

Servo solutions for continuous and pulse duty applications

Control Techniques' servo solutions provide ultimate performance and flexibility for machinery manufacturers with a wide range of servo drives and motors.

Digitax HD

The Digitax HD range brings ultimate performance to high dynamic, pulse duty applications, where high peak torque is required for fast acceleration.



Unidrive M700

Unidrive M700, with high performance and an extensive power range, is the ideal option for continuous duty applications, where precise, continuous torque delivery is required.

Unimotor

Unimotor is a comprehensive family of high performance AC brushless servo motors. With a wide torque and speed range, and a broad selection of feedback options, Unimotor offers the perfect match for Digitax HD and Unidrive M700 to meet any application requirement.

Drive and Motor Compatibility



Digitax HD

0.25 kW - 7.5 kW
(0.6 hp - 9.8 hp)
200 V | 400 V



Unidrive M700

0.75 kW - 2.8 MW
(1 hp - 4,200 hp)
200 V | 400 V | 575 V | 690 V

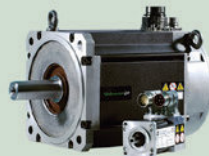
300% OVERLOAD

200% OVERLOAD



Pulse Duty Servo Range - Unimotor HD

(Optimized with the Control Techniques pulse duty drive)



Continuous Duty Servo Range - Unimotor FM

(Optimized with the Control Techniques continuous duty drive)



Induction



High efficiency motors

Digitax HD

Optimized for high-dynamic applications, Digitax HD provides the flexibility of both standalone and modular configurations. The drive offers full servo control plus open loop permanent magnet and induction motor control across four functionality levels: EtherCAT, MCI machine control, multiprotocol EtherNet and the flexible Base drive.



Unimotor HD

Unimotor HD is Control Techniques' highly dynamic brushless AC servo motor range. With high peak torque, low inertia and compact dimensions, Unimotor HD is optimized for applications requiring rapid acceleration and deceleration.



Actual size



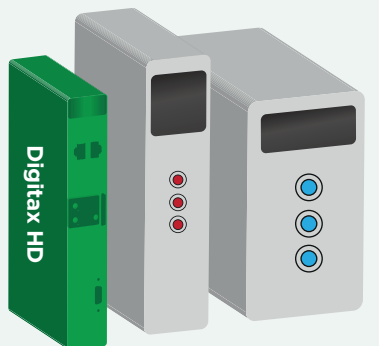
Minimum size servo solutions

Reduce cost and maximize floor space

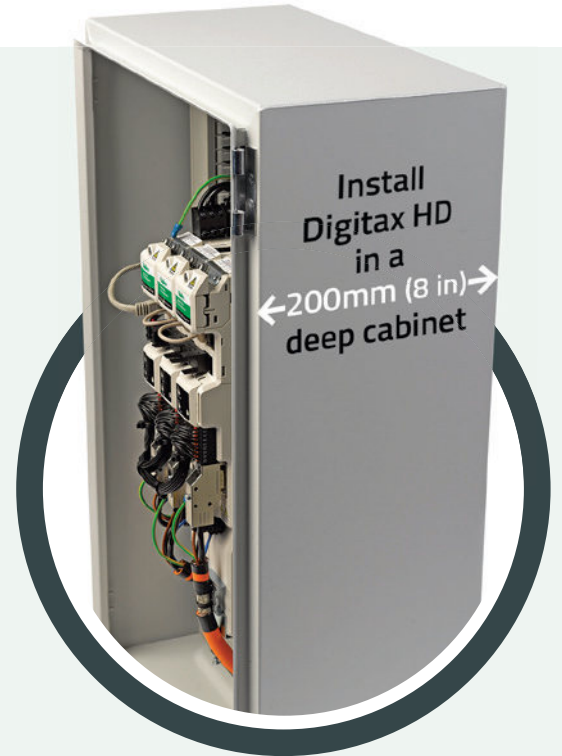
Minimal footprint and exceptional power density make Digitax HD one of the **smallest servo drives** on the market today. This means that you can build the most compact cabinets possible.

The market's narrowest servo drive

- Digitax HD is just 40mm (1.6 in) wide
- 25 drives, up to 16A per drive, can fit in just 1 meter (40 in) of cabinet space



40mm (1.6 in) Typical competitors



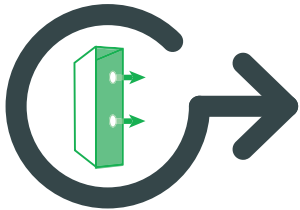
Drive dimensions

Dimensions	Frame 1		Frame 2		Frame 3	
	in	mm	in	mm	in	mm
Width	1.57	40	1.57	40	1.57	40
Depth	6.85	174	6.85	174	6.85	174
Height	9.17	233	11.0	278	12.9	328
Nominal current @ 400 V	4.2 A		10.5 A		12.9 A	
Peak current @ 400 V	12.6 A		31.5 A		48 A	

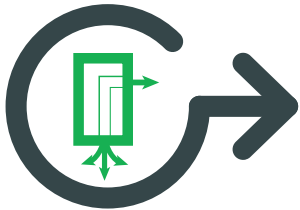


Just 40 mm (1.6 in)

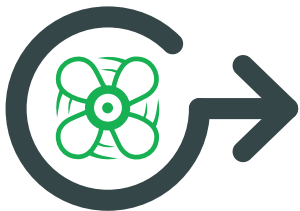
Further reduce cabinet size with Ultraflow™ thermal management



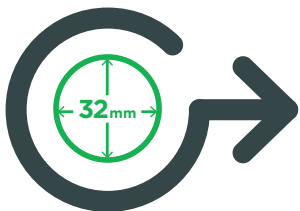
Reduce cabinet height by directly stacking rows of drives. Control Techniques' patented Ultraflow™ technology expels heat directly outside of the cabinet through the rear of the drive* and removes heat build-up in the cabinet.



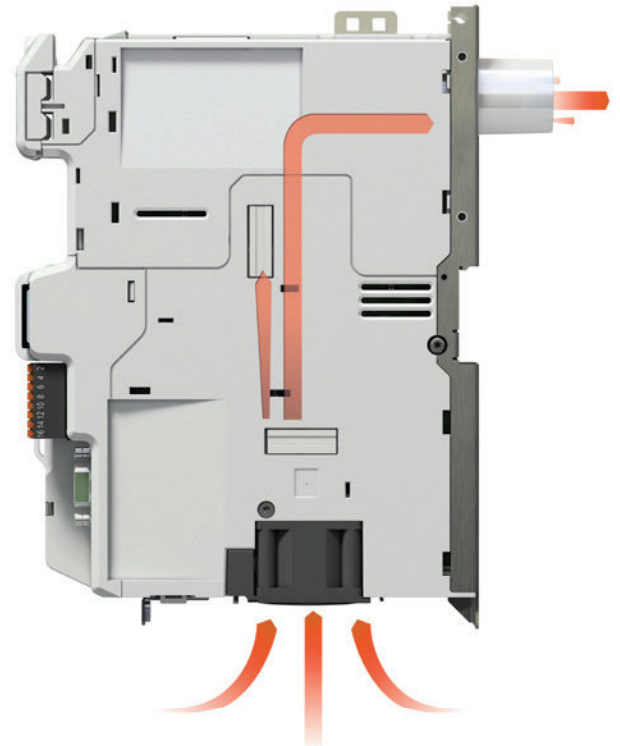
Ultraflow™'s guided internal airflow prevents ingress on drive circuits and, combined with conformal coating, minimizes contamination risk.



An intelligently controlled fan optimizes fan lifetime and minimizes acoustic noise, while contributing to the maximum thermal cooling by Ultraflow™.



Ultraflow™ requires only a 32 mm (1.25 in) hole in the cabinet meaning rapid, trouble-free installation**



Ultraflow™ is a registered Trademark of Control Techniques

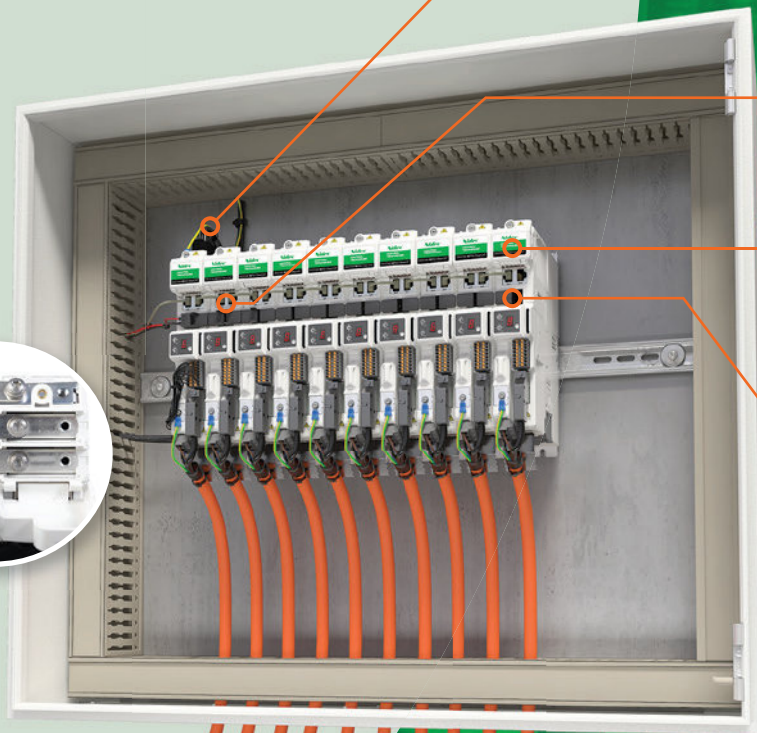
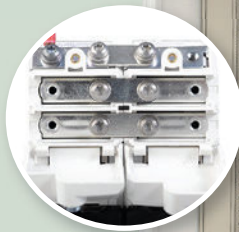
* Drive heat dissipation can also be achieved via vents on top of the drive, as standard.

** Frames 2 and 3 require 2 x 32mm (1.5 in) holes



From
standalone...

...to a modular
common dc
bus system

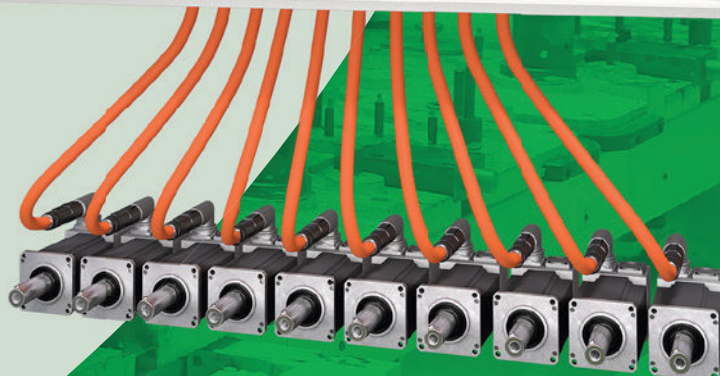


SINGLE AC
INPUT

COMMUNICATION
LINKS

COMMON
DC BUS
AND EARTH

24 Vdc LINKS





PERFORMANCE



SPEED



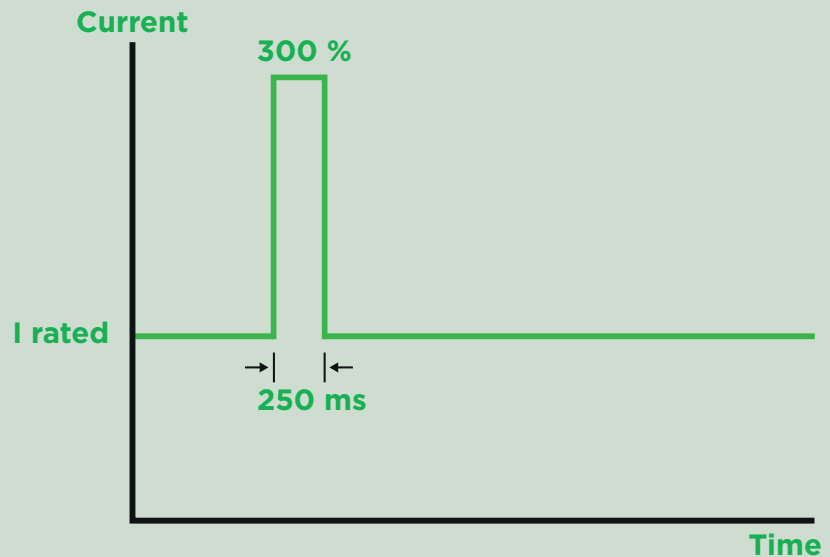
PRECISION

Maximum performance servo solutions

Boost throughput with maximum control

Optimized for highly-dynamic applications and with high speed control loops, Digitax HD brings maximum throughput and production quality to your machines.

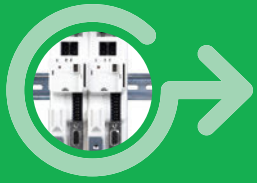
- 300% peak current performance
- Optimized control loops for high dynamic performance
 - 62.5 μ s current loop
 - 250 μ s position and speed loop
- Unique 'dead beat' current controller for maximum bandwidth
- Up to 16 kHz switching frequency (default ratings specified at 8 kHz)
- Advanced bi-quad filters for suppression of mechanical resonances



Improving accuracy through precision encoder feedback

The flexible speed and position feedback interface supports a wide range of feedback technologies, from robust resolvers to high resolution encoders.

- Up to three onboard encoder channels simultaneously e.g. 1 feedback encoder, 1 reference encoder and 1 simulated output
- Quadrature, AB Servo, SinCos (including absolute), SSI, BiSS, EnDat 2.1/2.2, Hiperface and resolvers
- Simulated encoder output can provide position reference for cams, digital lock and electronic gearbox
- Up to 25 bit encoder resolution
- Feedback accuracy as low as $\pm 20''$



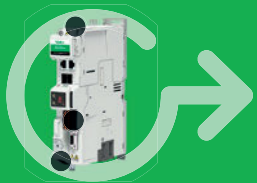
DIN rail alignment



Remote mountable, plain text, multi-language LCD keypad



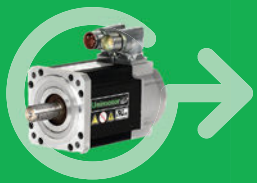
Single cable technology with electronic motor name plate for fast setup



Easy access pluggable connectors



Fast commissioning with PC tools or SD cards



Unimotor's electronic nameplate provides support for parameter set-up between motor and drive

Rapid installation and commissioning

The multi-axis paralleling kit includes busbars for quick connection of DC bus and earth link, as well as Quick Links to distribute 24 Vdc supply across drives.

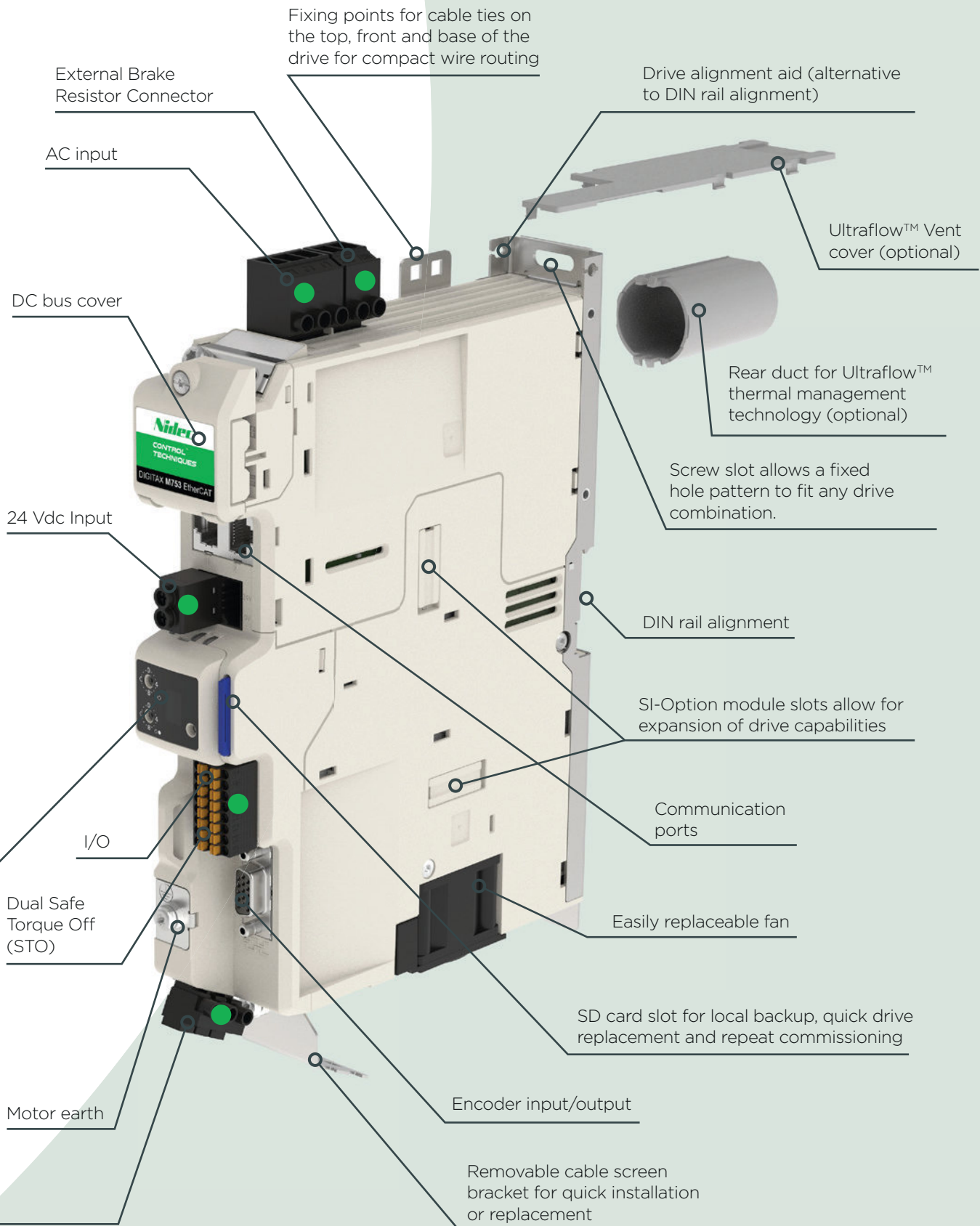
- Reduces installation time and cost
- Improves energy efficiency and footprint



The LED display ensures access to drive diagnostics even in the absence of network connectivity.

