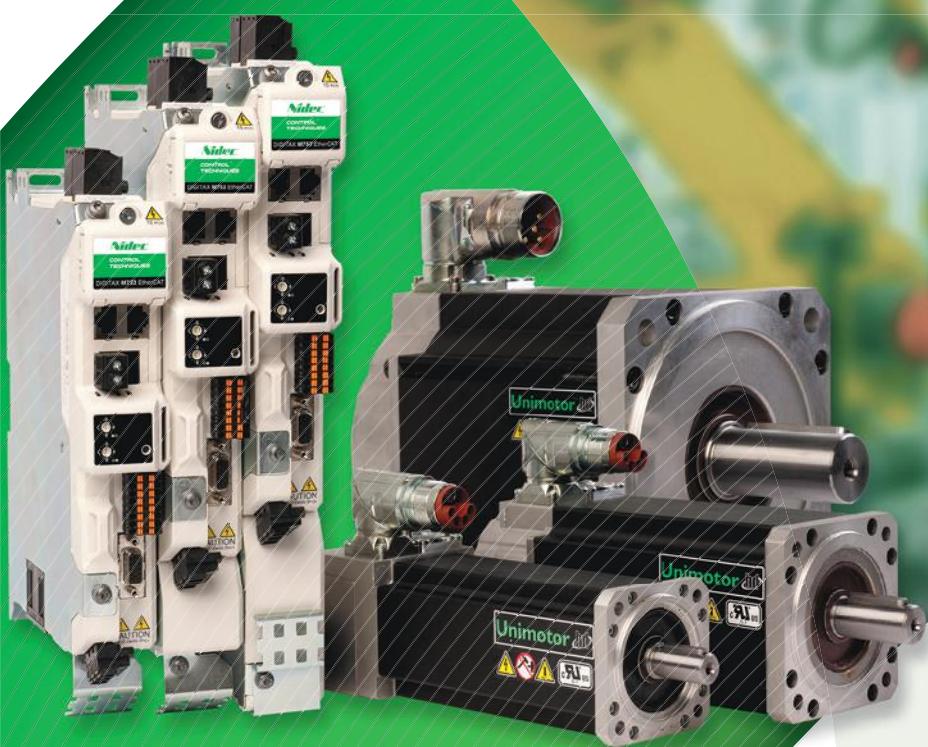


**CONTROL
TECHNIQUES**™

DIGITAX HD

SERVO DRIVE SERIES



0.7 – 51 Nm, 300% overload
(6.2 – 451 lb-in, 300% overload)
1.5 – 16 A, 300% overload
200 V | 400 V
0.25 – 7.5 kW (0.6 - 9.8 hp)

Minimum size,
maximum performance

Nidec
All for dreams

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**

SERVO DRIVE SERIES



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



Just 40 mm (1.6 in)

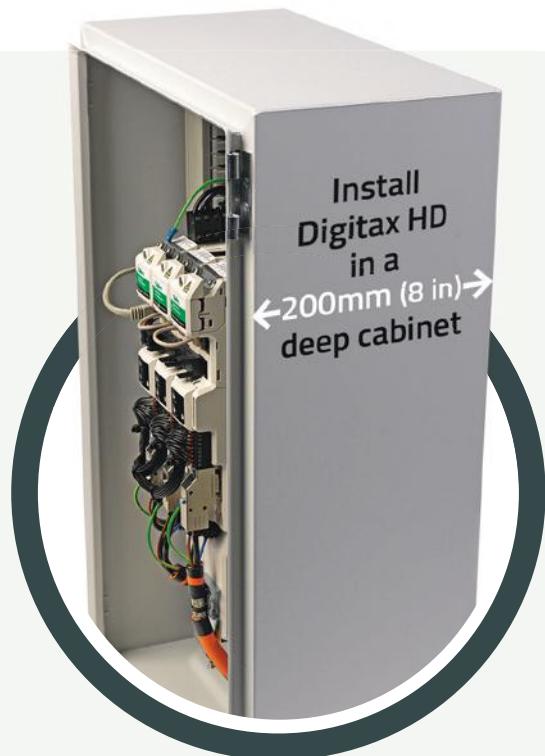
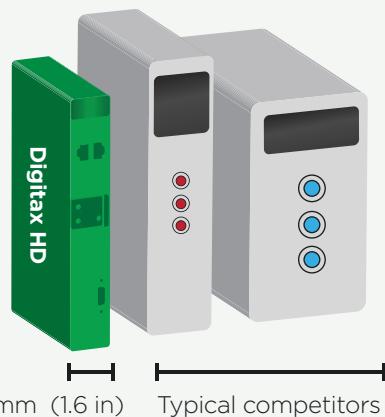
Minimum size servo solutions

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

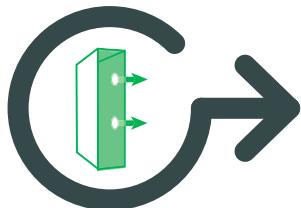


Drive dimensions

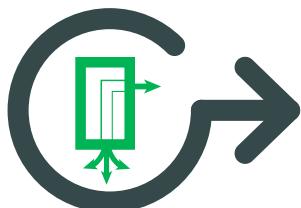
Dimensions	Frame 1		Frame 2		Frame 3	
	in	mm	in	mm	in	mm
Width	1.57	40	1.57	40	1.57	40
Depth	6.85	174	6.85	174	6.85	174
Height	9.17	233	11.0	278	12.9	328
Nominal current @ 400 V	4.2 A		10.5 A		12.9 A	
Peak current @ 400 V	12.6 A		31.5 A		48 A	



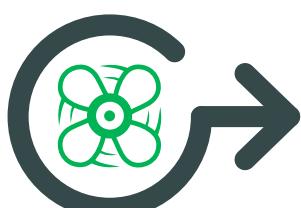
Further reduce cabinet size with Ultraflow™ thermal management



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.



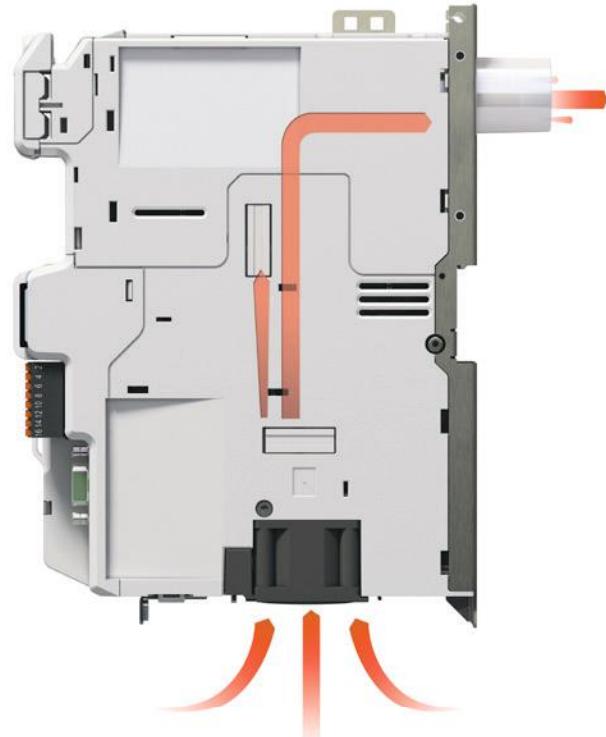
Ultraflow™'s guided internal airflow prevents ingress on drive circuits and, combined with conformal coating, minimizes contamination risk.



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

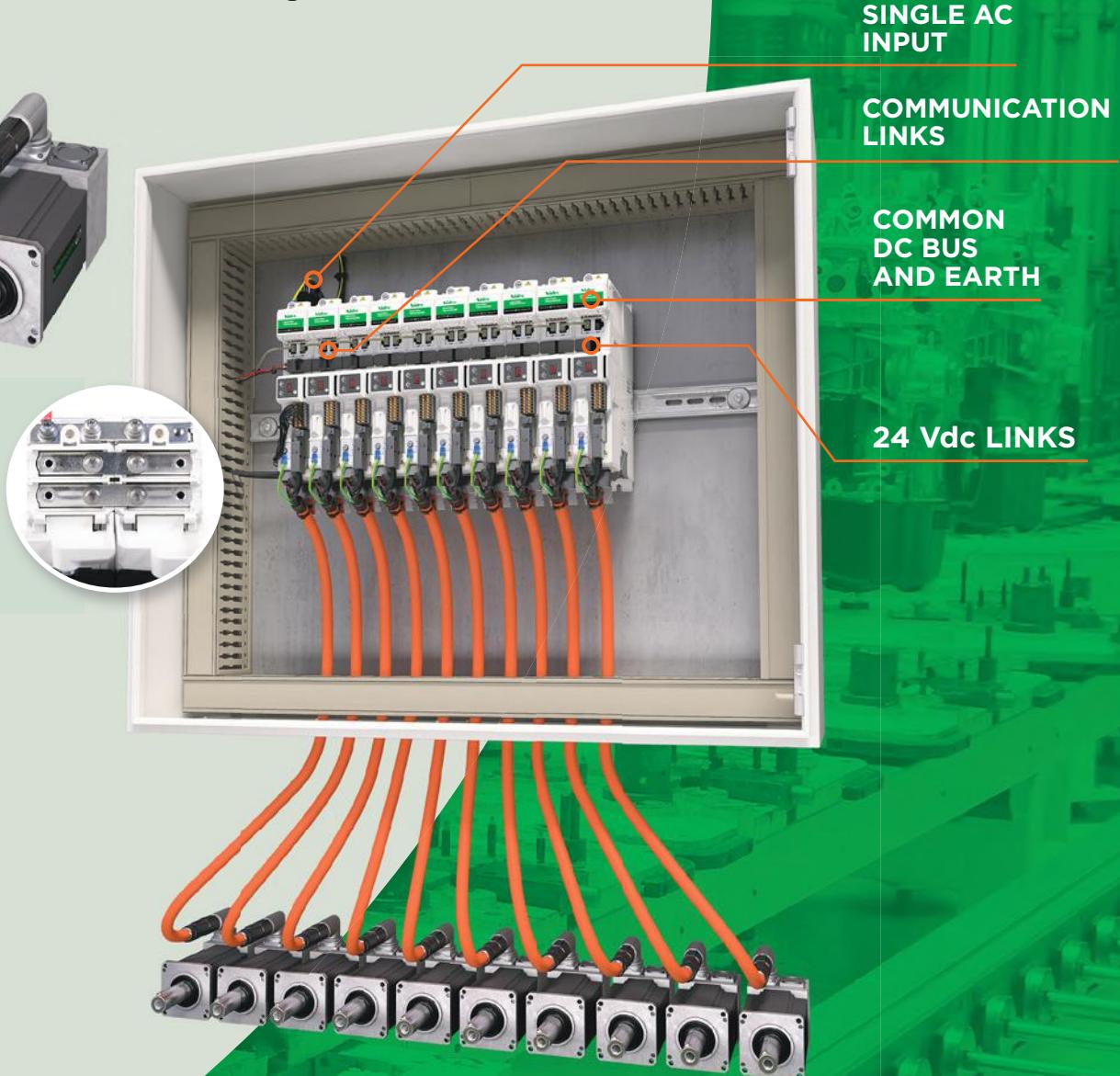
* Drive heat dissipation can also be achieved via vents on top of the drive, as standard.

