

MOTOR INTEGRATED DECENTRALIZED SERVO DRIVE

DI2020 SERIES



Rev. A, June 2022

FOR A FLEXIBLE DESIGN AND DECENTRALIZED
CONTROL ARCHITECTURE OF THE MACHINE

WHEN PERFORMANCE REALLY MATTERS

MOOG

TABLE OF CONTENTS

INTRODUCTION.....	2
PRODUCT OVERVIEW.....	4
TECHNICAL DATA.....	5
MOTOR CHARACTERISTICS.....	6
MECHANICAL DIMENSIONS.....	7
ABOUT MOOG.....	8
ORDERING CODING.....	9
SERVO MOTOR PRODUCTS.....	10
OTHER MOOG PRODUCT OFFERING.....	11

This catalogue is written for experts. To make sure all information necessary for operation and safety has been provided, the user must check the suitability of the products described. The products described are subject to change without notice. If you have any doubts, please contact Moog.

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MAKING THE IMPOSSIBLE POSSIBLE IN MOTION CONTROL

Moog Industrial is your partner of choice when performance really matters. We combine world class technologies with expert advisory support to solve our customers' most difficult challenges in motion control.

Our Experience

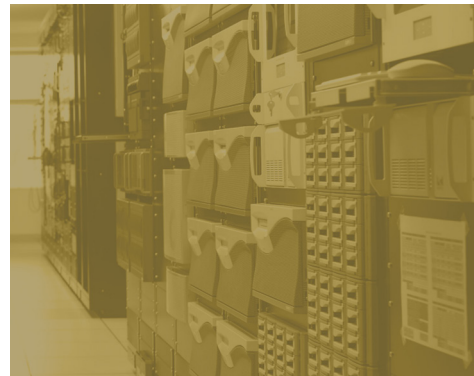
Moog Industrial excels in a wide range of applications, including industrial automation, metal working, robotics and medical motion control - just to name a few. Get exceptional customer support from our well-trained experts, backed by Moog's longstanding track record of high performance and trusted experience. All related technology is owned by Moog.

Will Make You Triumph

Moog's typical hands-on mentality and our ambition to make the impossible possible in motion control can provide you with a competitive advantage, which will most likely last for years.

Our formula:

- Superior and reliable machine design, based on technology-neutral approach
- Customize to your very specific requirements, including the utmost compactness and quietness
- Improved profitability through economically effective project design
- A trustful partnership, driven by empathy and passion



PRODUCT OVERVIEW

DI2020 Drive

In line with the evolution of motion control towards solutions with distributed electronics, Moog's DI2020 drive integrates the servo control directly on board of Moog's high dynamic brushless motors.

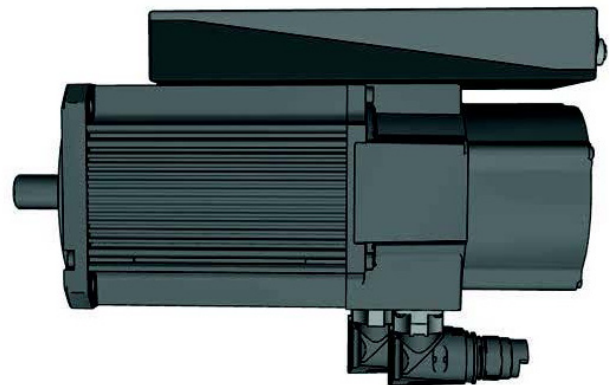
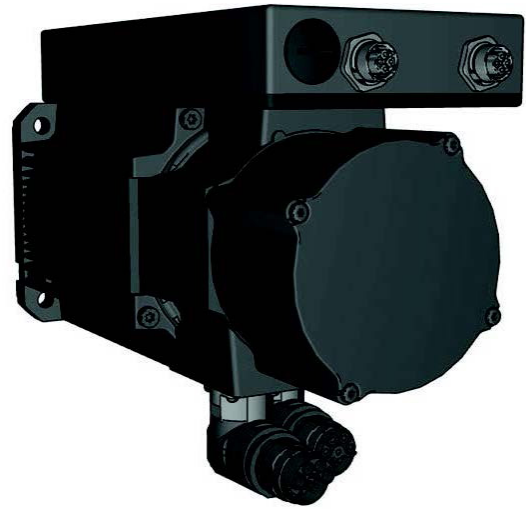
This allows the implementation of a decentralized architecture of the machine controls, with a consequent greater design freedom compared to traditional centralized cabinet solutions.

