Systems
Technical
Publication

KOLLMORGEN GOLDLINE® DDR

Direct Drive Rotary

with Kollmorgen SERVOSTAR® CD

KOLLMORGEN

Kollmorgen GOLDLINE DDR

The DDR (DIRECT DRIVE ROTARY) STORY

What is direct drive? Very simply it is the direct coupling of the torque motor (such as the Kollmorgen **GOLD**LINE® **DDR** motor) to the driven load. This configuration results in a very stiff coupling to the load, thus, eliminating problems associated with belts and gearboxes.

The **DDR** Benefits:

- ZERO maintenance
- No belts/pulleys, no belt adjustment/replacement
- No gearboxes, no lubrication required
- Zero backlash and compliance
- Flat, compact drive solution
- One part number for mechanical drive motor (clean mechanical assembly)
- Very quiet
- Hollow shaft

This technology has been refined into the Kollmorgen **GOLD**LINE **DDR** product line for easy installation and use and is available at short leadtimes.

Kollmorgen Large Diameter Torque Motors

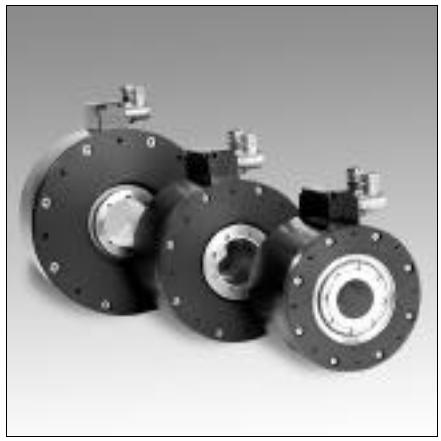
Kollmorgen RBE Frameless Torque Motors

Kollmorgen: The DDR Birthplace

In the early 1950's Kollmorgen Inland Motor, in cooperation with MIT, developed the original torque motor. This brush DC motor was used on stabilized platforms for inertial guidance systems. The large diameter, thin ring design was ideal for this light weight, high torque application. Over the years Kollmorgen has designed torque motors for applications from missiles and tank turrets to machine tools, injection molding machines, and semiconductor processing machines. Our product range covers from oz-in of torque to over 20,000 N-m of torque and over 10 feet in diameter.

Kollmorgen's 50 years of electromagnetic and electromechanical design expertise is packed into the Kollmorgen **GOLD**LINE **DDR** product line. We achieve very high torque density through both large diameter, short length, and high number of magnetic poles. Couple this with a very high resolution feedback device (up to 1,048,576 counts per revolution) and the Kollmorgen **GOLD**LINE **DDR** becomes a high performance, zero maintenance, servo solution.

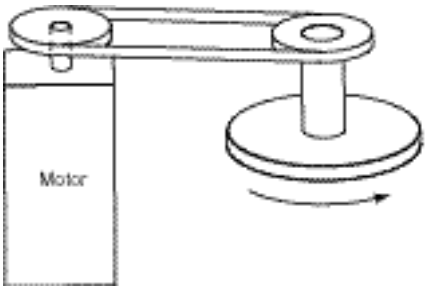
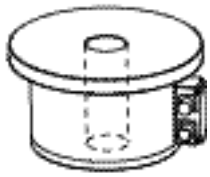
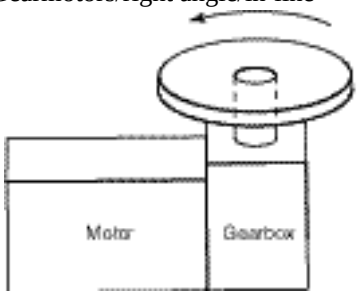
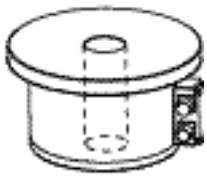
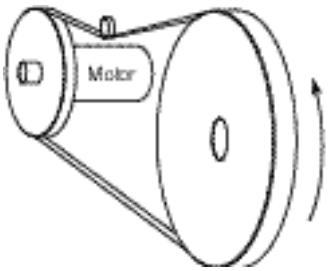
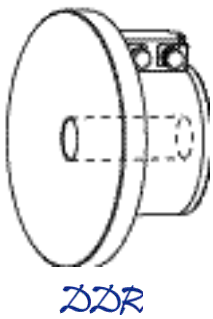
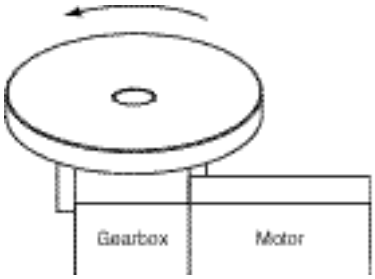
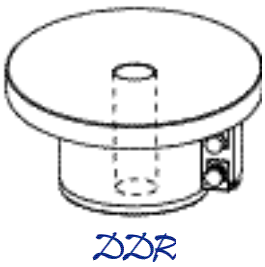
The Kollmorgen **GOLD**LINE **DDR** is the latest in a series of product innovations from the worldwide leader in **DDR** motor products....Kollmorgen.



Kollmorgen GOLDLINE **DDR Housed Torque Motors**

APPLICATIONS FOR KOLLMORGEN GOLDLINE DDR PRODUCTS

KOLLMORGEN GOLDLINE DDR Direct Drive Rotary

Application Problem	Solution	Benefits
		Belt/pulley • Zero maintenance • No belt adjustment/replacement • No belt compliance • Better servo performance • Clean mechanical assembly • Flat profile • Quiet • Reduced number of parts • Hollow shaft
Gearmotors/right angle/in-line 		• Zero maintenance • No gearbox lubrication • No gearbox backlash • Better servo performance • Flat Profile • Quiet • Hollow shaft
		Large Vertical Wheel • Zero maintenance • No belt adjustment/replacement • No belt compliance • Better servo performance • Faster index times • Clean mechanical assembly • Quiet • Reduced number of parts • Hollow shaft
		Rotary Indexer • Zero maintenance • No gearbox lubrication • No gearbox backlash • Better servo performance • Quiet • Reduced number of parts • Hollow shaft

Kollmorgen GOLDLINE DDR

THE KOLLMORGEN GOLDLINE DDR SYSTEM

The Kollmorgen **GOLD**LINE® **DDR** is the easiest way to apply **DDR** technology. It comes fully assembled, with bearings, position feedback, housing, and connectors. It is delivered with Kollmorgen's fully digital, configurable SERVO**STAR**® **CD** sine wave drive and cable set.

Kollmorgen GOLDLINE D081 with face mount

Same Cable Assembly for all Kollmorgen GOLDLINE DDR Systems

*SERVO**STAR CR06***

Standard Features:

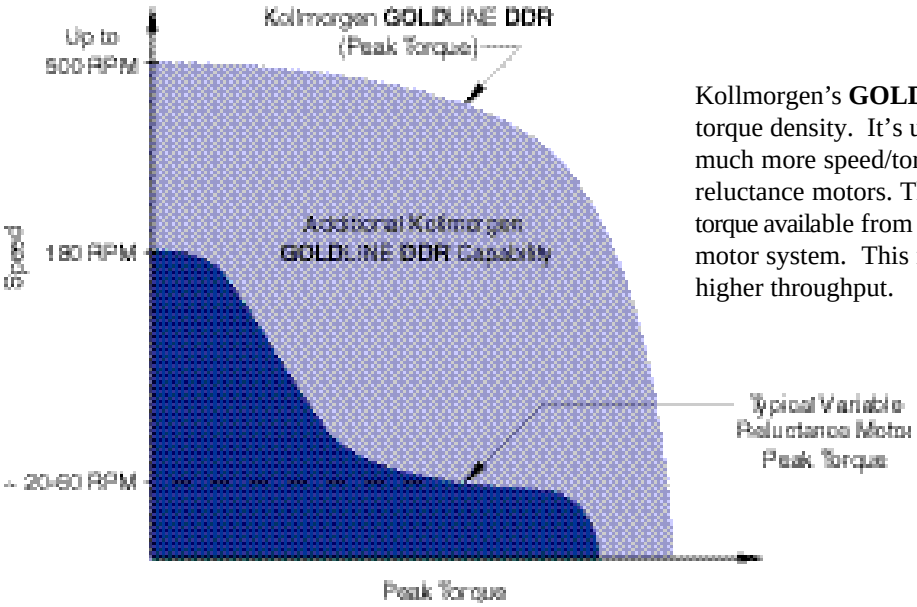
- Peak torque up to 225 lb-ft (305 N-m)
- Continuous torque up to 100 lb-ft (136 N-m)
- 3 frame sizes (6.9", 8.6", 11.2" outside diameter), 3 lengths per frame
- High torque density permanent magnet design provides more speed and torque vs variable reluctance motors
- Speeds up to 500 rpm (8.3 rps)
- SERVO**STAR CD** Digital Drive:
  - no components to change on boards, easy tuning
  - torque, velocity, position modes
  - step/direction input mode
  - same amplifier for both 115/230 V operation
  - both single and three phase voltage available
  - UL , cULlisted, and CE
  - MOTIONLINK® HMI for set-up and analysis of your Kollmorgen **GOLD**LINE **DDR** system (used with SERVO**STAR CD**)
- Resolution up to 1,048,576 counts/rev
- Repeatability down to 2.48 arcsec
- Axial **dynamic** loading up to 7,900 lbs, moment loads to 322 lb-ft
- No serial number matching required, drives and motors are interchangeable
- Connectors on both motor/drive, cable lengths to 75 m