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



From
standalone...

...to a modular
common dc
bus system





PERFORMANCE



SPEED



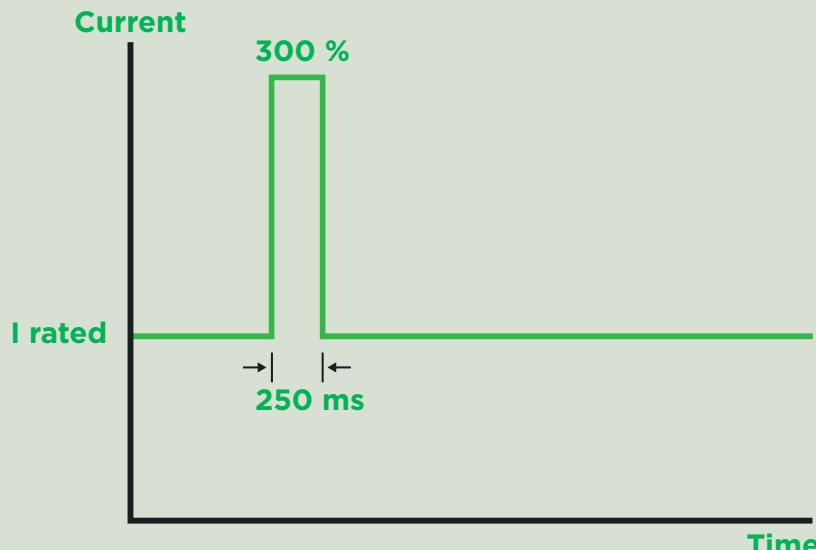
PRECISION

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 µs current loop
 - 250 µs 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 ±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.

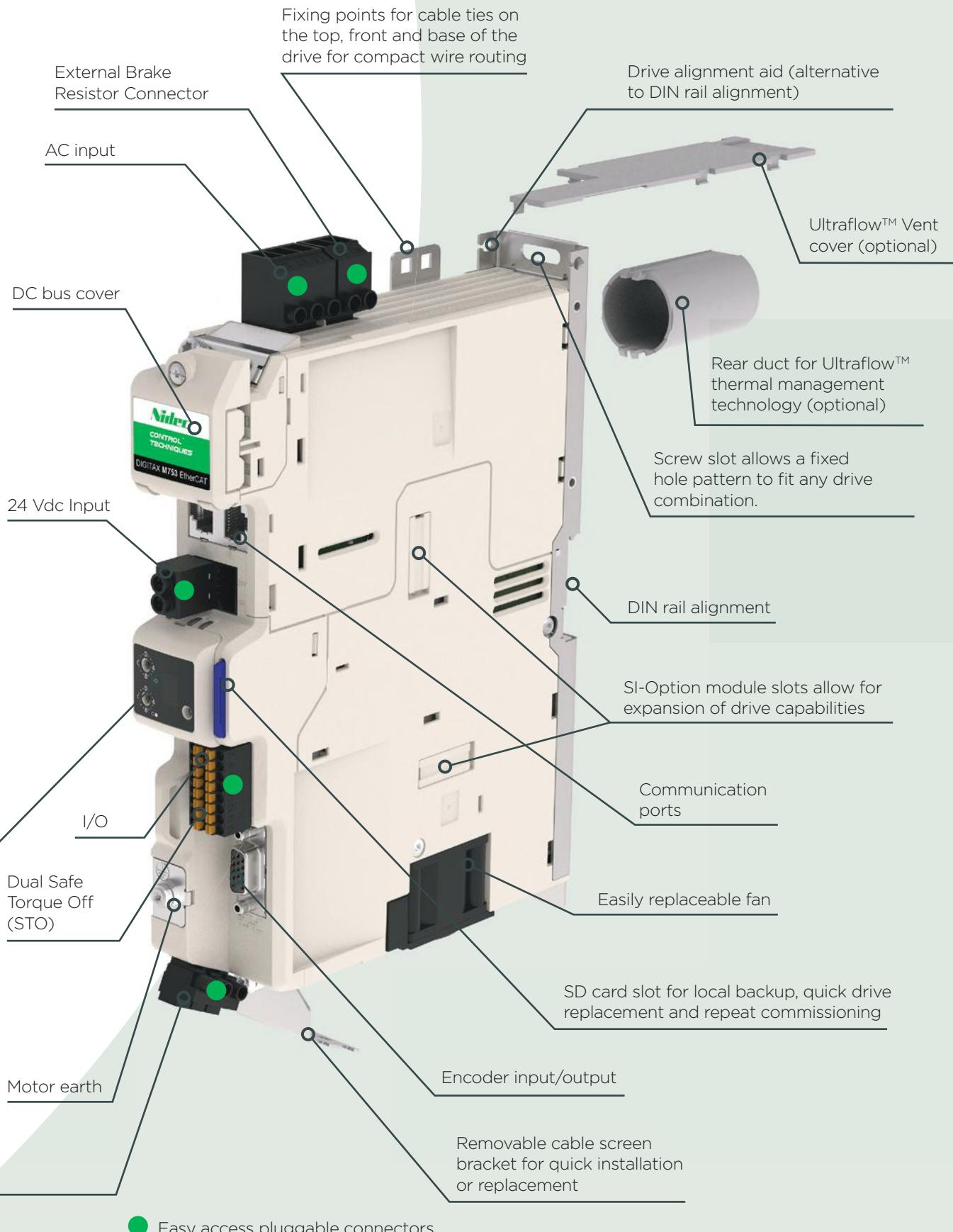
- Reduces installation time and cost
- Improves energy efficiency and footprint



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.





SOFTWARE

Fast programming and commissioning

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 Position task, 1 x Initial task, 4 x Clock tasks, 1 x Error task, 4 x Event tasks	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.

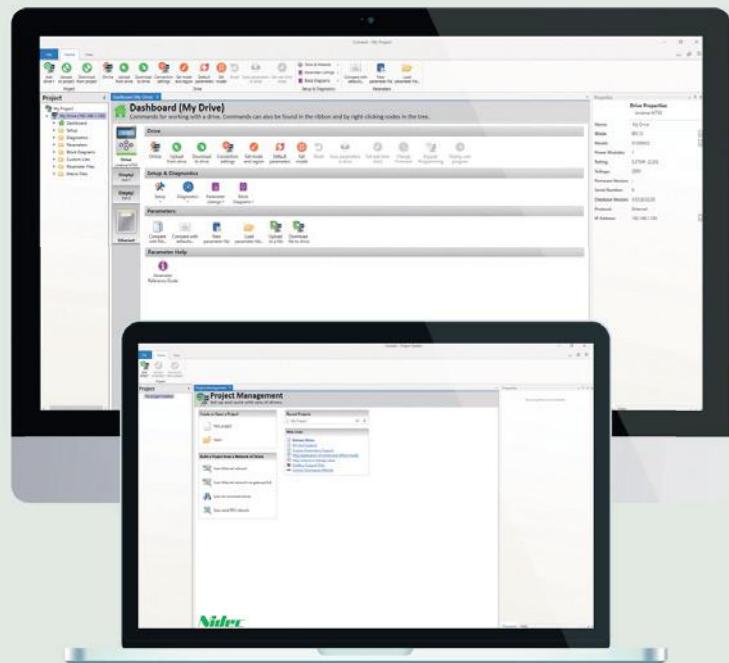


FREE DOWNLOAD

Drive Setup

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

Visit: www.drive-setup.com



FREE DOWNLOAD

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



Get it from Microsoft

Download on the App Store

GET IT ON Google Play

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

Motion Control System Architecture

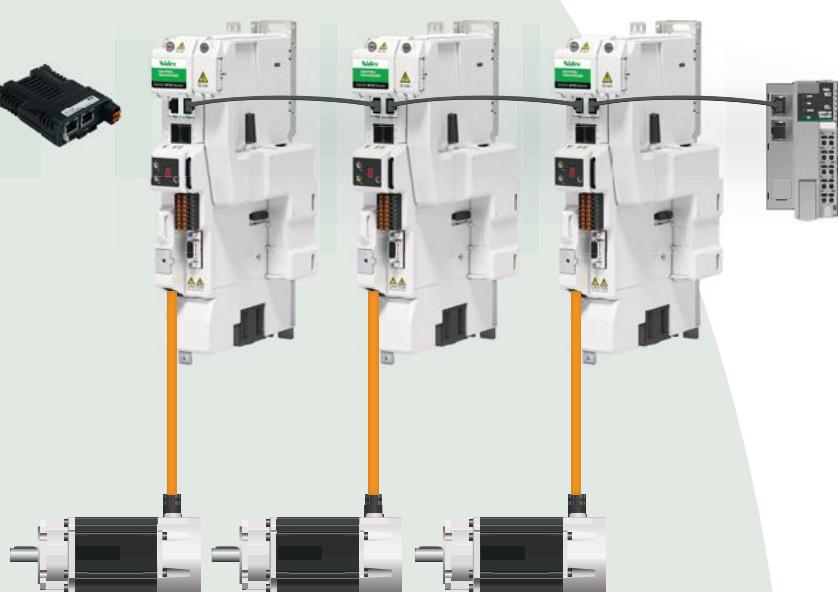
Drive-based Motion (Decentralised/Distributed Motion Intelligence)

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.

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.