Includes 2 rotary switches for hardware setting of the node address for faster commissioning of the motion network.

The motor power connector is in the same position for all frame sizes, making cable routing easier and tidier.



● Easy access pluggable connectors



Fast programming and commissioning

SOFTWARE

Application Programming Machine Control Studio

The Machine Control Studio programming environment provides a flexible and intuitive environment for programming automation and motion control features.

The software provides programming for:

- Onboard PLC
- MCI200 or MCI210 integrated machine control modules
- EtherNet network data configurations

Familiar automation programming languages

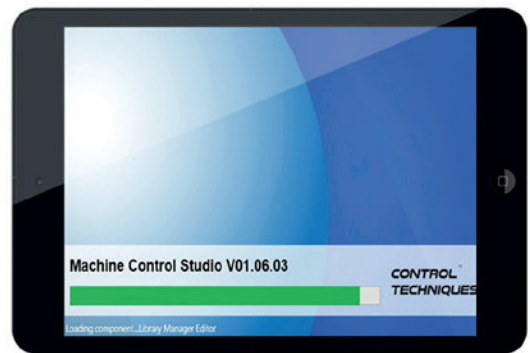
The programming environment is fully IEC 61131-3 compliant and therefore familiar, fast and easy to use for control engineers around the world.

The following IEC 61131-3 programming languages are supported:

- Structured Text (ST)
- Function Block Diagram (FBD)
- Structured Function Chart (SFC)
- Ladder Diagram (LD)
- Instruction List (IL)
- Continuous Function Chart (CFC)

Productivity features also supported:

- Intuitive IntelliSense functionality helps to write consistent and robust programs speeding up software development
- Programmers have access to a vibrant Open-source community for function blocks
- Machine Control Studio also supports customers' own function block libraries



Features	Digitax HD onboard PLC	MCI Option Module
Breakpoints	-	Yes
Source code upload/download	-	Yes
Online change	-	Yes
Trigonometric functions	-	Yes
64 bit data types	-	Yes
Real-time task(s)	Yes (min 4ms)	Yes (min 250 µs)
Customizable drive menu	Yes	Yes
Variable tracing	-	Yes
Tasks available	1 x Freewheeling task, 1 x Clock task	1 x Freewheeling task, 1 x Position task, 1 x Initial task, 4 x Clock tasks, 1 x Error task, 4 x Event tasks
Centralized controller	-	Yes
Decentralized controller	Yes	Yes

Commissioning Connect

The Connect PC tool is for rapid commissioning, plus optimizing and monitoring drive/system performance.

- Task-based drive operations are simplified with intuitive graphical tools in a familiar Windows environment
- CTScope - a realtime software oscilloscope - facilitates tuning and monitoring
- Dynamic logic diagrams and searchable parameter listings
- Tool is scalable, through optional add-ins, to match application requirements
- Multiple communications channels for a more complete overview of the system
- Drive discovery gives the ability to find drives on a network automatically without the user having to specify their addresses
- Offline configuration

SD card

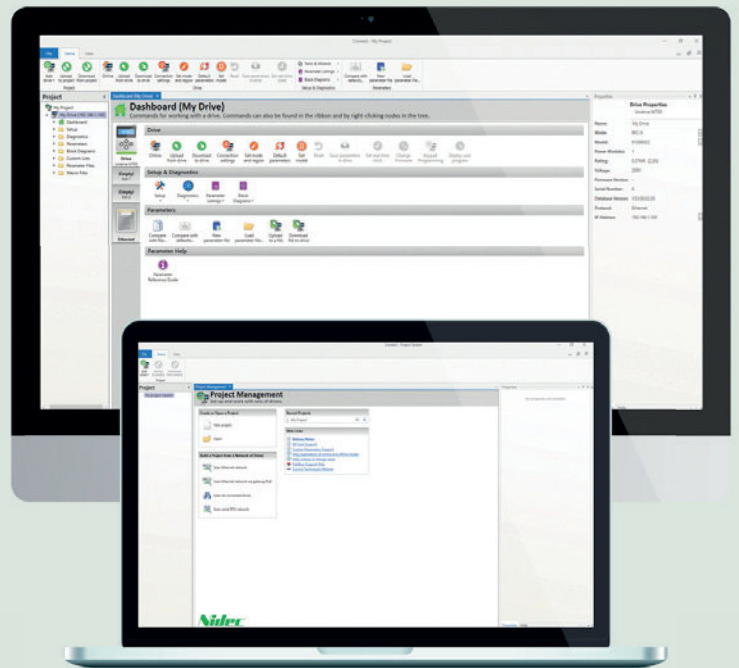
Standard SD cards can be used for quick and easy parameter and program storage.



Drive Setup

Quickly find everything you need for quick and easy installation of your drives.

Visit: www.drive-setup.com



Diagnostics tool

Quickly solve any error codes that the drive may show.

You can download our Diagnostics Tool app at: www.controltechniques.com/mobile-applications



*For Microsoft users, please note that this mobile app operates with Windows 10 only

Motion Control System Architecture

Drive-based Motion (Decentralised/Distributed Motion Intelligence)

In a distributed motion control system, the motion control capability is distributed on-board the individual drives. This includes the position loop, motion profile and sometimes even all or part of the PLC logic.

- Each axis is fully independent, but coordination can be achieved by synchronizing drives over the network using Real-Time Motion over EtherNet (RTMoE).
- In small machines, a drive-based system can be standalone, whereas in larger systems it is more commonly connected to a PLC (or IPC) over a fieldbus which, in this case, does not need to be strictly deterministic.



M750 EtherNet

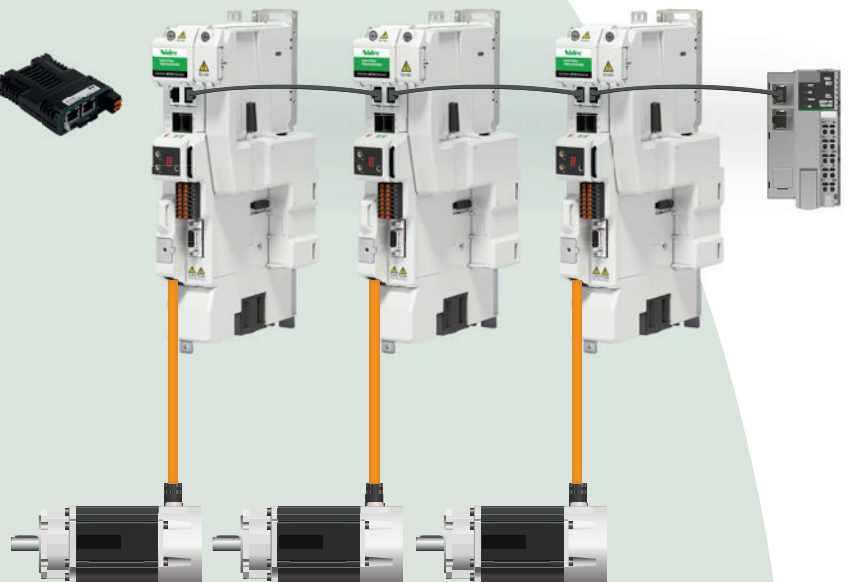
M751 Base

MCI210 Option Module



Key advantages

- A drive-based system offers superior motor control performance, as the on-board loops typically run faster, and it avoids the delays of network communication.
- A distributed motion architecture can be very cost-effective, as it forgoes the need of an expensive central motion controller and, by using the onboard logic, allows to take some load off the central PLC.
- It is easily scalable, as the load of the PLC, where present, does not increase significantly with the number of drives connected.
- PC Tools provide similar ease of commissioning and maintenance to a centralised solution.



Controller-based Motion (Centralized Motion Intelligence)

A central controller generates the motion profiles of all axes and in some cases even closes the position loop. In this architecture the servo drives, often referred to as amplifiers, simply follow the setpoint they receive from the controller.

- The servo drives are normally connected over an EtherNet network, using a fast and deterministic protocol such as EtherCAT.
- In modern systems, the central controller, PLC-based or IPC-based, tends to also implement all the machine logic.

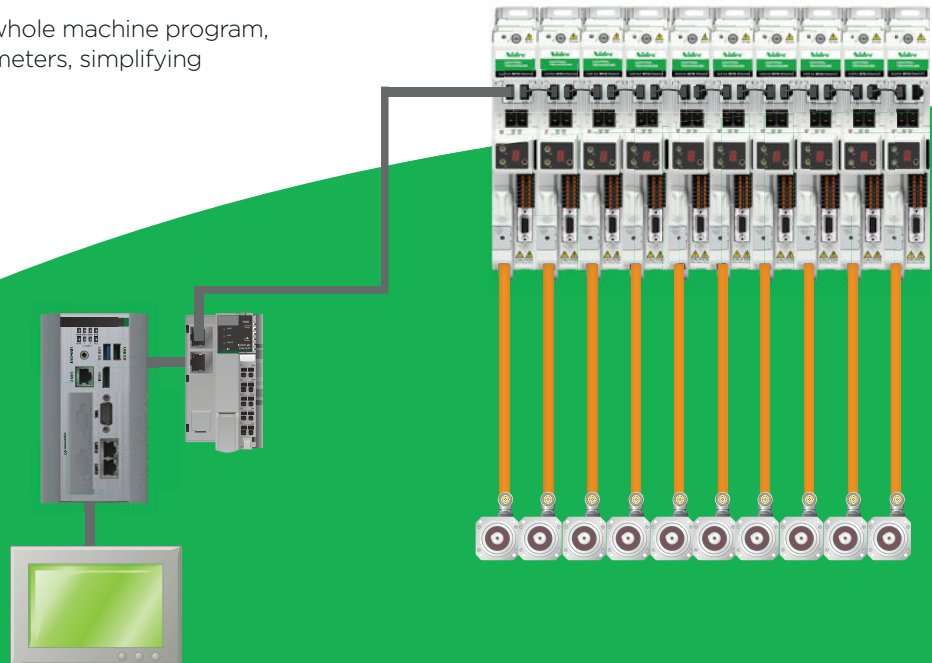
Key advantages

- Ease of coordinating the motion of multiple axes in a single program.
- Single storage location for the whole machine program, and potentially even drive parameters, simplifying maintenance.



M753 EtherCAT

M751 Base



M750 EtherNet (multiprotocol)

Network drive for centralized and decentralized motion application



Digitax M750 EtherNet

Onboard multiprotocol EtherNet, supporting Real Time Motion over EtherNet (RTMoE), EtherNet/IP, Modbus TCP/IP and PROFINET RT

Onboard advanced motion controller for 1.5 axis motion control

EtherNet webpages hosted onboard the M750 EtherNet drive

Reduced downtime with machine safety

- Integrated Dual Safe Torque Off
- Meets SIL3 and PLe

RTMoE

Digitax HD's standard EtherNet supports RTMoE (Real-Time Motion over EtherNet) which provides synchronized communication between drives using the Precision Time Protocol as defined by IEEE1588 V2:

Distributed clocks are used to automatically synchronize the position, speed and current loops across all drives

High speed network synchronization of less than 1 μ s jitter (typically <200 ns) and 1 ms cycle time for synchronous cyclic data

Advanced Motion Controller onboard

Advanced 1.5 axes motion controller, key features include:

- 250 μ s cycle time
- Motion profile generator
- Electronic gearbox
- Interpolated cam
- Homing functions
- High speed position freeze



Machine controllers

MCI200 & MCI210

Second processor for PLC programs and multi-axis control

MCI200 and MCI210 modules add a powerful processor to Digitax HD. They extend the drives system and machine control capability to run application programs up to four times faster than a standard PLC.

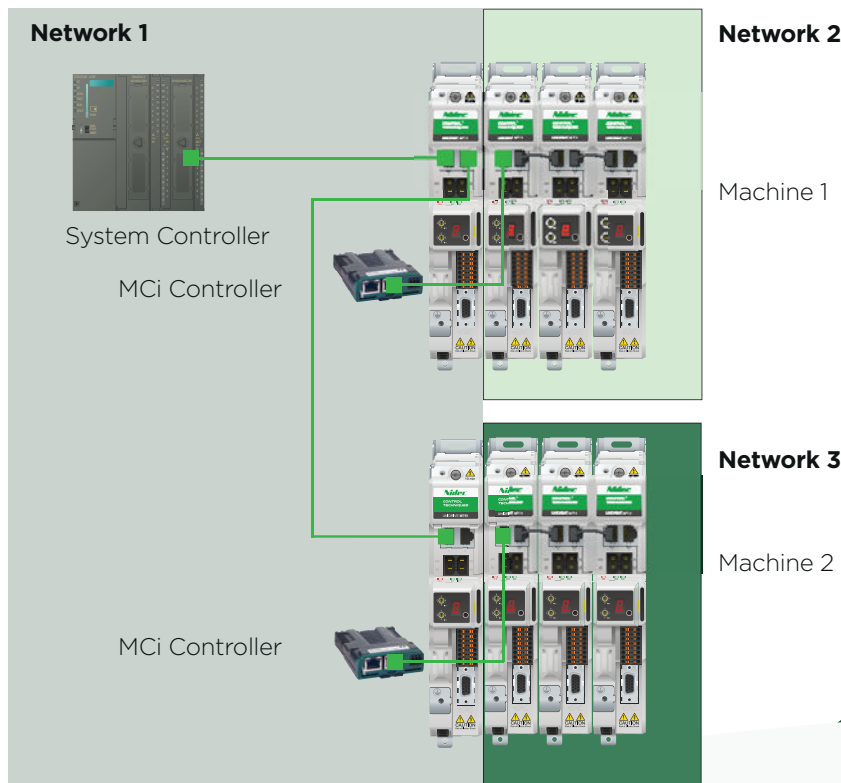
Programs are fast and easy to develop thanks to the user-friendly Machine Control Studio software which uses industry standard IEC 61131-3 programming languages.

MCI programs can access and manage the drive embedded Advanced Motion Controller, providing perfectly synchronized multi-axis machine performance.

- Two EtherNet ports with an internal switch
- Support for standard EtherNet protocols
- RTMoE for synchronized cyclic data at 250 µs
- Modbus TCP/IP master
- Machine control over two segregated EtherNet networks enables greater flexibility in machine design
- Extended fast I/O (3 x digital inputs, 1 x digital output, 1 x digital I/O)



Segregated network control



M751 Base

Base drive for configuration flexibility



Digitax M751 flexibility

Two option slots for functionality extension and customization – refer to page 21 for the comprehensive option module list

Built-in Modbus RTU over RS485 communications

Onboard Advanced Motion Controller for 1.5 axis motion control

Analog and pulse/direction control for centralized motion

Reduced downtime with machine safety

- Integrated Dual Safe Torque Off
- Meets SIL3 and PLe

Advanced Motion Controller onboard

Advanced 1.5 axes motion controller, key features include:

- 250 μ s cycle time
- Motion profile generator
- Electronic gearbox
- Interpolated cam
- Homing functions
- High speed position freeze

M753 EtherCAT

EtherCAT drive for centralized motion control applications

Digitax M753 EtherCAT

Digitax M753 features an integrated 2-port EtherCAT switch for easy integration in centralized motion control applications

EoE (EtherNet over EtherCAT) support allows PC tool connection for commissioning and monitoring over the EtherCAT network

The station alias can be dynamically assigned by the EtherCAT master, or hardwired with the two rotary switches built into the display

An optional RS485 adaptor is available, providing a back-up PC tool connection in case of network failure

High performance with flexibility

Operate with any automation product via EtherCAT

- Operate with motion controllers, motion PLCs and Industrial PCs via built-in EtherCAT
- Dual 100Mbps EtherCAT interfaces for use with in-line topologies
- Non-cyclic data communication using the CoE mailbox

Flexibility for all applications achieved through full access to drive functions

- CANopen over EtherCAT (CoE) including:
 - > CIA-402 profile
 - > Cyclic sync position mode
 - > Interpolated position mode
 - > Velocity mode
 - > Profile torque mode
 - > SDO access to all profile objects and drive parameters

Reduced downtime with machine safety

- Integrated Dual Safe Torque Off
- Meets SIL3 and PLe



EtherCAT®

SIL3 PLe
Safety Integrity Level



Option module flexibility

Our innovative design means you only increase drive size when option modules are used, therefore **achieving significant space saving** in the overall configuration.



Adding the option mounting kit **only adds an additional 22 mm (0.86 in) width**, providing a maximum drive width of 62 mm (2.44 in).

Option modules

Digitax HD supports a range of communications, I/O, feedback and machine control option modules.



Feedback

SI-Universal Encoder

Encoder input and output interface supporting Quadrature, SinCos, EnDat and SSI encoders.



SI-Encoder

Quadrature encoder input interface module.



I/O

SI-I/O

Extended I/O interface module to increase the number of analog and digital I/O points on the drive.