Options:

- Wide face or flange mount options for solid mounting
- Second bearing for large moment loading applications
- Straight or 90° connector exits
- Custom mounting patterns, shafts
- IP65 and IP67

SUPERIOR PERFORMANCE BY DESIGN

Peak Torque vs. Speed



Kollmorgen's **GOLD**LINE **DDR** is designed for very high torque density. It's unique electromagnetic design provides much more speed/torque area than conventional variable reluctance motors. This curve shows the increased speed and torque available from a Kollmorgen **GOLD**LINE **DDR** motor system. This results in faster indexing times and higher throughput.

SERVO**STAR CD: The Common Drive Design Solution**

One drive....
Many types of motors....

The Kollmorgen SERVO**STAR CD** digital amplifier provides you with the ultimate in flexibility and simplicity. Now, you have the freedom to design the best solution, whether rotary or linear, for your specific application. No need to match the motor to the amplifier. No custom electronics required. No hassles with learning, stocking, and supporting several drive types. Get outstanding system performance while saving time and money.

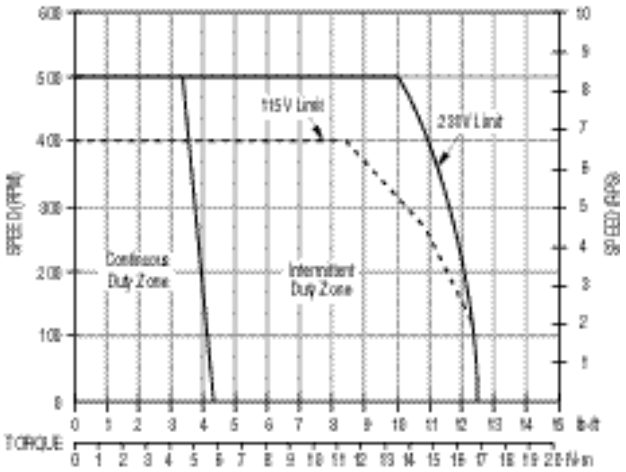
Kollmorgen offers the broadest range of motor technologies in the industry and a common drive platform that makes using the best electromechanical solution easy for you. Use the SERVO**STAR CD** with the Kollmorgen **GOLD**LINE **DDR**, **PLATINUM DDL** linear, RBE frameless direct drive or the industry standard Kollmorgen **GOLD**LINE **XT** or B series rotary servo's.
The common drive design solution will make your life a little easier. Only from Kollmorgen.

PERFORMANCE DATA D06x FRAME

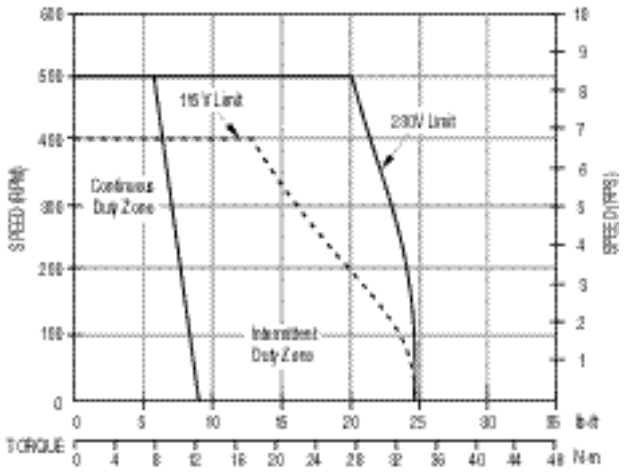
System Performance:	Symbols	Units	061A	062A	063A
* Peak Torque	Tp	lb-ft	12.5	24.2	38.0
		N-m	16.9	32.8	51.5
* Continuous Torque 40°C	Tc	lb-ft	4.3	8.0	14.5
		N-m	5.8	10.8	19.7
Max Operating Speed	N max	rpm	500/400	500/400	500/300
230/115 V Single Phase		rps	8.3/6.7	8.3/6.7	8.3/5.0
Max Feedback Resolution	-	counts/rev	524,288	524,288	524,288
Feedback Repeatability	-	arcsec	±2.48	±2.48	±2.48
Mechanical:					
Weight	Wt	lb	20.8	25.0	30.5
		kg	9.4	11.3	13.8
Rotor Inertia	Jm	lb-ft-sec^2	0.0045	0.0052	0.0064
		kg-m^2	0.0061	0.0071	0.0086
Static Friction adder	Tf	lb-ft	1.8	1.8	1.8
for sealed units		N-m	2.4	2.4	2.4
Max. **Dynamic** Axial Compression	-	lbf	3,030	3,030	3,030
Load (See page 15 for details)		kg	1,370	1,370	1,370

