

631 1 to 6A

The 631 is much more than a basic brushless servo drive. With built-in motion controller, emc compliant filter, PLC functionality and even extended I/O option, it's a complete positioning system in a single module. The 631 is designed for direct connection to a 230Vac single phase supply without the need for any interposing transformer.



**1500 STEP INTEGRAL
MOTION CONTROLLER**

INTEGRAL EMC COMPLIANT FILTERS

INTEGRAL BRAKE SWITCH

DIRECT 230VAC SUPPLY

SIMULATED ENCODER OUTPUT

DIN RAIL OR DIRECT PANEL MOUNT

TECHNICAL SPECIFICATIONS

Power Supply – 220-240Vac ($\pm 10\%$)

Single Phase

Ambient – 0-40°C (derate 2%/°C >40°C to 50°C max.)

1000m ASL (derate 1%/100m to 4000m max.)

Type	Output current continuous (Arms)	Output current peak (Arms)
631-001-230-x	1.0	2.0
631-002-230-x	2.0	4.0
631-004-230-x	4.0	8.0
631-006-230-x	6.0	12.0

Integrated filter x = F ; No filter x = 0

Inputs/Outputs

4 - Configurable Digital Inputs (24V)

2 - Configurable Digital Outputs (24V)

1 - Analogue Input

Optional I/O Expander Module

8 - Configurable Digital Inputs/Outputs
(max. 4 outputs)

CANbus Input and Output

Resolver Feedback Input

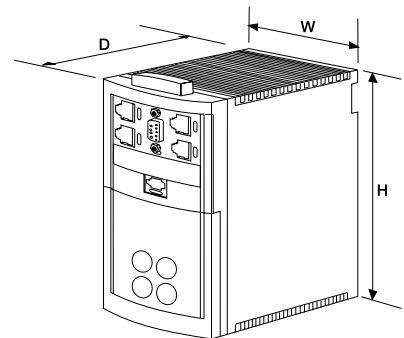
Pulse Train Input and Output

Dimensions

H	W	D*
183	72.0	175

Fixing : mounting holes 5.5mm - use M5 fixings

*45mm must be allowed for connectors.



STANDARDS

CE marked

EN61800-3 (EMC compliance) with integral filter
EN50178 (safety, low voltage)



TECHNICAL SPECIFICATIONS

635 Series

Power Supply – 220 - 230V ($\pm 10\%$ single or three phase up to 7A, three phase only 10A) 50 - 60 Hz $\pm 5\%$

Type	Output current continuous (Arms)	Output current peak (Arms)
635-K 01-3	1.0	2.0
635-K 03-3	2.5	5.0
635-K 05-3	5.0	10
635-K 07-3	6.5	10
635-K 10-3	10	20

Peak Output Current – Stated peak output currents are for a minimum 5 seconds

Ambient – 0 - 40°C (Derate 2%/°C up to 50°C max) Up to 1000m ASL (Derate 1%/100m up to 4000m max)

Input/Output

- 8 - Digital Inputs (inc 2 interrupts)
- 5 - Digital Outputs (3 x Opto-coupled, 2 x Relay)
- 2 - Analogue Inputs (-10V / 0 / +10V)
- 1 - Analogue Output (0 - 10V)
- Motor Resolver Input
- Encoder (Configurable Input or Output)

Serial Communication Options

- RS232 PROFIBUSDP
- RS422 INTERBUS S
- RS485 SUCOnet K
- CANbus

Input/Output Expansion Options

- 635** - Additional 5 Digital Inputs/2 Digital Outputs

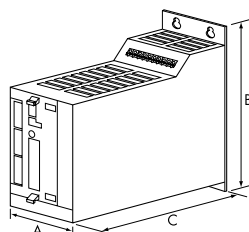
Torque, speed, position or motion control are all standard operations of the 635 series ac brushless servo drive – without the need for external controllers. Each has its own internal power supply for direct connection to 230V ac supplies and is available as part of a total servo package including motors, servo gearboxes and interconnecting cables.