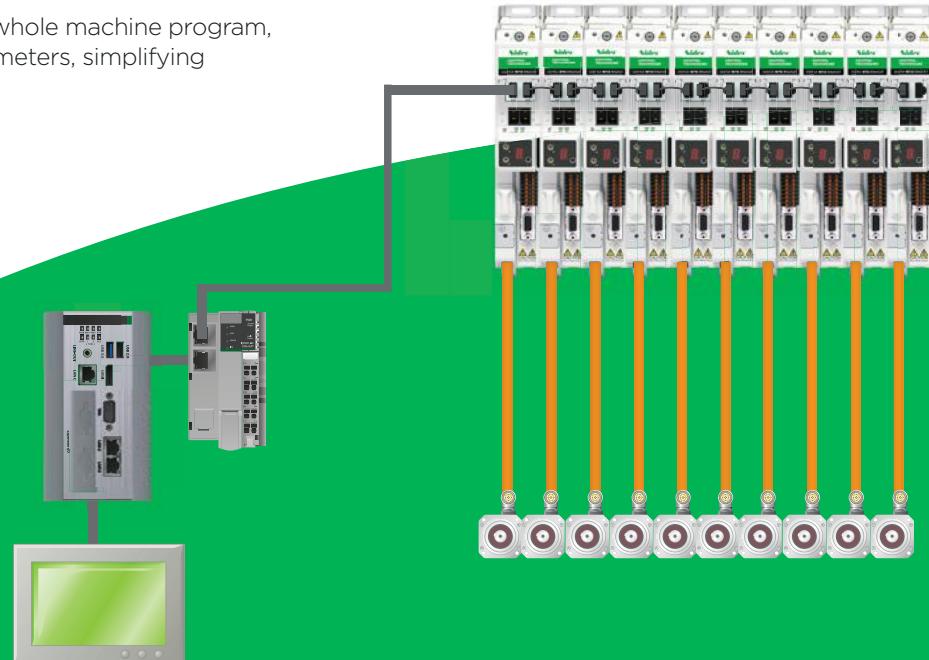
Controller-based Motion (Centralized Motion Intelligence)

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.





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



SIL3 PLe
Safety Integrity Level



RTMoE

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.

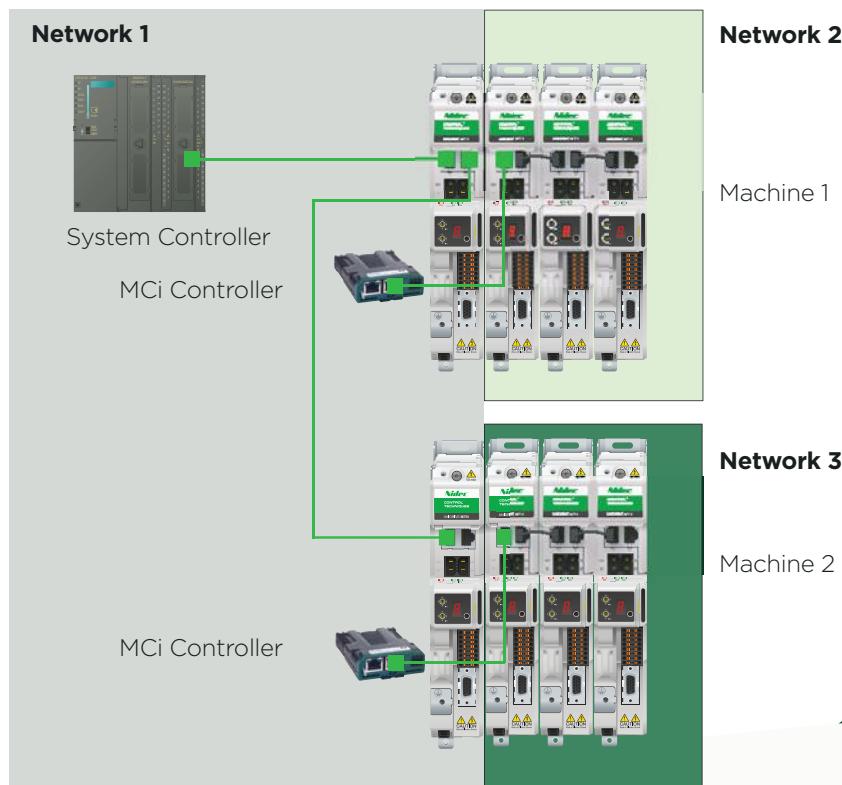
Programs are fast and easy to develop thanks to the user-friendly Machine Control Studio software which uses industry standard IEC 61131-3 programming languages.

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

SIL3 PLe

Safety Integrity Level



 **Modbus**

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



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

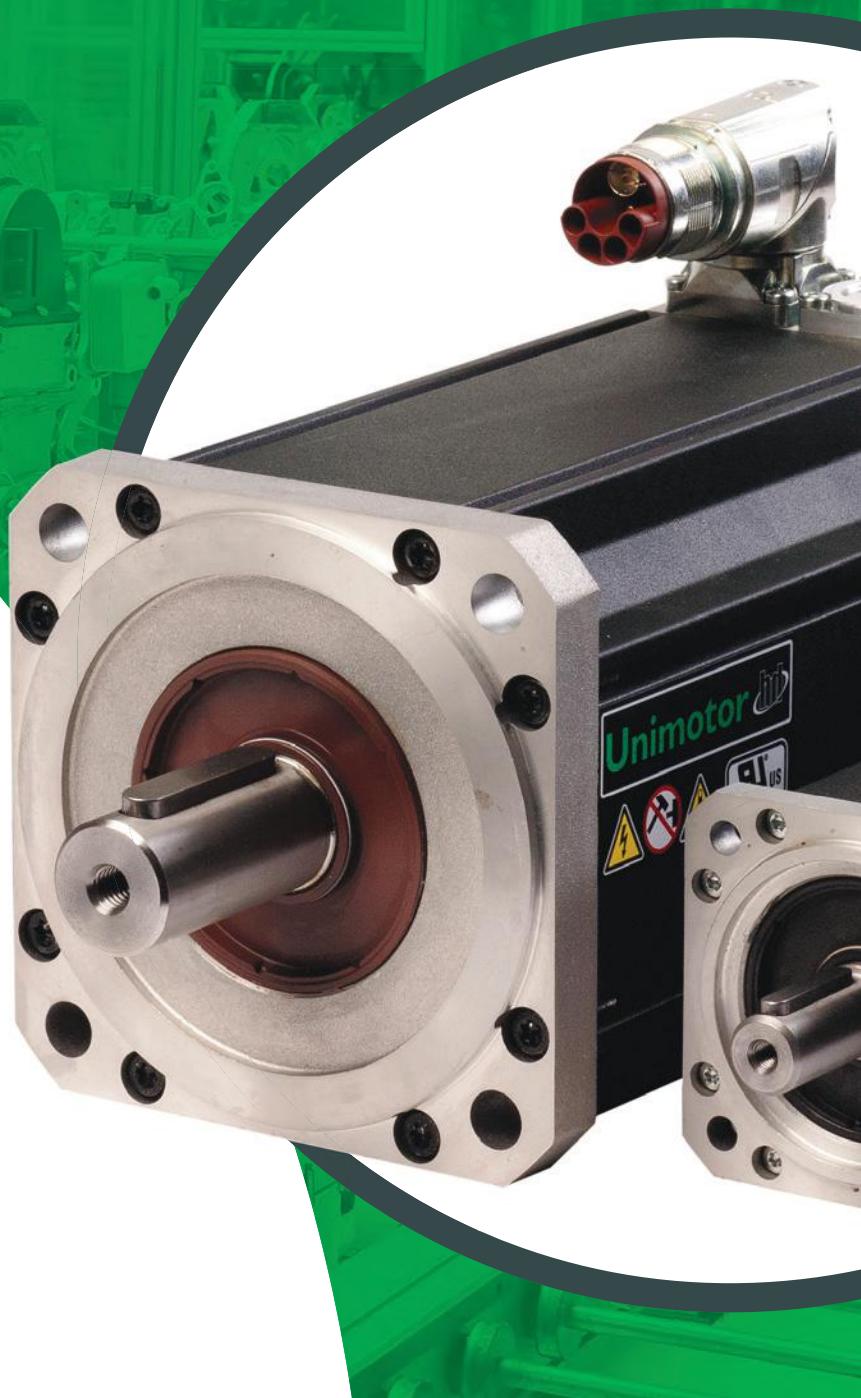
- Patented rotor technology – High torque to inertia ratio for high dynamic performance
- Compact but powerful
- Parking brake available
- IP65 conformance: sealed against water spray and dust when mounted and connected
- Segmented stator design for high power density and compactness
- Supported by rigorous 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

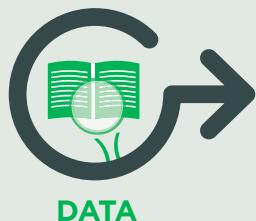
0.7 Nm to 85.0 Nm (6.2 lb-in to 752 lb-in) and up to 300% overload

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.





Order information and technical data

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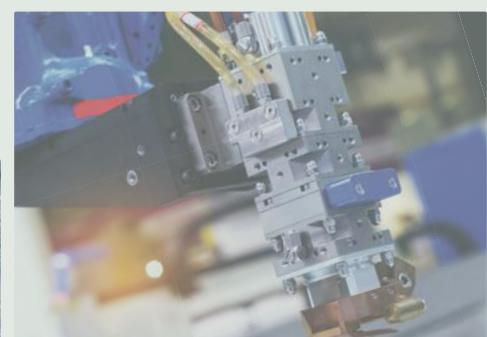
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Digitax HD | Unimotor HD
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Digitax HD & Unimotor HD motor and drive combinations

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

Motor	Drive	Hybrid Cable	Nominal speed 6000 rpm - 300% overload									
			Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [μ F]	Motor Cont. power	
[Nm]	[lb-in]	[Nm]	[lb-in]	[kg·cm ²]	[lb-in·sec ²]	[kW]					[hp]	
055EDA60	M75x-01200022	HYBAxXXXX	0.69	6.1	21	18.6	0.14	0.00012	2.2	580	0.43	0.58
055EDB60	M75x-01200040	HYBAxXXXX	1.1	9.7	3.4	30.1	0.25	0.00022	4	580	0.57	0.76
055EDC60	M75x-01200040	HYBAxXXXX	1.6	14.2	4.8	42.5	0.36	0.00032	4	580	0.75	1.01
067EDA60	M75x-01200040	HYBAxXXXX	1.4	12.4	4.3	38.1	0.30	0.00027	4	580	0.82	1.10
067EDB60	M75x-01200065	HYBAxXXXX	2.5	22.1	7.5	66.4	0.53	0.00047	6.5	580	1.4	1.88
089EDA60	M75x-02200090	HYBAxXXXX	3.1	27.4	9.3	82.3	0.87	0.00077	6.5	1160	1.7	2.28
089EDB60	M75x-02200120	HYBAxXXXX	5.3	46.9	16.0	141.6	1.6	0.00142	12	1160	2.4	3.22
089EDC60	M75x-03200160	HYBBxXXXX	7.5	66.4	22.6	200.0	2.3	0.00204	16	1880	3.1	4.16