* non-sealed units, for 25° C multiply Tc by 1.06

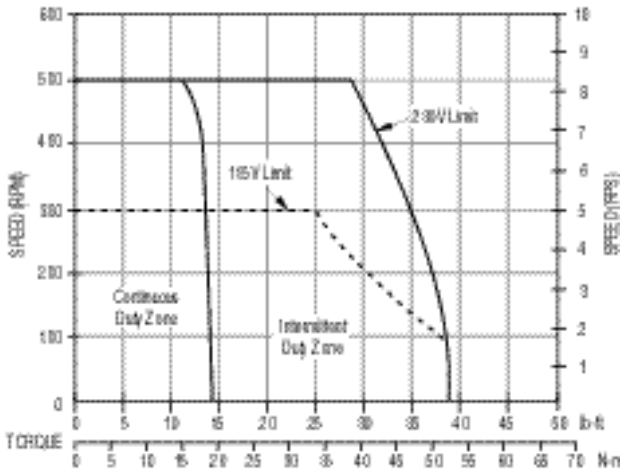
SYSTEM: D061A with SERVO**STAR CR06**



SYSTEM: D062A with SERVO**STAR CR06**



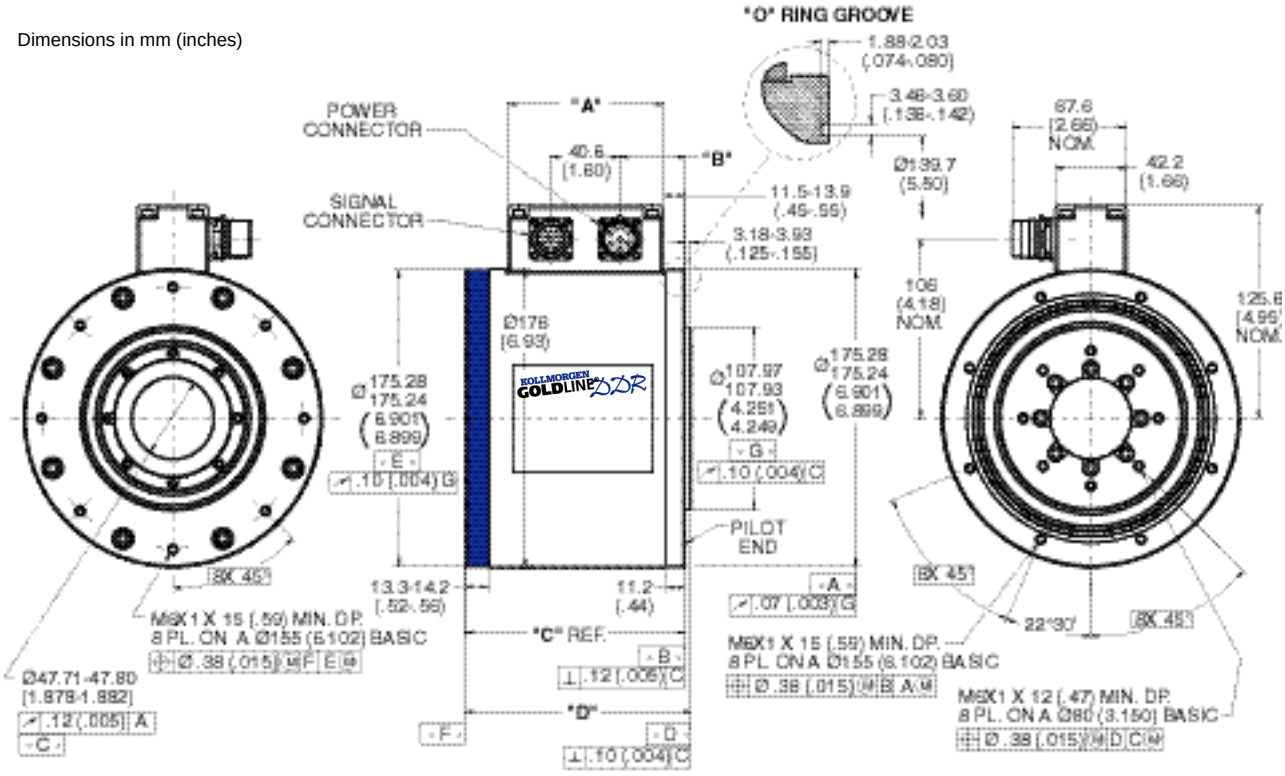
SYSTEM: D063Awith SERVO**STAR CR06**



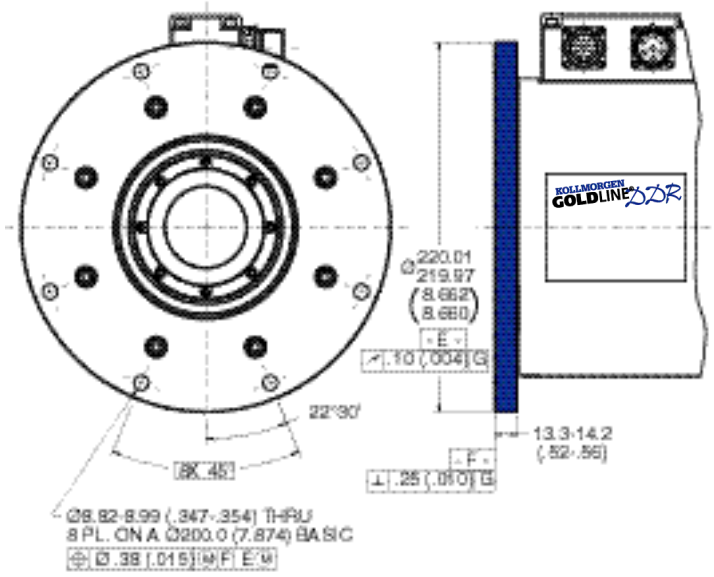
Notes:
1. All curves assume single phase input power to SERVO**STAR CD**.
2. As with any Kollmorgen product, if there are any questions regarding this information or application of this product, please consult the Kollmorgen Customer Support Network and we will be glad to assist you.

DIMENSIONS D06x FRAME

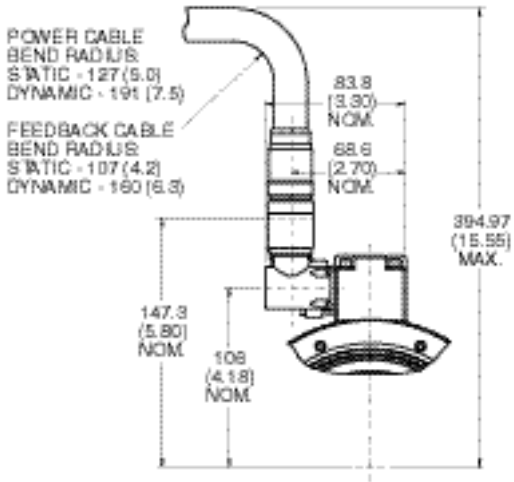
Dimensions in mm (inches)



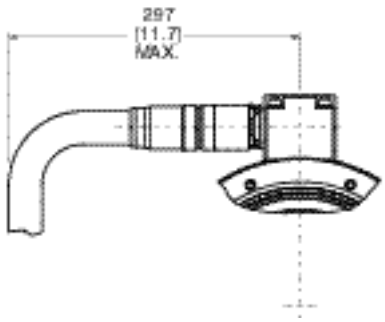
FLANGE OPTION



90° CONNECTOR OPTION



STRAIGHT CONNECTOR OPTION



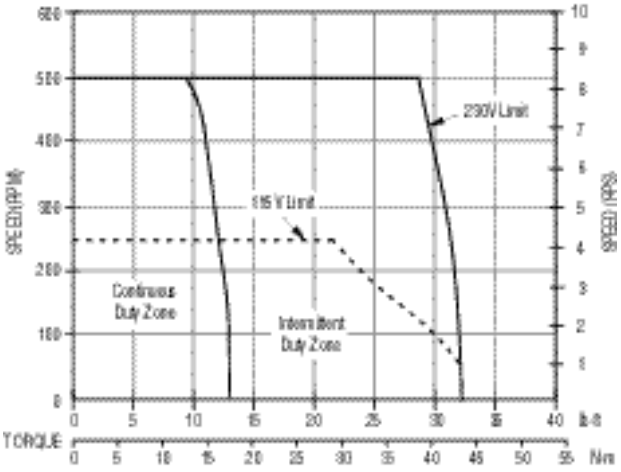
Model Number	"A"	"B"	"C"	"D"
D061	91.9 (3.62)	37.1-40.1 (1.46-1.58)	129.42-130.17 (5.095-5.125)	132.59-134.11 (5.220-5.280)
D062	103.4 (4.07)	48.6-51.5 (1.91-2.03)	140.85-141.60 (5.545-5.575)	144.02-145.54 (5.670-5.730)
D063	126.2 (4.97)	71.4-74.4 (2.81-2.93)	163.71-164.46 (6.445-6.475)	166.88-168.40 (6.570-6.630)

PERFORMANCE DATA D08x FRAME

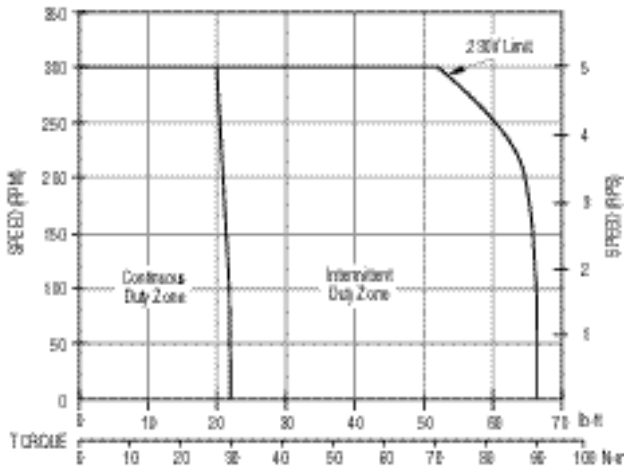
System Performance:	Symbols	Units	081A	082A	083A
* Peak Torque	Tp	lb-ft	32.0	68.0	118
		N-m	43.4	92.2	160
* Continuous Torque 40°C	Tc	lb-ft	13.0	21.2	41.3
		N-m	17.6	28.7	56.0
Max Operating Speed	N max	rpm	500 / 250	300 / NA	250 / NA
230/115 V Single Phase		rps	8.3 / 4.2	5.0 / NA	4.2 / NA
Max Feedback Resolution	-	counts/rev	786,432	786,432	786,432
Feedback Repeatability	-	arcsec	±1.65	±1.65	±1.65
Mechanical:					
Weight	Wt	lb	39.5	47.5	63.6
		kg	17.9	21.5	28.8
Rotor Inertia	Jm	lb-ft-sec^2	0.0106	0.0143	0.0222
		kg-m^2	0.0144	0.0194	0.0301
Static Friction adder	Tf	lb-ft	2.0	2.0	2.0
for sealed units		N-m	2.7	2.7	2.7
Max. **Dynamic** Axial Compression	-	lbf	4,980	4,980	4,980
Load (See page 15 for details)		kg	2,260	2,260	2,260

