ENG

MOTION CONTROL

TPD32-EV

DC ARMATURE CONVERTERS

GEFRAN

COD. 82181B

Thanks to forty years of experience, Gefran is the world leader in the design and production of solutions for **measuring, controlling, and driving industrial production processes**.
We have branches in 14 countries and a network of over 80 worldwide distributors.

QUALITY AND TECHNOLOGY

Gefran components are a **concentration of technology**, the result of constant research and of **cooperation with major research centers**.
This makes Gefran synonymous with quality and expertise in the design and production of:

- **sensors** for measuring main variables such as **temperature, pressure, position and force**
- **state-of-the-art components and solutions for indication and control**, satisfying demands for optimization of processes and intelligent management of energy consumption
- **automation platforms** of various complexities
- **electronic drives and electric motors** in AC and DC for all industrial automation, HVAC, water treatment and lift needs.

Gefran's know-how and experience guarantee continuity and tangible solutions.

SERVICES

A team of Gefran experts works with each customer to select the ideal product for its application and to help install and configure devices (technohelp@gefran.com).

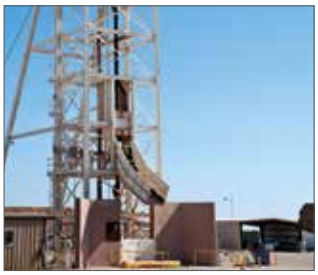
Gefran offers a wide range of courses at different levels for the technical-commercial study of its product as well as specific courses *on demand*.

INDUSTRIAL HOISTING

METAL PROCESSING

TEST BENCHES

PLASTIC AND RUBBER PROCESSING



LIFTS FOR MINES

AMUSEMENT PARKS

In addition to foreseeing the market's application needs, Gefran forms partnerships with its customers to find **the best way to optimise and boost the performance of various applications**.
Gefran products communicate with one another to provide integrated solutions, and can dialogue with devices by other companies thanks to compatibility with numerous fieldbuses.

CANopen DeviceNet Modbus PROFIBUS

DESCRIPTION

Series TPD32 EV -...-2B/4B
TPD32-EV DC drive series is a product of the ever growing technological demands of modern industrial systems, and draws on Gefran's years of experience in the field of DC motor speed control. This is available in a wide range of motor power ratings and power supply types and it offers solutions for both 2 quadrant and 4 quadrant operation and system solution as 12 pulses parallel and series configuration.
Designed to minimize user system requirements, this range offers a range of functions and dedicated application packages to cover the most complex requirements of modern industrial automation systems.

Series TPD32 EV-CU
Regulation control units are ideal for controlling the full range of external power bridges available on the market.
The regulation control unit implements all the control systems required of an armature converter, including snubber filters, field regulator, regulation card, for simple, immediate power structure customisation.

Series TPD32 EV-FC
Series of converters designed to supplyhighly inductive loads such as electromagnets, chokes, synchronous motor excitation circuits, galvanic applications, etc..

POWER RATINGS

	TPD32 EV-500/...	TPD32 EV-575/...	TPD32 EV-690/...
2 quadrant	(..-2B): from 20A up to 3300A	(..-2B): from 280A up to 2300A	(..-2B): from 560A up to 3300A
4 quadrant	(..-4B): from 20A up to 3300A	(..-4B): from 280A up to 2300A	(..-4B): from 560A up to 3300A

THREE-PHASE POWER CIRCUIT (U/V/W)

TPD32 EV-500/...
- 230 VAC ±10%, 50/60Hz ±5%
- 400 VAC ±10%, 50/60Hz ±5%
- 440 VAC ±10%, 50/60Hz ±5%
- 460 VAC ±10%, 50/60Hz ±5%
- 480 VAC ±10%, 50/60Hz ±5%
- 500 VAC ±10%, 50/60Hz ±5%
- 2 quadrant (..-2B): from 20A up to 3300A
- 4 quadrant (..-4B): from 20A up to 3300A

TPD32 EV-575/...
- 230 VAC ±10%, 50/60Hz ±5%
- 400 VAC ±10%, 50/60Hz ±5%
- 440 VAC ±10%, 50/60Hz ±5%
- 460 VAC ±10%, 50/60Hz ±5%
- 480 VAC ±10%, 50/60Hz ±5%
- 500 VAC ±10%, 50/60Hz ±5%
- 575 VAC ±10%, 50/60Hz ±5%
- 2 quadrant (..-2B): from 280A up to 2300A
- 4 quadrant (..-4B): from 280A up to 2300A