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

Motor	Drive	Hybrid Cable	Nominal speed 3000 rpm - 300% overload									
			Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [μ F]	Motor Cont. power	
[Nm]	[lb-in]	[Nm]	[lb-in]	[kg·cm ²]	[lb-in·sec ²]	[kW]	[hp]	[kW]		[hp]		
055EDA30	M75x-01200022	HYBAxXXXX	0.69	6.1	21	18.6	0.14	0.00012	2.2	580	0.21	0.28
055EDB30	M75x-01200022	HYBAxXXXX	1.1	9.7	3.4	30.1	0.25	0.00022	2.2	580	0.32	0.43
067EDA30	M75x-01200022	HYBAxXXXX	1.4	12.4	4.3	38.1	0.30	0.00027	2.2	580	0.43	0.58
055EDC30	M75x-01200022	HYBAxXXXX	1.6	14.2	4.8	42.5	0.36	0.00032	2.2	580	0.45	0.60
067EDB30	M75x-01200040	HYBAxXXXX	2.5	22.1	7.5	66.4	0.53	0.00047	4	580	0.75	1.01
089EDA30	M75x-01200040	HYBAxXXXX	2.8	24.8	8.4	74.3	0.87	0.00077	4	580	0.88	1.18
067EDC30	M75x-01200040	HYBAxXXXX	3.6	31.9	10.9	96.5	0.75	0.00066	4	580	1.1	1.48
089EDB30	M75x-01200065	HYBAxXXXX	5.3	46.9	16.0	141.6	1.6	0.00142	6.5	580	1.5	2.01
089EDC30	M75x-02200090	HYBAxXXXX	7.8	69.0	23.3	206.2	2.3	0.00204	9	1160	2.1	2.82
115EDB30	M75x-02200120	HYBAxXXXX	10.0	88.5	30.0	265.5	4.4	0.00389	12	1160	2.4	3.22
115EDC30	M75x-03200160	HYBBxXXXX	14.3	126.6	42.9	379.7	6.4	0.00566	16	1880	3.2	4.29
142EDC30	M75x-03200160	HYBBxXXXX	14.9	131.9	44.6	394.7	17.0	0.01505	16	1880	4.7	6.30

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

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

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

Nominal speed 6000 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [μ F]	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	HYBAxXXXX	0.69	6.1	2.1	18.6	0.14	0.00012	1.5	110	0.43	0.6	8.5
055UDB60	M75x-01400015	HYBAxXXXX	1.1	9.7	3.4	30.1	0.25	0.00022	1.5	110	0.57	0.8	9.2
055UDC60	M75x-01400030	HYBAxXXXX	1.6	14.2	4.8	42.5	0.36	0.00032	4.2	110	0.75	1.0	9.5
067UDA60	M75x-01400030	HYBAxXXXX	1.4	12.4	4.3	38.1	0.30	0.00027	4.2	110	0.82	1.1	8.8
067UDB60	M75x-01400042	HYBAxXXXX	2.5	22.1	7.5	66.4	0.53	0.00047	4.2	110	1.4	1.9	8.9
067UDC60	M75x-02400060	HYBAxXXXX	3.6	31.9	10.9	96.5	0.75	0.00066	6.0	290	1.9	2.5	8.7
089UDA60	M75x-01400042	HYBAxXXXX	3.1	27.4	9.3	82.3	0.87	0.00077	4.2	110	1.7	2.3	11.7
089UDB60	M75x-02400080	HYBAxXXXX	5.3	46.9	16.0	141.6	1.6	0.00142	8.0	290	2.4	3.2	12.6
089UDC60	M75x-02400105	HYBBxXXXX	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 [μ F]	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	HYBAxXXXX	3.1	27.4	9.3	82.3	0.87	0.00077	4.2	110	1.2	1.6	7.8
089UDB40	M75x-02400060	HYBAxXXXX	5.3	46.9	16.0	141.6	1.6	0.00142	6.0	290	1.9	2.5	8.4
089UDC40	M75x-02400080	HYBAxXXXX	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 [μ F]	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	HYBAxXXXX	0.69	6.1	2.1	18.6	0.14	0.00012	1.5	110	0.21	0.3	4.2
055UDB30	M75x-01400015	HYBAxXXXX	1.1	9.7	3.4	30.1	0.25	0.00022	1.5	110	0.32	0.4	4.6
055UDC30	M75x-01400015	HYBAxXXXX	1.6	14.2	4.8	42.5	0.36	0.00032	1.5	110	0.45	0.6	4.8
067UDA30	M75x-01400030	HYBAxXXXX	1.4	12.4	4.3	38.1	0.30	0.00027	4.2	110	0.43	0.6	4.4
067UDB30	M75x-01400015	HYBAxXXXX	2.4	21.2	7.2	63.7	0.53	0.00047	1.5	110	0.75	1.0	4.6
067UDC30	M75x-01400030	HYBAxXXXX	3.6	31.9	10.9	96.5	0.75	0.00066	4.2	110	1.1	1.5	4.3
089UDA30	M75x-01400030	HYBAxXXXX	3.1	27.4	9.3	82.3	0.87	0.00077	4.2	110	0.91	1.2	5.9
089UDB30	M75x-01400042	HYBAxXXXX	5.3	46.9	16.0	141.6	1.6	0.00142	4.2	110	1.5	2.0	6.3
089UDC30	M75x-02400060	HYBAxXXXX	7.8	69.0	23.3	206.2	2.3	0.00204	6.0	290	2.1	2.8	6.3
115UDB30	M75x-02400080	HYBAxXXXX	10.0	88.5	30.0	265.5	4.4	0.00389	8.0	290	2.4	3.2	9.2
115UDC30	M75x-02400105	HYBBxXXXX	14.3	126.6	42.9	379.7	6.4	0.00566	10.5	290	3.2	4.3	9.4
115UDD30	M75x-03400135	HYBBxXXXX	18.4	162.9	55.3	489.4	8.4	0.00743	13.5	470	4.2	5.6	9.5
142UDC30	M75x-03400160	HYBBxXXXX	22.8	201.8	68.3	604.5	17.0	0.01505	16.0	470	5.3	7.1	15.7
142UDD30	M75x-03400160	HYBBxXXXX	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 [μ F]	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	HYBAxXXXX	10.0	88.5	30.0	265.5	4.4	0.00389	4.2	110	1.8	2.4	6.2
115UDC20	M75x-02400060	HYBAxXXXX	14.3	126.6	42.9	379.7	6.4	0.00566	6.0	290	2.4	3.2	6.2
115UDD20	M75x-02400080	HYBAxXXXX	18.4	162.9	55.3	489.4	8.4	0.00743	8.0	290	3.2	4.3	6.4
142UDC20	M75x-02400105	HYBBxXXXX	22.8	201.8	68.3	604.5	17.0	0.01505	10.5	290	4.1	5.5	10.4
142UDD20	M75x-03400135	HYBBxXXXX	28.7	254.0	86.0	761.2	22.1	0.01956	13.5	470	4.9	6.6	10.8
142UDE20	M75x-03400160	HYBBxXXXX	34.6	306.2	103.7	917.8	27.2	0.02407	16.0	470	5.6	7.5	11.0

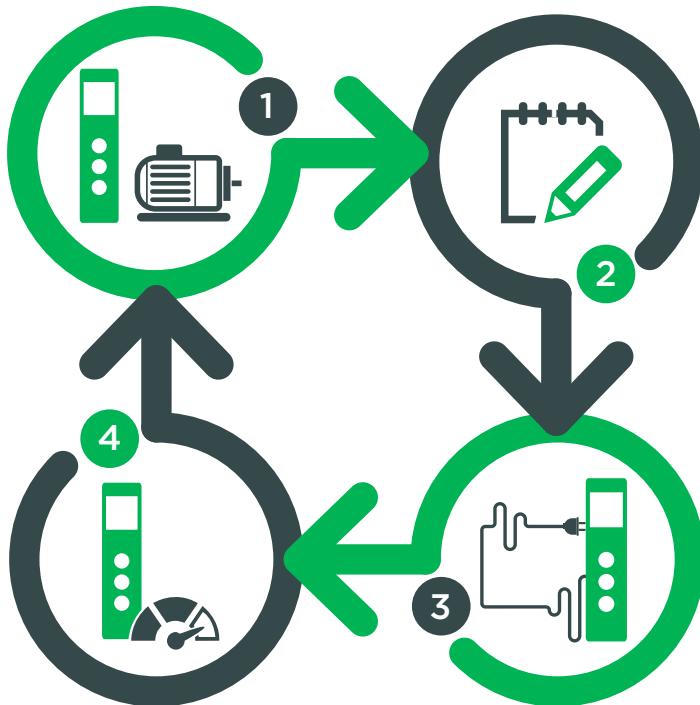
Nominal speed 1500 rpm - 300% overload													
Motor	Drive	Hybrid Cable	Stall Torque		Peak Torque		Inertia		Drive Cont. Current [A]	Drive Capacitance [μ F]	Motor Cont. power		Time to 1500 rpm [ms]*
			[Nm]	[lb-in]	[Nm]	[lb-in]	[kg·cm ²]	[lb-in·sec ²]			[kW]	[hp]	
142UDC15	M75x-02400080	HYBAxXXXX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



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

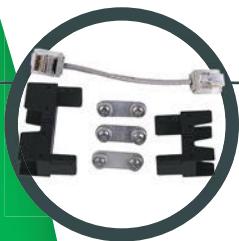
** If any of the values are exceeded, the system needs to be split in groups and the procedure repeated for each group.

	200V	Max Capacitance (μ F)	Internal Capacitance (μ F)	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 (μ F)	Internal Capacitance (μ F)	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*

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	82400000019600

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

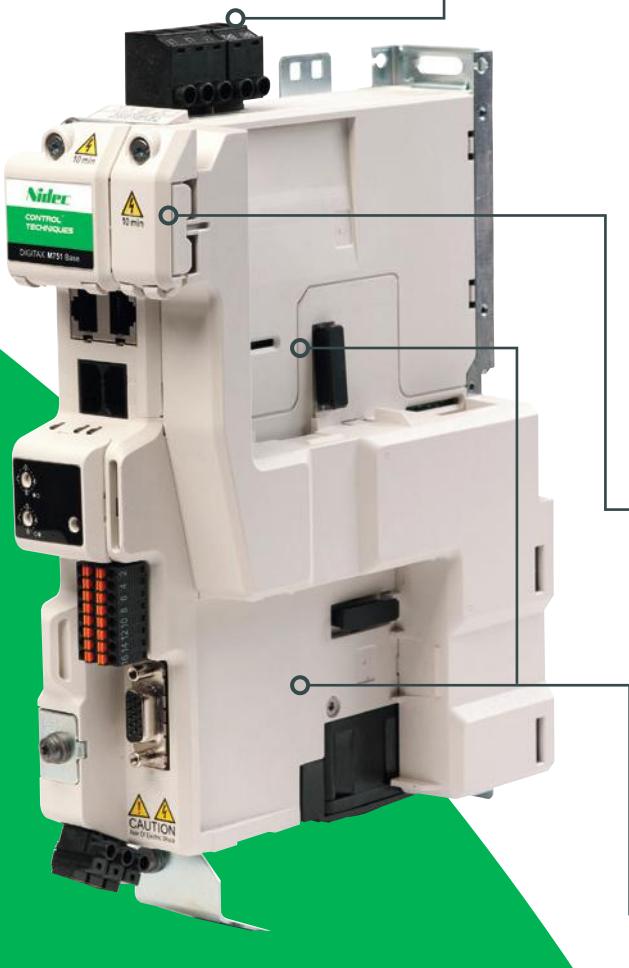
Description	Order code
SI-Option Mounting Kit	9500-1055