* non-sealed units, for 25°C multiply Tc by 1.06

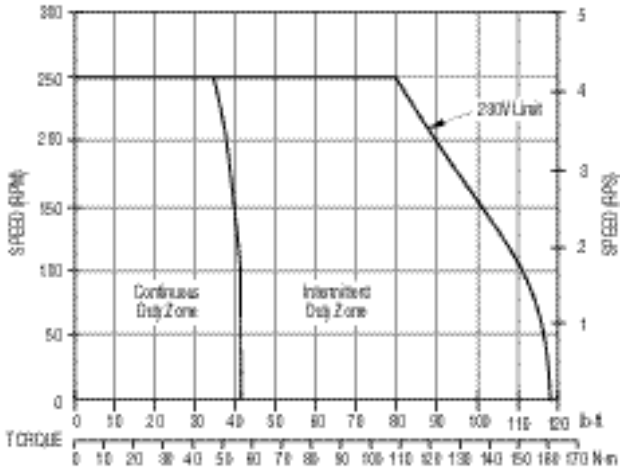
SYSTEM: D081A with SERVO**STAR CR06**



SYSTEM: D082Awith SERVO**STAR CR06**



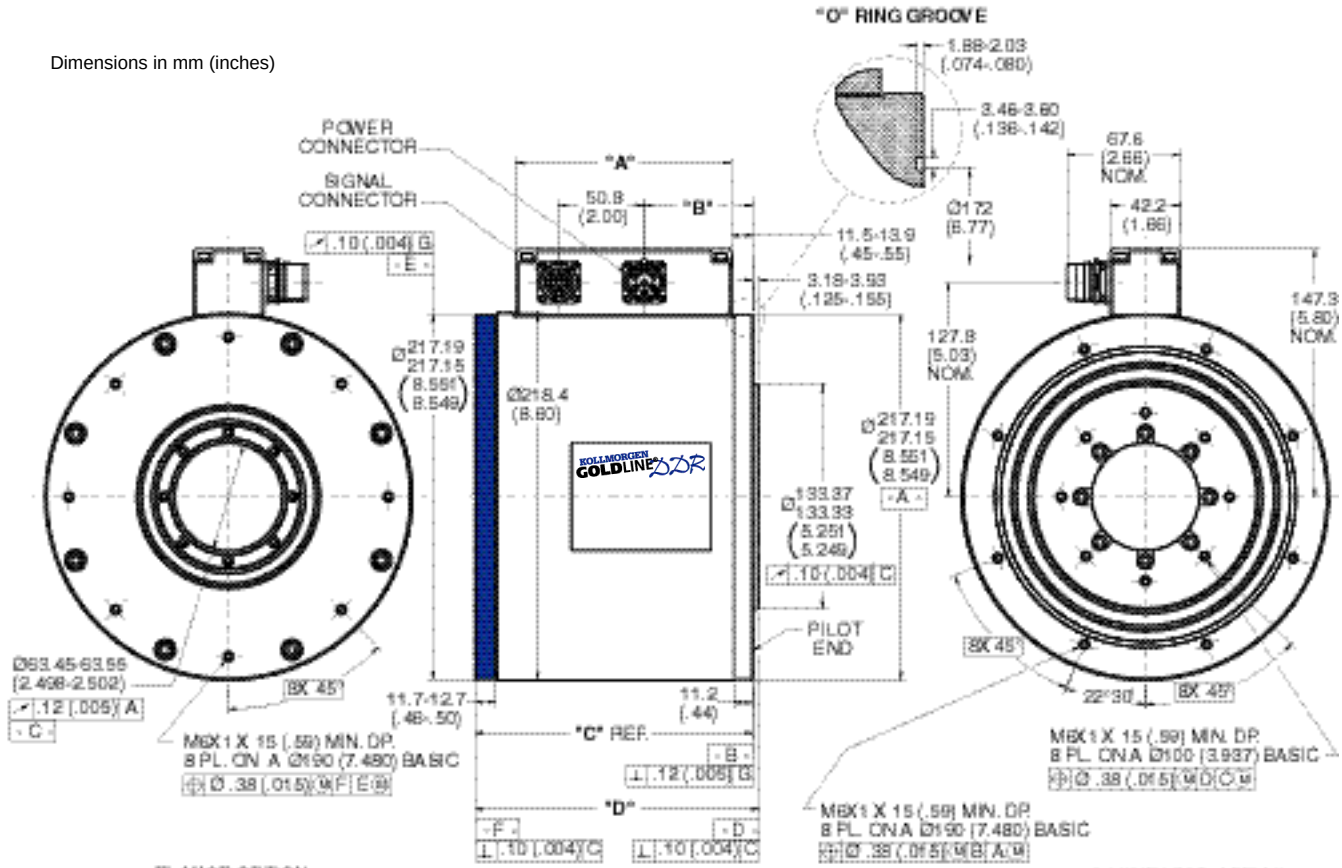
SYSTEM: D083Awith SERVO**STAR CR06**



Notes:
1. All curves assume single phase input power to SERVO**STAR CD**.
2. As with any Kollmorgen product, if there are any questions regarding this information or application of this product, please consult the Kollmorgen Customer Support Network and we will be glad to assist you.

DIMENSIONS D08x FRAME

Dimensions in mm (inches)



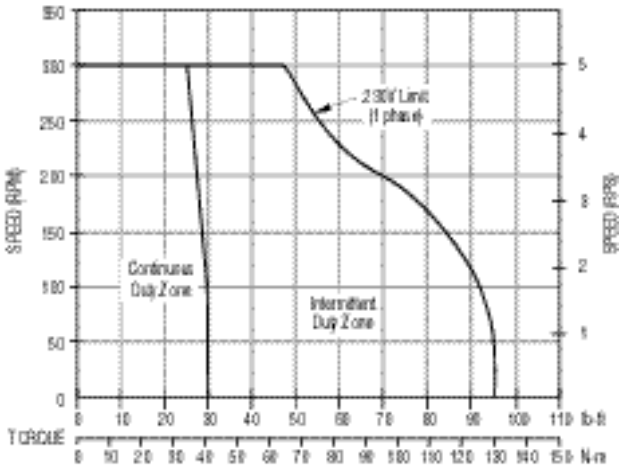
Model Number	"A"	"B"	"C"	"D"
D081	107.7 (4.24)	42.7-45.7 (1.68-1.80)	144.66-145.41 (5.695-5.725)	147.83-149.35 (5.820-5.880)
D082	128.0 (5.04)	63.0-66.0 (2.48-2.60)	164-.98-165.73 (6.495-6.525)	168.15-169.67 (6.620-6.680)
D083	168.7 (6.64)	103.7-106.6 (4.08-4.20)	205.62-206.37 (8.095-8.125)	208.79-210.31 (8.220-8.280)

PERFORMANCE DATA D10x FRAME

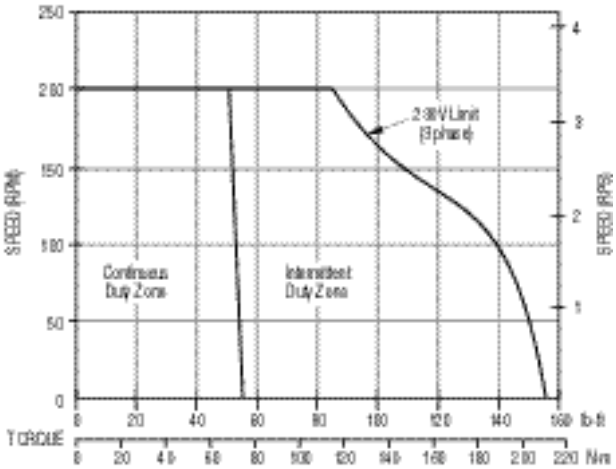
System Performance:	Symbols	Units	101A	102A	103A
* Peak Torque	Tp	lb-ft	95.0	155	225
		N-m	129	210	305
* Continuous Torque 40°C	Tc	lb-ft	30.0	55.0	100
		N-m	40.7	74.6	136
Max Operating Speed 230 V	N max	rpm	300 (1 phase)	200 (3 phase)	120 (3 phase)
		rps	5.0	3.3	2.0
Max Feedback Resolution	-	counts/rev	1,048,576	1,048,576	1,048,576
Feedback Repeatability	-	arcsec	±1.24	±1.24	±1.24
Mechanical:					
Weight	Wt	lb	69.5	96.5	134
		kg	31.5	43.8	60.8
Rotor Inertia	Jm	lb-ft-sec^2	0.0511	0.0732	0.129
		kg-m^2	0.0693	0.0992	0.175
Static Friction adder for sealed units	Tf	lb-ft	2.6	2.6	2.6
		N-m	3.5	3.5	3.5
Maximum **Dynamic** Axial Compression Load (See page 15 for details)	-	lbf	7,900	7,900	7,900
		kg	3,580	3,580	3,580