Communications

SI-EtherCAT



SI-PROFINET



SI-EtherNet*



SI-DeviceNet



SI-CANopen



SI-PROFIBUS



Applications with PLC or Motion Functionality

MCI200

Advanced machine control using industry standard IEC61131-3 programming languages



MCI210

Extended advanced machine control using industry standard IEC61131-3 programming languages and integrated EtherNet connectivity



SI-Apps Compact

Compatible module allows legacy SyPTPro application programs to be re-compiled for Digitax HD



* Support of real-time EtherNet (RTMoE), HTTP, SMTP, EtherNet/IP and Modbus TCP/IP

Unimotor HD High dynamic servo motor for pulse duty applications

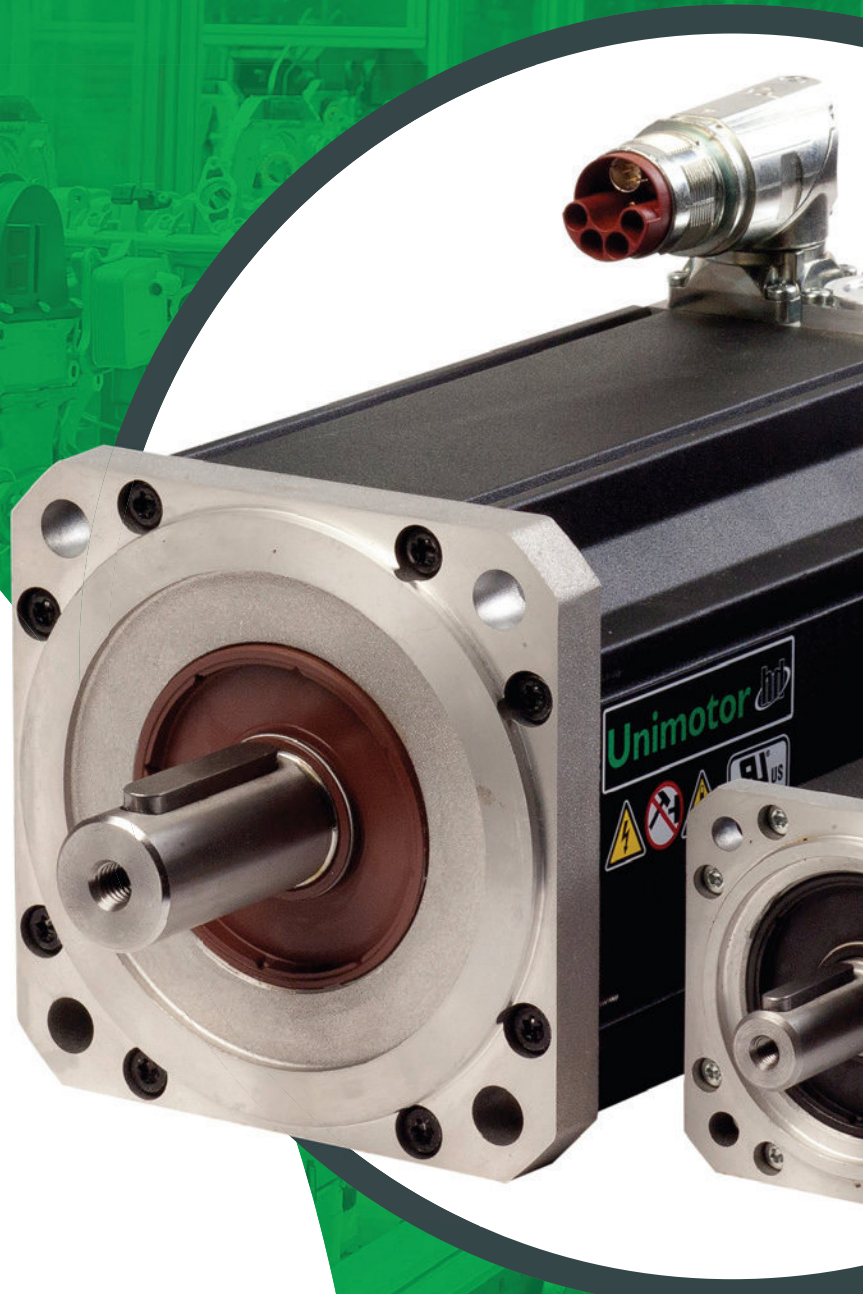
0.7 Nm to 85.0 Nm (6.2 lb-in to 752 lb-in)
and up to 300% overload

Unimotor HD is a high dynamic brushless AC servo motor range designed for use in pulse duty applications where rapid acceleration and deceleration is required.

High torque to inertia ratio

Unimotor HD has a high power to weight ratio, meaning that it can be easily integrated into the smallest, most demanding applications such as industrial robotics, pick & place and packaging.

- **Patented rotor technology - High torque to inertia ratio for high dynamic performance**
- Compact but powerful
- **Parking brake available**
- IP65 conformance: sealed against water spray and dust when mounted and connected
- **Segmented stator design for high power density and compactness**
- Supported by rigorous testing for performance and reliability
- **Windings to suit 400 V and 200 V**
- Rated speeds include 1,000 rpm – 6,000 rpm depending on motor size
- **Customized motor build available**





DATA

Order information and technical data

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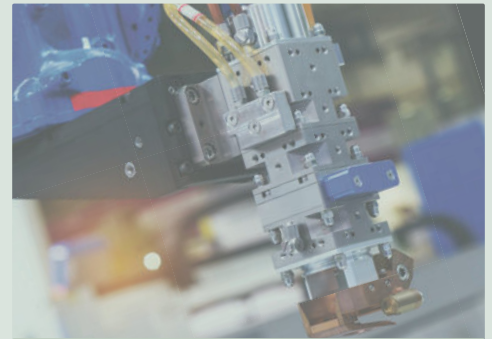
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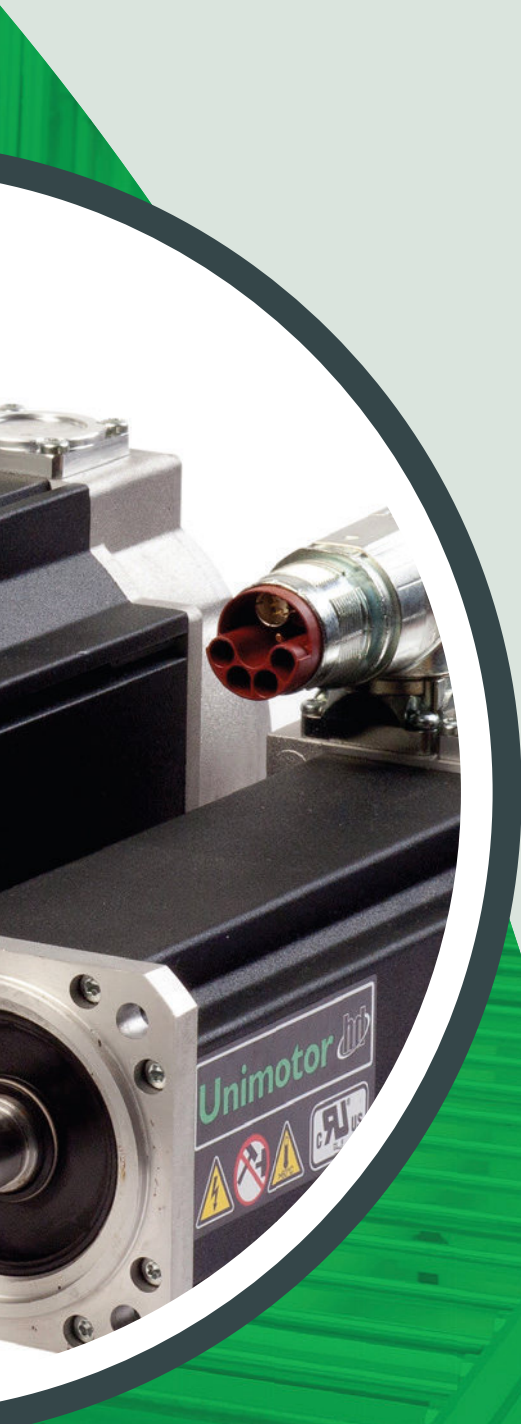
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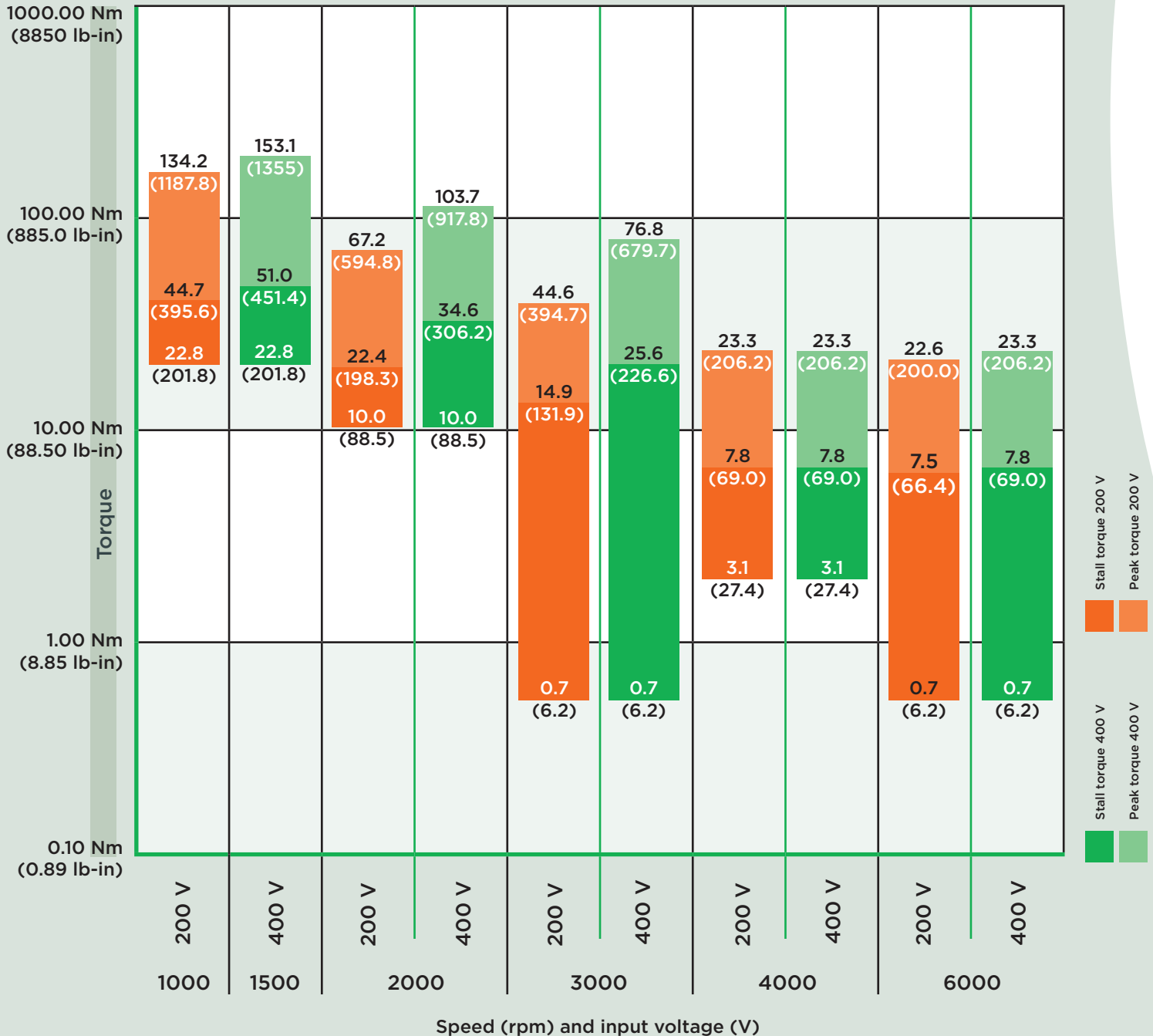
Digitax HD | Unimotor HD dimensions 38



Digitax HD & Unimotor HD motor and drive combinations

400 V range - 0.7 to 51 Nm (6.2 to 451 lb-in) with 300% peak stall torque

200 V range - 0.7 to 45 Nm (6.2 to 398 lb-in) with 300% peak stall torque



200 V THREE PHASE

200 V Three phase

Nominal speed 6000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 6000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
055EDA60	M75x-01200022	HYBAxAxxx	0.69	6.1	2.1	18.6	0.14	0.00012	2.2	580	0.43	0.58	8.5
055EDB60	M75x-01200040	HYBAxAxxx	1.1	9.7	3.4	30.1	0.25	0.00022	4	580	0.57	0.76	9.2
055EDC60	M75x-01200040	HYBAxAxxx	1.6	14.2	4.8	42.5	0.36	0.00032	4	580	0.75	1.01	9.5
067EDA60	M75x-01200040	HYBAxAxxx	1.4	12.4	4.3	38.1	0.30	0.00027	4	580	0.82	1.10	8.8
067EDB60	M75x-01200065	HYBAxAxxx	2.5	22.1	7.5	66.4	0.53	0.00047	6.5	580	1.4	1.88	8.9
089EDA60	M75x-02200090	HYBAxAxxx	3.1	27.4	9.3	82.3	0.87	0.00077	6.5	1160	1.7	2.28	11.7
089EDB60	M75x-02200120	HYBAxAxxx	5.3	46.9	16.0	141.6	1.6	0.00142	12	1160	2.4	3.22	12.6
089EDC60	M75x-03200160	HYBBxAxxx	7.5	66.4	22.6	200.0	2.3	0.00204	16	1880	3.1	4.16	13.0

Nominal speed 4000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 4000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
089EDA40	M75x-01200065	HYBAxAxxx	3.1	27.4	9.3	82.3	0.87	0.00077	6.5	580	1.2	1.61	7.8
089EDB40	M75x-02200090	HYBAxAxxx	5.3	46.9	16.0	141.6	1.6	0.00142	9	1160	1.9	2.55	8.4
089EDC40	M75x-02200120	HYBAxAxxx	7.8	69.0	23.3	206.2	2.3	0.00204	12	1160	2.7	3.62	8.4

Nominal speed 3000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 3000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
055EDA30	M75x-01200022	HYBAxAxxx	0.69	6.1	2.1	18.6	0.14	0.00012	2.2	580	0.21	0.28	4.2
055EDB30	M75x-01200022	HYBAxAxxx	1.1	9.7	3.4	30.1	0.25	0.00022	2.2	580	0.32	0.43	4.6
067EDA30	M75x-01200022	HYBAxAxxx	1.4	12.4	4.3	38.1	0.30	0.00027	2.2	580	0.43	0.58	4.4
055EDC30	M75x-01200022	HYBAxAxxx	1.6	14.2	4.8	42.5	0.36	0.00032	2.2	580	0.45	0.60	4.8
067EDB30	M75x-01200040	HYBAxAxxx	2.5	22.1	7.5	66.4	0.53	0.00047	4	580	0.75	1.01	4.4
089EDA30	M75x-01200040	HYBAxAxxx	2.8	24.8	8.4	74.3	0.87	0.00077	4	580	0.88	1.18	6.5
067EDC30	M75x-01200040	HYBAxAxxx	3.6	31.9	10.9	96.5	0.75	0.00066	4	580	1.1	1.48	4.3
089EDB30	M75x-01200065	HYBAxAxxx	5.3	46.9	16.0	141.6	1.6	0.00142	6.5	580	1.5	2.01	6.3
089EDC30	M75x-02200090	HYBAxAxxx	7.8	69.0	23.3	206.2	2.3	0.00204	9	1160	2.1	2.82	6.3
115EDB30	M75x-02200120	HYBAxAxxx	10.0	88.5	30.0	265.5	4.4	0.00389	12	1160	2.4	3.22	9.2
115EDC30	M75x-03200160	HYBBxAxxx	14.3	126.6	42.9	379.7	6.4	0.00566	16	1880	3.2	4.29	9.4
142EDC30	M75x-03200160	HYBBxBxxx	14.9	131.9	44.6	394.7	17.0	0.01505	16	1880	4.7	6.30	23.9

Nominal speed 2000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 2000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
115EDB20	M75x-02200090	HYBAxAxxx	10.0	88.5	30.0	265.5	4.4	0.00389	9	1160	1.8	2.41	6.2
115EDC20	M75x-02200120	HYBAxAxxx	14.3	126.6	42.9	379.7	6.4	0.00566	12	1160	2.4	3.22	6.2
115EDD20	M75x-03200160	HYBBxAxxx	18.4	162.9	55.3	489.4	8.4	0.00743	16	1880	3.2	4.29	6.4
142EDC20	M75x-03200160	HYBBxBxxx	22.4	198.3	67.2	594.8	17.0	0.01505	16	1880	4.1	5.50	10.6

Nominal speed 1000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 1000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
142EDC10	M75x-02200090	HYBAxAxxx	22.8	201.8	68.3	604.5	17.0	0.01505	9	1160	2.2	2.95	5.2
142EDD10	M75x-02200120	HYBAxAxxx	28.7	254.0	86.0	761.2	22.1	0.01956	12	1160	2.8	3.75	5.4
142EDE10	M75x-03200160	HYBBxAxxx	34.6	306.2	103.7	917.8	27.2	0.02407	16	1880	3.3	4.43	5.5
190EDC10	M75x-03200160	HYBBxBxxx	44.7	395.6	134.2	1187.8	54.6	0.04833	16	1880	4.7	6.30	8.5