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	82700000020200

Digitax HD kits and accessories



EMC Filters			
Voltage	Model (M75X-...)	Phases	Order code
200 V	1200022	1	
	1200040	1	4200-3503
	1200065	1	
	2200090	1	
	2200120	1	4200-5033
	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

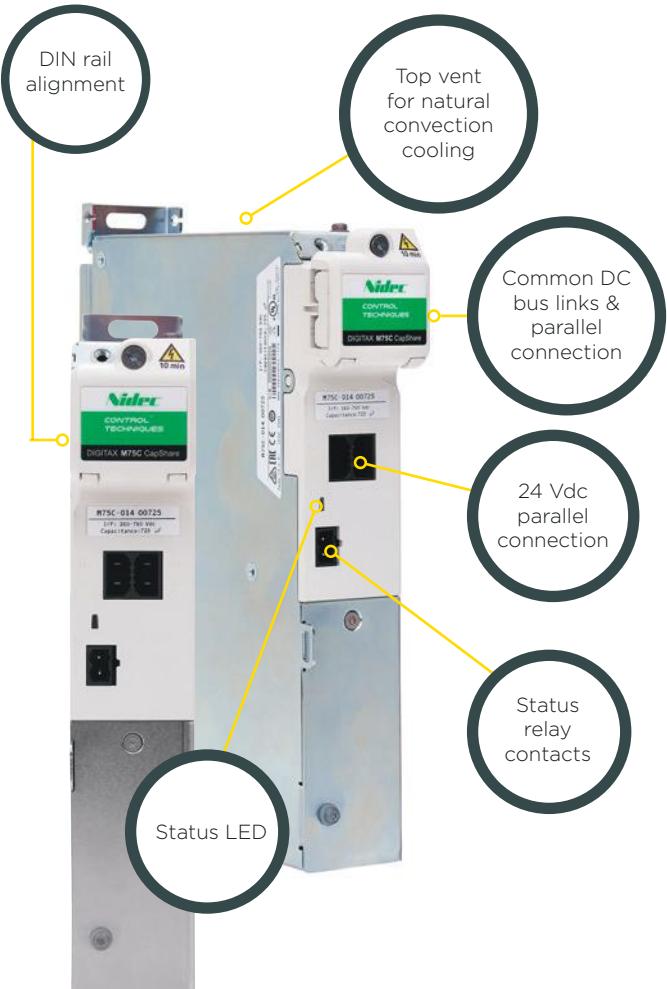
* EMC filter ratings provided at maximum continuous current at 40 °C (104 °F). Please refer to the installation and Technical Guide.

Description	Order code	Image
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		Yes	Yes	Yes	N/A
Brake Connector		Yes	Yes	Yes	N/A
Power Input Connector	N/A	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-PFOPBUS	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.

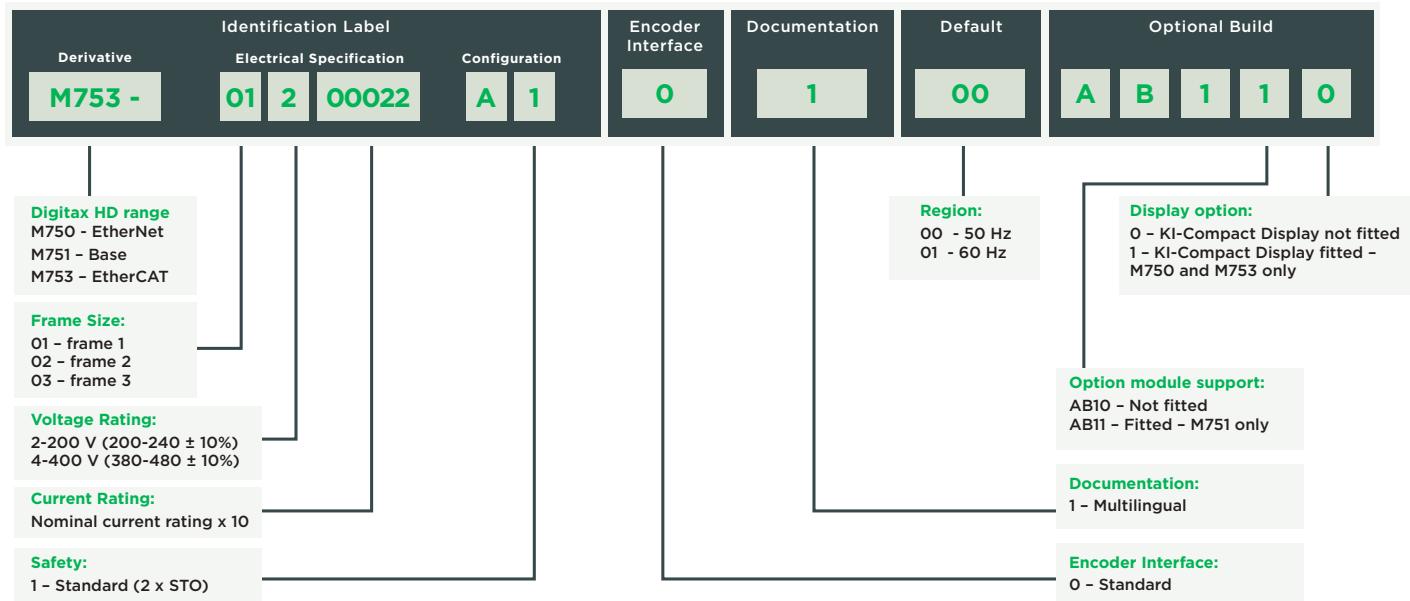
Active Front End kits

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

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

Digitax HD ordering information

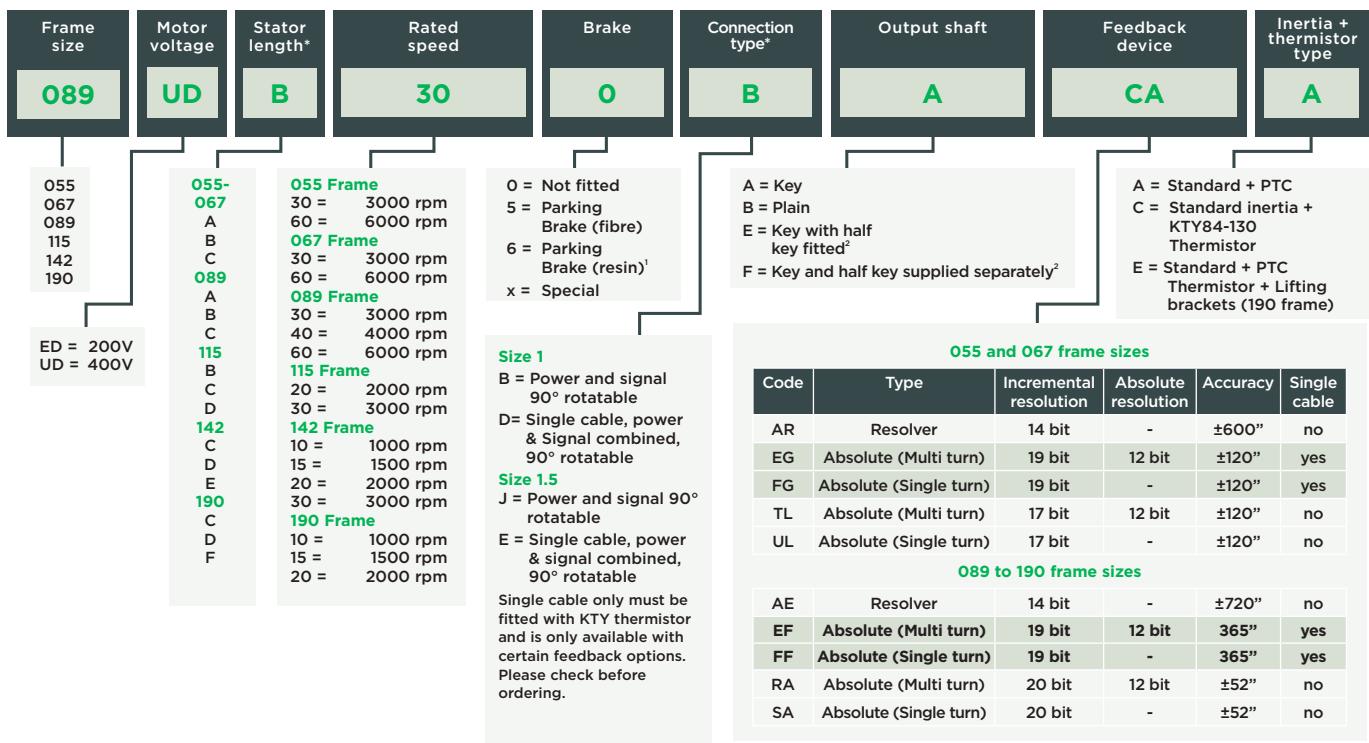
Drive part number key:



*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

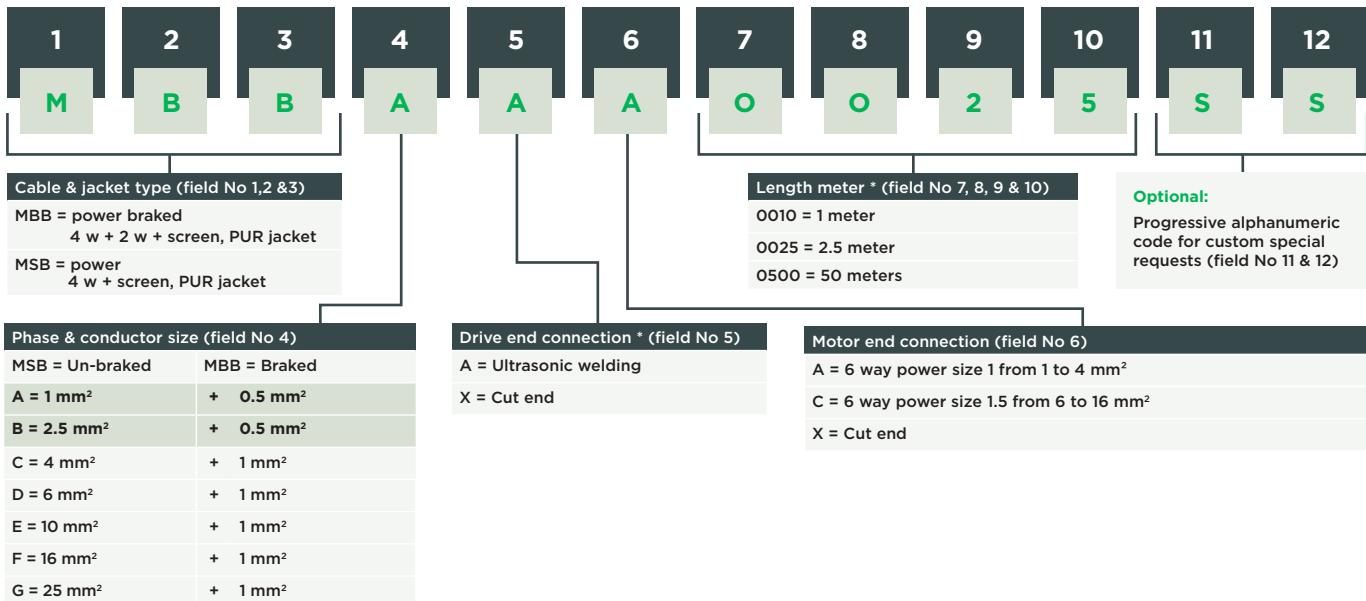
² not available on 055 frame.