* non-sealed units, for 25°C multiply Tc by 1.06

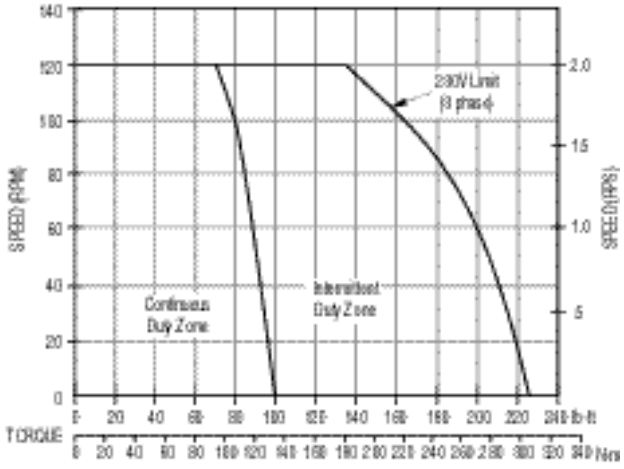
SYSTEM: D101A with SERVOSTAR CR06



SYSTEM: D102Awith SERVOSTAR CR10



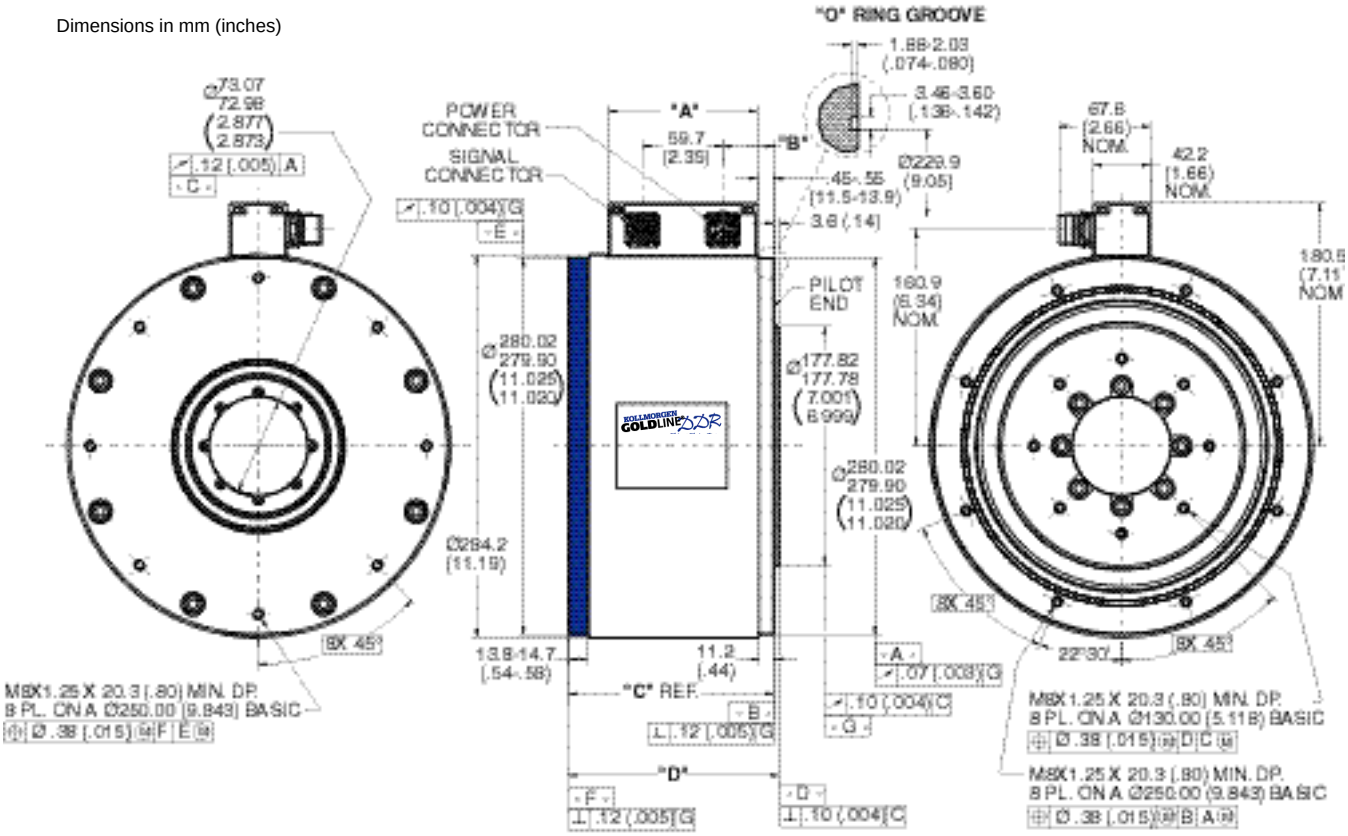
SYSTEM: D103A with SERVOSTAR CR10

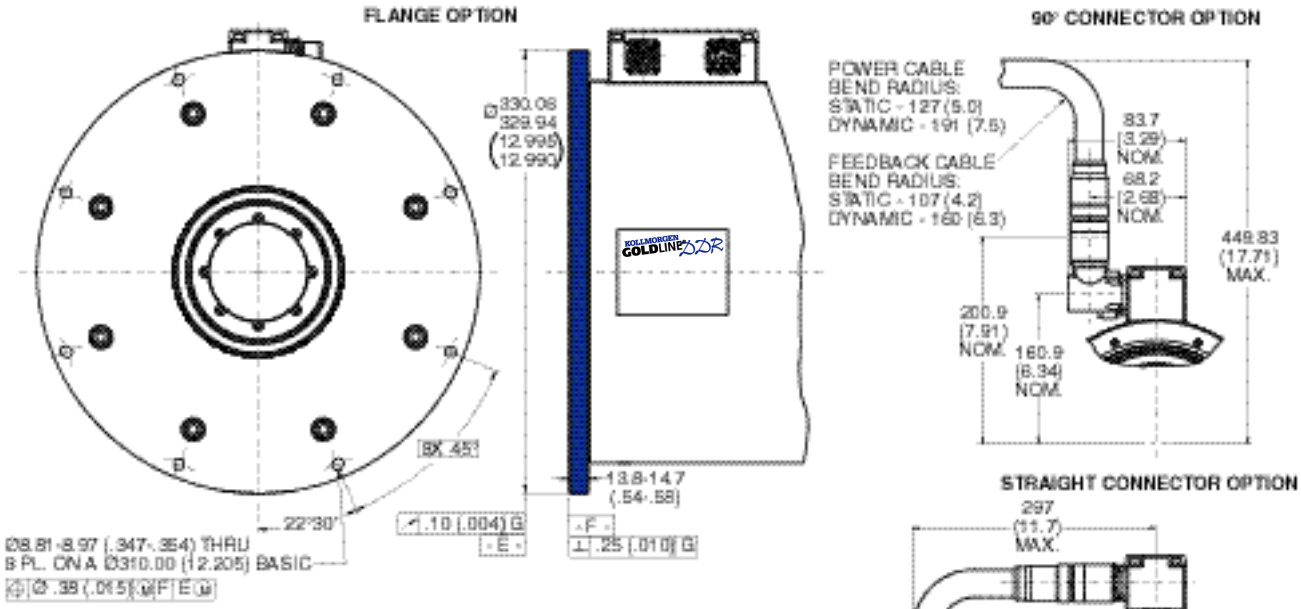


Note:
As with any Kollmorgen product, if there are any questions regarding this information or application of this product, please consult the Kollmorgen Customer Support Network and we will be glad to assist you.

DIMENSIONS D10x FRAME

Dimensions in mm (inches)





Model Number	"A"	"B"	"C"	"D"
D101	110.5 (4.35)	36.6-39.6 (1.44-1.56)	152.53-153.28 (6.005-6.035)	155.71-157.22 (6.130-6.190)
D102	142.2 (5.60)	68.4-71.3 (2.69-2.81)	184.28-185.03 (7.255-7.285)	187.46-188.97 (7.380-7.440)
D103	205.7 (8.10)	131.9-134.8 (5.19-5.31)	247.78-248.53 (9.755-9.785)	250.96-252.47 (9.880-9.940)

SERVO**STAR CD**

AMPLIFIER SPECIFICATIONS

The SERVO**STAR CD** is a fully digital servo amplifier providing high response torque, velocity, or position loop control. The advanced set-up software, **MOTIONLINK**®, makes it easy to commission and analyze your servo system.

