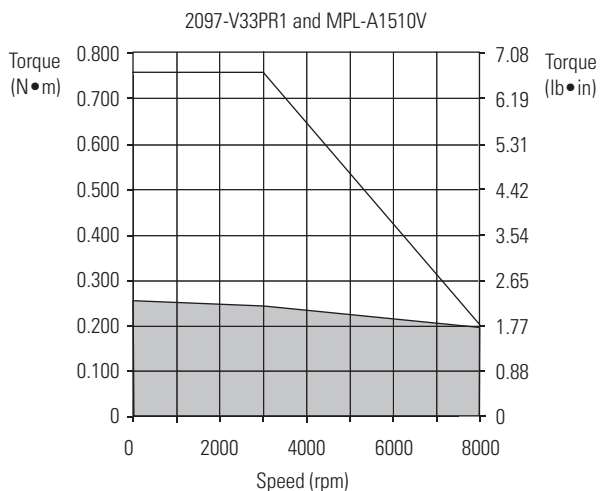
Cat. No.	A mm (in.)	B mm (in.)
2097-V33PR3	185.1 (7.29)	68.5 (2.70)
2097-V33PR5	185.1 (7.29)	94.4 (3.72)
2097-V33PR6	229.6 (9.04)	68.0 (2.68)
2097-V34PR3	185.1 (7.29)	68.5 (2.70)
2097-V34PR5	185.1 (7.29)	94.4 (3.72)
2097-V34PR6	229.6 (9.04)	68.0 (2.68)

Bulletin MPL Motor Performance Specifications with Kinetix 300 (240V) Drives

Rotary Motor	Max Speed rpm	System Continuous Stall Current A 0-pk	System Continuous Stall Torque N•m (lb•in)	System Peak Stall Current A 0-pk	System Peak Stall Torque N•m (lb•in)	Motor Rated Output kW	Kinetix 300 240V Drives
MPL-A1510V	8000	1.05	0.26 (2.3)	3.40	0.77 (6.8)	0.16	2097-V33PR1
MPL-A1520U	7000	1.80	0.49 (4.3)	6.10	1.58 (13.9)	0.27	2097-V33PR1
MPL-A1530U	7000	2.82	0.90 (8.0)	10.1	2.82 (24.9)	0.39	2097-V33PR3
MPL-A210V	8000	3.09	0.55 (4.8)	10.2	1.52 (13.5)	0.37	2097-V33PR3
MPL-A220T	6000	4.54	1.61 (14.2)	15.5	4.74 (41.9)	0.62	2097-V33PR3
MPL-A230P	5000	5.40	2.10 (18)	23.0	8.2 (72.5)	0.86	2097-V33PR5
MPL-A310F	3000	3.20	1.58 (14)	9.3	3.61 (32)	0.46	2097-V33PR3
MPL-A310P	5000	4.85	1.58 (14)	14	3.61 (32)	0.73	2097-V33PR3
MPL-A320H	3500	6.1	3.05 (27)	19.3	7.91 (70)	1.0	2097-V33PR5
MPL-A320P	5000	9.0	3.05 (27)	29.5	7.91 (70)	1.3	2097-V33PR5
MPL-A330P	5000	12.0	4.18 (37)	38	11.1 (98)	1.8	2097-V33PR6
MPL-A420P	5000	12.7	4.74 (42)	46	13.5 (120)	2.0	2097-V33PR6
MPL-A430H	3500	12.2	6.21 (55)	45	19.8 (175)	1.8	2097-V33PR6
MPL-A430P	5000	16.8	5.99 (53)	51	15.7 (139)	2.2	2097-V33PR6
MPL-A4530F	2800	13.4	8.36 (74)	42	20.3 (180)	1.9	2097-V33PR6
MPL-A4540C	1500	9.4	10.2 (90)	29	27.1 (240)	1.5	2097-V33PR6

