

# TOX<sup>®</sup>-ElectricDrive

Individualized solutions for special operations

Data sheet 40.51  
2023/08



# TOX<sup>®</sup>-ElectricDrive servo drive extra short

## Type EXe-K version 803 with planetary roller screw



### Advantages

- extra short
- small space requirement

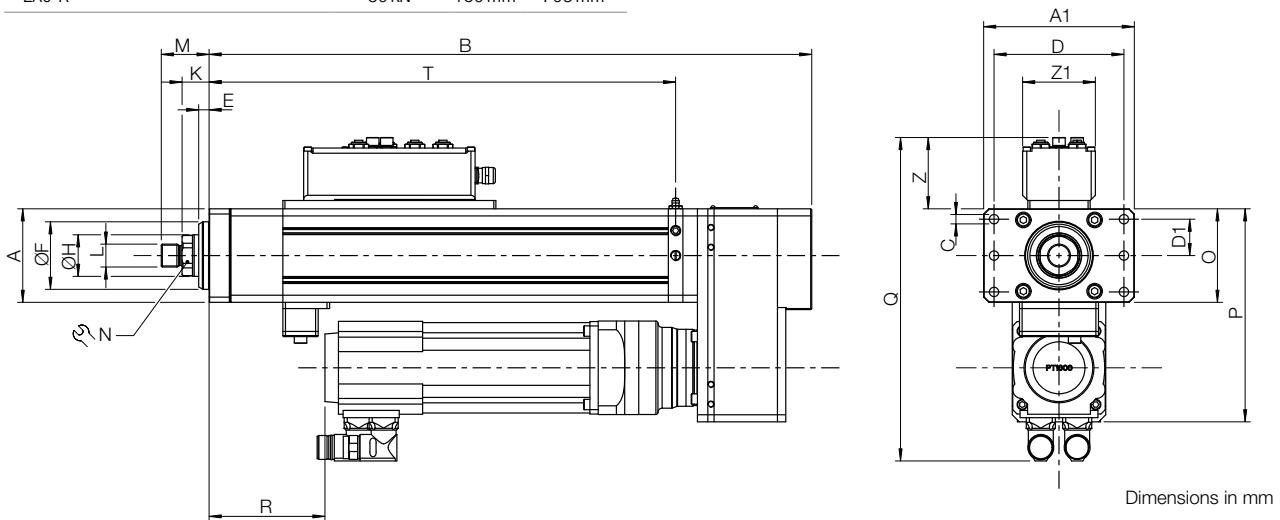
With its extra short design, this servo press can be used in compact systems with limited height. In addition, this version 803 is available with a further shortened stroke length of 50 mm.

### E version:

The EdgeUnit can be flexibly mounted on the housing in the grooves on the front, on the left or right or externally. The EdgeUnit is connected via the connecting cable (length approx. 1.5 m) from the terminal box to the EdgeUnit.

### Installation length comparison:

Drive	Nominal force	Stroke	Installation length
EXe-K version 803 (shortened stroke)	30 kN	50 mm	480 mm
EXe-K version 803	30 kN	150 mm	580 mm
EXe-K	30 kN	150 mm	703 mm



### Dimensions and weights

Type	Stroke mm	Max. Nominal force kN	Weight approx. kg
EXe-K 010.803.150	150	10	21
EXe-K 030.803.150	150	30	35
EXe-K 060.803.150	150	60	57
EXe-K 100.803.150	150	100	89
EXe-K 200.803.150	150	200	152

Type	A	A1	B	C	D	D1	E	F	H	K <sup>1)</sup>	L	M <sup>1)</sup>	N <sup>1)</sup>	O	P	Q	R	T	Z	Z1
EXe-K 010.803.150	70	125	551	6x Ø6.6	105	25	8	Ø50	Ø30	26	M12x1.5	38	27	70	165	278	113	409	69	70
EXe-K 030.803.150	90	145	580	6x Ø9	125	35	10	Ø65	Ø40	26	M22x2	46	36	90	205	311	111	449	69	70
EXe-K 060.803.150	105	165	669	6x Ø11	140	40	10	Ø75	Ø50	32	M30x2	57	41	105	255	354	171	512	69	70
EXe-K 100.803.150	130	200	729	8x Ø11	175	35	10	Ø90	Ø50	32.5	M30x2	57.5	41	130	295	436	185	542	69	70
EXe-K 200.803.150	160	235	846	10x Ø13.5	205	32.5	10	Ø105	Ø75	36.5	M39x2	71.5	65	160	345	467	198	614.5	69	70