The 635 is available as either individual compact modules or as rack mounted assemblies with up to 9 drives in a single rack.



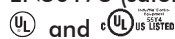
Dimensions				
		A	B	C
635	1 to 6.5 A	91	249	216.5
635	10 A	106.3	249	216.5

Allow extra 70mm in front of unit for plugs/cables.



STANDARDS

CE marked
EN61800-3 (EMC compliance) with integral filter
EN50178 (safety, low voltage)



1500 STEP INTERNAL MOTION CONTROLLER

DIRECT 230VAC SUPPLY

MODULE OR RACK MOUNTED

SIMPLE COMMISSIONING AND PROGRAMMING SOFTWARE

FIELDBUS COMMUNICATION OPTIONS

637f**new****2 to 30A**

The new 637f series is servo drives with integrated motion controller designed for the most demanding servo systems.

Their ultra-fast control loops and process bus make them adapted to single or multi axis applications.

Their EN954-1 category 3 safety input and their second optional application bus simplify their integration into machine.

Furthermore the 637f drive integrate advanced PLC functions which can be built up with various input/output options.

Available as compact version, the 637f series is also proposed as rack version

integrating up to 9 axis for 230 or 400Vac power supply.



EN954-1 CAT. 3 SAFETY OPTION

MULTI AXIS SYNCHRONISATION THROUGH PROCESS BUS

APPLICATION BUS : PROFIBUS-DP, DEVICENET, ...

1500 STEP INTERNAL MOTION CONTROLLER

ELECTRONIC CAMS

SIMPLE COMMISSIONING AND PROGRAMMING SOFTWARE

HIPERFACE AND SSI ENCODER INPUT

230V OR 400V SUPPLY

TECHNICAL SPECIFICATION

637f Series

Power supply - 380-460V ($\pm 10\%$) ; three phase

Model	Output current continuous (Arms)	Output current peak (Arms)
637f K 02-x	2.0	4.0
637f K 04-x	4.0	8.0
637f K 06-x	6.0	12
637f K 10-x	10	20
637f K 16-6	16	32
637f K 22-6	22	44
637f K 30-6	30	60

x=3 for 230V; x=6 for 400V

* Except for 10A rating (637f K 10-3), three-phase only

Peak Output Current – Stated peak output currents are for a minimum 5 seconds

Ambient – 0 - 40°C (Derate 2%/°C up to 50°C max) Up to 1000m ASL (Derate 1%/100m up to 4000m max)

Control

Current loop - 105 μ s

Speed loop - 105 μ s

Position loop - 105 μ s

Multi axis synchronisation through process bus

Virtual master axis

Multi axis synchronisation

Embedded PLC functions

Programmable electronic cam

Trajectory generator - 3 independent blocks

Input/Output

8 - Digital Input (inc 2 interrupts)

5 - Digital Output (3 x opto-coupled, 2 x relay)

2 - Analogue input (0-10V, +/-10V)

2 - Analogue output (+/-10V)

Resolver feedback (standard) or Hiperface (option)

Configurable encoder terminal :

Incremental encoder input

Incremental encoder output

Absolute single or multi turn SSI encoder input

RS232 (COM1) serial communication port

Hiperface option

4096 revolution absolute encoder - 1048576 inc. per rev.

Input/Output expansion options

Additional 14 Digital inputs/10 Digital outputs

Application communication option (COM2)

PROFIBUS-DP

SUCOnet K

DeviceNet

RS485

CANopen DS402

RS232

INTERBUS S

Inter axis communication option (COM3)

CANopen card

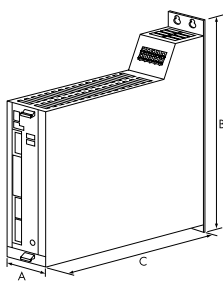
CANopen card + 4 Digital Input/4 Digital Output expansion