For drive ratings, please see page 34 and motor ratings from page 38 to 43

* Acceleration time to nominal speed is based on 1:1 motor to load inertia ratio

SERVO DRIVE SERIES

400 V THREE PHASE

400 V Three phase

Nominal speed 6000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 6000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
055UDA60	M75x-01400015	HYBAxAxxx	0.69	6.1	2.1	18.6	0.14	0.00012	1.5	110	0.43	0.6	8.5
055UDB60	M75x-01400015	HYBAxAxxx	1.1	9.7	3.4	30.1	0.25	0.00022	1.5	110	0.57	0.8	9.2
055UDC60	M75x-01400030	HYBAxAxxx	1.6	14.2	4.8	42.5	0.36	0.00032	4.2	110	0.75	1.0	9.5
067UDA60	M75x-01400030	HYBAxAxxx	1.4	12.4	4.3	38.1	0.30	0.00027	4.2	110	0.82	1.1	8.8
067UDB60	M75x-01400042	HYBAxAxxx	2.5	22.1	7.5	66.4	0.53	0.00047	4.2	110	1.4	1.9	8.9
067UDC60	M75x-02400060	HYBAxAxxx	3.6	31.9	10.9	96.5	0.75	0.00066	6.0	290	1.9	2.5	8.7
089UDA60	M75x-01400042	HYBAxAxxx	3.1	27.4	9.3	82.3	0.87	0.00077	4.2	110	1.7	2.3	11.7
089UDB60	M75x-02400080	HYBAxAxxx	5.3	46.9	16.0	141.6	1.6	0.00142	8.0	290	2.4	3.2	12.6
089UDC60	M75x-02400105	HYBBxAxxx	7.8	69.0	23.3	206.2	2.3	0.00204	10.5	290	3.1	4.2	12.6

Nominal speed 4000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 4000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
089UDA40	M75x-01400030	HYBAxAxxx	3.1	27.4	9.3	82.3	0.87	0.00077	4.2	110	1.2	1.6	7.8
089UDB40	M75x-02400060	HYBAxAxxx	5.3	46.9	16.0	141.6	1.6	0.00142	6.0	290	1.9	2.5	8.4
089UDC40	M75x-02400080	HYBAxAxxx	7.8	69.0	23.3	206.2	2.3	0.00204	8.0	290	2.7	3.6	8.4

Nominal speed 3000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 3000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
055UDA30	M75x-01400015	HYBAxAxxx	0.69	6.1	2.1	18.6	0.14	0.00012	1.5	110	0.21	0.3	4.2
055UDB30	M75x-01400015	HYBAxAxxx	1.1	9.7	3.4	30.1	0.25	0.00022	1.5	110	0.32	0.4	4.6
055UDC30	M75x-01400015	HYBAxAxxx	1.6	14.2	4.8	42.5	0.36	0.00032	1.5	110	0.45	0.6	4.8
067UDA30	M75x-01400030	HYBAxAxxx	1.4	12.4	4.3	38.1	0.30	0.00027	4.2	110	0.43	0.6	4.4
067UDB30	M75x-01400015	HYBAxAxxx	2.4	21.2	7.2	63.7	0.53	0.00047	1.5	110	0.75	1.0	4.6
067UDC30	M75x-01400030	HYBAxAxxx	3.6	31.9	10.9	96.5	0.75	0.00066	4.2	110	1.1	1.5	4.3
089UDA30	M75x-01400030	HYBAxAxxx	3.1	27.4	9.3	82.3	0.87	0.00077	4.2	110	0.91	1.2	5.9
089UDB30	M75x-01400042	HYBAxAxxx	5.3	46.9	16.0	141.6	1.6	0.00142	4.2	110	1.5	2.0	6.3
089UDC30	M75x-02400060	HYBAxAxxx	7.8	69.0	23.3	206.2	2.3	0.00204	6.0	290	2.1	2.8	6.3
115UDB30	M75x-02400080	HYBAxAxxx	10.0	88.5	30.0	265.5	4.4	0.00389	8.0	290	2.4	3.2	9.2
115UDC30	M75x-02400105	HYBBxAxxx	14.3	126.6	42.9	379.7	6.4	0.00566	10.5	290	3.2	4.3	9.4
115UDD30	M75x-03400135	HYBBxAxxx	18.4	162.9	55.3	489.4	8.4	0.00743	13.5	470	4.2	5.6	9.5
142UDC30	M75x-03400160	HYBBxAxxx	22.8	201.8	68.3	604.5	17.0	0.01505	16.0	470	5.3	7.1	15.7
142UDD30	M75x-03400160	HYBBxBxxx	25.6	226.6	76.8	679.7	22.1	0.01956	16.0	470	6.0	8.0	18.1

Nominal speed 2000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 2000 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
115UDB20	M75x-01400042	HYBAxAxxx	10.0	88.5	30.0	265.5	4.4	0.00389	4.2	110	1.8	2.4	6.2
115UDC20	M75x-02400060	HYBAxAxxx	14.3	126.6	42.9	379.7	6.4	0.00566	6.0	290	2.4	3.2	6.2
115UDD20	M75x-02400080	HYBAxAxxx	18.4	162.9	55.3	489.4	8.4	0.00743	8.0	290	3.2	4.3	6.4
142UDC20	M75x-02400105	HYBBxAxxx	22.8	201.8	68.3	604.5	17.0	0.01505	10.5	290	4.1	5.5	10.4
142UDD20	M75x-03400135	HYBBxAxxx	28.7	254.0	86.0	761.2	22.1	0.01956	13.5	470	4.9	6.6	10.8
142UDE20	M75x-03400160	HYBBxAxxx	34.6	306.2	103.7	917.8	27.2	0.02407	16.0	470	5.6	7.5	11.0

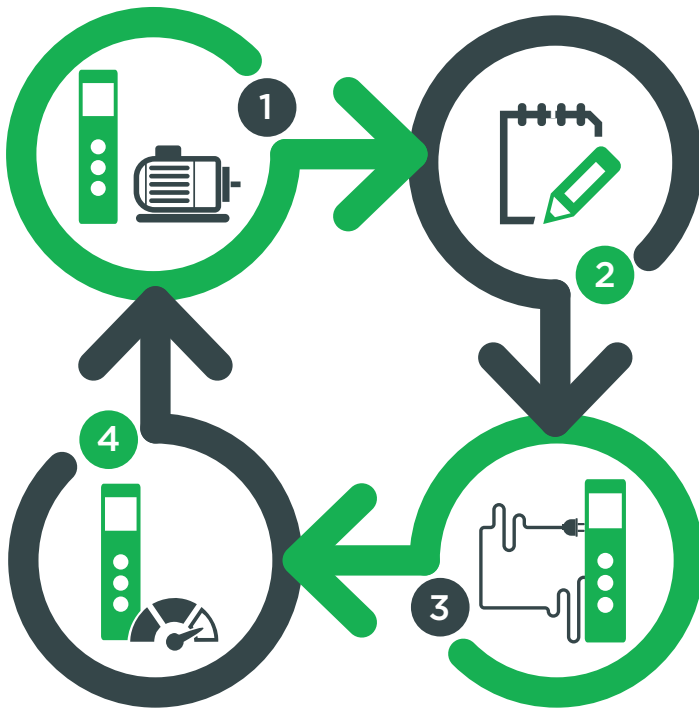
Nominal speed 1500 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [µF]	Motor Cont. power		Time to 1500 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg-cm ²]	[lb-in-sec ²]			[kW]	[hp]	
142UDC15	M75x-02400080	HYBAxAxxx	22.8	201.8	68.3	604.5	17.0	0.01505	8.0	290	3.2	4.3	7.8
142UDD15	M75x-02400105	HYBAxAxxx	28.7	254.0	86.0	761.2	22.1	0.01956	10.5	290	3.9	5.2	8.1
142UDE15	M75x-03400135	HYBAxAxxx	34.6	306.2	103.7	917.8	27.2	0.02407	13.5	470	4.5	6.0	8.2
190UDC15	M75x-03400160	HYBBxBxxx	51.0	451.4	153.1	1355.0	54.6	0.04833	16.0	470	7.3	9.8	11.2

For drive ratings, please see page 36 and motor ratings from page 40 to 45.

* Acceleration time to nominal speed is based on 1:1 motor to load inertia ratio

Modular multi-axis configuration

Dimensioning the common DC bus



4 easy steps to accurately dimension your system

- 1 Choose drive & motor combination based on speed and torque requirements see pages 25 and 26
- 2 Note nominal power & drive capacitance for each combination
- 3 Choose the drive to act as power supply for the drive group Usually the largest drive
- 4 Check that:
 1. sum of drive capacitance \leq maximum capacitance**
 2. sum of nominal power \leq maximum input power**

(Refer to tables below)

Digitax HD drives have a high capacity input power stage, allowing for a group of drives on a common DC bus to be powered by a single AC connection.

Alternatively, for larger configurations an external DC source can be used, such as a larger frame Unidrive M.

NOTE: The number of drives that can be connected on a common DC bus group depends on the total installed capacitance, the power rating of the input stage and the power profile of each axis.

There is also a limit of 10 drives for the 24 Vdc link.

ADDITIONAL INFORMATION:

For optimized dimensioning please refer to the Installation and Technical Guide.



200V

		Max Capacitance (μF)	Internal Capacitance (μF)	Max Input Power (kW)	Max Input Power (hp)
Size 1	M75x-01200022 M75x-01200040 M75x-01200065	5800	580	4 / 5.2*	5.4 / 7.0*
Size 2	M75x-02200090 M75x-02200012	4640	1160	5.3 / 6.9*	7.1 / 9.3*
Size 3	M75x-03200160	3760	1880	6.3 / 10*	8.5 / 13.4*

400V

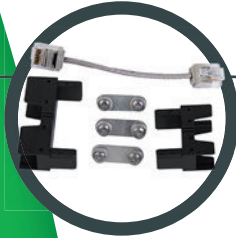
		Max Capacitance (μF)	Internal Capacitance (μF)	Max Input Power (kW)	Max Input Power (hp)
Size 1	M75x-01400015 M75x-01400030 M75x-01400042	1900	110	6.5 / 8.5*	8.7 / 11.4*
Size 2	M75x-02400060 M75x-02400080 M75x-02400105	2030	290	8.7 / 11.4*	11.7 / 15.3*
Size 3	M75x-03400135 M75x-03400160	2210	470	10 / 13*	13.4 / 17.4*

* External AC Line Reactor required. Please refer to the Installation and Technical Guide.

** If any of the values are exceeded, the system needs to be split in groups and the procedure repeated for each group.

Digitax HD kits and accessories

Multi-axis Kit	
Description	Order code
Multi-axis Kit (standard - without SI-Option Mounting Kit fitted)	9500-1047
Multi-axis Kit (with SI-Option Mounting Kit fitted)	9500-1048



Description	Order code
External Cable Grommet Kit up to 6mm ²	3470-0145
External DC Cable Connection Kit up to 16mm ²	9500-1050



Description	Order code
USB to EIA485 Communications Converter Cable	4500-0096



Description	Order code
KI-Compact 485 Adaptor	82700000020300



Description	Order code
KI-Compact Display	82700000020400

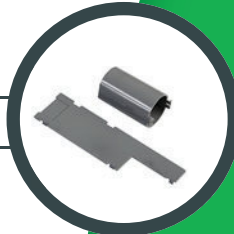


Standard cables available	
Description	Order code
Refer to pages 33 and 34	

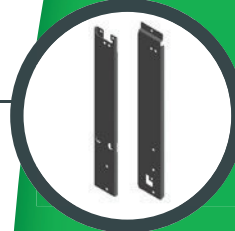


Description	Order code
Input Line Choke	4401-0236

Description	Order code
Remote Keypad RTC	8240000019600



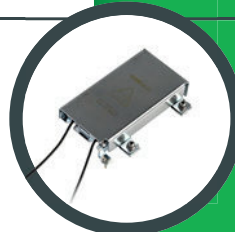
Description	Order code
Frame 1 Rear Ultraflow™ Vent Kit	3470-0158
Frame 2/3 Rear Ultraflow™ Vent Kit	3470-0181



Description	Order code
Retrofit Kit - Epsilon 202-206	3470-0185
Retrofit Kit - Epsilon 209-216	3470-0184
Retrofit Kit - Digitax ST/SPO	3470-0182
Retrofit Kit - M'Ax	3470-0183



Description	Order code
SI-Option Mounting Kit	9500-1055



Drive - Mountable Brake Resistor	
Description	Order code
Compact Brake Resistor Kit - 50 W, 70 Ω	9500-1049



External Brake Resistor	
Description	Order code
External Brake Resistor - DBR 100 W, 20 Ω	1220-2201
External Brake Resistor - DBR 100 W, 40 Ω	1220-2401
External Brake Resistor - DBR 100 W, 80 Ω	1220-2801

Description	Order code
Fan Replacement Kit (frame 1 and 2)	9500-1053
Fan Replacement Kit (frame 3)	9500-1054



Description	Order code
Encoder breakout kit	8270000020200

Digitax HD kits and accessories



EMC Filters			
Voltage	Model (M75X-...)	Phases	Order code
200 V	1200022	1	4200-3503
	1200040	1	
	1200065	1	
	2200090	1	4200-5033
	2200120	1	
	3200160	1	4200-6034
	1200022	3	4200-8744
	1200040	3	4200-6002
	1200065	3	4200-6001
	2200090	3	4200-5833
2200120	3	4200-5833	
3200160	3	4200-5833	
400 V	01400015 to 01400042	3	4200-8744
	02400060 to 02400105	3	4200-1644
	03400135 to 03400160	3	4200-5833
	* Multi-axis up to 46 A		4200-0033
	* Multi-axis up to 60.2 A		4200-5534
	* Multi-axis up to 82.2 A		4200-7534
	* Multi-axis up to 109.5 A		4200-0035

* EMC filter ratings provided at maximum continuous current at 40 °C (104 °F). Please refer to the installation and Technical Guide.

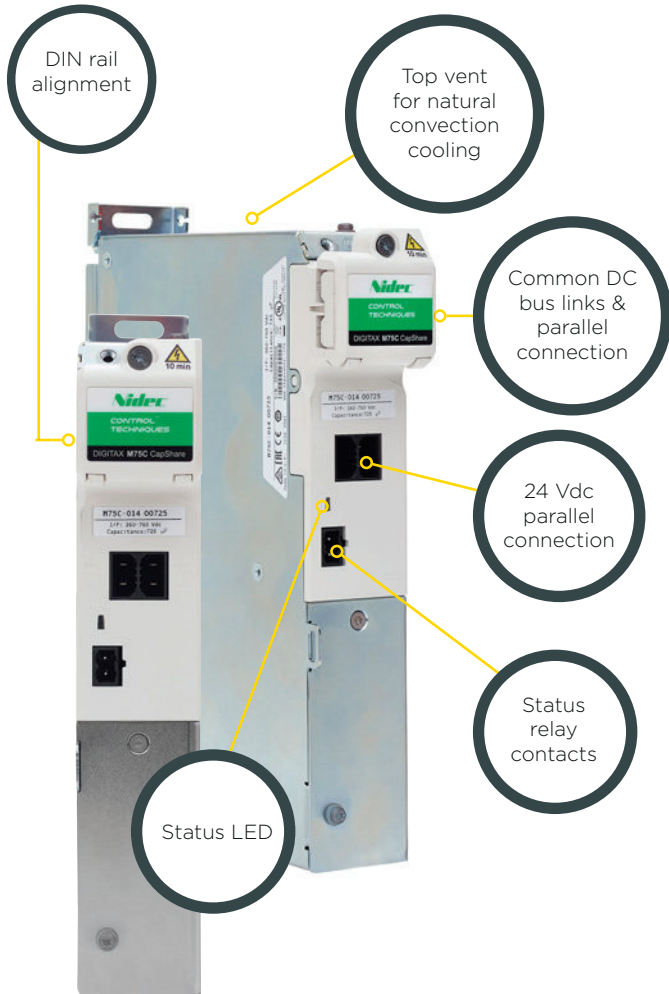
Description	Order code
DC bus conn. kit - Unidrive M fr03 (panel mount)	3470-0146
DC bus conn. kit - Unidrive M fr03 (through mount)	3470-0147
DC bus conn. kit - Unidrive M fr06 (panel mount)	3470-0148
DC bus conn. kit - Unidrive M fr06 (through mount)	3470-0149



In the box for each Digitax HD M75x					
Description	Part Number	M750 EtherNet	M751 Base	M753 EtherCAT	M75C CapShare
KI-Compact Display	82700000020400	Yes	No	Yes	N/A
SI-Option Mounting Kit	9500-1055	No	Yes	No	N/A
Removable cable screen bracket	N/A	Yes	Yes	Yes	N/A
Brake Connector		Yes	Yes	Yes	N/A
Power Input Connector		Yes	Yes	Yes	N/A
24 Vdc Supply Input Connector		Yes	Yes	Yes	Yes
I/O Connector		Yes	Yes	Yes	N/A
Motor Connector		Yes	Yes	Yes	N/A
M4 x 8 Screws (Motor earth, Input earth and cable screen bracket)		Yes	Yes	Yes	N/A

System Integration Option Modules		
Option	Order code	
MCI200	82400000017000	
MCI210	82400000016700	
SI-Apps Compact	82400000020700	
SI-EtherNet	82400000017900	
SI-PROFINET RT	82500000018200	
SI-PROFIBUS	82400000017500	
SI-CANopen	82400000017600	
SI-DeviceNet	82400000017700	
SI-Universal Encoder	82400000018300	
SI-Encoder	82400000018100	
SI-I/O	82400000017800	
SI-EtherCAT	82400000018000	

M75C CapShare Capacitor Module



M75C Capabilities

Available in 200 V and 400 V variants, the M75C CapShare Capacitor Module is contained within a M75x Frame 1 chassis measuring 40mm width. M75C CapShare is designed for use in multi-axis applications to offer:

- Robustness against fluctuations in power supply, increasing the ability to ride through brief mains losses
- Dynamic performance with quick-access energy storage for fast acceleration / deceleration
- Energy efficiency as more energy can be stored, rather than dissipated into heat

Multiple M75C CapShare units can be paralleled in a scalable architecture, which is also quick and easy to install with DIN rail alignment, and easy DC bus paralleling.