Additional feedback options available on request.

Cables and connections

Power cable part number key:

FIELD NUMBER

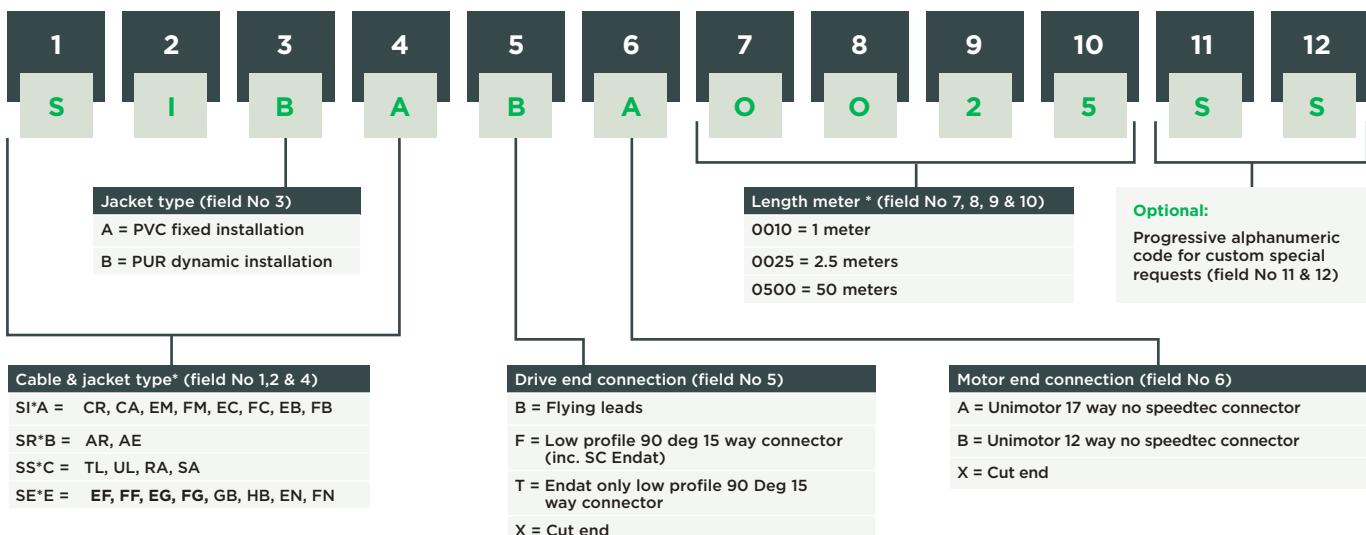


*Length meter / cable requiring (cm) lengths will be rounded up to the next highest half meter; Eg. 2.1 will be changed to a 2.5 meter cable.

Maximum cable length refer to page 34

Signal cable part number key:

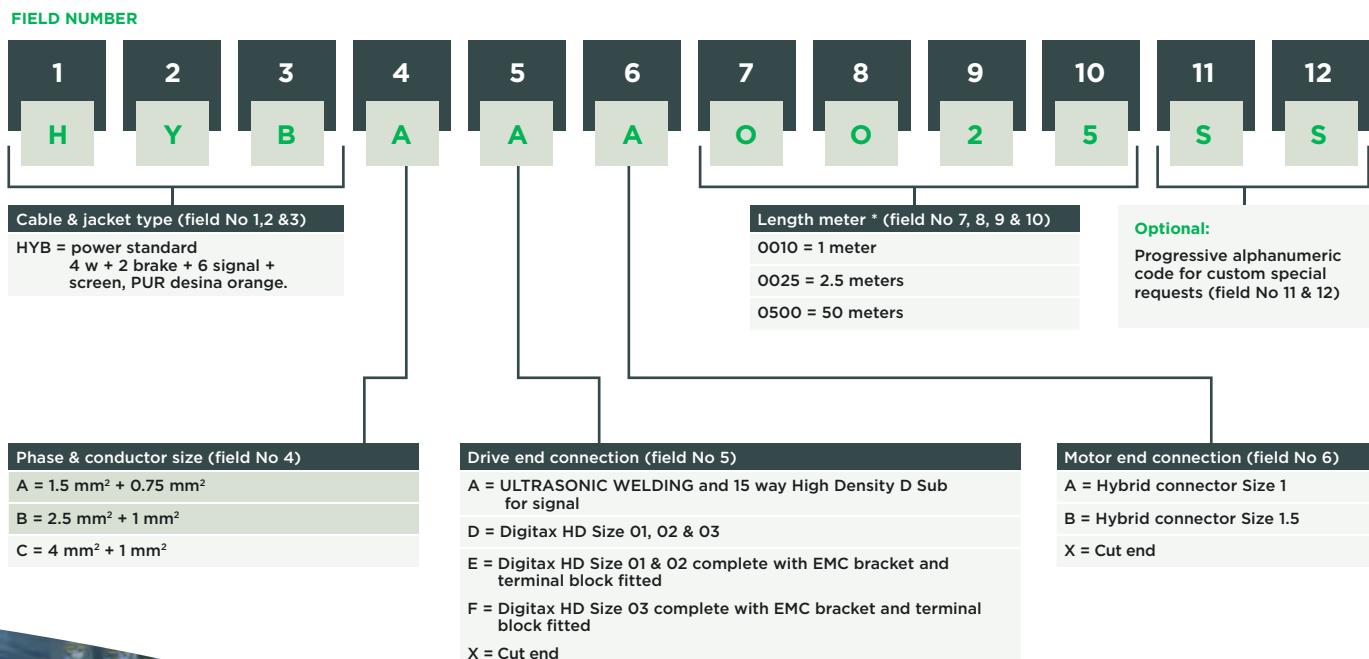
FIELD NUMBER



* 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:



* 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						
	Adjustable Venting	Top venting or rear venting (with optional kit)						
Ultraflow™ Technology	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	Real-time tasks						
		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						
Interface	Onboard Communications	Advanced bi-quad filters for suppression of mechanical resonances						
		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 W x D x H mm (in)	Frame Size O1 40 x 174 x 233 (1.57 x 6.85 x 9.17)			Frame Size O2 40 x 174 x 278 (1.57 x 6.85 x 10.94)		Frame Size O3 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			
200 V Three Phase	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								
	Frame Size W x D x H mm (in)	Frame Size O1 40 x 174 x 233 (1.57 x 6.85 x 9.17)			Frame Size O2 40 x 174 x 278 (1.57 x 6.85 x 10.94)		Frame Size O3 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*			
400 V Three Phase	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									
400 V Three Phase	Closed-loop Overload	300 % for 0.25 s or 200 % for 4 s								
	Open-loop Overload	150 % for 8 s								
	Frame Size W x D x H mm (in)	Frame Size O1 40 x 174 x 233 (1.57 x 6.85 x 9.17)			Frame Size O2 40 x 174 x 278 (1.57 x 6.85 x 10.94)		Frame Size O3 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		
	Max Peak Current (A)	4.5	9	12.6	18	24	31.5	40.5		
	Output AC Induction									
	Max Continuous Current (A)	1.5	3	4.2	6	8	10.5	13.5		
	Open Loop Peak Current (A)	2.3	4.5	6.3	9	12	15.8	20.3		
	Closed Loop Peak Current (A)	4.5	9	12.6	18	24	31.5	40.5		
	Motor Power at 400 V (kW)	0.37	0.75	1.5	2.2	3.0	4.0	5.5		
	Motor Power at 400 V (hp)	0.75	1.5	2.0	3.0	5.0	5.0	7.5		
	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)

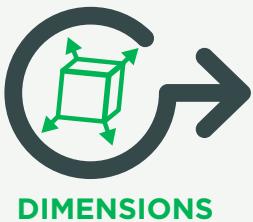
EN 61000-6-3 and EN 61000-6-4 with optional EMC filter

IEC 60146-1-1 supply conditions

IEC 61800-5-1 (Electrical Safety)