TPD32 EV-690/...
- 230 VAC ±10%, 50/60Hz ±5%
- 400 VAC ±10%, 50/60Hz ±5%
- 440 VAC ±10%, 50/60Hz ±5%
- 460 VAC ±10%, 50/60Hz ±5%
- 480 VAC ±10%, 50/60Hz ±5%
- 500 VAC ±10%, 50/60Hz ±5%
- 575 VAC ±10%, 50/60Hz ±5%
- 690 VAC ±10%, 50/60Hz ±5%
- 2 quadrant (..-2B): from 560A up to 3300A
- 4 quadrant (..-4B): from 560A up to 3300A

TPD32 EV-CU-230/500-...:
230 VAC ... 500 VAC ±10%, 50/60Hz ±5%

TPD32 EV-CU-575/690-...:
575 VAC ... 690 VAC ±10%, 50/60Hz ±5%

TPD32 EV-FC-200/...:
60 VAC ... 200 VAC ±10%, 50/60Hz ±5%

TPD32 EV-FC-500/...:
230 VAC ... 500 VAC ±10%, 50/60Hz ±5%

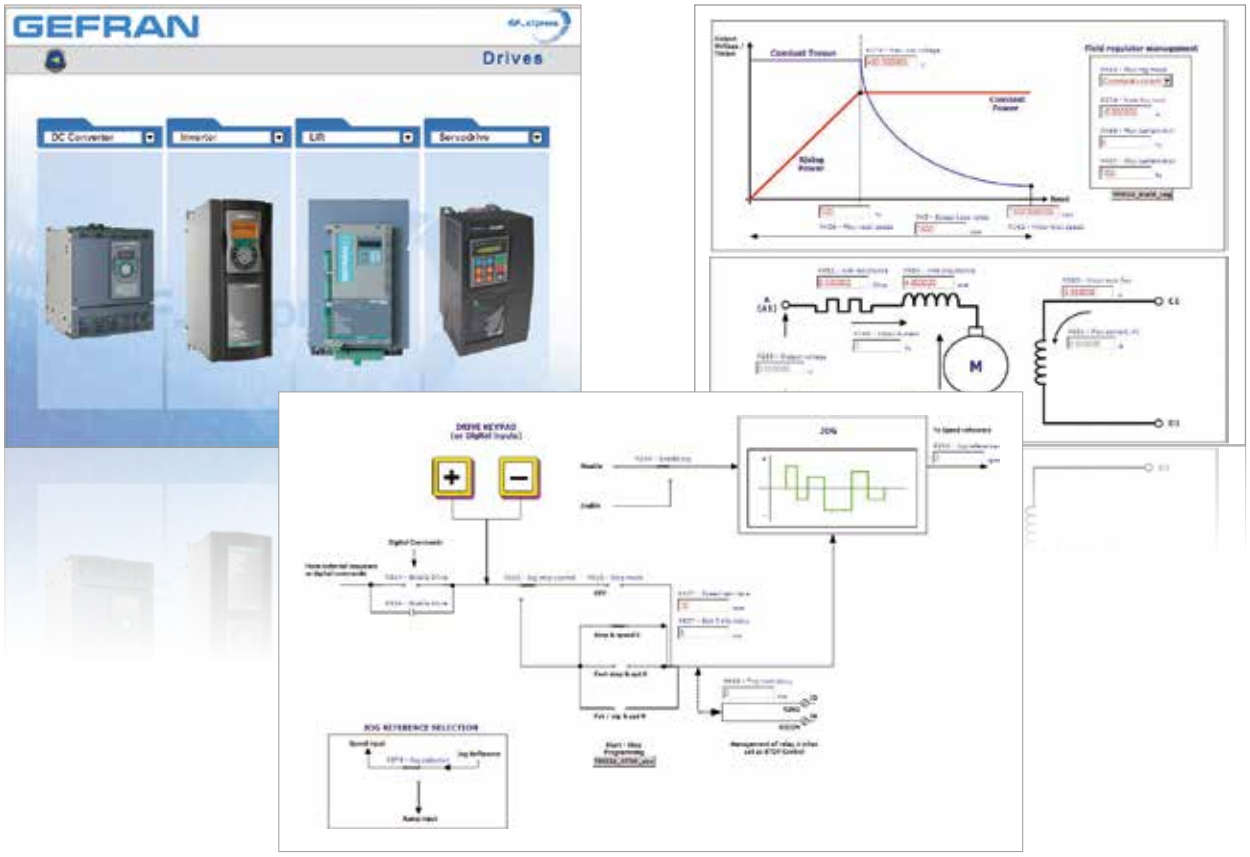
SINGLE-PHASE FIELD CIRCUIT (U1/V1)