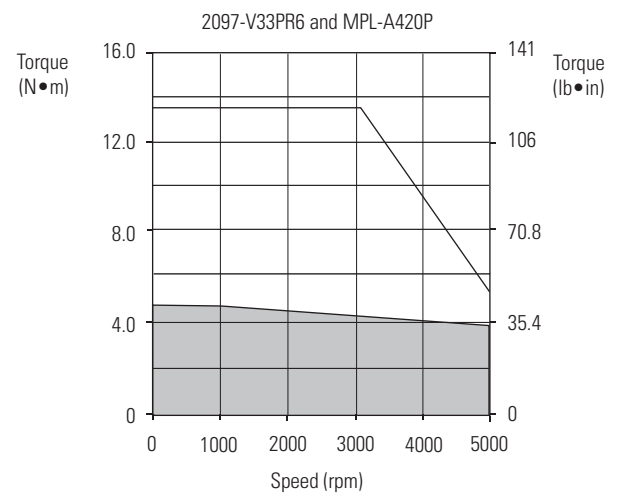
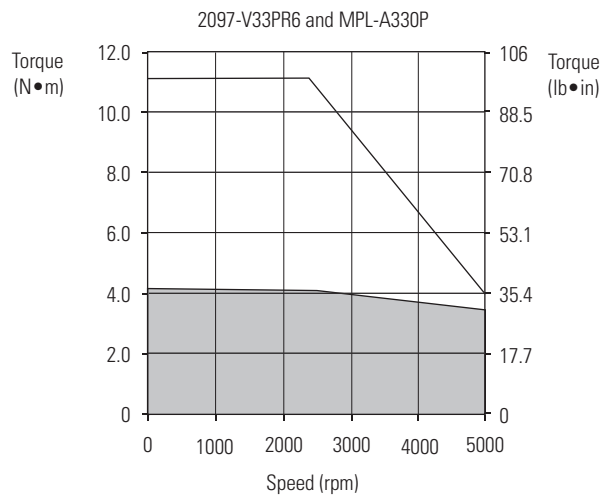
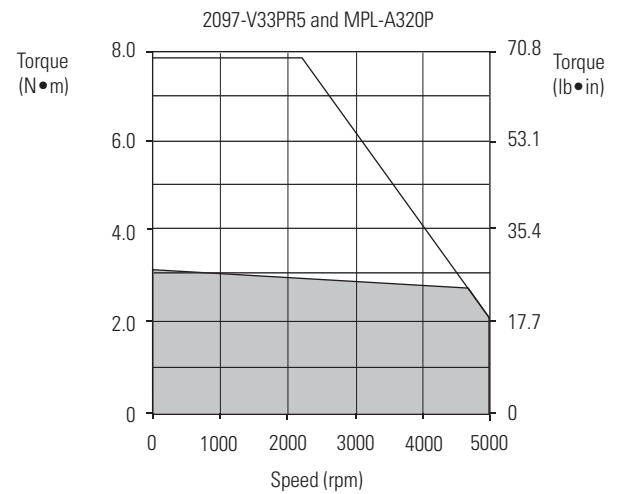
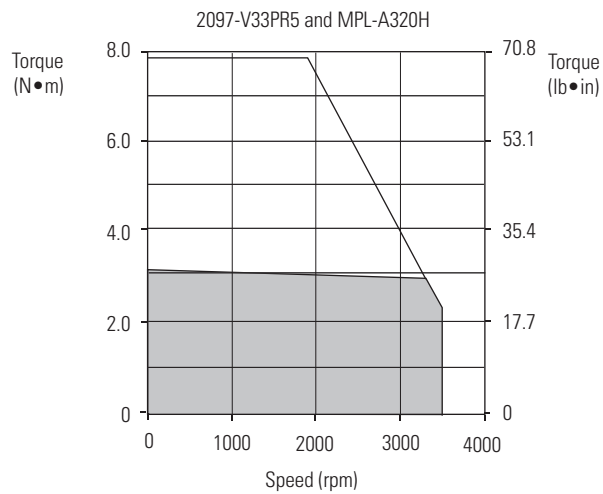
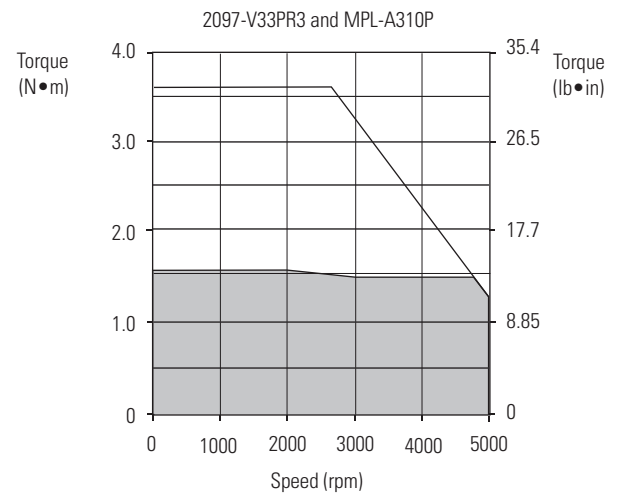
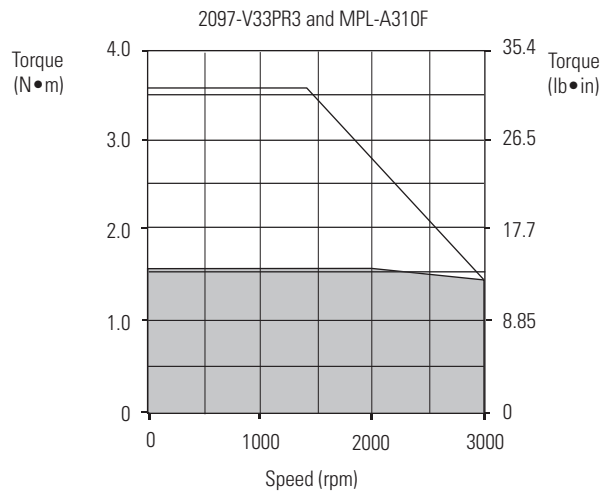
Performance specification data and curves reflect nominal system performance of a typical system with motor at 40 °C (104 °F) and drive at 40 °C (104 °F) ambient, and rated line voltage. For additional information on ambient and line conditions, refer to Motion Analyzer software, version 4.7 or later.