Energy efficiency

- Easy common DC bus connection enables braking energy to be recycled within the drive system, optimizing energy usage.
- Any Digitax HD drive can be used as an Active Front End (AFE) to create a regenerative AC drive system.

M75C CapShare Capacitor Module		
Part Number	M75C-01201740	M75C-01400725
Rated Voltage	200 V	400 V
Onboard capacitance	1740 µF	725 µF
DC supply	200-370 Vdc	360-760 Vdc
External 24 Vdc supply for control		Yes
Internal Current Inrush limitation Circuit		Yes
Status Relay (Potential Free Contacts)		Yes
Status Indication On Front Panel		Single LED
Thermal Protection		Yes

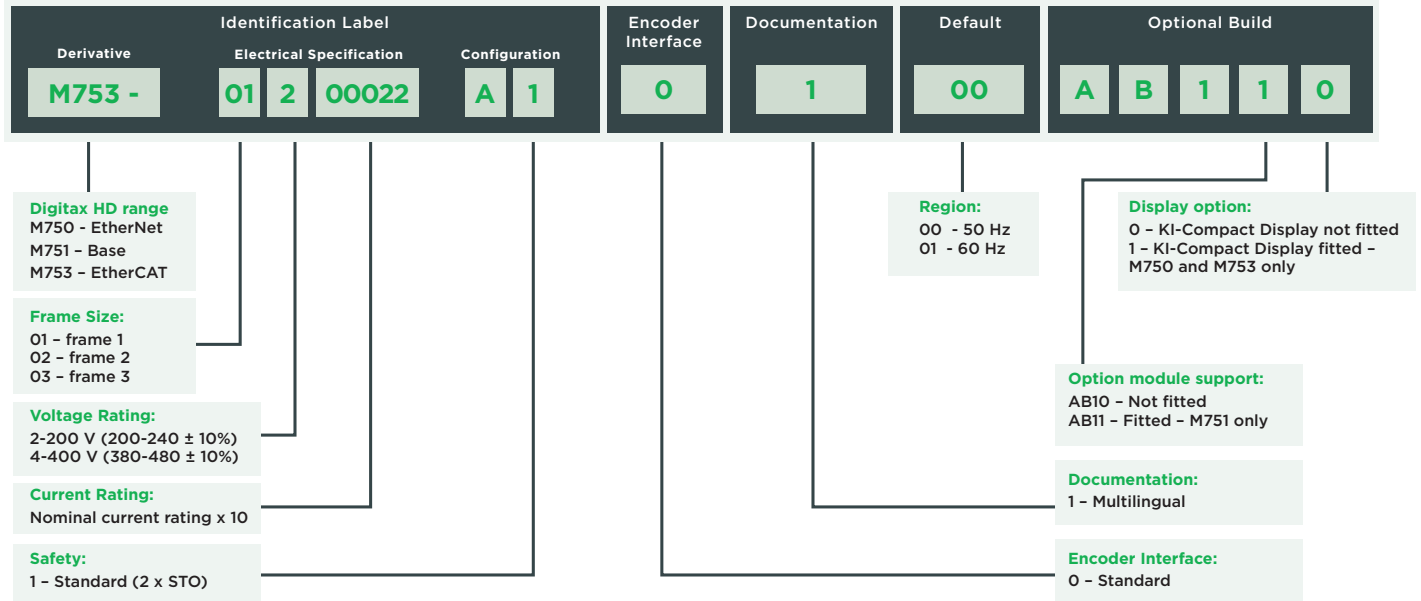
Easy connection to a drive or drive group can be achieved with the multiaxis kit (9500-1048) – no additional fusing required.

Active Front End kits

Voltage	Model (M75X-...)	Switching Frequency Filter Capacitors	Regenerative Choke	Switching Frequency Filter Choke
		Order Codes	Order Codes	Order Codes
200 V	2200090	1610-8104	4401-0310	4401-1311
	2200120	1610-8104	4401-0312	4401-1312
	3200160	1610-8104	4401-0313	4401-1313
400 V	2400080	1610-8104	4401-0405	4401-0162
	2400105	1610-8104	4401-0406	4401-0163
	3400135	1610-8104	4401-0407	4401-0164
	3400160	1610-8104	4401-0407	4401-0164

Digitax HD ordering information

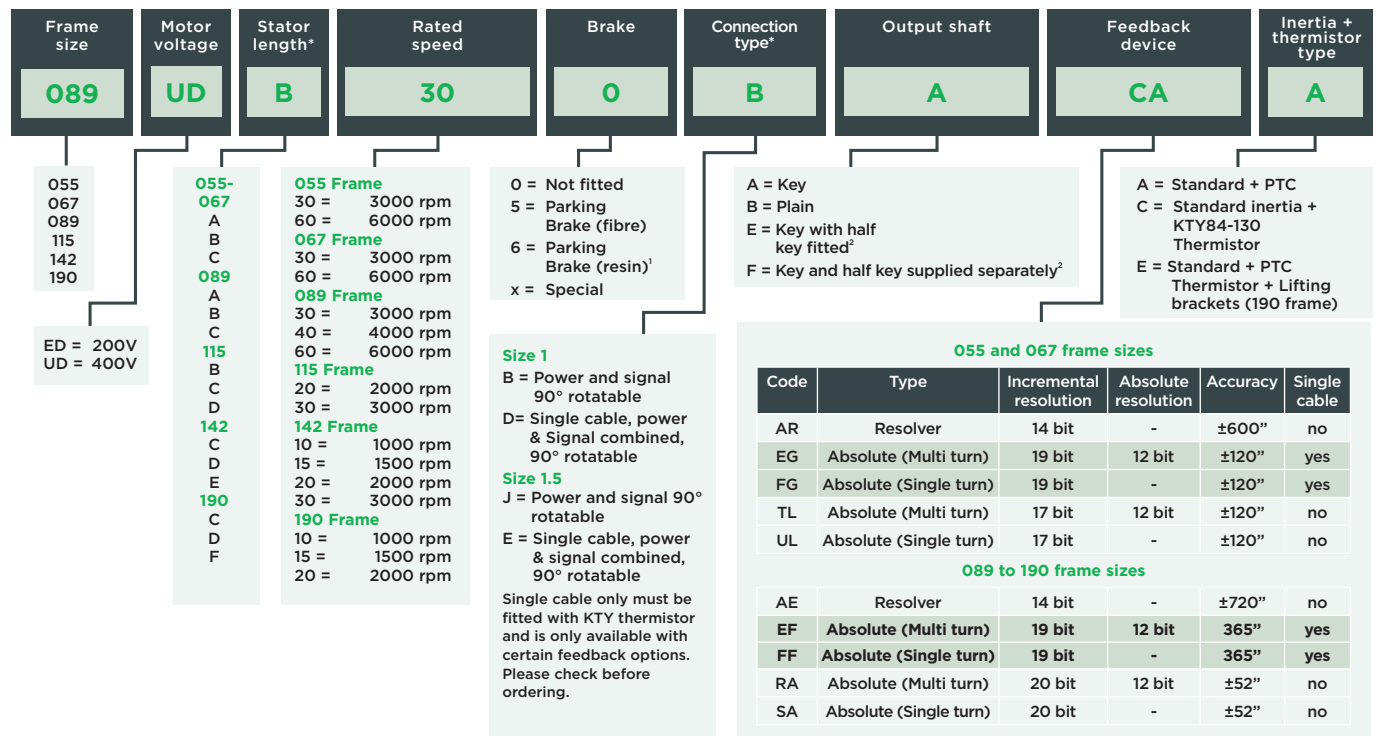
Drive part number key:



*For EtherNet and MCI versions, Option Modules are required separately. See page 29 for order codes.

Unimotor HD ordering information

Motor part number key:



*For stator length and connection type see pages 38 - 43

¹ not available for 055 & 190 frames

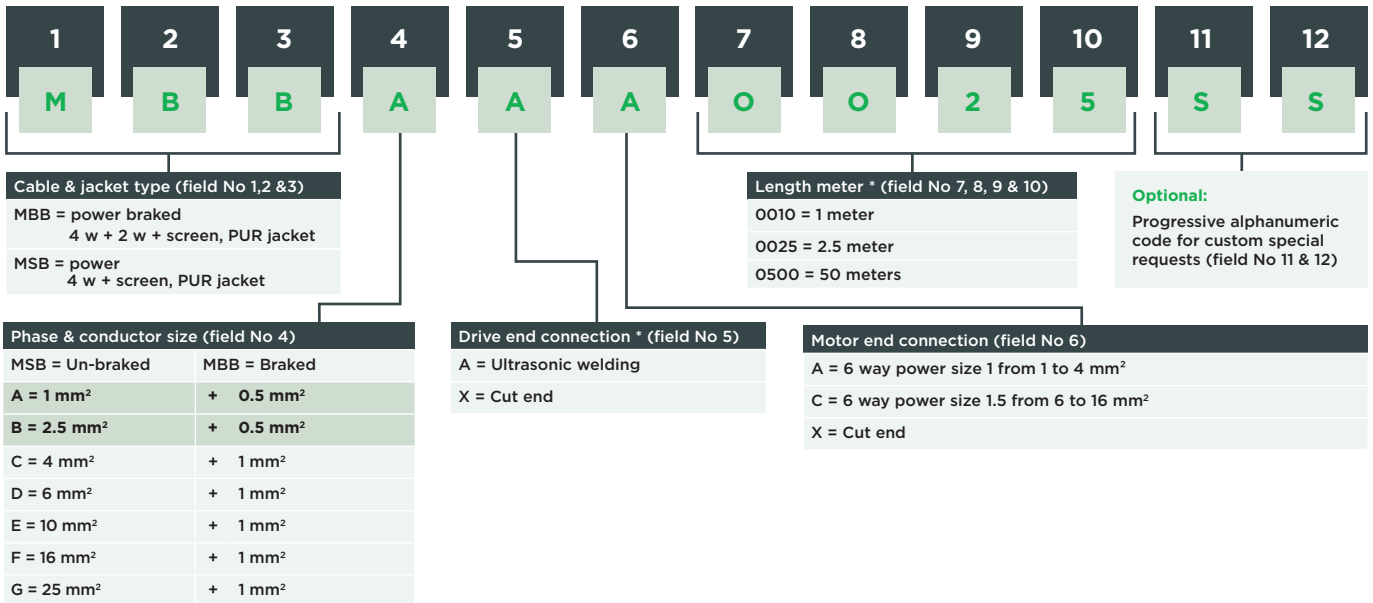
² not available on 055 frame.

Additional feedback options available on request.

Cables and connections

Power cable part number key:

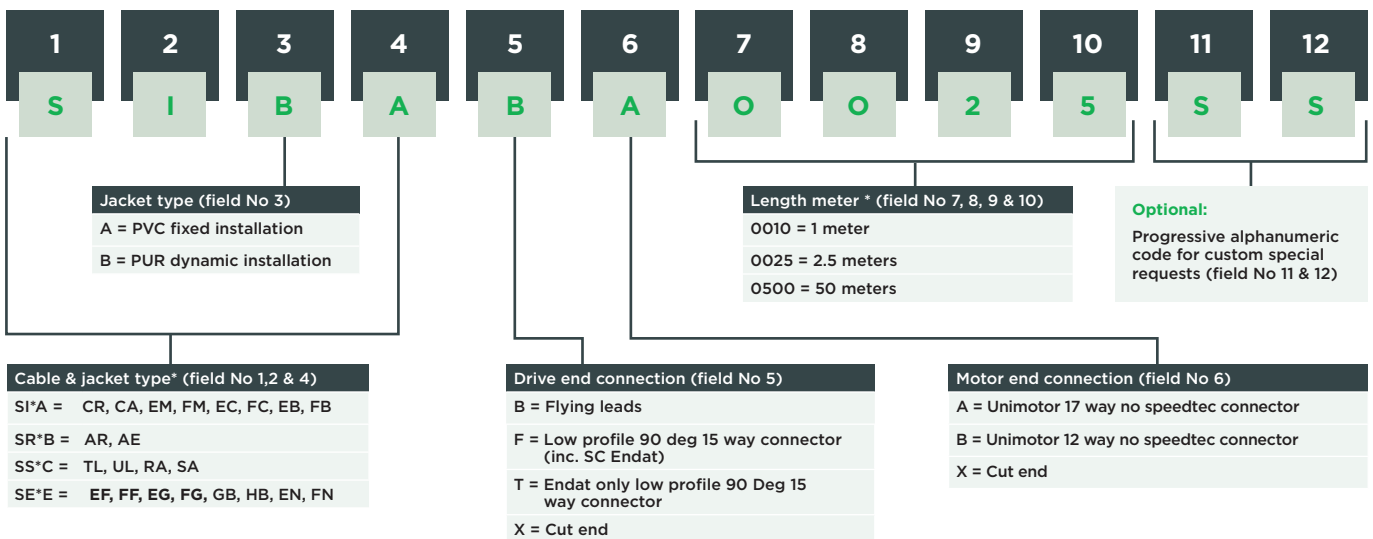
FIELD NUMBER



*Length meter / cable requiring (cm) lengths will be rounded up to the next highest half meter; Eg. 2.1 will be changed to a 2.5 meter cable. Maximum cable length refer to page 34

Signal cable part number key:

FIELD NUMBER

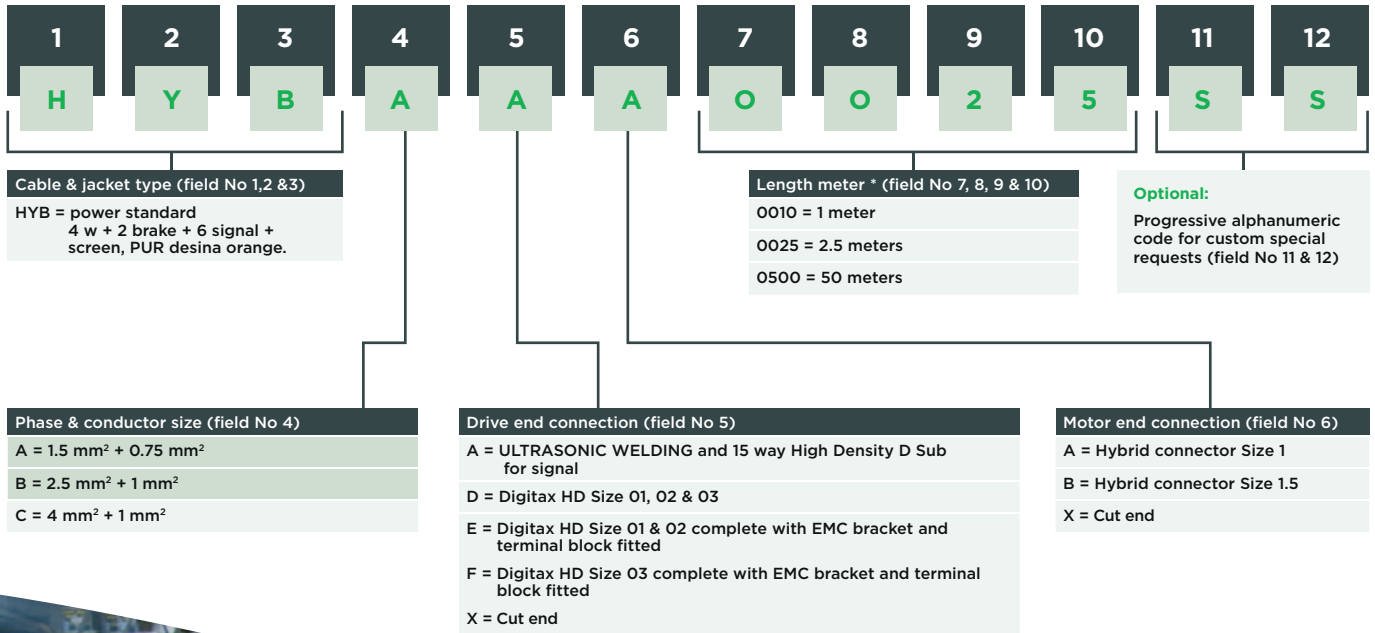


* Length meter/cable requiring (cm) lengths will be rounded up to the next highest half meter; Eg. 2.1 will be changed to a 2.5 meter cable. Maximum cable length refer to page 34

Cables and connections

Hybrid cable part number key:

FIELD NUMBER



* Length meter / cable requiring (cm) lengths will be rounded up to the next highest half meter; Eg. 2.1 will be changed to a 2.5 meter cable
 Maximum cable assembly length refer to table below