- 230 VAC ±10%, 50/60Hz ±5%
- 400 VAC ±10%, 50/60Hz ±5%
- 460 VAC ±10%, 50/60Hz ±5%

SINGLE-PHASE REGULATION CIRCUIT (U2/V2)

- 115 VAC ±15%, 50/60Hz ±5%
- 230 VAC ±15%, 50/60Hz ±5%

SOFTWARE



GF-eXpress PROGRAMMING SOFTWARE

All drives and automation devices manufactured by the GEFRAN group (PLC, HMI, instrumentation, etc.) can be programmed via PC using the **GF-eXpress** configurator.

This PC tool enables complete **programming and control of the product**, based on a powerful, user-friendly and intuitive software platform:

- Programming with parameter list or block diagrams
- Integrated oscilloscope
- Multi-drop network management with up to 32 drives.

GENERAL CHARACTERISTICS

WIDE RANGE OF POWER SUPPLIES
A single product for all power supply types, from 230Vac to 690Vac.

SERIAL COMMUNICATION
For programming with PC, the RS485 serial line with Modbus RTU protocol is standard on the TPD32-EV.

FIELDBUS CARDS (OPTIONAL)
Interfacing with the most commonly-used fieldbus systems:
- ProfibusDP (SBI-PDP-32),
- CANopen (SBI-COP)
- DeviceNet (SBI-DN).

PROGRAMMING KEYPAD
The optional KB-TPD32-EV programming keypad featuring full display of parameters and variables makes the converter extremely intuitive and easy to use.

FIELD REGULATOR
Integrated field regulator on all the range, 1ph supply:
230Vac...460Vac, 50/60Hz, rated currents from 10 to 70A.

TBO-32 - I/O EXPANSION CARD
Converter standard input / output expansion card:
- 4 digital inputs (+15Vdc ... +30Vdc: 3 ... 6mA)
- 4 digital outputs (+15Vdc ... +30Vdc, max 50mA)
- 2 analog outputs (±10V, max 5mA).

OVERLOAD
Programmable up to 200% with dedicated firmware function.

Standard supply configuration	• Speed feedback via tachogenerator and/or digital or sinusoidal encoder - 2 encoder inputs: sinusoidal (power supply at 5 V) and digital (power supply at 24 V); - 1 Tachogenerator input; • Digital I/O logic control in PNP configuration; • Analog inputs: 3 Differential, 12 Bits, programmable , selectable for ±10 VDC, 0 - 20 mA, 0 - 10 VDC, 4 - 20 mA; • 2 Analog outputs ±10Vdc; • 8 Digital inputs (4 fixed + programmable); • 4 programmable digital outputs; • Relay outputs: 1 Drive OK normally closed contact, 1 programmable normally closed contact; • 1 Motor thermistor input; • RS485 Serial line (Modbus RTU protocol); • Programmable overload up to 200%; • Interfacing with fieldbus protocol as: Profibus DP ®, CANopen® and DeviceNet; • LED diagnostics module.	
Precision	Speed control	with sinusoidal encoder: typically 0.01% with digital encoder: typically 0.02% with tachogenerator: typically 0.1%
	Torque regulation	typical 0,2%
	Analog Inputs / Ouputs	11 bit + sign
	Digital references	15 bit + sign
Integrated System Technology	• Quick start up; Autotuning of the speed and current regulators (*); 5 Independent programmable Multi-ramps; Programmable Linear and "S"shaped ramps; Seven Programmable Multispeeds; Independent regulation of the Min/Max speed for each direction sense of rotation; • Current limitation in accordance with the speed; Adaptive gains of the speed regulator; Independent management of the integral gain at zero speed; Programmable overload control; Jog function; Motorpotentiometer function; I2t motor protection; • PID function block; Servodiameter control function;"Speed Draw" function; "Autocapture"function (Flying restart); "Droop" function, SCR test function.	
Options	• Programming keypad KB; • I/O expansion card TBO-32; • Profibus interface SBI-PDP-32; • DeviceNet interface SBI-DN; • CANopen interface SBI-COP; • Programmable APC300 application card with Master CAN I/O controller and integrated Fast Link Drive to Drive communication; • Supplementary encoders management DEII.	
Accessories	• Dedicated EMC filters (in accordance with EN61800-3); • Input choke (standardised for the whole line); • Programming remote keypad kit with 2 meters of cable included; • RS485 serial line kit for direct PC communication.	
Environmental conditions	• Protection degree: IP20 up to 1000A (..-2B) and 1050A (..-4B), IP20/IP00 for bigger powers. • Operating temperature: from 0°C to 40°C, from + 40°C to +50°C with derating. • Storage temperature: -25°C...+55°C (Class 1K4 – EN50178). • Humidity: from 5% to 85%, relative humidity (without condensation) or ice formation (Class 3K3 under EN50178). • Altitude: max 2000 metres above sea level; above 1000 metres the current must be reduced by 1.2% per 100 metre increase.	
Standards and Marks	**CE**: complies with the EC directive concerning low voltage equipment (Directives LVD 2014/35/EC, EMC 2014/30/EC).	
	UL, cUL: complies with directives for the American and Canadian market (TPD32 EV -...-NA series *). *TPD32 EV -...-E-NA series not included.*	
	EMC: complies with the EC directive - EN 61800-3 concerning electromagnetic compatibility with the use of optional filters.	