- **CR06: 115 -230 V Single Phase AC Input**
- **CR10: 230 V, Three Phase AC Input**
- **Fully Digital Control Loops**
- **MOTIONLINK® set up / tuning software**

FEATURES:

- Advanced patented sinewave commutation technology provides smooth, precise low-speed control and high-speed performance
- Accurate torque control due to precision balanced current loops with closed loop sensors
- Self-tuning to the load
- Patented torque angle control enhances motor performance
- Low Pass or Notch Filters for compliant & resonant machine loads
- 3 to 1 peak/continuous current rating for CR06
- 2 to 1 peak/continuous current rating for CR10
- Built in encoder equivalent output can eliminate the need for an additional position feedback device
- RS232 or RS485 Communication
- Unique multi-drop configuration allows a PC or PLC to communicate to multiple SERVO**STAR CD** amplifiers via single RS232 connection
- Analog ±10V, pulse/direction, master encoder, serial port, command options
- UL , cUL listed, and CE

Operational modes
- Torque control — from analog or serial command
- Velocity control — from analog or serial command
- Pulse following / Up-Down count
- Gearing from quad encoder input
- Position control

Diagnostics
- Seven segment LED display
- Error history log
- Internal variable monitoring
- PC scope

Inputs
- Pulse command: up/down, pulse/direction, pulse or quadrature encoder format into RS485 receivers or opto isolators
- Analog command: ±10V
- Remote enable: 24V
- Three multi-purpose 24V inputs configurable to
  - CW limit switch
  - CCW limit switch
  - Gear enable
  - Start motion
  - Second current limit
  - Change velocity to torque mode
  - Home switch
  - Search for home
  - Move to home registration capture
  - Active disable
  - Control fault relay
  - Hold position
- Using two inputs: up to four stored indexes or speeds can be executed

Outputs
- Fault: contact closure rated for 1 Amp, 24 Volt
- One multi-purpose 24V output configurable to:
  - Speed exceeded
  - Current exceeded
  - Amplifier in foldback
  - Brake enable
  - Motion complete
  - In position
  - Zero speed detect

MOTIONLINK® Windows Start-up Environment
- Advanced motion “wizard” automatically walks you through set-up
- PC “Oscilloscope” for measuring real-time motion performance

Motion Indexing
- Stores up to 4 motion profiles in memory
- Start motion through serial command or digital I/O
- Homing functions

Amplifier Ratings

Model	Output Continuous Current Per Phase (RMS/phase) @ 45°C Ambient	Output Peak Current Per Phase (RMS / phase)	AC Input Line Voltage	Rated Output Continuous Power (kW)	Rated Input Power (kVA)	Regen. Option
CR06	6	18 (.5 sec.)	115 / 230 (1 phase)	1.1 / 2.2	1.4 / 2.8	ERH-26
CR10	10	20 (2 sec.)	230 (3 phase)	3.7	4.7	ERH-26

See SERVO**STAR S/CD** Installation Manual at http://kmtg.kollmorgen.com/Service/Documentation/ss_documents.html

Resistive Regeneration Sizing

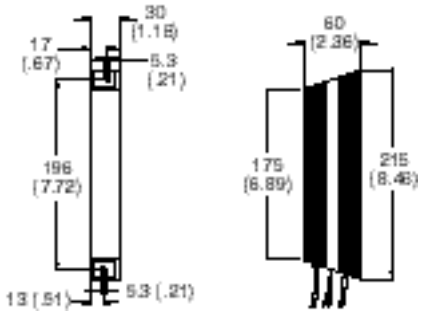
Shunt regeneration is required to dissipate energy that is pumped back into the DC bus during load deceleration. The amount of shunt regeneration required is a function of the sum of simultaneously decelerating loads. The loads need to be defined in terms of system inertia, maximum speed, and deceleration time. In addition, the duty cycle must be known. Application Note A-SU-001-H details a calculation method to determine proper regeneration sizing.

Transformer Sizing (Required only for voltage matching)

The SERVO**STAR CD** can be connected to a line. Built-in soft-start circuitry protects power supply components and eliminates nuisance tripping of breakers or fuse blowing due to large in-rush currents. Transformers are only required for voltage matching purposes. In this case, the transformer should have a 115 or 230 VAC secondary depending on the operating voltage. The kVA rating of the transformer should take into account not only the servo output load requirements but also losses in the system and power factor. For single phase operated systems such as these, the transformer kVA ratings should be two times the CD amplifier output power rating. For three phase systems, the transformer kVA should be 1.5 times the CD amplifier output power rating.

Model	Transformer kVA rating
CR06	4.4 (1 phase)
CR10	5.6 (3 phase)