EN954-1 Category 3 safety option

637f 2 to 30A

Dimensions				
		A	B	C*
637f	1 to 10 A	61.5	400	280
637f	16 to 30 A	104	400	280

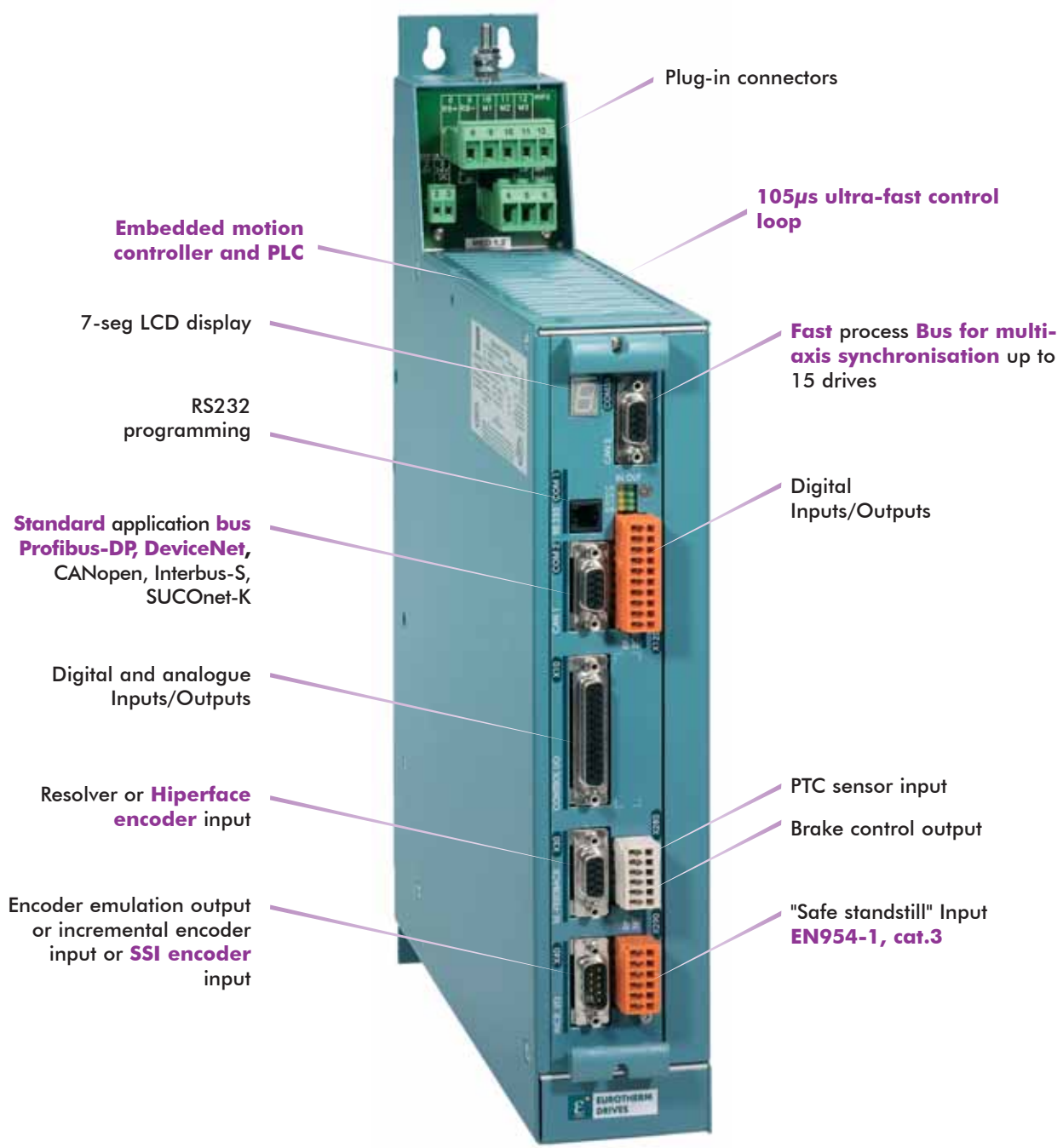
*Allow extra 70mm in front of unit for plugs/cables.