(*) Except the TPD32-EV -FC-... series

CONVERTER SELECTION – INPUT AND OUTPUT DATA

TPD32 EV-...

TPD32 EV Standard sizes	TPD32 EV-...-NA American sizes	2 quadrant: 2B	4 quadrant: 4B	Frame	U_{LN} AC Input Voltage			Input Frequency	I_{DN} Rated Output Current Standard sizes	I_{DN} Rated Output Current American sizes (1)	I_{OVLD} Output Current Overload	U_{DN} DC Output Voltage						AC Input Voltage for Field Circuit	U_{FN} DC Field Voltage * (0.85 U_{LN})	I_{FN} Field Current @ 40°C	AC Input Voltage of regulation part
					TPD32 EV-500	TPD32 EV-575	TPD32 EV-690					TPD32 EV-500		TPD32 EV-575		TPD32 EV-690					
					230 ... 500Vac ± 10%, 3ph	230 ... 575Vac ± 10%, 3ph	230 ... 690Vac ± 10%, 3ph														
					[Vac]	[Vac]	[Vac]	[Hz]	[A]	[A]	[A]	2B	4B	2B	4B	2B	4B	[Vac]	[Vdc]	[A]	[Vac]
20	17	•	•	A1	•			50/60 Hz ±5%	20	17	I_{DN} Programmable up to 200%	600 Vdc	520 Vdc	680 Vdc	600 Vdc	810 Vdc	720 Vdc	230 Vac ± 15% or 400 Vac ± 15% or 460 Vac ± 10%, single-phase, 50/60Hz ±5%	Fixed or adjustable: 200 Vdc (for 230 Vac) or 310 Vdc (for 400 Vac) or 360 Vdc (for 460 Vac)	10	115 Vac ± 15% or 230 Vac ± 15%, single-phase, 50/60Hz ±5%
40	35	•	•	A1	•				40	35										10	
70	56	•	•	A2	•				70	56										10	
110	88	•	•	A3	•				110	88										14	
140	112	•	•	A3	•				140	112										14	
185	148	•	•	A3	•				185	148										14	
280	224	•	•	B1	•	•			280	224										20	
350	280	•	•	B1	•	•			350	280										20	
420	336	•	•	B1	•	•			420	336										20	
500	400	•	•	B1	•	•			500	400										20	
560	360	•	•	C			•		560	360										25	
650	450	•	•	B2	•	•			650	450										20	
700	490	•	•	C		•	•		700	490										25	
770	560	•	•	C	•				770	560										25	
900	650	•	•	C			•		900	650										25	
1000	750	•		C		•			1000	750										25	
1050	750		•	C		•			1050	750										25	
1000	800	•		C	•				1000	800										25	
1050	850		•	C	•				1050	850										25	
1300	920		•	D			•		1300	920										40	
1300	980		•	D		•	•		1300	980										40	
1300	980	•		D		•			1300	980										40	
1400	1000	•	•	D	•				1400	1000										40	
1600	1200	•	•	D	•	•	•		1600	1200										40	
1900	1450	•	•	D			•		1900	1450										40	
2000	1500	•	•	D	•	•			2000	1500										40	
2100	1650	•	•	D			•		2100	1650										70	
2300	1800	•	•	D		•			2300	1800										70	
2400	1850	•	•	D	•				2400	1850										70	