This flexibility ensures substantial savings in installation times and necessary materials, with a remarkable reduction in both the complexity of the wiring and the overall dimensions of the system.

In the standard equipment of every DI2020 solution are integrated the Safe Torque Off (STO) and Safe Brake Control safety functions.

Moog's decentralized solution can be perfectly integrated into a multi-axis DM2020 system and each DI2020 drive features independent dynamic thermal protections, both software and hardware.

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ADVANTAGES

- Reduction of the number of connections and potential failures
- Reduction in size and number of components
- Adjustable 90 connectors
- Simplification of design
- Significant reduction of costs and installation times

APPLICATIONS

- Machines with open modular architecture
- High precision and maximum dynamic machines
- Installations in environments with limited space for control cabinets
- Machines that require quick and accurate execution of movements

TECHNICAL DATA

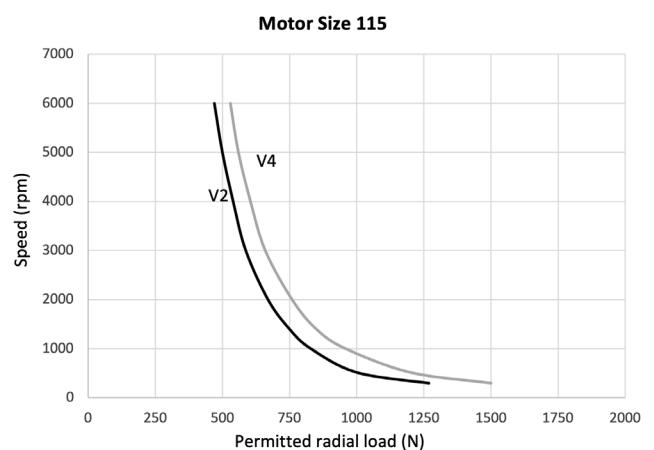
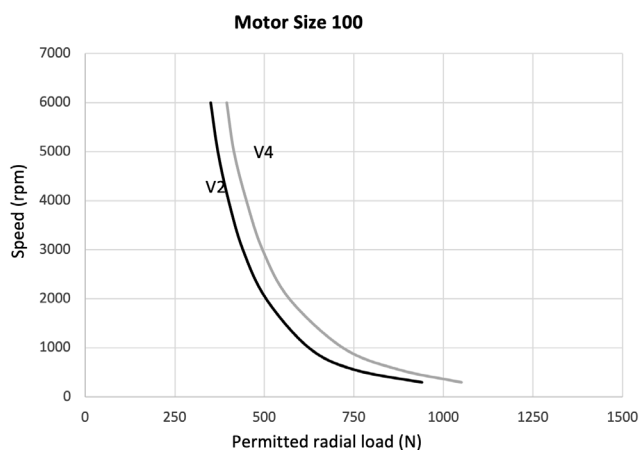
Fieldbus control	EtherCAT, CANopen
Control functions	Torque, speed, position
Protection rating	IP 65
Command protocols	EtherCAT, CANopen (in accordance to CIA 402)
Pwm frequency	4-8-16 kHz
Power supply range	282 - 810 Vdc
Environmental operating temperature	from 0 °C to 40 °C
Auxiliary power supply tension	24 Vdc
Machine safety	STO (Safe Torque Off) SILCL 3 SBC (Sage Brake Control) SILCL 3 PL e (*)
Set-up communication interface	EtherCAT, CANopen, USB
Certification	CE, UL