Digitax HD

Servo series specification

		M753 EtherCAT	M751 Base	M750 EtherNet	M751 + MCI210
Performance	Update Rates	Current Loop Update: 62 µs			
		Speed Loop Update: 250 µs			
		Position Loop Update: 250 µs			
	Overload	*Closed-loop Overload: Maximum closed loop peak current for 0.25 s (from cold: 300 % for 8 s or 200 % for 60 s)			
		*Open-loop Overload: Maximum open loop peak current for 8 s (from cold: 150 % for 100 s)			
Max Output Frequency	550 Hz (RFC-A and RFC-S) 599 Hz (Open Loop)				
Switching Frequency	Configurable range: 2, 3, 4, 6, 8, 12, 16 kHz				
	Default: 8kHz				
Ultraflow™ Technology	Adjustable Venting	Top venting or rear venting (with optional kit)			
	Intelligent Fan Control	Temperature controlled fan operation with user adjustable speed limit			
	Managed Internal Airflow	Managed airflow for maximum ingress protection			
Onboard Intelligence	Motion	Advanced Motion Controller			MCI210
		Parameterised motion			Programmable motion
		1.5 Axes			Up to 5 Axes
		Positioning digital lock control			Positioning digital lock control camming
	PLC	Onboard PLC			Onboard Machine Controller
		IEC61131-3 programming (IL, LD, FBD, SFC, ST, CFC)			
Control	Motor Control Modes	V/F, Open loop vector, Rotor flux control-Asynchronous for induction motors (Sensorless or with feedback 'Closed Loop'), Rotor flux control-Synchronous (Sensorless or with feedback 'Closed Loop')			
	Control Modes	Position control, speed control, torque control			
	Control Features	Stationary autotune for permanent magnet motors Advanced bi-quad filters for suppression of mechanical resonances			
Interface	Onboard Communications	2-port EtherCAT switch	2-port RS485	2-port EtherNet switch	2-port RS 485 2-port EtherNet switch
	Fieldbus	EtherCAT	Modbus RTU	Modbus RTU, Modbus TCP/IP, EtherNet/IP, PROFINET RT	Modbus RTU, Modbus TCP/IP, EtherNet/IP
	Real Time Motion	EtherCAT (CoE)	None	RTMoE	RTMoE
	Analog I/O	1 Analog Input ± 10V, 12 bits (11 bits + sign)			
	Digital I/O	2 DI, 2 DO (100 mA), 1 motor brake output (1 A, max 1.3 A)			
	Pulse Train Input	Frequency/Direction 5 V differential, 500 kHz			
	Encoder Feedback	2 x Encoder input and 1 simulated encoder output			
	Supported Encoders	Resolver, Quadrature, AB Servo, SinCos, EnDat (2.1/2.2), SSI, BiSS, Hiperface			
	Safety	2 x Safe Torque Off (STO) via terminal, PLe, SIL3			
Commissioning	Interface	EtherNet over EtherCAT (EoE)	RS485	EtherNet	RS485 / EtherNet
	Commissioning Tool	Connect			
	Motion Programming Tool	-	Machine Control Studio		
General	Mechanical Attributes	Removable cable screen clamp			
		User replaceable fan(s)			
		Conformal coating			
	Backup	SD Card			
		Electronic motor nameplate parameter storage (HIPERFACE, Endat 2.2)			
	Braking	Braking resistor: external / drive mountable			
		Braking chopper: integrated			
	Multi-axis	Busbars for common DC bus and earthing			
Quick Links for 24 V distribution					
Common braking resistor					
Display	Yes	Optional	Yes	Optional	

RFC-S: Rotor Flux Control for Synchronous (permanent magnet brushless) motors
RFC-A: Rotor Flux Control for Asynchronous (induction) motors

* The stated percentages apply only to three phase continuous current

Drive ratings

200 V Single Phase	Frame Size	Frame Size 01			Frame Size 02		Frame Size 03		
	W x D x H mm (in)	40 x 174 x 233 (1.57 x 6.85 x 9.17)			40 x 174 x 278 (1.57 x 6.85 x 10.94)		40 x 174 x 328 (1.57 x 6.85 x 12.91)		
	Line Supply	Single Phase AC 200 V...240 V (± 10%) @ 45...66 Hz							
	M75X-...	01200022	01200040	01200065	02200090	02200120	03200160		
	Output Servo								
	Rated Current (A)	1.1	2.2	3.5	5.6	7.5	10.8		
	Max Peak Current (A)	6.6	12	19.5	27	36	48		
	Output AC Induction								
	Max Continuous Current (A)	1.1	2.2	3.5	5.6	7.5	10.8		
	Open Loop Peak Current (A)	3.3	6	9.8	13.5	18	24		
	Closed Loop Peak Current (A)	6.6	12	19.5	27	36	48		
	Motor Power at 230 V (kW)	0.18	0.37	0.75	1.1	1.5	2.2		
	Motor Power at 230 V (hp)	0.25	0.5	1.0	1.5	2.0	3.0		
Overload									
Closed-loop Overload	Maximum closed loop peak current for 0.25 s								
Open-loop Overload	Maximum open loop peak current for 8 s								
200 V Three Phase	Frame Size	Frame Size 01			Frame Size 02		Frame Size 03		
	W x D x H mm (in)	40 x 174 x 233 (1.57 x 6.85 x 9.17)			40 x 174 x 278 (1.57 x 6.85 x 10.94)		40 x 174 x 328 (1.57 x 6.85 x 12.91)		
	Line supply	Three Phase AC 200 V...240 V (± 10%) @ 45...66 Hz							
	M75X-...	01200022	01200040	01200065	02200090	02200120	03200160		
	Input								
	Max Power (kW)	4			5.3		10*		
	Output Servo								
	Rated Current (A)	2.2	4	6.5	9	12	16		
	Max Peak Current (A)	6.6	12	19.5	27	36	48		
	Output AC Induction								
	Max Continuous Current (A)	2.2	4	6.5	9	12	16		
	Open Loop Peak Current (A)	3.3	6	9.8	13.5	18	24		
	Closed Loop Peak Current (A)	6.6	12	19.5	27	36	48		
Motor Power at 230 V (kW)	0.37	0.75	1.1	2.2	2.2	4.0			
Motor Power at 230 V (hp)	0.5	1.0	1.5	2.0	3.0	5.0			
Overload									
Closed-loop Overload	300 % for 0.25 s or 200 % for 4 s								
Open-loop Overload	150 % for 8 s								
400 V Three Phase	Frame Size	Frame Size 01			Frame Size 02		Frame Size 03		
	W x D x H mm (in)	40 x 174 x 233 (1.57 x 6.85 x 9.17)			40 x 174 x 278 (1.57 x 6.85 x 10.94)		40 x 174 x 328 (1.57 x 6.85 x 12.91)		
	Line Supply	Three Phase AC 380 V...480 V (± 10%) @ 45...66 Hz							
	M75X-...	01400015	01400030	01400042	02400060	02400080	02400105	03400135	03400160
	Input								
	Max Power (kW)	6.5			8.7		10/13*		
	Output Servo								
	Rated Current (A)	1.5	3	4.2	6	8	10.5	13.5	16
	Max Peak Current (A)	4.5	9	12.6	18	24	31.5	40.5	48
	Output AC Induction								
	Max Continuous Current (A)	1.5	3	4.2	6	8	10.5	13.5	16
	Open Loop Peak Current (A)	2.3	4.5	6.3	9	12	15.8	20.3	24
	Closed Loop Peak Current (A)	4.5	9	12.6	18	24	31.5	40.5	48
Motor Power at 400 V (kW)	0.37	0.75	1.5	2.2	3.0	4.0	5.5	5.5	
Motor Power at 400 V (hp)	0.75	1.5	2.0	3.0	5.0	5.0	7.5	10.0	
Overload									
Closed-loop Overload	300 % for 0.25 s or 200 % for 4 s								
Open-loop Overload	150 % for 8 s								

* External AC line reactor required.

Environment, safety and electrical conformance

Environment

IP rating: M75x drives are rated to IP20 (dry, non-conductive contamination)

UL open class

Ambient temperature -20 °C (-4 °F) to 40 °C (104 °F) as standard. Up to 55 °C (131 °F) with derating

Humidity 95 % maximum (non-condensing) at 40 °C (104 °F)

1,000 m to 3,000 m (3,300 ft to 9,900 ft) above sea level: de-rate the maximum output current from the specified figure by 1% per 100 m (330 ft) above 1,000 m (3,300 ft)

Storage temperature -40 °C (-40 °F) to 70 °C (158 °F)

Mechanical Shock Tested in accordance with IEC 60068-2-27

Random Vibration: Tested in accordance with IEC 60068-2-64

Safety

Safe Torque Off independently assessed by TÜV to IEC 61800-5-2

SIL 3 and EN ISO 13849-1 PLe

UL 61800-5-1 (Electrical Safety)

Electrical conformance

Electromagnetic Immunity complies with EN 61800-3 and EN 61000-6-2

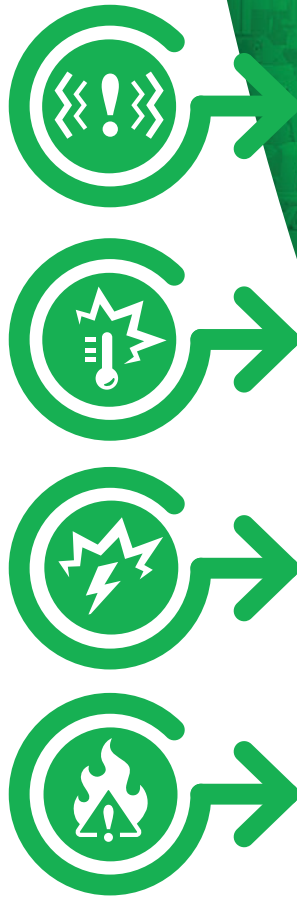
With onboard EMC filters, complies with EN 61800-3 (2nd environment)

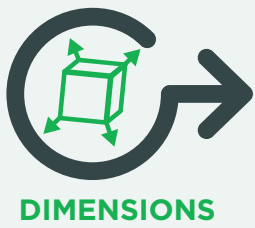
EN 61000-6-3 and EN 61000-6-4 with optional EMC filter

IEC 60146-1-1 supply conditions

IEC 61800-5-1 (Electrical Safety)

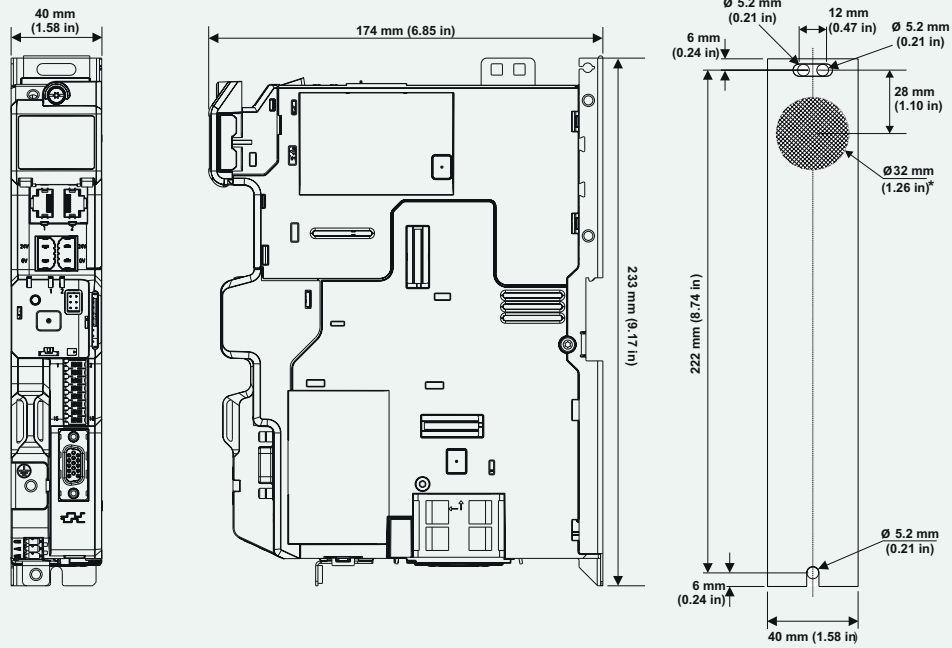
IEC 61131-2 I/O



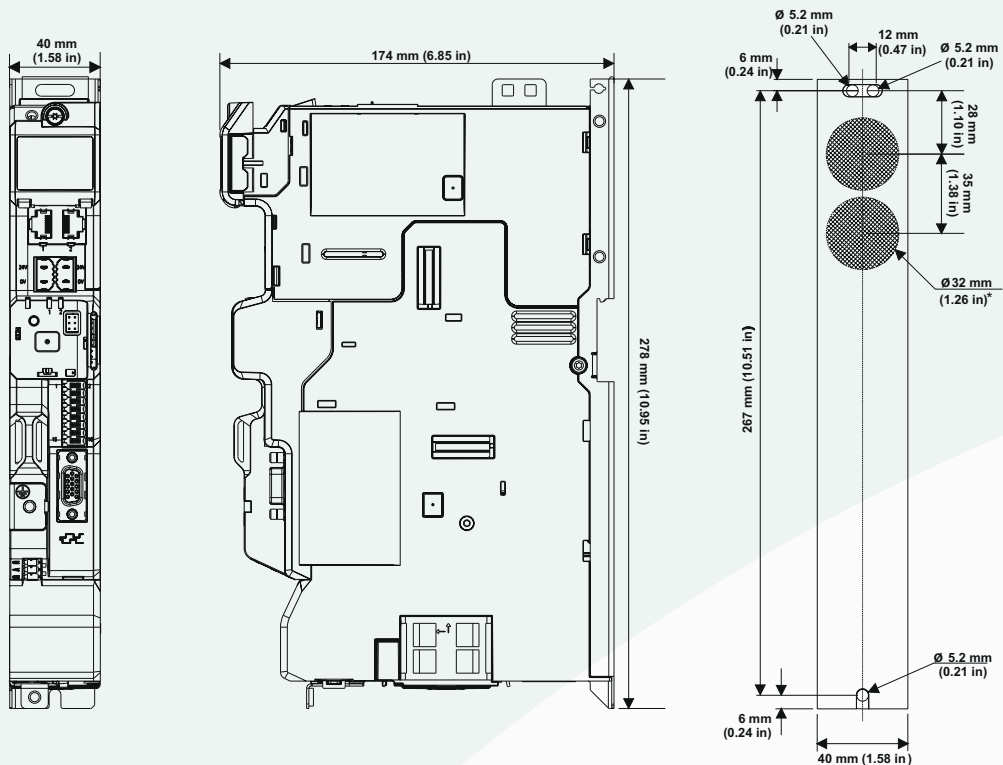


Digitax HD & Unimotor HD dimensions

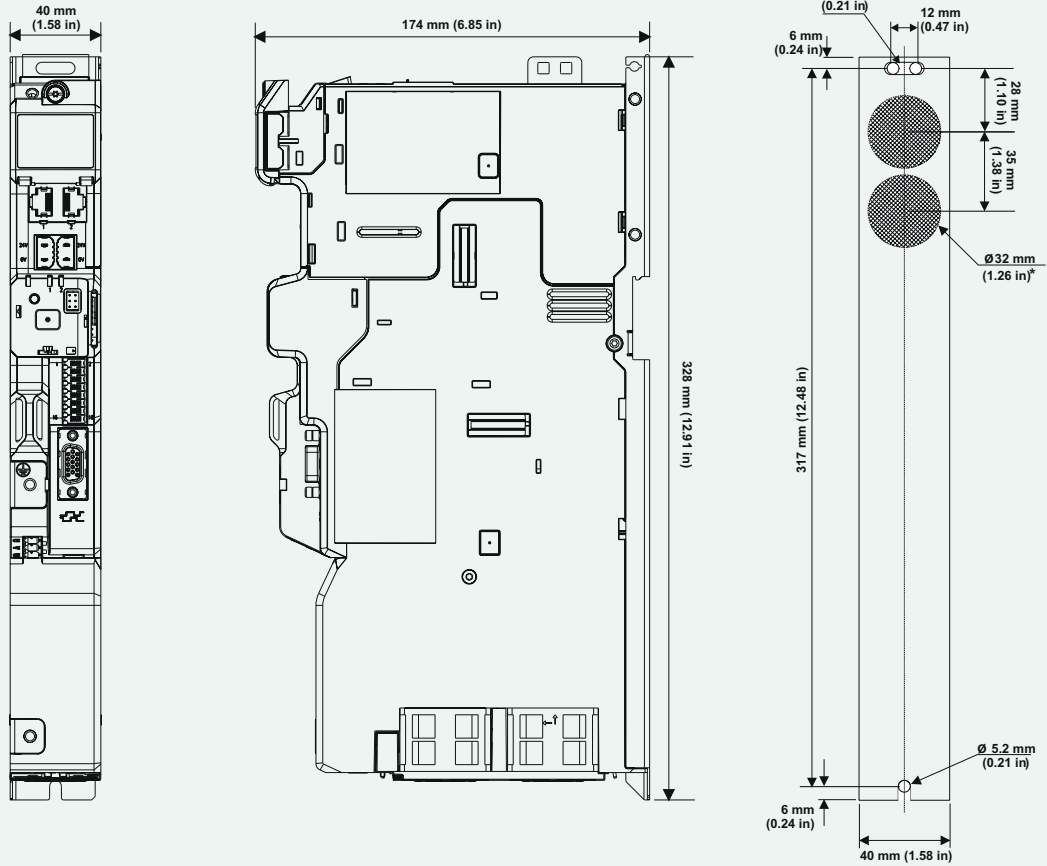
Frame 1



Frame 2



Frame 3



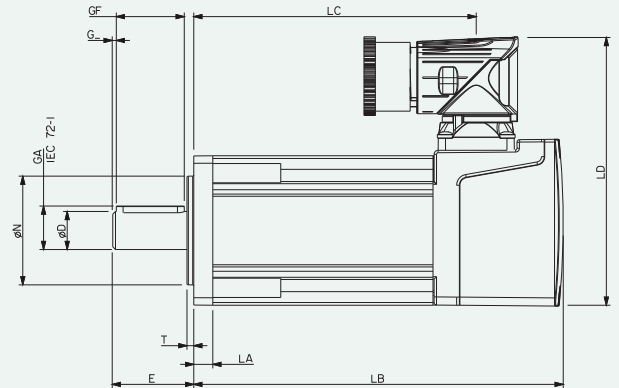
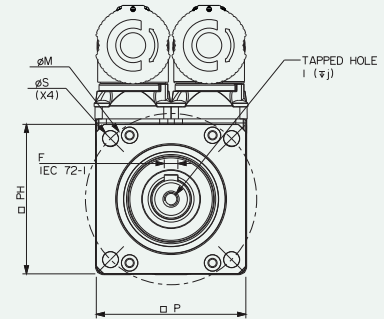
Notes:

- Additional space above and below the drive may be required for cable routing.
- Option module frame adds 22mm width.
- Alternative screw mounting options available. Please refer to the Installation Guide.