TPD32 EV-.../...-...-..EXTERNAL BRIDGE

TPD32 EV Standard sizes	TPD32 EV-...-NA American sizes	2 quadrant : 2B	4 quadrant : 4B	Frame	U_{LN} AC Input Voltage TPD32 EV-500 [VAC]	U_{LN} AC Input Voltage TPD32 EV-690 [VAC]	Input Frequency [Hz]	I_{DN} Rated Output Current Standard sizes [A]	I_{DN} Rated Output Current American sizes (1) [A]	I_{OVLD} Output Current Overload [A]	U_{DN} DC Output Voltage TPD32 EV-500 2B	U_{DN} DC Output Voltage TPD32 EV-500 4B	U_{DN} DC Output Voltage TPD32 EV-690 2B	U_{DN} DC Output Voltage TPD32 EV-690 4B	AC Input Voltage for Field Circuit [VAC]	U_{FN} DC Field Voltage * (0.85 U_{LN}) [VDC]	I_{FN} Field Current@ 40°C [A]	AC Input Voltage of regulation part [VAC]
1200	1000	•		E	230 VAC ... 500 VAC ± 10%, 3-phase		50/60 Hz ±5%	1200	1000	I_{DN} Programmable up to 200%	600 Vdc	520 Vdc			230 VAC ± 15% o 400 VAC ± 15% o 460 VAC ± 10%, single-phase, 50/60Hz ±5%	Fixed or adjustable: 200 Vdc (for 230 VAC) or 310 Vdc (for 400 VAC) or 360 Vdc (for 460 VAC)	40	115 VAC ± 15% or 230 VAC ± 15%, single-phase, 50/60Hz ±5%
1500	1300	•	•	E				1500	1300								40	
1700	1350		•	E				1700	1350								40	
1800	1400	•		E				1800	1400								40	
2000	1500	•	•	E				2000	1500								40	
2400	1800	•	•	E				2400	1800								70	
2700	2000	•	•	E				2700	2000								70	
2900	2200	•		E				2900	2200								70	
3300	2350	•	•	E				3300	2350								70	
1010	900	•	•	E		230 VAC ... 690 VAC ± 10%, 3-phase		1010	900				810 Vdc	720 Vdc			40	
1400	1150	•	•	E				1400	1150								40	
1700	1350	•	•	E				1700	1350								40	
2000	1500	•	•	E				2000	1500								40	
2400	1800	•	•	E				2400	1800								70	
2700	2000	•	•	E				2700	2000								70	
3300	2350	•	•	E				3300	2350								70	

(1): 150% Overload factory settings.

Note:
A 12-impulse version of the converter is also available. This has two 6-impulse bridges with two different configurations: parallel (TPD32-EV -...-12P) or serial (TPD32-EV -...- 12S).

12 Pulses PARALLEL Configuration
The motor gets the sum of the DC current of two converters. Thus the current is doubled.
The Power range of the drive is extended by doubling dc drive output current value.
Contact Gefran Sales office for interbridge reactor calculation.

12 Pulses SERIES Configuration
The motor gets the sum of the DC voltage of two converters. Thus the voltage is doubled. (For the version powered at 690VAC, the supply voltage must not exceed 350VAC).
Possibility of emergency operation with one converter in case of a breakdown in the other converter for series configuration (with full torque and with 50 % of the former maximum armature voltage).
DC voltage range is extended by doubling dc drive output voltage value.
In order to divide symmetrically the total armature voltage in the range of the small armature current or armature current = 0, symmetry resistances must be utilized and connected in parallel to the individual current converters connected in series.
The symmetry resistances (Rsym) should be dimensioned in such a way that a cross current of at least 100 mA flows at maximum armature voltage.