Kinetix 300 (240V) Drives/MP-Series Low Inertia Motor Curves



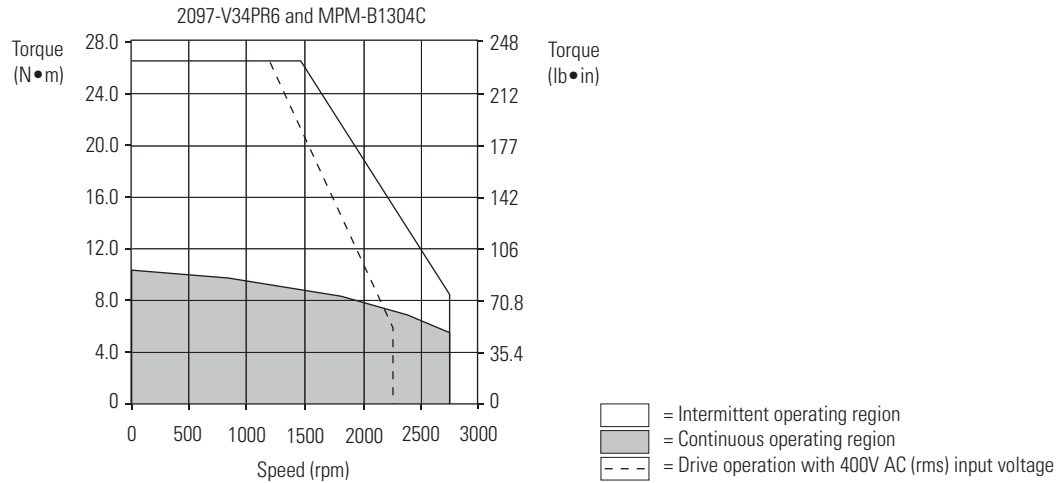
□ = Intermittent operating region
 ■ = Continuous operating region

Kinetix 300 (240V) Drives/MP-Series Low Inertia Motor Curves, Continued



□ = Intermittent operating region
 ■ = Continuous operating region

Kinetix 300 (480V) Drives/MP-Series Medium Inertia Motor Curves, Continued



Kinetix 300 (240V) Drives with MP-Series Food Grade Motors

This section provides system combination information for the Kinetix 300 (240V) drives when matched with MP-Series food-grade motors. Included are motor power/brake and feedback cable catalog numbers, system performance specifications, and the optimum torque/speed curves.

Bulletin MPF Motor Cable Combinations

Motor Cat. No. (200V class)	Motor Power Cable	Motor Feedback Cable ⁽¹⁾
MPF-A310P, MPF-A320H, MPF-A320P, MPF-A330P	2090-XXNPMF-16Sxx ⁽²⁾	2090-XXNFMF-Sxx ⁽³⁾ Absolute High-resolution Feedback
MPF-A430H		

(1) Use low-profile connector kit (catalog number 2090-K2CK-D15M) or panel-mounted breakout components on drive end. Refer to Breakout Components and Connector Kits beginning on [page 418](#).

(2) These cables are available as standard (catalog number 2090-XXNPMF-xxSxx) or continuous-flex (catalog number 2090-CPxM7DF-xxAFxx).

(3) These cables are available as standard (catalog number 2090-XXNFMF-Sxx) or continuous-flex (catalog number 2090-CFBM7DF-CDAFxx).

Motor-end connector kits are available for motor power/brake and feedback cables. Refer to Motor-end Connector Kits on [page 411](#) for catalog numbers.

Cable length xx is in meters. Refer to Standard Cable Lengths beginning on [page 393](#).

Bulletin MPF Motor Performance Specifications with Kinetix 300 (240V) Drives

Rotary Motor	Max Speed rpm	System Continuous Stall Current A 0-pk	System Continuous Stall Torque N•m (lb•in)	System Peak Stall Current A 0-pk	System Peak Stall Torque N•m (lb•in)	Motor Rated Output kW	Kinetix 300 240V Drives
MPF-A310P	5000	4.85	1.58 (14)	14	3.61 (32)	0.73	2097-V33PR3
MPF-A320H	3500	6.1	3.05 (27)	19.3	7.91 (70)	1.0	2097-V33PR5
MPF-A320P	5000	9.0	3.05 (27)	29.5	7.91 (70)	1.3	2097-V33PR3
MPF-A330P	5000	12.0	4.18 (37)	38	11.1 (98)	1.6	2097-V33PR6
MPF-A430H	3500	12.2	6.21 (55)	45	19.8 (175)	1.8	2097-V33PR6

Performance specification data and curves reflect nominal system performance of a typical system with motor at 40 °C (104 °F) and drive at 40 °C (104 °F) ambient, and rated line voltage. For additional information on ambient and line conditions, refer to Motion Analyzer software, version 4.7 or later.