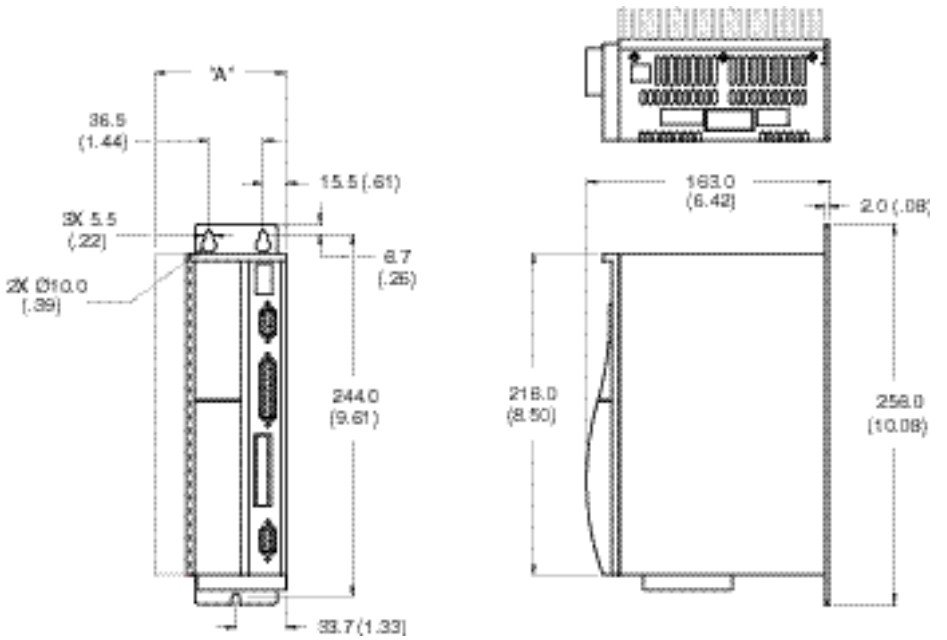
Model	Watts	Ohms
ERH-26	200	20



Resistive Regen ERH-26

SERVOSTAR CD DIMENSIONS

CR06/10

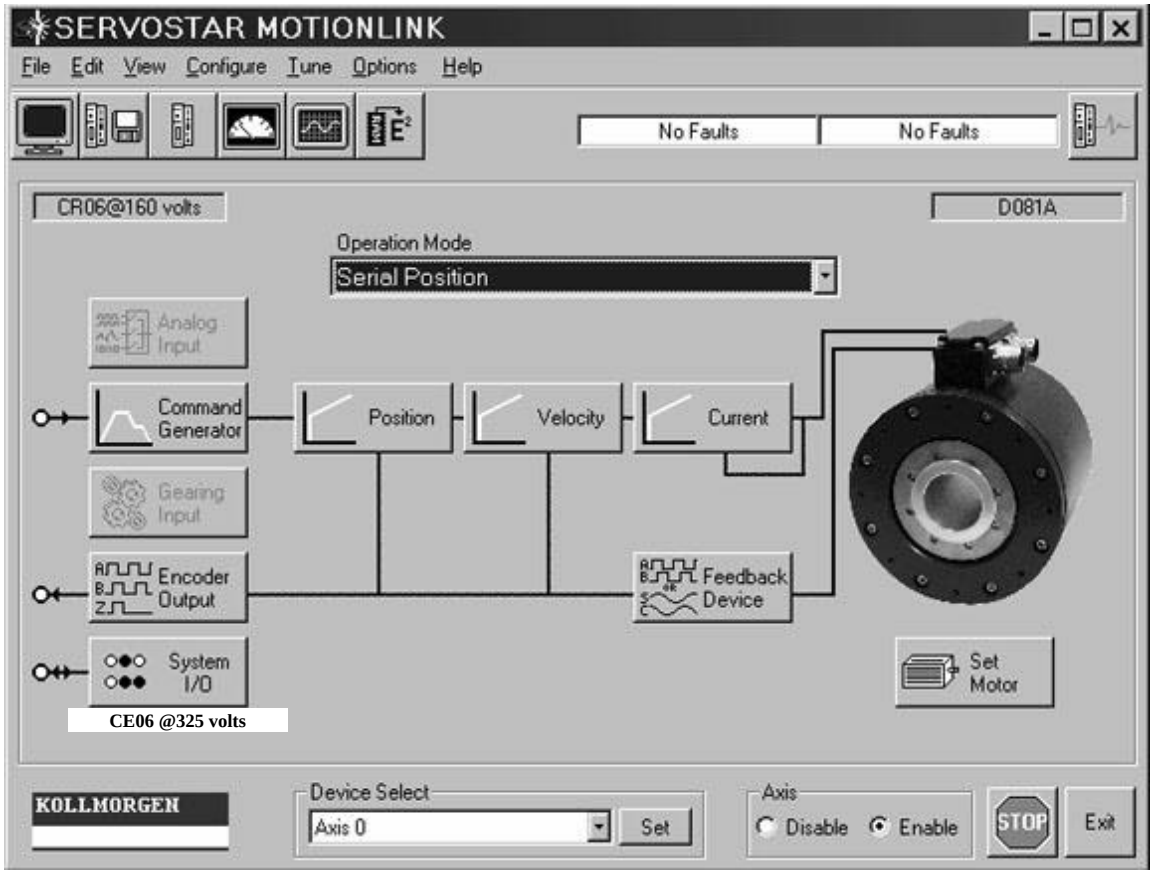


	DIM. "A"
6 AMP	88.4 (3.48)
10 AMP	99.0 (3.90)

Dimensions in mm (inches)

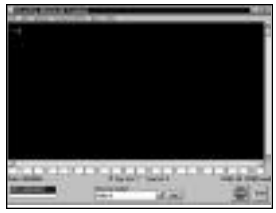
MOTIONLINK FOR SERVOSTAR CD

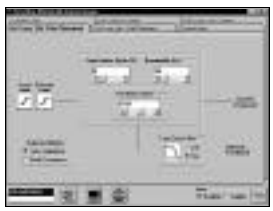
MOTIONLINK® for Windows takes the fear out of setting up a servo system. Designed for the novice as well as the advanced user, **MOTIONLINK** lets users quickly set-up, fine tune, and analyze system performance.



PC Oscilloscope: For closely evaluating system performance **MOTIONLINK** includes the functionality of an oscilloscope. You can very easily excite the load then review performance graphically on your computer screen.

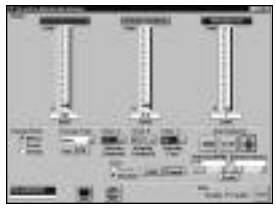
Direct Terminal Mode: This mode turns your computer into a "dumb terminal." Variables or parameters can be monitored and changed using the SERVO**STAR CD**'s command language. This mode is ideal for advanced users who want to get directly in the "heart" of the SERVO**STAR CD**.





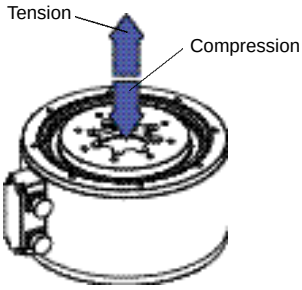
Selectable Tuning Algorithms: No one control scheme is ideal for all applications. SERVO**STAR CD** has three control schemes to choose from: Pole Placement (Standard), PI, and PDFF. Although the Pole Placement will meet the needs of most applications, PI and PDFF control is also available. So whether your critical need is steady speed control, high accelerations or quick response to load variations, etc., SERVO**STAR CD** provides the greatest opportunity to achieve the best machine performance.

Monitor Mode: Allows you to jog the motor to monitor key operation variables. Speed and torque can be viewed in real time in linear gauge format. Up to three variables can be monitored at a time.



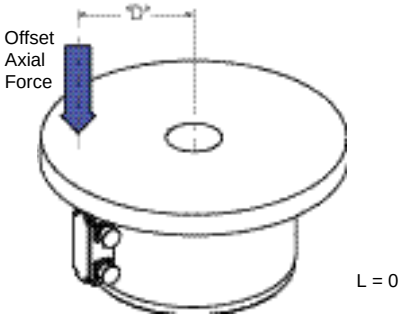
MOTIONLINK includes many otherfeatures like:

- Setting resolution of encoder "equivalent" output
- Activating position limits
- Displaying amplifier status
- Setting acceleration amps
- Limiting max speed or torque



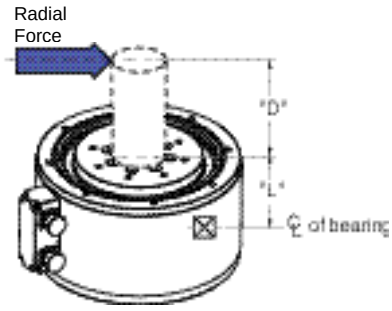
[1] Maximum Axial Load Ratings			
Model		lbs	kg
06x	compression tension	3030 932	1370 423
08x	compression tension	4980 819	2260 371
10x	compression tension	7900 1405	3580 637

Applies to both single and dual bearing assemblies.



Moment Load = Force * D

[1] Maximum Moment Load				
Model	Single Bearing		Dual Bearing	
	lb-ft	N-m	lb-ft	N-m
D061	53.3	72.3	71.7	97.2
D062	47.5	64.4	79.5	107.8
D063	43.4	58.9	87.2	118.2
D081	62.6	84.9	113.8	154.3
D082	52.3	70.9	130.6	177.1
D083	39.3	53.3	174.3	236.4
D101	141.9	192.4	322.4	437.2
D102	107.7	146	278.5	377.6
D103	72.6	98.4	304.8	413.3



Moment Load = Force * (D + L)

Motor Series	D06x	D08x	D10x
Dim. L (in.)	1.05	1.21	1.58

[1] Maximum Moment Load				
Model	Single Bearing		Dual Bearing	
	lb-ft	N-m	lb-ft	N-m
D061	53.3	72.3	71.7	97.2
D062	47.5	64.4	79.5	107.8
D063	43.4	58.9	87.2	118.2
D081	62.6	84.9	113.8	154.3
D082	52.3	70.9	130.6	177.1
D083	39.3	53.3	174.3	236.4
D101	141.9	192.4	322.4	437.2
D102	107.7	146	278.5	377.6
D103	72.6	98.4	304.8	413.3

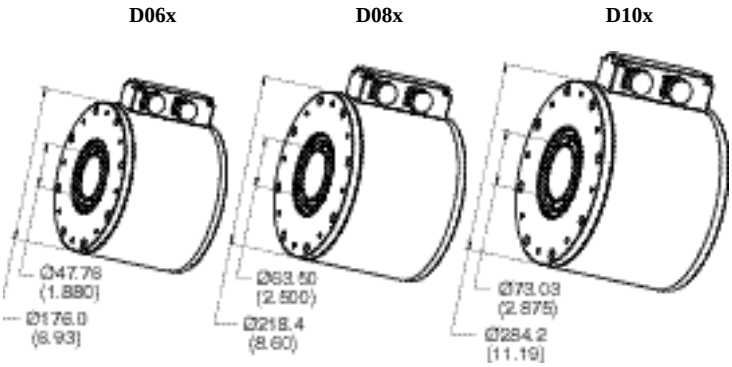
All numbers are based on L_{10} life rating.