CONVERTER SELECTION – INPUT AND OUTPUT DATA

TPD32 EV-FC – SPECIAL CONVERTER FOR INDUCTIVE LOADS

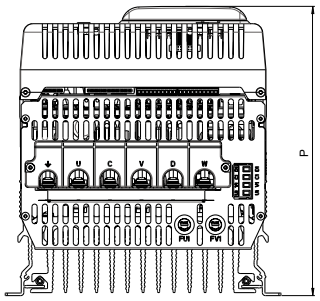
TPD32 EV-FC Sizes	2 quadrant: 2B	4 quadrant: 4B	Frame	U_{LN} AC Input Voltage [VAC]	Input Frequency [Hz]	I_{DN} Rated Output Current Standard sizes [A]	I_{OVLD} Output Current Overload [A]	U_{DN} DC Output Voltage 2B	U_{DN} DC Output Voltage 4B	AC Input Voltage of regulation part [VAC]
20	•	•	A1	TPD32-EV-FC-200: 60 VAC ... 200 VAC ± 10%, 3-phase TPD32-EV-FC-500/...: 230 VAC ... 500 VAC ± 10%, 3-phase	50/60 Hz ±5%	20	I_{DN} Programmable up to 200%	600 VDC	TPD32-EV-FC-200/...: 210 VDC TPD32-EV-FC-500/...: 520 VDC	115 VAC ± 15% or 230 VAC ± 15%, single-phase, 50/60Hz ±5%
40	•	•	A1			40				
70	•	•	A2			70				
110	•	•	A3			110				
140	•	•	A3			140				
185	•	•	A3			185				
280	•	•	B1			280				
350	•	•	B1			350				
420	•	•	B1			420				
500	•	•	B1			500				
650	•	•	B2			650				

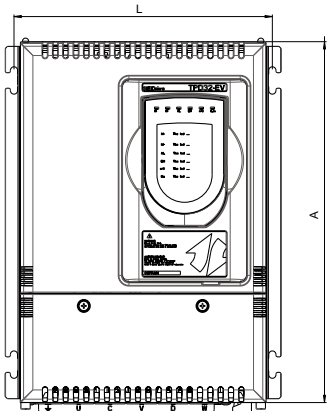
TPD32 EV -CU – EXTERNAL BRIDGE CONTROL UNIT

TPD32-EV-CU Sizes	2 quadrant / 4 quadrant	Frame	U_{LN} AC Input Voltage [VAC]	Input Frequency [Hz]	I_{DN} Rated Output Current (selectable) [A]	I_{OVLD} Output Current Overload [A]	U_{DN} DC Output Voltage [Vdc]	AC Input Voltage for Field Circuit [VAC]	U_{FN} DC Field Voltage (0.85 * U_{LN}) [VDC]	I_{FN} Field Current @ 40°C [A]	AC Input Voltage of regulation part [VAC]
TPD32-EV-CU-230/500-THY1-40	•	A1	230 ... 500 VAC ± 10%, 3-phase	50/60 Hz ±5%	4 ... 20000 A	Programmable I_{DN} up to 200%	520/600 VDC	230 VAC ± 15% or 400 VAC ± 15% o 460 VAC ± 10%, single-phase, 50/60Hz ± 5%	Fixed or adjustable:: 200 VDC (for 230 VAC) or 310 VDC (for 400 VAC) or 360 VDC (for 460 VAC)	40	115 VAC ± 15% o 230 VAC ± 15%, single-phase, 50/60Hz ±5%
TPD32-EV-CU-230/500-THY2-40	•	A1								40	
TPD32-EV-CU-230/500-THY1-70	•	A1								70	
TPD32-EV-CU-230/500-THY2-70	•	A1								70	
TPD32-EV-CU-575/690-THY1-40	•	A1	575 ... 690 VAC ± 10%, 3-phase				720/810 VDC			40	
TPD32-EV-CU-575/690-THY2-40	•	A1								40	
TPD32-EV-CU-575/690-THY1-70	•	A1								70	
TPD32-EV-CU-575/690-THY2-70	•	A1								70	