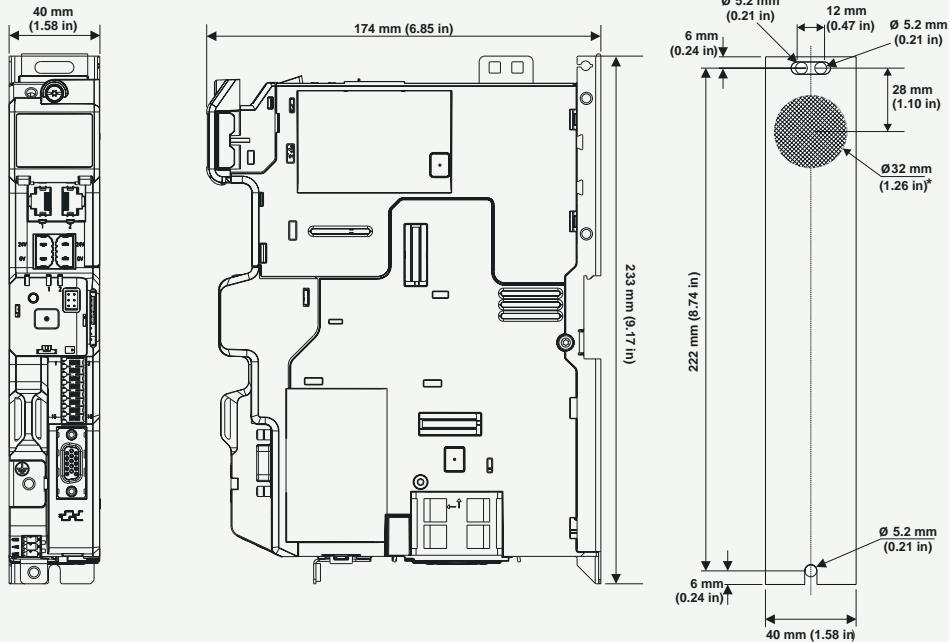
IEC 61131-2 I/O



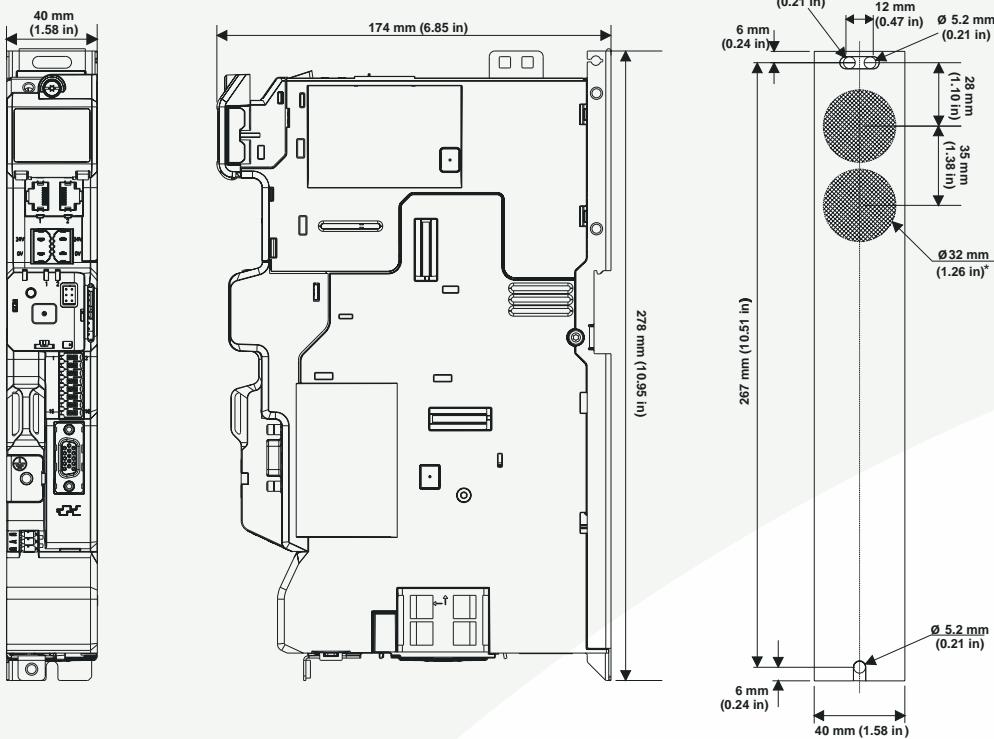


Digitax HD & Unimotor HD dimensions

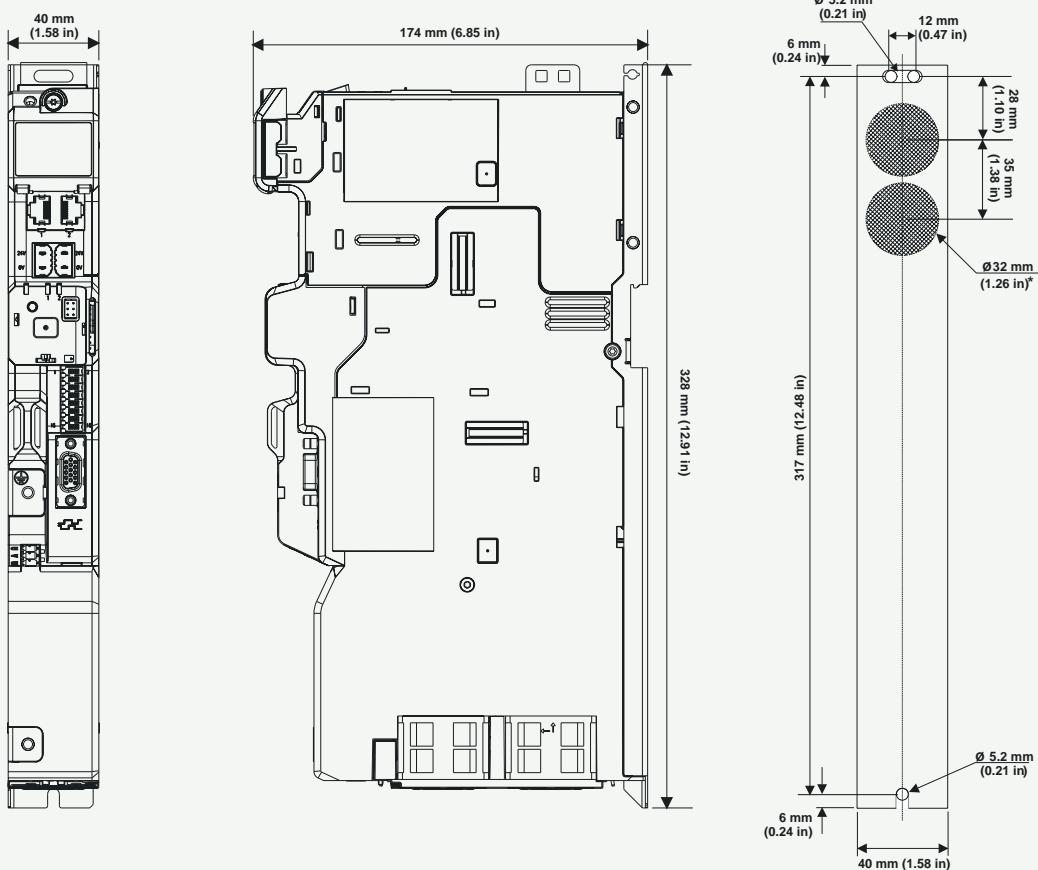
Frame 1



Frame 2



Frame 3



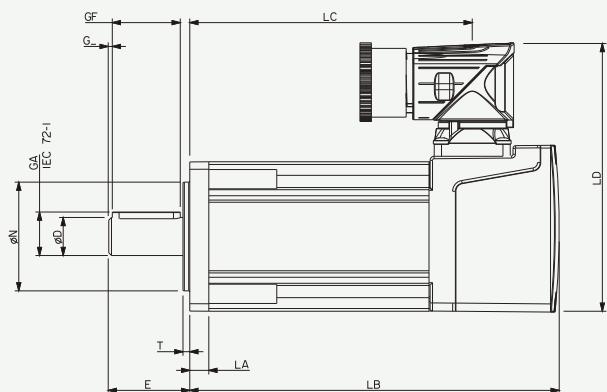
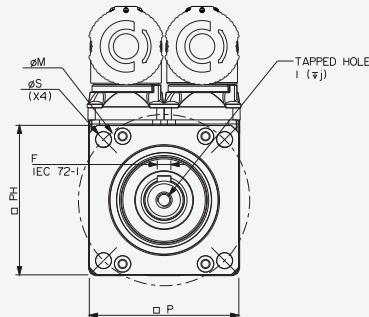
Notes:

- 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
Speed 6000 (rpm)	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 3000 (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
Speed 6000 (rpm)	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	M5										
	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																			

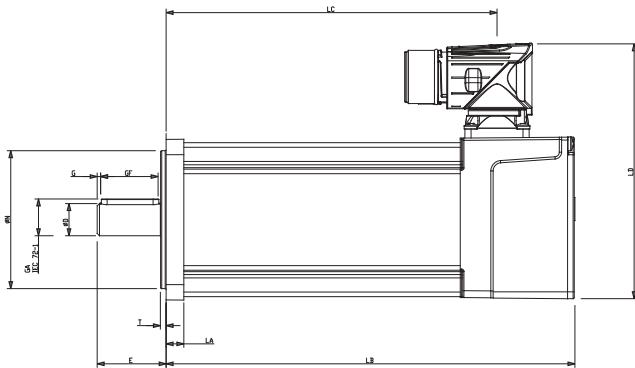
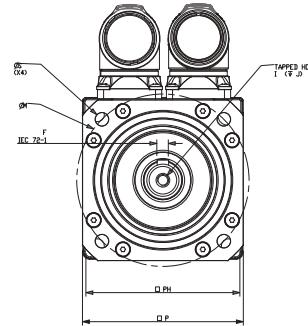
Shaft dimensions

	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	S
mm	9.0 Opt	9	20	10.2	15	1	3.0	M4 x 10									
mm	11.0 Std	11	23	12.5	15	1.5	4.0	M4 x 10									
mm	14.0 Std	14	30.0	16.0	25.0	1.5	5.0	M5x x12.5									
in	9.0 Opt	0.354	0.787	0.402	0.591	0.039	0.118	M4 x 10									
in	11.0 Std	0.433	0.906	0.492	0.591	0.059	0.157	M4 x 10									
in	14.0 Std	0.551	1.181	0.630	0.984	0.059	0.197	M5 x 12.5									

Frame size 067

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

067UD		
380-480		
A	B	C
1.42	2.5	3.63
12.57	22.13	32.13
4.26	7.5	10.88
37.7	66.38	96.3
0.30	0.53	0.75
0.00027	0.00047	0.00066
54	61	65
1.96	2.56	3.16
4.32	5.64	6.97
2.56	3.16	3.76
5.64	6.97	8.29
10	10	10
0.8	1.6	
7.08	14.16	
49	98	



• $\Delta t = 100^\circ\text{C}$ 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: 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	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	0.228	2.953	2.638	M5										
	067B	6.807	5.472	8.185	6.850																		
	067C	7.988	6.654	9.366	8.031																		

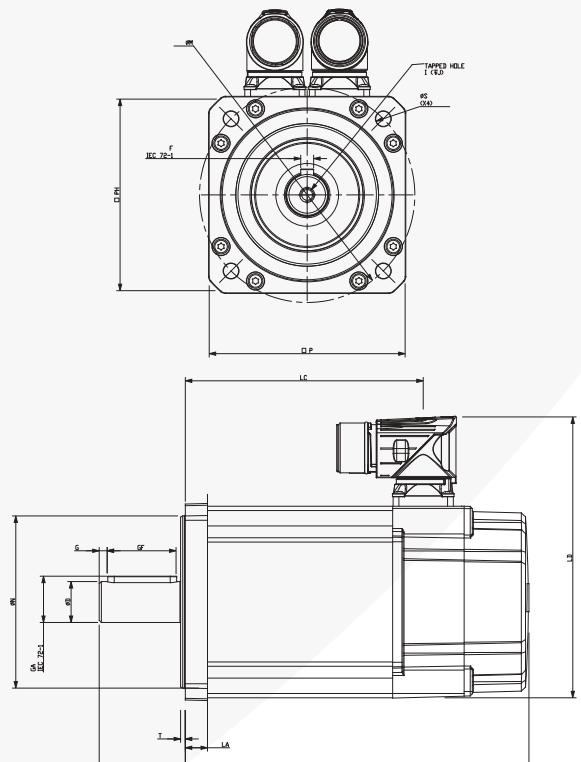
Shaft dimensions

	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																	
	LB (± 0.9)	LB (± 0.9)																
mm	067A	157.4	192.4	14.0 (Std)	30.0	16.0	25.0	1.5	5.0	M5 x 0.8								
	067B	187.4	222.4		0.551	1.181	0.630	.0984	0.059									
	067C	217.4	252.4						0.197									
in	067A	6.197	7.575	In						0.531								
	067B	7.378	8.752															
	067C	8.559	9.937															