(*) Pending completion

AVAILABLE SIZES

Drive Sizes	H100-V2	H100-V4	H115-V2	H115-V4
Continuous stall torque	2 Nm [17.7 lbf-in]	3.6 Nm [31.9 lbf-in]	2.8 Nm [24.8 lbf-in]	5 Nm [44.2 lbf-in]
Rated torque at rated speed	1.5 Nm [13.3 lbf-in]	2.2 Nm [19.5 lbf-in]	1.9 Nm [16.8 lbf-in]	3.3 Nm [29.2 lbf-in]
Peak torque	13 Nm [115 lbf-in]	20 Nm [177 lbf-in]	16 Nm [141.6 lbf-in]	22 Nm [194.7 lbf-in]
Rated speed	3000 rpm	3000 rpm	3000 rpm	3000 rpm
Peak speed	5500 rpm	5500 rpm	4500 rpm	4500 rpm

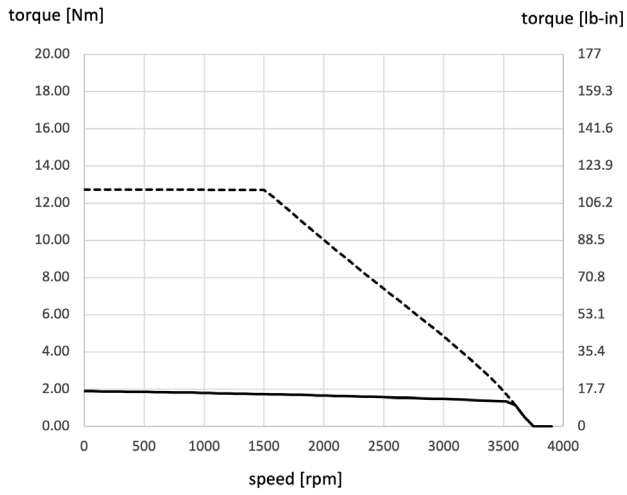
BEARING LOAD DIAGRAMS



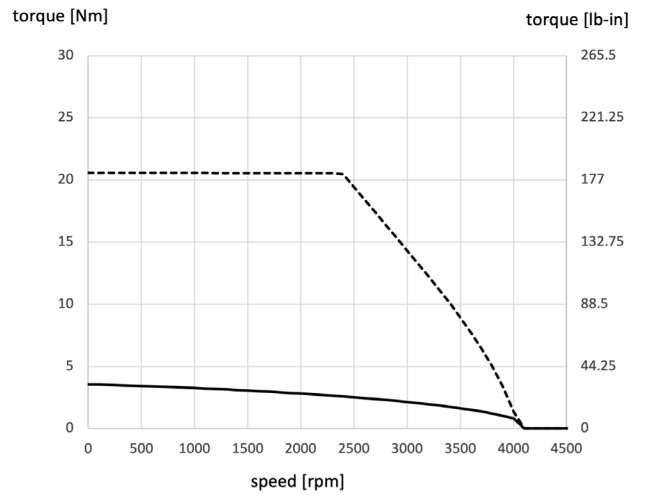
MOTOR CHARACTERISTICS

Size 100

100V-2

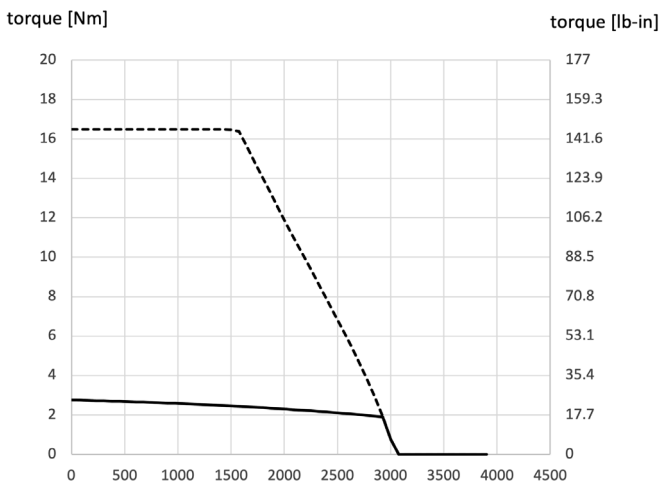


100V-4

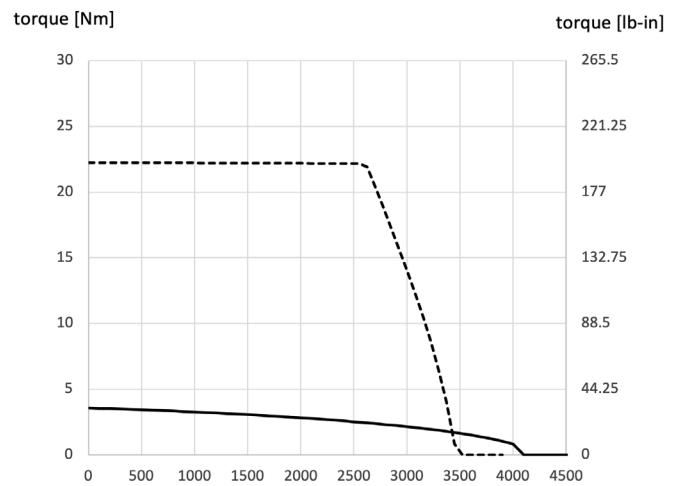


Size 115