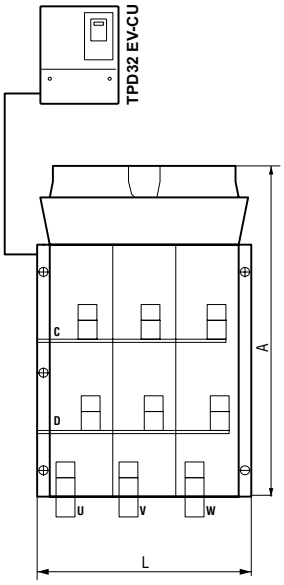
DIMENSIONS AND WEIGHTS

TPD32 EV Standard sizes	TPD32 EV-...-NA Standard sizes	Frame	Dimensions: W x H x d - mm ["]	Weight kg
TPD32-EV-.../...-20-..-A	TPD32-EV-.../...-17-..-A-NA	A1	267 x 349 x 280	8.4
TPD32-EV-.../...-40-..-A	TPD32-EV-.../...-35-..-A-NA			
TPD32-EV-.../...-70-..-A	TPD32-EV-.../...-56-..-A-NA	A2		8.8
TPD32-EV-.../...-110-..-A	TPD32-EV-.../...-88-..-A-NA	A3	267 x 349 x 280	10.8
TPD32-EV-.../...-140-..-A	TPD32-EV-.../...-112-..-A-NA			
TPD32-EV-.../...-185-..-A	TPD32-EV-.../...-148-..-A-NA			
TPD32-EV-.../...-280-..-B	TPD32-EV-.../...-224-..-B-NA	B1	311 x 388 x 343.6	25.5
TPD32-EV-.../...-350-..-B	TPD32-EV-.../...-280-..-B-NA			
TPD32-EV-.../...-420-..-B	TPD32-EV-.../...-336-..-B-NA			
TPD32-EV-.../...-500-..-B	TPD32-EV-.../...-400-..-B-NA			
TPD32-EV-.../...-650-..-B	TPD32-EV-.../...-450-..-B-NA	B2	311 x 388 x 373.6	32
TPD32-EV-.../...-560-..-C	TPD32-EV-.../...-360-..-C-NA	C	521 x 512 x 410	
TPD32-EV-.../...-700-..-C	TPD32-EV-.../...-490-..-C-NA			61
TPD32-EV-.../...-770-..-C	TPD32-EV-.../...-560-..-C-NA			
TPD32-EV-.../...-900-..-C	TPD32-EV-.../...-650-..-C-NA			65
TPD32-EV-.../...-1000-..-C TPD32-EV-.../...-1050-..-C	TPD32-EV-575/...-750-..-C-NA TPD32-EV-500/...-800-..-C-NA TPD32-EV-500/...-850-..-C-NA			72
TPD32-EV-..-D./...-1300-..-D	TPD32-EV-.../...-920-..-D-NA	D	704 x 1435 x 536	152 (2B)
TPD32-EV-..-D./...-1300-..-D	TPD32-EV-575/...-980-..-D-NA			203 (4B)
TPD32-EV-..-D./...-1400-..-D	TPD32-EV-.../...-1000-..-D-NA			
TPD32-EV-..-D./...-1600-..-D	TPD32-EV-.../...-1200-..-D-NA			165 (2B)
TPD32-EV-..-D./...-1900-..-D	TPD32-EV-.../...-1450-..-D-NA			215 (4B)
TPD32-EV-..-D./...-2000-..-D	TPD32-EV-.../...-1500-..-D-NA			
TPD32-EV-..-D./...-2100-..-D	TPD32-EV-.../...-1650-..-D-NA			
TPD32-EV-..-D./...-2300-..-D	TPD32-EV-.../...-1800-..-D-NA			191 (2B) 241 (4B)
TPD32-EV-..-D./...-2400-..-D	TPD32-EV-.../...-1850-..-D-NA			