Unimotor hd Servo Series

Frame size 055

Motor frame size (mm)		055ED			055UD		
Voltage (Vrms)		200-240			380-480		
Frame length		A	B	C	A	B	C
Continuous stall torque (Nm)		0.69	1.13	1.58	0.69	1.13	1.58
Continuous stall torque (lb-in)		6.11	10.0	13.98	6.11	10.0	13.98
Peak torque (Nm)		2.07	3.4	4.75	2.07	3.4	4.75
Peak torque (lb-in)		18.32	30.09	42.04	18.32	30.09	42.04
Standard inertia (kgcm ²)		0.14	0.25	0.36	0.14	0.25	0.36
Standard inertia (lb-in-sec ²)		0.00012	0.00022	0.00032	0.00012	0.00022	0.00032
Winding thermal time constant (sec)		34	38	42	34	38	42
Motor weight unbraked (kg)		2.0	2.6	3.2	1.96	2.56	3.16
Motor weight unbraked (lb)		4.41	5.73	7.05	4.32	5.64	6.97
Motor weight braked (kg)		2.6	3.2	3.8	2.56	3.16	3.76
Motor weight braked (lb)		5.73	7.05	8.38	5.64	6.97	8.29
Number of poles		8	8	8	8	8	8
Speed 3000 (rpm)	Kt (Nm/A) =	0.74	0.87	0.91	0.74	1.49	1.65
	Kt (lb-in/A) =	6.55	7.7	8.05	6.55	13.19	14.6
	Ke (V/krpm) =	45	52.5	55	45	90	100
Rated torque (Nm)		0.67	1.01	1.42	0.67	1.01	1.42
Rated torque (lb-in)		5.93	8.94	12.57	5.93	8.94	12.57
Stall current (A)		0.74	1.22	1.7	0.93	0.76	0.96
Rated power (kW)		0.21	0.32	0.45	0.21	0.32	0.45
R (ph-ph) (Ohms)		28	14.12	9.53	28	45	31
L (ph-ph) (mH)		50	32	23	50	100	75
Recommended power conn' size		1	1	1	1	1	1
Speed 6000 (rpm)	Kt (Nm/A) =	0.45	0.43	0.48	0.74	0.79	0.83
	Kt (lb-in/A) =	3.98	3.81	4.25	6.55	6.99	7.35
	Ke (V/krpm) =	27	26	29	45	47.5	50
Rated torque (Nm)		0.68	0.9	1.2	0.68	0.9	1.2
Rated torque (lb-in)		6.02	7.97	10.62	6.02	7.97	10.62
Stall current (A)		1.61	2.74	3.44	0.93	1.43	1.91
Rated power (kW)		0.43	0.57	0.75	0.43	0.57	0.75
R (ph-ph) (Ohms)		8.5	3.55	2.38	28	10.7	7.8
L (ph-ph) (mH)		16	8.2	6.3	50	25	20
Recommended power conn' size		1	1	1	1	1	1



- $\Delta t = 100^\circ\text{C}$ winding 40°C (104°F) maximum ambient
All data subject to +/-10% tolerance
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68°F) ambient at **8 kHz drive switching frequency**
- All other figures relate to a 20°C (68°F) motor temperature.
- Maximum intermittent winding temperature is 140°C (284°F)

Motor dimension

Drawing number: GM496400

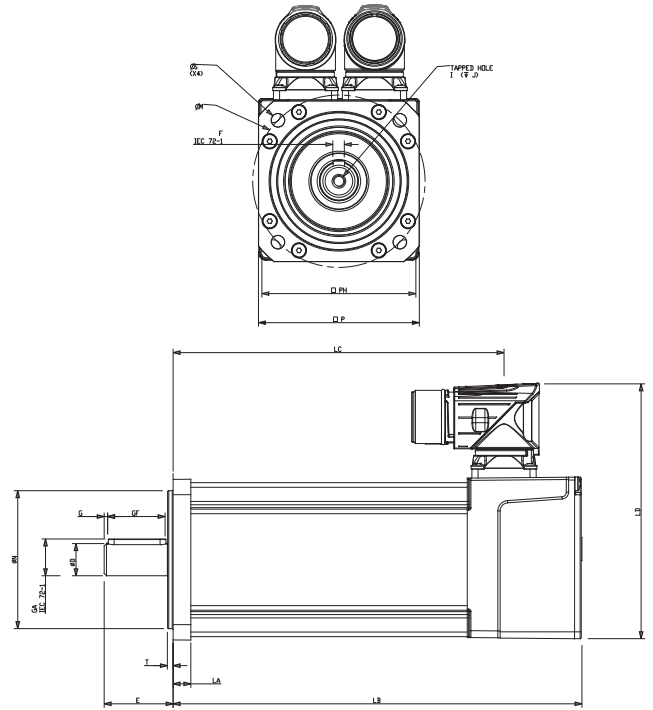
		Feedback AR, CR, EM, FM				Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
		Unbraked length		Braked length										
		A	B	A	B									
mm	055A	118.0	90.0	158.0	130.0	7.0	2.5	40.0	99.0	55.0	5.8	63.0	55.0	
	055B	142.0	114.0	182.0	154.0									
	055C	166.0	138.0	206.0	178.0									
in	055A	4.65	3.54	6.22	5.12	0.28	0.10	1.57	3.90	2.17	0.23	2.48	2.17	
	055B	5.59	4.49	7.17	6.06									
	055C	6.54	5.43	8.11	7.01									

Shaft dimensions

		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
		C (j6)	D	E	F	G	H (h9)	I	J
		mm	9	20	10.2	15	1	3.0	M4 x 10
	11.0 Std	11	23	12.5	15	1.5	4.0	M4 x 10	10
	14.0 Std	14	30.0	16.0	25.0	1.5	5.0	M5x x12.5	12.5
in	9.0 Opt	0.354	0.787	0.402	0.591	0.039	0.118	M4 x 10	0.394
	11.0 Std	0.433	0.906	0.492	0.591	0.059	0.157	M4 x 10	0.394
	14.0 Std	0.551	1.181	0.630	0.984	0.059	0.197	M5 x 12.5	0.492

Frame size 067

Motor frame size (mm)		067ED			067UD		
Voltage (Vrms)		200-240			380-480		
Frame length		A	B	C	A	B	C
Continuous stall torque (Nm)		1.42	2.5	3.63	1.42	2.5	3.63
Continuous stall torque (lb-in)		12.57	22.13	32.13	12.57	22.13	32.13
Peak torque (Nm)		4.26	7.5	10.88	4.26	7.5	10.88
Peak torque (lb-in)		37.7	66.38	96.3	37.7	66.38	96.3
Standard inertia (kgcm ²)		0.30	0.53	0.75	0.30	0.53	0.75
Standard inertia (lb-in-sec ²)		0.00027	0.00047	0.00066	0.00027	0.00047	0.00066
Winding thermal time constant (sec)		54	61	65	54	61	65
Motor weight unbraked (kg)		2	2.6	3.2	1.96	2.56	3.16
Motor weight unbraked (lb)		4.41	5.73	7.05	4.32	5.64	6.97
Motor weight braked (kg)		2.6	3.2	3.8	2.56	3.16	3.76
Motor weight braked (lb)		5.73	7.05	8.38	5.64	6.97	8.29
Number of poles		10	10	10	10	10	10
Speed 3000 (rpm)	Kt (Nm/A) =	0.93			0.8	1.6	
	Kt (lb-in/A) =	8.23			7.08	14.16	
	Ke (V/krpm) =	57			49	98	
	Rated torque (Nm)	1.37	2.4	3.43	1.37	2.4	3.43
Rated torque (lb-in)	12.13	21.24	30.36	12.13	21.24	30.36	
Stall current (A)	1.53	2.69	3.9	1.78	1.56	2.27	
Rated power (kW)	0.43	0.75	1.08	0.43	0.75	1.08	
R (ph-ph) (Ohms)	14.92	4.88	3.33	11.69	15.2	10.7	
L (ph-ph) (mH)	45.43	17.4	12.7	35.18	54.2	40.8	
Recommended power conn' size	1	1	1	1	1	1	
Speed 6000 (rpm)	Kt (Nm/A) =	0.47			0.8		
	Kt (lb-in/A) =	4.16			7.08		
	Ke (V/krpm) =	28.5			49		
	Rated torque (Nm)	1.3	2.2		1.3	2.2	3.1
Rated torque (lb-in)	11.51	19.47		11.51	19.47	27.44	
Stall current (A)	3.02	5.32		1.78	3.12	4.53	
Rated power (kW)	0.82	1.38		0.82	1.38	1.95	
R (ph-ph) (Ohms)	3.86	1.22		11.69	3.79	2.68	
L (ph-ph) (mH)	11.06	4.35		35.18	13.6	10.2	
Recommended power conn' size	1	1		1	1	1	



- Δt= 100°C winding 40°C (104 °F) maximum ambient
All data subject to +/-10% tolerance
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68 °F) ambient at **8 kHz drive switching frequency**
- All other figures relate to a 20°C (68 °F) motor temperature.
- Maximum intermittent winding temperature is 140°C (284 °F)

Motor dimension

Drawing number: IM/0694/GA

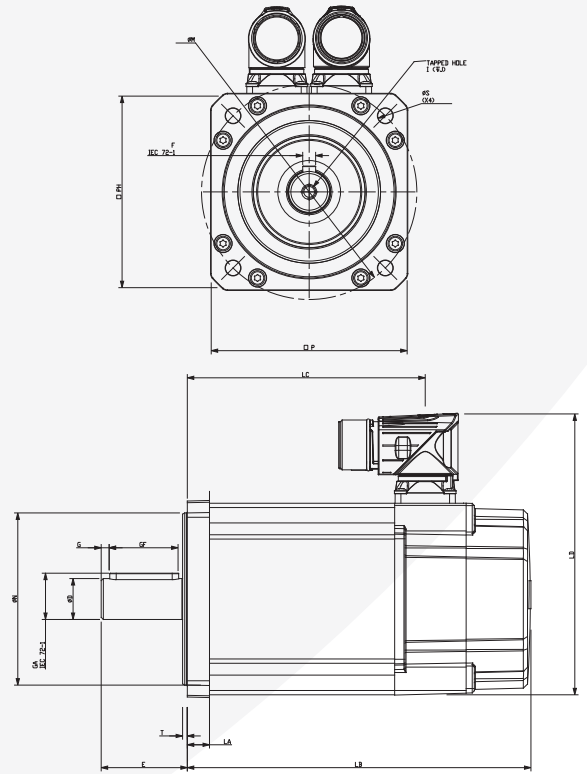
		Feedback AR, CR, EM, FM				Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
		Unbraked length		Braked length										
		LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)									
mm	067A	142.9	109.0	177.9	144.0	7.7	2.5	60.0	111.5	70.0	5.8	75.0	67.00	M5
	067B	172.9	139.0	207.9	174.0									
	067C	202.9	169.0	237.9	204.0									
in	067A	5.626	4.291	7.004	5.669	0.303	0.098	2.362	4.390	2.756	0.228	2.953	2.638	
	067B	6.807	5.472	8.185	6.850									
	067C	7.988	6.654	9.366	8.031									

Shaft dimensions

		Feedback TL, UL		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
		Unbraked length	Braked length								
		LB (± 0.9)	LB (± 0.9)								
mm	067A	157.4	192.4	14.0	30.0	16.0	25.0	1.5	5.0	M5 x 0.8	13.5
	067B	187.4	222.4								
	067C	217.4	252.4								
in	067A	6.197	7.575	0.551	1.181	0.630	.0984	0.059	0.197	M5 x 0.8	0.531
	067B	7.378	8.752								
	067C	8.559	9.937								

Frame size 089

Motor frame size (mm)		089ED			089UD		
Voltage (Vrms)		200-240			380-480		
Frame length		A	B	C	A	B	C
Continuous stall torque (Nm)		3.1	5.34	7.76	3.1	5.34	7.76
Continuous stall torque (lb-in)		27.44	47.26	68.68	27.44	47.26	68.68
Peak torque (Nm)		9.31	16.01	23.28	9.31	16.01	23.28
Peak torque (lb-in)		82.4	141.7	206.05	82.4	141.7	206.05
Standard inertia (kgcm ²)		0.87	1.61	2.34	0.87	1.61	2.34
Standard inertia (lb-in-sec ²)		0.00077	0.00142	0.00207	0.00077	0.00142	0.00207
Winding thermal time constant (sec)		85	93	98	85	93	98
Motor weight unbraked (kg)		3.18	4.28	5.38	3.18	4.28	5.38
Motor weight unbraked (lb)		7.01	9.44	11.86	7.01	9.44	11.86
Motor weight braked (kg)		3.18	4.28	5.38	3.18	4.28	5.38
Motor weight braked (lb)		9.44	11.86	14.29	9.44	11.86	14.29
Number of poles		10	10	10	10	10	10
Speed 3000 (rpm)	Kt (Nm/A) =	0.93			1.6		
	Kt (lb-in/A) =	8.23			14.16		
	Ke (V/krpm) =	57			98		
Rated torque (Nm)		2.91	4.7	6.69	2.91	4.7	6.69
Rated torque (lb-in)		25.76	41.6	59.21	25.76	41.6	59.21
Stall current (A)		3.34	5.74	8.34	1.94	3.33	4.85
Rated power (kW)		0.91	1.48	2.1	0.91	1.48	2.1
R (ph-ph) (Ohms)		3.28	1.57	0.89	10.1	5.05	2.68
L (ph-ph) (mH)		21.55	11.84	7.09	65.17	38.36	21.72
Recommended power conn' size		1	1	1	1	1	1
Speed 4000 (rpm)	Kt (Nm/A) =	0.7			1.2		
	Kt (lb-in/A) =	6.20			10.62		
	Ke (V/krpm) =	42.75			73.5		
Rated torque (Nm)		2.9	4.55	6.35	2.9	4.55	6.35
Rated torque (lb-in)		25.67	40.27	56.2	25.67	40.27	56.2
Stall current (A)		4.43	7.62	11.09	2.59	4.45	6.47
Rated power (kW)		1.21	1.91	2.66	1.21	1.91	2.66
R (ph-ph) (Ohms)		2.04	0.79	0.54	6.16	2.47	1.75
L (ph-ph) (mH)		13.2	5.97	4.38	39.78	18.8	14.03
Recommended power conn' size		1	1	1	1	1	1
Speed 6000 (rpm)	Kt (Nm/A) =	0.47			0.8		
	Kt (lb-in/A) =	4.16			7.08		
	Ke (V/krpm) =	28.5			49		
Rated torque (Nm)		2.65	3.8	5	2.65	3.8	5
Rated torque (lb-in)		23.45	33.63	44.25	23.45	33.63	44.25
Stall current (A)		6.6	11.35	16.51	3.88	6.67	9.7
Rated power (kW)		1.67	2.39	3.14	1.67	2.39	3.14
R (ph-ph) (Ohms)		0.98	0.39	0.23	2.52	1.27	0.83
L (ph-ph) (mH)		6.24	2.96	1.89	16.29	9.59	6.66
Recommended power conn' size		1	1	1	1	1	1



- Δt= 100°C winding 40°C (104 °F) maximum ambient
All data subject to +/-10% tolerance
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68 °F) ambient at **8 kHz drive switching frequency**
- All other figures relate to a 20°C (68 °F) motor temperature.
- Maximum intermittent winding temperature is 140°C (284 °F)

Motor dimension

Drawing number: IM/0688/GA

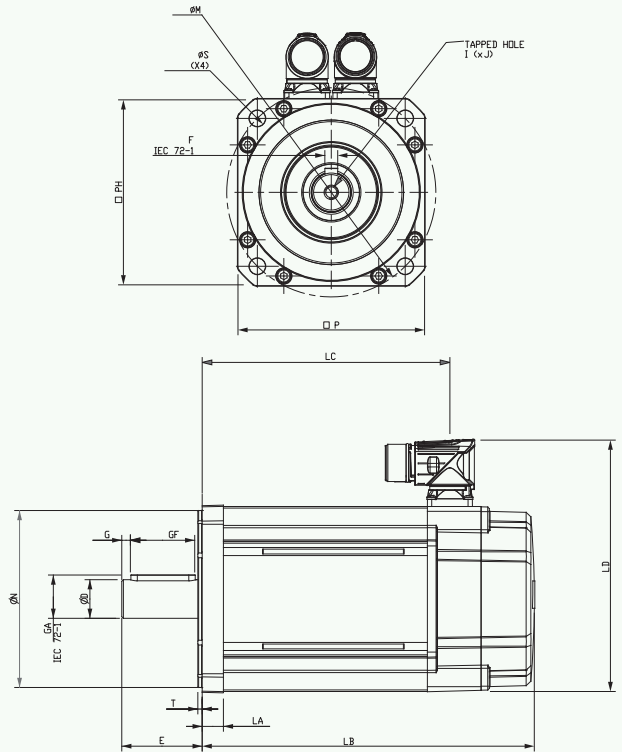
		Feedback EC, FC, LC, NC				Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
		Unbraked length		Braked length										
		LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)									
mm	089A	147.8	110.5	187.9	150.6	10.3	2.2	80.0	130.5	91.0	7.00	100.0	89.0	
	089B	177.8	140.5	217.9	180.6									
	089C	207.8	170.5	247.9	210.6									
in	089A	5.819	4.350	7.398	5.929	0.406	0.087	3.150	5.138	3.583	0.276	3.937	3.504	
	089B	7.000	5.531	8.579	7.110									
	089C	8.181	6.713	9.760	8.291									