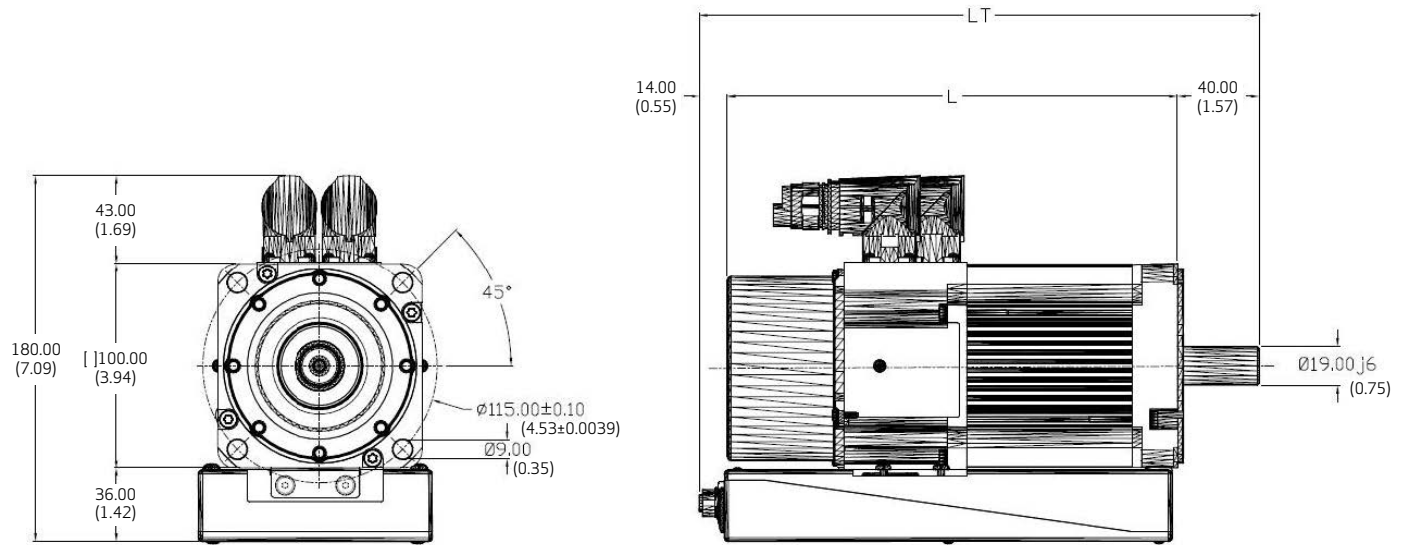
115V-2



115V-4

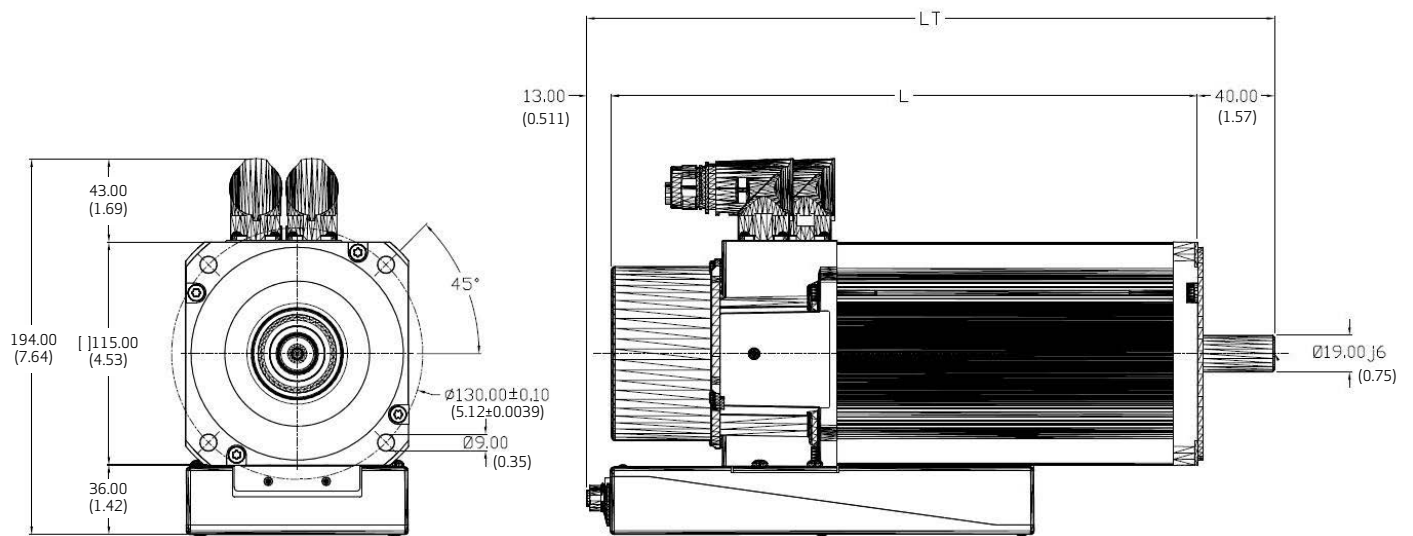


SIZE 100 Dimensions



Nr of Models	L (no brake)	L (with brake)	LT (no brake)	LT (with brake)
2	220mm/8.66in	263mm/10.35in	274mm/10.79in	317mm/12.48in
4	263mm/10.35in	306mm/12.05in	317mm/12.48in	360mm/14.17in

SIZE 115 Dimensions



Nr of Models	L (no brake)	L (with brake)	LT (no brake)	LT (with brake)
2	218mm/8.58in	261mm/10.28in	271mm/10.67in	314mm/12.36in
4	261mm/10.28in	304mm/11.97in	314mm/12.36in	357mm/14.06in

ORDERING CODING



Version	
6	Standard
E	Special

System Data			
Valore	Locked rotor Torque	Rated Torque	Rated Speed
122	2.0 Nm (1.47 ft/lb)	1.7 Nm (1.25 ft/lb)	3000 rpm
142	3.5 Nm (2.58 ft/lb)	2.1 Nm (1.55 ft/lb)	3000 rpm
222	2.7 Nm (1.99 ft/lb)	1.9 Nm (1.40 ft/lb)	3000 rpm
242	5.1 Nm (3.76 ft/lb)	2.0 Nm (1.47 ft/lb)	3000 rpm

Motor Configuration	
Value	Description
00	Flange 100 mm (3.94 in), standard shaft
02	Flange 100 mm (3.94 in), shaft with key
10	Flange 115 mm (4.53 in), standard shaft
12	Flange 115 mm (4.53 in), shaft with key

Transducer Type	
Value	Type
2	RESOLVER 2 poles
C	ENCODER Sincos Hyperface Single turn Capacitive (3)
D	ENCODER Sincos Hyperface Multiturn Capacitive
E	ENCODER Endat 22 Single turn Optical (3)
F	ENCODER Endat 01 Multiturn Optical (3)
G	ENCODER Endat 22 Multiturn Optical (3)
L	ENCODER Endat 01 Single turn Optical (3)
I	ENCODER Endat 22 Single turn Inductive (3)
N	ENCODER Endat 22 Multiturn Inductive (3)