STANDARDS

CE marked
 EN61800-3 (EMC compliance) with integral filter
 EN50178 (safety, low voltage)
 and

637f sets a new standard for performance



631, 635 AND 637f



631, 635 and 637f

COMPLETE PVC SCREENED CABLE SETS WITH CONNECTORS

Power

Power cable for ACG, compact version drive	KMB2-GM2n-K-xx
Power cable for ACG, rack version drive	KMB2-GM2n-R-xx
Power cable for NX1, NX2	220170R12xx
Power cable for NX2, NX3, NX4, NX6 (I < 15A)	220172R42xx
Power cable for NX3, NX4, NX6 (I < 22A)	220172R43xx

Resolver

Resolver cable for ACG	KRT-GMR-xx
Resolver cable for NX1, NX2	220170R21xx
Resolver cable for NX2, NX3, NX4, NX6, NX8	220172R61xx

xx = length in m; standard length 2, 5, 10m.

FERRITES

Ferrite for cable length > 15m (I < 10A)	FR3
Ferrite for cable length > 15m (I > 10A)	FR6

COM2 COMMUNICATION OPTION

RS232 communication board	RP232
RS422 communication board	RP422
RS485 communication board	RP485
CAN / CAN OPEN communication board	RPCAN
Profibus DP communication board	RPPDP
DeviceNet communication board	RPDEV
SUCOnet-K communication board	RPSUC
Interbus-S communication board	RPISB

COM3 COMMUNICATION OPTION FOR 637F

RPM2CA/637f-8 CanOpen for 637f 02A to 10A	RP 2CA-8
RPM2CA/637f-16 CanOpen for 637f 16A to 30A	RP 2CA-16
RPM2CB/637f-8 CanOpen for 637f 02A to 10A	RP 2CB-8
RPM2CB/637f-16 CanOpen for 637f 16A to 30A	RP 2CB-16

EXTENDED I/O OPTION BOARD

5 I / 2 O digital for 635	RPEA5
14 I / 10 O digital for 637f	RPEAE
External plug for RPEAE	SUB D-HD 26 S/M

SAFETY MODULE OPTION FOR 637F

EN954-1 standard Cat.3 safety module	RP SBT
--------------------------------------	--------

EMC FILTERS FOR 635/637F

230V 12A 1 phase RFI filter	LNFE1-230/012
230 or 400V 8A 3 phases RFI filter	LNFB3-480/008
230 or 400V 18A 3 phases RFI filter	LNFB3-480/018
400V 33A 3 phases RFI filter	LNFB3-480/033
400V 46A 3 phases RFI filter	LNFB3-480/046
400V 60A 3 phases RFI filter	LNFB3-480/060
400V 82A 3 phases RFI filter	LNFB3-480/082
400V 142A 3 phases RFI filter	LNFB3-480/142

EMC KITS

02A to 10A kit for 637f	EMVBU-D6K08V1
16A to 32A kit for 637f	EMVBU-D6K16V1
01A to 07A kit for 635	EMVBU-DEK15V1
10A kit for 635	EMVBU-DEK18V1

OUTPUT CHOKE (POWER CABLE LENGTH > 50M)

Remark : Ferrite has also to be mounted

Output choke In ≤ 8A	E32-0011
Output choke In ≤ 24A	E32-0031
Output choke In ≤ 35A	E32-0046

BRAKE RESISTOR

Resistor 100W 100Ω	B100/100-6
Resistor 300W 33Ω	B300/33-6
Resistor 560W 26Ω	B560/26-6

631 CABLES

CAN bus terminator plug (120ohms)	S-CAN-631-AS
CAN Peer to Peer connection for 631	K 631 X20-0.1
Incremental Peer to Peer connection for 631	K 631 X40-0.1

SOFTWARE

EASYRIDER / TESIWIN / PROGRAMMING EXAMPLES	CD SERVO
PC to 635 drive cable	Kn PC/D-02.0
PC to 631 and 637f drive cable	Kn PC/631-03.0

MMI (MAN MACHINE INTERFACE)

4x20 character BT MMI	IBT T CAN -W
MMI to 631 interconnecting cable with connectors	K IBT 1*631-xx
MMI to 635/637f interconnecting cable with connectors	K IBT n*630-xx

xx = length in m; standard length 2 and 5m.