SERVO DRIVE SERIES

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	0.000142	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) = Kt (lb-in/A) = Ke (V/krpm) =	0.93 8.23 57			1.6 14.16 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) = Kt (lb-in/A) = Ke (V/krpm) =	0.7 6.20 42.75			1.2 10.62 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) = Kt (lb-in/A) = Ke (V/krpm) =	0.47 4.16 28.5			0.8 7.08 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



- $\Delta t= 100^\circ\text{C}$ 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)

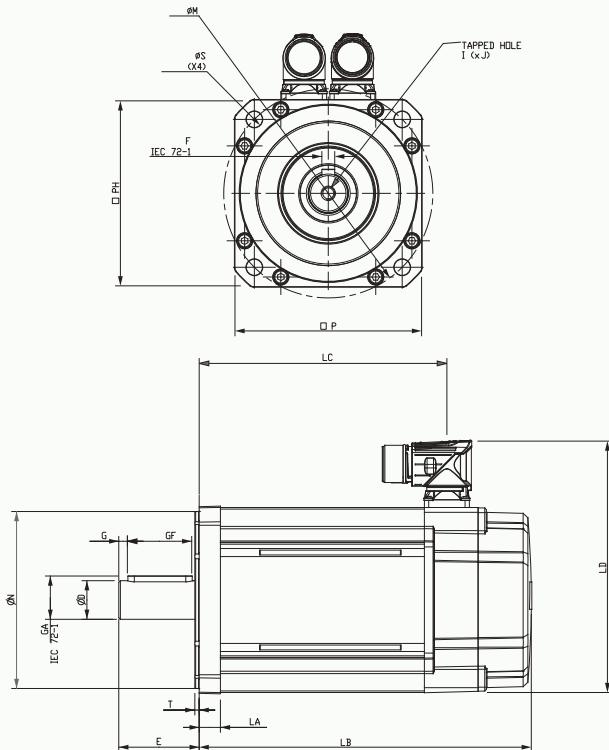
Motor dimension

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		LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)		
mm	089A	147.8	110.5	187.9	150.6	10.3	2.2	80.0	130.5	91.0	7.00	100.0	
	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	
	089B	7.000	5.531	8.579	7.110								
	089C	8.181	6.713	9.760	8.291								
Feedback EB, FB, CA, SA, RA				Shaft dimensions									
Unbraked length		Braked length		Unbraked length		Braked length		Shaft diameter	Shaft length	Key height	Key length	Key to shaft end	
LB (± 0.9)		LB (± 0.9)		LB (± 0.9)		LB (± 0.9)		D (j6)	E	GA	GF	G	
mm	089A	160.8	200.9	137.8	177.9	19.0 Std	40.0	21.5	32.0	3.7	6.0	M6 x 1.0	
	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	J (± 1)	
	089B	7.512	9.091	6.606	8.185								
	089C	8.693	10.272	7.787	9.366								

	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	19.0 Std	40.0	21.5	32.0	3.7	6.0	M6 x 1.0	17.0
in	0.748	1.575	0.846	1.260	0.146	0.236	0.669	0.669

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	379.87	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) = Kt (lb-in/A) = Ke (V/krpm) =	1.4 12.39 85.5			2.4 21.24 147		
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) = Kt (lb-in/A) = Ke (V/krpm) =	0.93 8.23 57			1.6 14.16 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



• $\Delta t = 100^\circ\text{C}$ winding 40°C (104°F) maximum ambient
All data subject to $\pm 10\%$ 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			LA (± 0.5)	T (± 0.1)	N (J6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
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
mm	in	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
in	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)
115B	206.8	243.9	183.8
115C	236.8	273.9	213.8
115D	266.8	303.9	243.8
115B	8.142	9.602	7.236
115C	9.323	10.783	8.417
115D	10.504	11.965	9.598
			11.059

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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	68.51	44.36		32.67	38.45	44.36
Number of poles	10	10	10		10	10	10
Speed 1000 (rpm)	Kt (Nm/A) = Kt (lb-in/A) = Ke (V/krpm) =	2.8 24.78 171					
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) = Kt (lb-in/A) = Ke (V/krpm) =				3.2 28.32 196		
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) = Kt (lb-in/A) = Ke (V/krpm) =				1.4 12.39 85.5		
Rated torque (Nm)					19.47	23.39	26.94
Rated torque (lb-in)					172.32	207.02	238.44
Stall current (A)					9.48	11.94	14.41
Rated power (kW)					4.08	4.9	5.64
R (ph-ph) (Ohms)					0.79	0.62	0.49
L (ph-ph) (mH)					12.15	9.66	8.34
Recommended power conn' size					1.5	1.5	1.5
Speed 3000 (rpm)	Kt (Nm/A) = Kt (lb-in/A) = Ke (V/krpm) =				1.6 14.16 98		
Rated torque (Nm)					16.77	19.02	20.93
Rated torque (lb-in)					148.43	168.34	185.25
Stall current (A)					14.22	17.92	21.61
Rated power (kW)					5.27	5.97	6.58
R (ph-ph) (Ohms)					0.34	0.24	0.18
L (ph-ph) (mH)					5.33	3.79	3.07
Recommended power conn' size					1.5	1.5	1.5

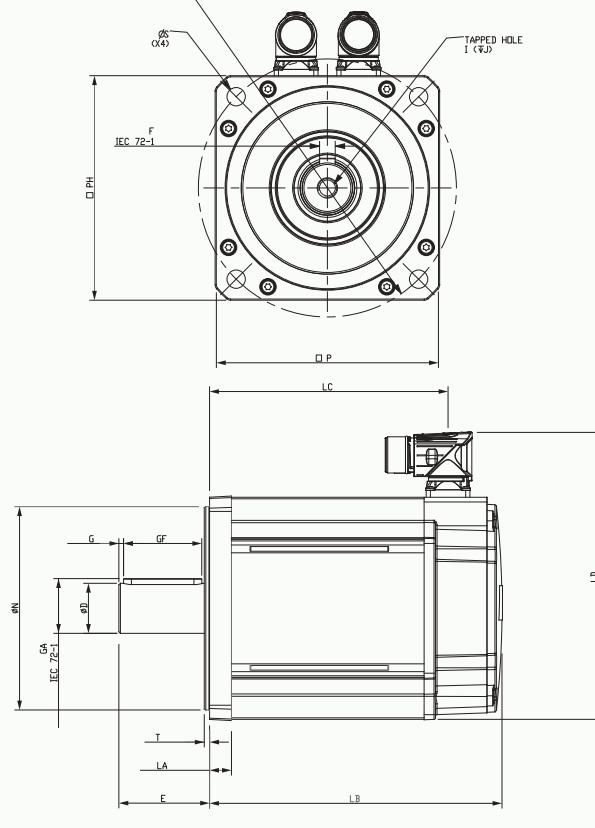
Motor dimension

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)	LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
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-					
	142E	277.0	242.5	342.5	308.0				204.5					
	142C	8.543	7.185	11.122	9.764									
in	142D	9.724	8.366	12.303	10.945	0.551	0.134	5.118	7.224	5.591	0.472	6.496	5.591	
	142E	10.906	9.547	13.484	12.126				7.224-					

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	32.0 Std	58.0	35.0	50.0	3	10.0		
in	1.260	2.283	1.378	1.969	0.118	0.394	M12 x 1.75	29.0



- Δt= 100°C winding 40°C (104 °F) maximum ambient
All data subject to +/-10% tolerance

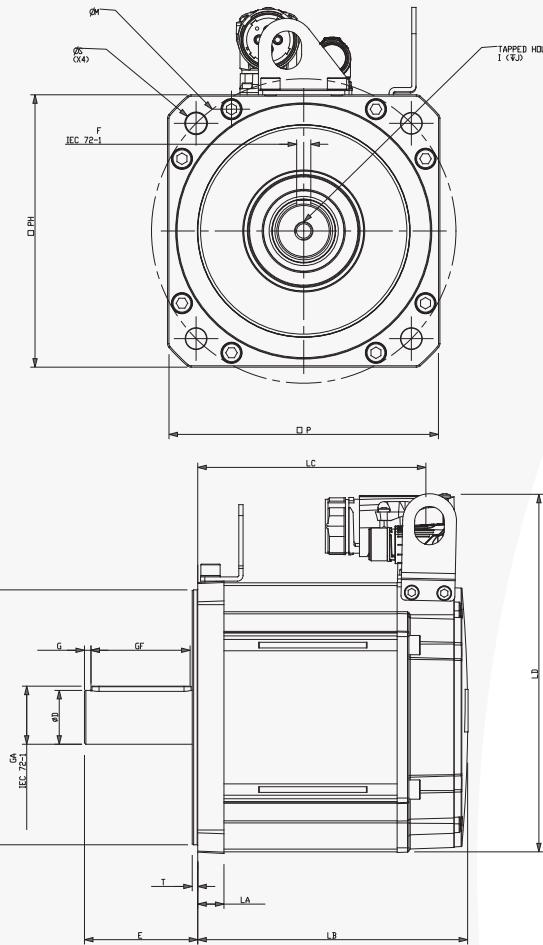
- Stall torque, rated torque and power relate to maximum continuous operation tested in a 20°C (68 °F) ambient at **8 kHz drive switching frequency**

- All other figures relate to a 20°C (68 °F) motor temperature.

- Maximum intermittent winding temperature is 140°C (284 °F)

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 (kgcm²)		54.6	70.9	103.5	54.6	70.9	103.5
Standard inertia (lb-in-sec²)		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					
	Kt (lb-in/A) =	12.39					
	Ke (V/krpm) =	85.5					
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



• $\Delta t = 100^\circ\text{C}$ 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 (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)	LA (± 0.5)	T (± 0.1)	N (j6)	LD (± 0.3)	P (± 0.3)	S (H14)	M (± 0.5)	PH (± 0.5)	
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	
	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



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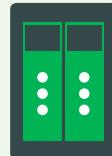
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