Application notes:

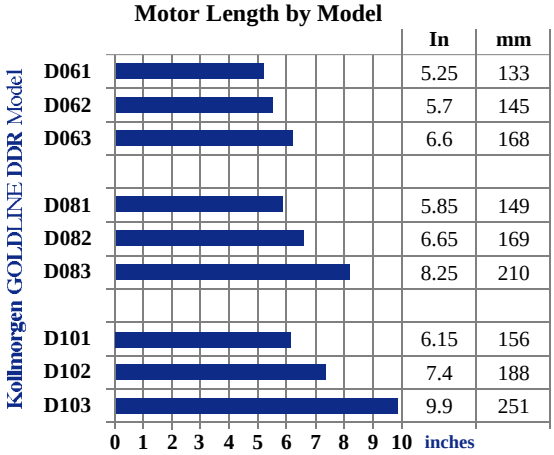
1. Values listed in above charts are **dynamic values** based on an **L_{10}** life rating when motor is mounted on a rigid base and running under normal operating conditions. For L_{10} life ratings for applications where high rotational accuracy is desired or operation during vibration or shock, please consult the **K**ollmorgen **C**ustomer **S**upport **N**etwork.
2. Standard motor is not designed for repetitive small angle oscillations less than ± 13°. Please consult **K**ollmorgen **C**ustomer **S**upport **N**etwork for additional options.
3. Motor is not intended to be directly coupled to a load which has it's own two bearing system. A flexible coupling is advised to prevent premature bearing failure in these applications.
4. Motor may be mounted in any orientation provided the axial (both tension and compression) limits are observed. All applications having moment loads in tension should be reviewed by **K**ollmorgen **C**ustomer **S**upport **N**etwork.
5. All bolts for mounting load and base should be used to ensure stiff coupling.

KOLLMORGEN GOLDLINE DDR SELECTION CHARTS

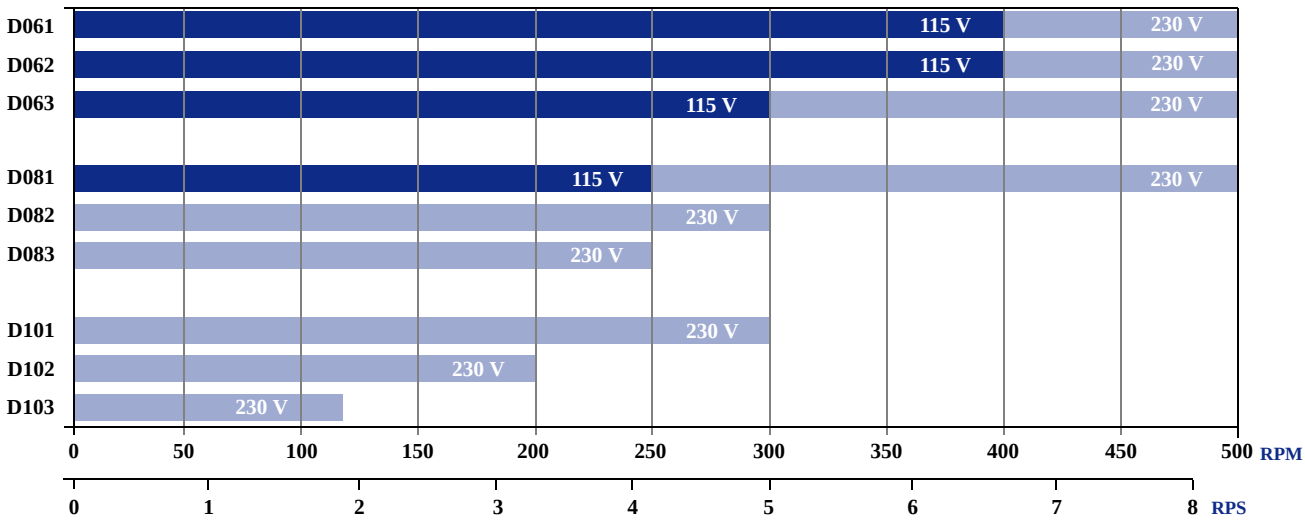
Motor Outside / Inside Diameters by Model



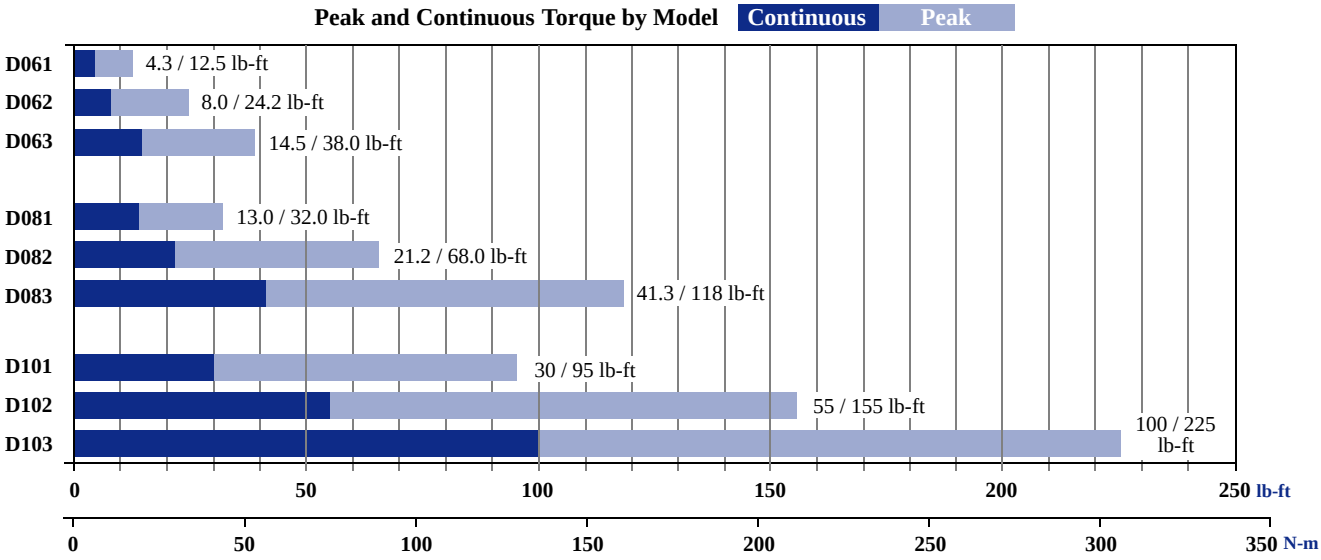
Motor Length by Model



Maximum Speed by Model



Peak and Continuous Torque by Model



SYSTEM ORDERING INFORMATION

The Kollmorgen **GOLD**LINE® **DDR** system is comprised of three part numbers; motor, drive, and cable set.
When ordering, please specify each part number.

KOLLMORGEN GOLDLINE DDR MOTOR:

D 08 1 A - 1 2 - 1 2 1 0 - xxx

GOLDLINE **Direct Drive Motor**

Frame Size
- 06 - 6.93" OD
- 08 - 8.60" OD
- 10 - 11.19" OD

Stack Length
- 1 - Short stack
- 2 - Mid stack
- 3 - Long stack

Winding Letter
- A - standard

Mounting Option
- 1 - Face mount
- 2 - Flange mount

Connector Option
- 2 - Straight connectors
- 3 - 90 Degree, rotatable connectors

Shaft Option
- 1 - Straight thru bore with face coupling
- 9 - Special

Feedback Option
- 2 - Resolver

Bearing Option
- 1 - Single bearing design
- 2 - Dual bearing design
- 9 - Special bearing lubrication

Unit Seal Option
- 0 - Non-sealed unit
- 5 - IP65 sealing
- 7 - IP67 sealing

Sequential Specials
(Omit if not special)

SERVOSTAR CD DIGITAL AMPLIFIER:

C R 06 200 - 2 D 062 A

SERVO**STAR Family**
- C - SERVO**STAR CD** Compact Drive

Feedback
- R - Resolver

Current Rating (Continuous RMS Amps/Ø)
- Compact Drive: 06 Amp rating
- 10 Amp rating

Model
- 200 - Standard model

Voltage Level
- 0 - No compensation
- 1 - 115 VAC
- 2 - 230 VAC
- Y - Special Compensation
  three digit extension follows
  the Y designator

Motor Model
- 0 - No compensation
- D - **GOLD**LINE **DDR**

Motor Frame and Stack
- 000 - No compensation

Winding
- 0 - No compensation

SYSTEM CABLE SET:

Cable Set Part No. CS-SS-RHA1HE-xx
Same cable set used for all Kollmorgen **GOLD**LINE **DDR** motors.
xx = length of cable set in meters
Lengths available: 1m, 3m, 6m, 9m, and 3m increments to max recommended cable length of 75 m.

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Tel: (86) 22 2627 1090
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Avrillé, France
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Northampton, MA

Kollmorgen Industrial Drives
Radford, VA

Kollmorgen Inland Motor
Radford, VA

Kollmorgen Magnedyne
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Kollmorgen Servotronix
Tel Aviv, Israel

Kollmorgen Tandon Inc
Bombay, India

Kollmorgen Tianjin Industrial Drives
Tianjin, China

Kollmorgen enjoys a reputation of excellence based on constant endeavors to update products. Information in this brochure is subject to change.

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