NX - 630 AND EX - 630 ASSOCIATIONS

630 drives are easily combined to NX and EX brushless servo motors (see page 14 and 20) to meet requirements of various servo system applications.

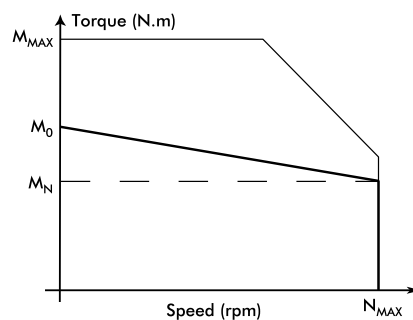


NX and EX Associations - 631/635 / 230V

Motor	M ₀ (N.m)	I ₀ (A _{RMS})	M _N (N.m)	I _N (A _{RMS})	N _{MAX} (tr/min)	M _{MAX} (N.m)	I _{MAX} (A _{RMS})	630 drive rating
NX SERVO MOTORS								
NX110EAP	0.45	1.0	0.33	0.8	6000	0.92	2.0	1/2
NX110EAP	0.45	1.0	0.33	0.8	6000	1.3	3.0	2/4
NX205EAV	0.45	1.0	0.37	0.8	5000	0.91	2.0	1/2
NX205EAS	0.45	1.3	0.29	1.0	7500	1	3.1	2/4
NX210EAT	1	1.3	0.8	1.1	4000	2.8	4.0	2/4
NX210EAP	1	2.0	0.61	1.3	6000	1.9	4.0	2/4
NX210EAP	1	2.0	0.61	1.3	6000	2.4	5.0	2.5/5
NX310EAP	2	1.4	1.9	1.3	2300	5.2	4.0	2/4
NX310EAK	2	2.5	1.7	2.1	4000	3.8	5.0	2.5/5
NX310EAK	2	2.5	1.7	2.1	4000	5.7	8.0	4/8
NX420EAP	4	2.8	3.8	2.7	2300	10.3	8.0	4/8
NX420EAJ	4	4.9	3.4	4.2	4000	8.0	10.0	5/10
NX420EAJ	4	4.9	3.4	4.2	4000	9.2	12.0	6/12
NX430EAJ	5.5	5.3	4.7	4.5	3200	10.2	10.0	6.5/10
NX430EAF	5.5	6.7	4.3	5.3	4000	15.1	20.0	10/20
NX620EAR	8	5.3	7.4	5.0	2200	15.1	10.0	6.5/10
NX620EAJ	8	9.9	6.1	7.9	4000	16.0	20.0	10/20
NX630EAR	12	5.7	11.5	5.5	1450	21.4	10.0	6.5/10
NX630EAK	11	10	10.2	9.2	2800	22.3	20.0	10/20
EX SERVO MOTORS FOR EXPLOSIVE ATMOSPHERE								
EX310EAP	1.7	1.2	1.7	1.2	2300	4.1	3	2/4
EX310EAK	1.7	2.2	1.5	2.0	4000	3.5	5	2.5/5
EX420EAP ⁽²⁾	3.5	2.5	3.2	2.2	2300	7.8	5.7	4/8
EX420EAJ ⁽²⁾	3.5	4.3	2.7	3.3	4000	8.3	10.6	6/12
EX430EAJ ⁽²⁾	4.8	4.6	3.7	3.6	3200	10.8	10.6	6/12
EX430EAF ⁽²⁾	4.8	5.8	3.3	4.1	4000	11.6	14.5	10/20
EX620EAO	7	5.5	5.5	4.5	2500	15.5	12	6/12
EX630EAI	10.4	10	7.2	7.3	3000	21.3	20	10/20
EX820EAR ⁽²⁾	14	9.6	11.5	8	2200	26.8	20	10/20