Special Versions
Value - Internal Coding (2)

Special Configurations	
Value - Internal Coding (2)	
01	Standard (no brake)
02	With brake
31	No brake with SBC low level (3)
32	Brake with SBC low level (3)
61	No brake with SBC high level (3)
62	Vrake with SBC high level (3)

Fieldbus Configuration	
Value	Type
0	Analogue references (option)
1	CanBus configuration (option)
2	EtherCAT configuration (1)

Hardware Revision
Value - Internal Coding (2)

- (1) Standard Vision
- (2) Values assigned by Moog
- (3) In development

OUR WIDE RANGE OF SERVO MOTOR PRODUCTS

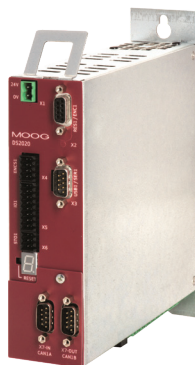
Moog servo drives and electronic products can deliver the highest level of control accuracy, dynamic performance and reliability in both centralized and decentralized configurations. Machine designers are allowed complete freedom to achieve their goals, with space savings and optimized layouts perfectly fitting both traditional cabinets and distributed control architectures.

CENTRALIZED SOLUTIONS

Moog drive portfolio for cabinet installation include both single axis and multi axis configurations.

Single-Axis Drives DS2020 Series - Ultra Compact Single-Axis Servo Drive

Standalone servo drive with integrated power supply, specifically designed with extremely compact dimensions for space saving.



Multi-Axis Drives DM2020 Series - Digital Multi-Axis Servo Drive

Modular design drive platform, single and double axis modules, with shared power supply. About 50% more compact than a comparable standalone configuration.



DECENTRALIZED SOLUTIONS

Other out-of-cabinet products for flexible machine architecture are available besides the DI2020.

DR2020 - Machine-Mounted Servo Drive

On-board servo control, for installation on machine surfaces and easy daisy-chain and out of the cabinet connections.



Moog Animatics SmartMotor™ Complete Motion Control System

The SmartMotor is the most powerful integrated motor in the industry with unsurpassed programming ease, networking capability, highly flexible and expandable I/O, and high power density servo performance.



OTHER MOOG PRODUCT OFFERING

We are committed to offering a range of servo motor products with matched servo drives that are easy to integrate into industrial applications.

Moog servo motors are electronically commutated synchronous AC motors with magnet field excitation. Our portfolio includes three motor families, with different characteristics to answer to any applicative need.

CD (Compact Dynamic) Brushless Servo Motors

Combining compactness with performance, the CD servo motor series offers one of the industry's widest power ranges with continuous nominal torques from 0.15 to 77 Nm (1.3 to 681 lb-in). The modular design is supported by a variety of options with Moog's application engineers capable of supplying fully customized solutions.



HD (High Dynamic) Brushless Servo Motors

The HD servo motor series stands out for its extremely high level of dynamic and high acceleration speeds. With nominal torques from 0.4 Nm to 831 Nm (3.5 to 7355 lb-in) and a fully



customizable modular structure, these motors are perfect for high dynamic applications where reliable performance is fundamental.

CP (Compact Power) Brushless Servo Motors

The CP servo motor series is a range of compact motors with high power density. These motors are designed for dynamic servo applications where small dimensions (especially shorter length) and high torque are needed.



ExD Series Explosion Proof Servo Motor

Moog's Explosion Proof Dynamic Brushless Servo Motors are electronically commutated synchronous AC motors with permanent magnet field excitation, designed for highly dynamic applications with positioning times of 30 ms or less.



NOTES

MORE SOLUTIONS. MORE SUPPORT.

Moog covers an extensive range of motion control solutions and also provides service and support. Moog has offices around the world. For more information or the office nearest you, visit www.moog.com/contact-us/moog-facilities



For more information, visit www.moog.com
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