Shaft dimensions

		Feedback EB, FB, CA, SA, RA		Feedback AE		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
		Unbraked length	Braked length	Unbraked length	Braked length								
		LB (± 0.9)	LB (± 0.9)	LB (± 0.9)	LB (± 0.9)								
mm	089A	160.8	200.9	137.8	177.9	19.0	40.0	21.5	32.0	3.7	6.0	M6 x 1.0	17.0
	089B	190.8	230.9	167.8	207.9								
	089C	220.8	260.9	197.8	237.9								
in	089A	6.331	7.909	5.425	7.004	0.748	1.575	0.846	1.260	0.146	0.236	M6 x 1.0	0.669
	089B	7.512	9.091	6.606	8.185								
	089C	8.693	10.272	7.787	9.366								

Frame size 115

Motor frame size (mm)		115ED			115UD		
Voltage (Vrms)		200-240			380-480		
Frame length		B	C	D	B	C	D
Continuous stall torque (Nm)		10	14.31	18.42	10	14.31	18.42
Continuous stall torque (lb-in)		88.51	126.65	163.03	88.51	126.65	163.03
Peak torque (Nm)		29.99	42.92	55.27	29.99	42.92	55.27
Peak torque (lb-in)		265.43	379.87	489.18	265.43	279.87	489.18
Standard inertia (kgcm ²)		4.41	6.39	8.38	4.41	6.39	8.38
Standard inertia (lb-in-sec ²)		0.00390	0.00566	0.00742	0.00390	0.00566	0.00742
Winding thermal time constant (sec)		164	168	175	164	168	175
Motor weight unbraked (kg)		6.95	8.72	10.49	6.95	8.72	10.49
Motor weight unbraked (lb)		15.32	19.22	23.13	15.32	19.22	23.13
Motor weight braked (kg)		8.45	10.22	11.99	8.45	10.22	11.99
Motor weight braked (lb)		18.63	22.53	26.43	18.63	22.53	26.43
Number of poles		10	10	10	10	10	10
Speed 2000 (rpm)	Kt (Nm/A) =	1.4			2.4		
	Kt (lb-in/A) =	12.39			21.24		
	Ke (V/krpm) =	85.5			147		
Rated torque (Nm)		8.43	11.66	15.29	8.43	11.66	15.29
Rated torque (lb-in)		74.61	103.2	135.33	74.61	103.2	135.33
Stall current (A)		7.14	10.22	13.16	4.17	5.96	7.68
Rated power (kW)		1.76	2.39	3.14	1.77	2.44	3.2
R (ph-ph) (Ohms)		1.4	0.77	0.61	4.41	2.41	1.8
L (ph-ph) (mH)		12.84	7.87	6.62	40.6	24.69	19.45
Recommended power conn' size		1	1	1	1	1	1
Speed 3000 (rpm)	Kt (Nm/A) =	0.93			1.6		
	Kt (lb-in/A) =	8.23			14.16		
	Ke (V/krpm) =	57			98		
Rated torque (Nm)		7.55	10.29		7.55	10.29	13.33
Rated torque (lb-in)		66.82	91.07		66.82	91.07	117.98
Stall current (A)		10.75	15.38		6.25	8.94	11.52
Rated power (kW)		2.37	3.23		2.37	3.23	4.19
R (ph-ph) (Ohms)		0.58	0.39		1.83	1.21	0.78
L (ph-ph) (mH)		5.4	4.01		16.93	12.72	8.65
Recommended power conn' size		1	1		1	1	1



- Δt= 100°C winding 40°C (104 °F) maximum ambient
All data subject to +/-10% tolerance
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68 °F) ambient at **8 kHz drive switching frequency**
- All other figures relate to a 20°C (68 °F) motor temperature.
- Maximum intermittent winding temperature is 140°C (284 °F)

Motor dimension

Drawing number: IM/0689/GA

		Feedback EC, FC, LC, NC				Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
		Unbraked length		Braked length										
		LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)									
mm	115B	193.8	154.0	230.9	191.1	13.2	2.7	110.0	156.5	116.0	10.00	130.0	115.0	
	115C	223.8	184.0	260.9	221.1									
	115D	253.8	214.0	290.9	251.1									
in	115B	7.630	6.063	9.091	7.524	0.520	0.106	4.331	6.161	4.567	0.394	5.118	4.528	
	115C	8.811	7.244	10.272	8.705									
	115D	9.992	8.425	11.453	9.886									

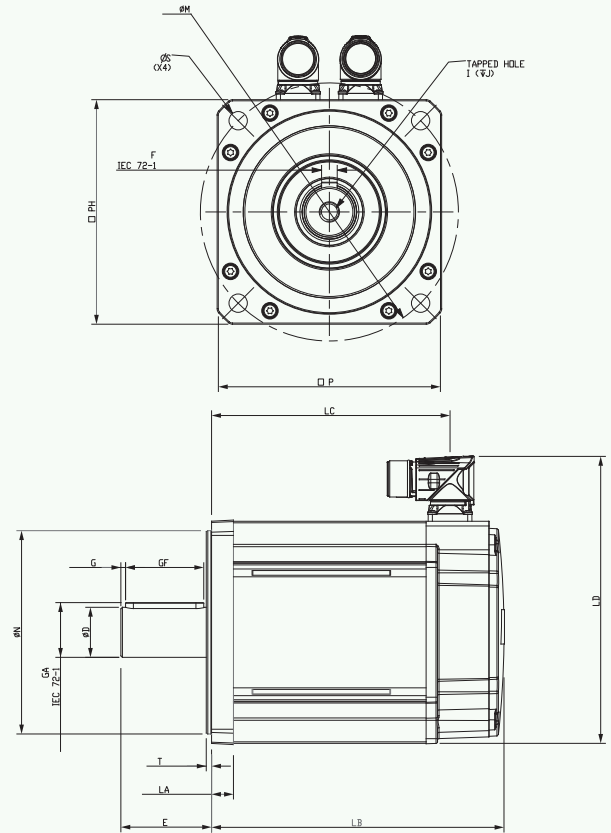
Shaft dimensions

		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
		D (j6)	E	GA	GF	G	F (h9)	I	J (± 0.1)
mm	24.0 Std	24.0	50.0	27.0	40.0	5.3	8.0	M8 x 1.25	20.0
		0.945	1.969	1.063	1.575	0.209	0.315		0.787

		Feedback EB, FB, CA, SA, RA		Feedback AE	
		Unbraked length	Braked length	Unbraked length	Braked length
		LB (± 0.9)	LB (± 0.9)	LB (± 0.9)	LB (± 0.9)
mm	115B	206.8	243.9	183.8	220.9
	115C	236.8	273.9	213.8	250.9
	115D	266.8	303.9	243.8	280.9
in	115B	8.142	9.602	7.236	8.697
	115C	9.323	10.783	8.417	9.878
	115D	10.504	11.965	9.598	11.059

Frame size 142

Motor frame size (mm)		142ED			142UD		
Voltage (Vrms)		200-240			380-480		
Frame length		C	D	E	C	D	E
Continuous stall torque (Nm)		22.75	28.67	34.58	22.75	28.67	34.58
Continuous stall torque (lb-in)		201.35	253.75	306.06	201.35	253.75	306.06
Peak torque (Nm)		68.25	86	103.74	68.25	86	103.74
Peak torque (lb-in)		604.06	761.16	918.18	604.06	761.16	918.18
Standard inertia (kgcm ²)		17	22.1	27.2	17	22.1	27.2
Standard inertia (lb-in-sec ²)		0.01505	0.01956	0.02407	0.01505	0.01956	0.02407
Winding thermal time constant (sec)		245	251	256	245	251	256
Motor weight unbraked (kg)		12.74	15.39	18.04	12.74	15.39	18.04
Motor weight unbraked (lb)		28.09	33.93	39.77	28.09	33.93	39.77
Motor weight braked (kg)		14.82	17.47	20.12	14.82	17.44	20.12
Motor weight braked (lb)		32.67	38.51	44.36	32.67	38.45	44.36
Number of poles		10	10	10	10	10	10
Speed 1000 (rpm)	Kt (Nm/A) =	2.8					
	Kt (lb-in/A) =	24.78					
	Ke (V/krpm) =	171					
	Rated torque (Nm)	21.2	26.39	31.4			
Rated torque (lb-in)	187.64	233.57	277.91				
Stall current (A)	8.1	10.19	12.38				
Rated power (kW)	2.22	2.77	3.29				
R (ph-ph) (Ohms)	1.36	0.94	0.72				
L (ph-ph) (mH)	21.34	15.17	12.3				
Recommended power conn' size	1	1	1				
Speed 1500 (rpm)	Kt (Nm/A) =				3.2		
	Kt (lb-in/A) =				28.32		
	Ke (V/krpm) =				196		
	Rated torque (Nm)				20.29	24.57	28.85
Rated torque (lb-in)				179.58	217.46	255.34	
Stall current (A)				7.1	8.92	10.83	
Rated power (kW)				3.19	3.82	4.55	
R (ph-ph) (Ohms)				1.36	0.94	0.72	
L (ph-ph) (mH)				21.34	15.17	12.3	
Recommended power conn' size				1	1	1	
Speed 2000 (rpm)	Kt (Nm/A) =	1.4			2.4		
	Kt (lb-in/A) =	12.39			21.24		
	Ke (V/krpm) =	85.5			147		
	Rated torque (Nm)	19.47	23.39	26.94	19.47	23.39	26.94
Rated torque (lb-in)	172.32	207.02	238.44	172.32	207.02	238.44	
Stall current (A)	16.25	20.48	24.7	9.48	11.94	14.41	
Rated power (kW)	4.08	4.9	5.64	4.08	4.9	5.64	
R (ph-ph) (Ohms)	0.34	0.24	0.18	0.79	0.62	0.49	
L (ph-ph) (mH)	5.33	3.79	3.07	12.15	9.66	8.34	
Recommended power conn' size	1.5	1.5	1.5	1	1	1	
Speed 3000 (rpm)	Kt (Nm/A) =	0.93			1.6		
	Kt (lb-in/A) =	8.23			14.16		
	Ke (V/krpm) =	57			98		
	Rated torque (Nm)	16.74	19.02		16.77	19.02	20.93
Rated torque (lb-in)	148.16	168.34		148.43	168.34	185.25	
Stall current (A)	24.46	30.82		14.22	17.92	21.61	
Rated power (kW)	5.26	5.97		5.27	5.97	6.58	
R (ph-ph) (Ohms)	0.12	0.10		0.34	0.24	0.18	
L (ph-ph) (mH)	1.9	1.57		5.33	3.79	3.07	
Recommended power conn' size	1.5	1.5		1	1.5	1.5	



- Δt= 100°C winding 40°C (104 °F) maximum ambient
All data subject to +/-10% tolerance
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68 °F) ambient at **8 kHz drive switching frequency**
- All other figures relate to a 20°C (68 °F) motor temperature.
- Maximum intermittent winding temperature is 140°C (284 °F)

Motor dimension

Drawing number: IM/0709/GA

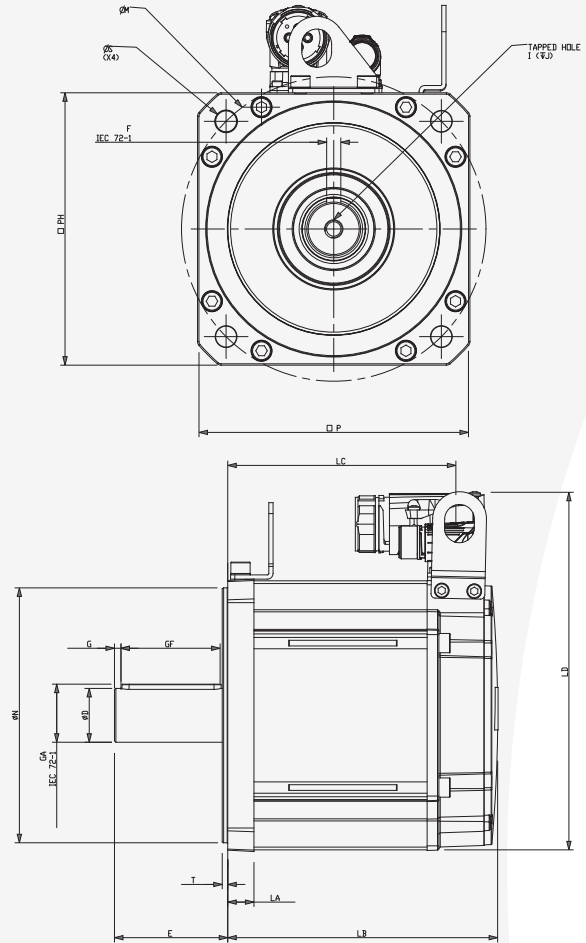
		Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
		LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)									
mm	142C	217.0	182.5	282.5	248.0	14.0	3.4	130.0	183.5	142.0	12.0	165.0	142.0	M10
	142D	247.0	212.5	312.5	278.0				183.5-204.5					
	142E	277.0	242.5	342.5	308.0				7.224					
in	142C	8.543	7.185	11.122	9.764	0.551	0.134	5.118	7.224	5.591	0.472	6.496	5.591	M10
	142D	9.724	8.366	12.303	10.945				7.224-8.051					
	142E	10.906	9.547	13.484	12.126									

Shaft dimensions

		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
		D (j6)	E	GA	GF	G	F (h9)	I	J (± 1)
mm	32.0 Std	32.0	58.0	35.0	50.0	3	10.0	M12 x 1.75	29.0
in		1.260	2.283	1.378	1.969	0.118	0.394		1.142

Frame size 190

Motor frame size (mm)		190ED			190UD		
Voltage (Vrms)		200-240			380-480		
Frame length		C	D	F	C	D	F
Continuous stall torque (Nm)		52	62	85	52	62	85
Continuous stall torque (lb-in)		460.24	548.75	752.31	460.24	548.75	752.31
Peak torque (Nm)		156	186	255	156	186	255
Peak torque (lb-in)		1380.72	1646.24	2256.94	1380.72	1646.24	2256.94
Standard inertia (kgcm ²)		54.6	70.9	103.5	54.6	70.9	103.5
Standard inertia (lb-in-sec ²)		0.04832	0.06275	0.09161	0.04832	0.06275	0.09161
Winding thermal time constant (sec)		311	316	324	311	316	324
Motor weight unbraked (kg)		27.74	34.3	47.42	27.74	34.3	47.42
Motor weight unbraked (lb)		61.16	75.62	104.54	61.16	75.62	104.54
Motor weight braked (kg)		31.38	37.94	56.74	31.38	37.94	56.74
Motor weight braked (lb)		69.18	83.64	125.09	69.18	83.64	125.09
Number of poles		10	10	10	10	10	10
Speed 1000 (rpm)	Kt (Nm/A) =	2.8					
	Kt (lb-in/A) =	24.78					
	Ke (V/krpm) =	171					
Rated torque (Nm)		49	56.5	77.5			
Rated torque (lb-in)		433.69	500.07	685.93			
Stall current (A)		18.6	22.1	30.4			
Rated power (kW)		5.13	5.92	8.12			
R (ph-ph) (Ohms)		0.47	0.4	0.23			
L (ph-ph) (mH)		12.3	10.4	6.79			
Recommended power conn' size		1.5	1.5	1.5			
Speed 1500 (rpm)	Kt (Nm/A) =				3.2		
	Kt (lb-in/A) =				28.32		
	Ke (V/krpm) =				196		
Rated torque (Nm)					46.2	52.2	68.5
Rated torque (lb-in)					408.9	462.01	606.28
Stall current (A)					16.3	19.4	26.6
Rated power (kW)					7.26	8.2	10.76
R (ph-ph) (Ohms)					0.57	0.4	0.23
L (ph-ph) (mH)					14.15	10.4	6.79
Recommended power conn' size					1.5	1.5	1.5
Speed 2000 (rpm)	Kt (Nm/A) =	1.4			2.4		
	Kt (lb-in/A) =	12.39			21.24		
	Ke (V/krpm) =	85.5			147		
Rated torque (Nm)		42.5			42.5	45.3	56.0
Rated torque (lb-in)		376.16			376.16	400.94	495.65
Stall current (A)		37.14			21.7	25.8	35.42
Rated power (kW)		8.9			8.9	9.5	11.7
R (ph-ph) (Ohms)		0.12			0.34	0.17	0.14
L (ph-ph) (mH)		3.07			8.2	5.05	4.55
Recommended power conn' size		1.5			1.5	1.5	1.5



- Δt= 100°C winding 40°C (104 °F) maximum ambient
All data subject to +/-10% tolerance
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68 °F) ambient at **8 kHz drive switching frequency**
- All other figures relate to a 20°C (68 °F) motor temperature.
- Maximum intermittent winding temperature is 140°C (284 °F)

Motor dimension (mm)

Drawing number: IM/00710/GA

		Unbraked length		Braked length		Flange thickness	Register length	Register diameter	Overall height	Flange square	Fixing hole diameter	Fixing hole PCD	Motor housing	Mounting bolts
		LB (± 0.9)	LC (± 1.0)	LB (± 0.9)	LC (± 1.0)									
mm	190C	220.6	191.1	319.1	289.6	18.5	3.9	180.0	252.5	190.3	14.5	215.0	190.0	M12
	190D	250.6	221.1	349.1	319.6									
	190F	310.6	281.1	409.1	379.6									
in	190C	8.685	7.524	12.563	11.402	0.728	0.154	7.087	9.941	7.492	0.571	8.465	7.480	M12
	190D	9.866	8.705	13.744	12.583									
	190F	12.229	11.067	16.106	14.945									

Shaft dimensions (mm)

		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	Key width	Tapped hole thread size	Tapped hole depth
		D (j6)	E	GA	GF	G	F (h9)	I	J (± 1)
mm	38.0 Std	38.0	80.0	41.0	70.0	4.6	10.0	M12 x 1.75	29.0
in		1.496	3.150	1.614	2.756	0.181	0.394		1.142