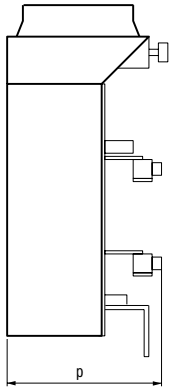


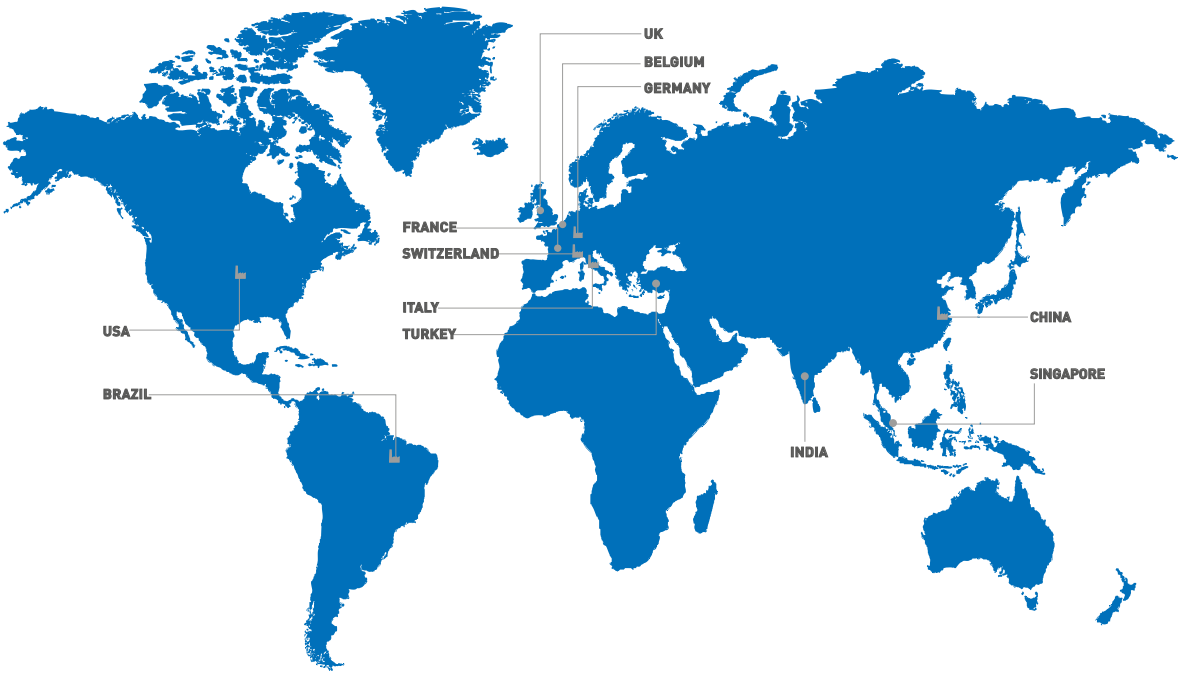


TPD32 EV-CU	Frame	Dimensions: WxHxd - mm	Weight (kg)
TPD32-EV-CU-.../...-THY1-40	A1	267 x 349 x 280	8.4
TPD32-EV-CU -.../...-THY2-40		267 x 349 x 280	8.4
TPD32-EV-CU-.../...-THY1-70		267 x 349 x 280	8.4
TPD32-EV-CU-.../...-THY2-70		267 x 349 x 280	8.4



TPD32-EV Ponti Esterni	Frame	Dimensions: WxHxd - mm	Weight (kg)
TPD32 EV-690/840-1010-2B-E	E	500 x 760 x 275	70
TPD32 EV-500/600-1200-2B-E		500 x 570 x 275	65
TPD32 EV-690/840-1400-2B-E		500 x 760 x 275	70
TPD32 EV-500/600-1500-2B-E		500 x 760 x 275	70
TPD32 EV-690/840-1700-2B-E		620 x 764 x 360	100
TPD32 EV-500/600-1800-2B-E		500 x 760 x 275	70
TPD32 EV-500/600-2000-2B-E		500 x 760 x 275	70
TPD32 EV-690/840-2000-2B-E		620 x 764 x 360	100
TPD32 EV-500/600-2400-2B-E		620 x 764 x 360	100
TPD32 EV-690/840-2400-2B-E		712 x 775 x 395	140
TPD32 EV-500/600-2700-2B-E		712 x 785 x 395	140
TPD32 EV-690/840-2700-2B-E		712 x 775 x 395	140
TPD32 EV-500/600-2900-2B-E		712 x 775 x 395	140
TPD32 EV-500/600-3300-2B-E		780 x 1180 x 420	260
TPD32 EV-690/840-3300-2B-E		780 x 1180 x 420	260
TPD32 EV-690/720-1010-4B-E		500 x 1310 x 375	130
TPD32 EV-690/720-1400-4B-E		500 x 1310 x 375	130
TPD32 EV-500/520-1500-4B-E		500 x 1310 x 375	130
TPD32 EV-500/520-1700-4B-E		500 x 1310 x 375	130
TPD32 EV-690/720-1700-4B-E		620 x 1314 x 475	170
TPD32 EV-500/520-2000-4B-E		500 x 1310 x 375	130
TPD32 EV-690/720-2000-4B-E		620 x 1314 x 475	170
TPD32 EV-500/520-2400-4B-E		620 x 1314 x 495	170
TPD32 EV-690/720-2400-4B-E		712 x 1335 x 475	240
TPD32 EV-500/520-2700-4B-E		712 x 1335 x 490	240
TPD32 EV-690/720-2700-4B-E		712 x 1335 x 475	240
TPD32 EV-.../...-3300-4B-E		780 x 1890 x 470	435





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