NX and EX Associations - 637f / 400V

Motor	M ₀ (N.m)	I ₀ (A _{RMS})	M _N (N.m)	I _N (A _{RMS})	N _{MAX} (tr/min)	M _{MAX} (N.m)	I _{MAX} (A _{RMS})	637f drive rating
NX SERVO MOTORS								
NX205EAV	0.45	1	0.29	0.7	7500	0.9	2.0	1/2
NX210EAT	1	1.3	0.61	0.9	6000	2.8	4.0	2/4
NX310EAP	2	1.4	1.7	1.2	4000	5.1	4.0	2/4
NX420EAV	4	1.4	3.8	1.4	2000	10.3	4.0	2/4
NX420EAP	4	2.8	3.4	2.4	4000	10.3	8.0	4/8
NX430EAV	5.5	1.4	5.4	1.4	1000	14.4	4.0	2/4
NX430EAP	5.5	2.8	4.8	2.5	3000	14.4	8.0	4/8
NX430EAL	5.5	3.8	4.3	3.0	4000	11.2	8.0	4/8
NX430EAL	5.5	3.8	4.3	3.0	4000	15.8	12.0	6/12
NX620EAV	8	2.8	7.5	2.7	2000	21.2	8.0	4/8
NX620EAR	8	5.3	6.2	4.3	3900	17.8	12.0	6/12
NX620EAJ	8	9.9	5.6	7.2	4500	16.0	20.0	10/20
NX620EAJ	8	9.9	5.6	7.2	4500	23.3	32.0	16/32
NX630EAV	12	2.8	11.6	2.7	1350	31.7	8.0	4/8
NX630EAR	12	5.7	10.3	5.0	2700	25.3	12.0	6/12
NX630EAN	12	8.6	8.3	6.2	4000	27.0	20.0	10/20
NX630EAN	12	8.6	8.3	6.2	4000	33.1	26.0	16/32
NX820EAX	16	5.2	14.7	4.8	1900	34.2	12.0	6/12
NX820EAR	16	11	12.9	9.1	3900	40.7	32.0	16/32
NX840EAX	28	10.1	23.2	8.5	2100	53.7	20.0	10/20
NX840EAK	28	16.8	18.5	11.5	3500	51.7	32.0	16/32
NX860EAJ	41	18.6	27.4	12.8	2600	92	44.0	22/44
NX860VAJ ⁽¹⁾	64	29.3	50.5	23.2	2600	117	60.0	30/60
EX SERVO MOTORS FOR EXPLOSIVE ATMOSPHERE								
EX310EAP	1.7	1.2	1.5	1.1	4000	3.9	2.8	2/4
EX420EAV ⁽²⁾	3.5	1.2	3.2	1.2	2000	7.7	2.8	2/4
EX420EAP ⁽²⁾	3.5	2.5	2.7	1.9	4000	7.8	5.7	4/8
EX430EAP ⁽²⁾	4.8	2.5	3.9	2.0	3000	10.7	5.7	4/8
EX430EAL ⁽²⁾	4.8	3.3	3.3	2.3	4000	11.1	8.0	4/8
EX620EAO	7	5.5	3.1	2.7	4300	14.7	11.3	6/12
EX630EAY	10.4	5.5	7.4	4.1	2900	21.8	11.3	6/12
EX630EAN	10.4	7.5	5.2	4.1	4000	26.0	18.7	10/20
EX820EAW ⁽²⁾	14	5.6	11.5	4.6	2200	27.3	11.3	6/12
EX820EAR ⁽²⁾	14	9.6	8.6	6.1	3600	31.1	22.6	16/32
EX840EAX ⁽²⁾	24.5	8.8	15.9	5.9	2100	58.4	22.1	16/32
EX840EAK ⁽²⁾	24.5	14.7	5.0	3.5	3300	58.4	36.8	22/44
EX860EAJ ⁽²⁾	35	15.8	12.0	5.9	2600	84.5	39.7	22/44



230V AND 400V POWER SUPPLY

LARGE CHOICE OF TORQUE
AND SPEED

ADAPTED CONNECTION

⁽¹⁾ Ventilated motor - ⁽²⁾ To be released soon