<sup>1)</sup> Dimension refers to reference position of drive. Zero position is reference position + 3 mm.8

Specifications	EXe-K 010.803.	EXe-K 030.803.	EXe-K 060.803.	EXe-K 100.803.	EXe-K 200.803.
<b>Mechanical</b>					
Nominal pressing force	10 kN	30 kN	60 kN	100 kN	200 kN
Nominal pulling force	3 kN	8 kN	17 kN	30 kN	60 kN
Max. speed	300 mm/s	280 mm/s	250 mm/s	200 mm/s	120 mm/s
Repeatability <sup>1)</sup>	0.01 mm				
Max. tool weight without brake <sup>4)</sup>	10 kg	15 kg	25 kg	50 kg	100 kg
with safety brake / motor holding brake <sup>5)</sup>	25 kg	125 kg	300 kg	500 kg	1000 kg
<b>Sensors</b>					
Force transducer measuring range <sup>2)</sup>	0,1 – 10 kN	0.3 – 30 kN	0.6 – 60 kN	1 – 100 kN	2 – 200 kN
Accuracy	≤ ±0.5% of nominal pressing force				
Resolver	■	■	■	■	■
Resolution (theoretically)	0.00198 mm	0.00185 mm	0.00185 mm	0.00185 mm	0.00106 mm
<b>Electrical</b>					
Protection class <sup>3)</sup>	IP 54				
Mains supply	see data sheet 40.15 System & Components				
Climatic conditions	+ 10° to + 40° C. from 40° C performance loss. max. 55° C; air moisture < 75%. without condensation				

<sup>1)</sup> In thermal transient condition

<sup>2)</sup> Recommended operating range 1 – 80 %

<sup>3)</sup> Optional: Protection class IP 65

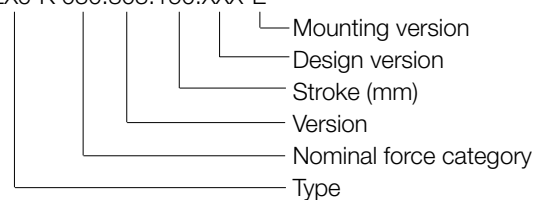
<sup>4)</sup> For higher weights, the tool can extend the piston when power is lost

<sup>5)</sup> Higher tool weights on request

A wide range of accessories is available for the servo drive type EXe-K (see data sheet 40.95, TOX®-ElectricPowerDrive Accessories).

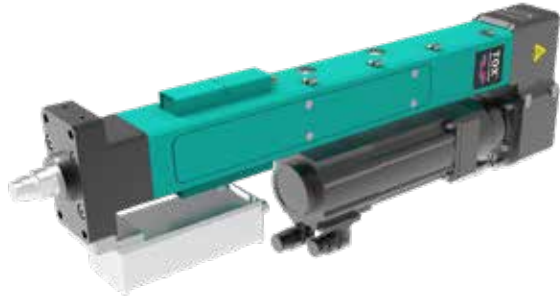
### Ordering example

EXe-K 030.803.150.XXX-E



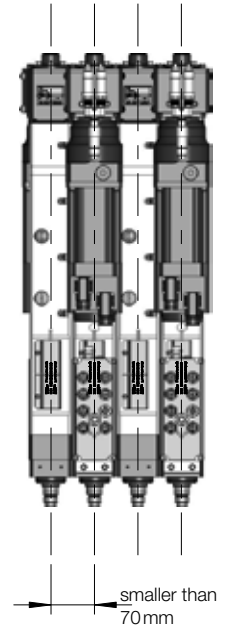
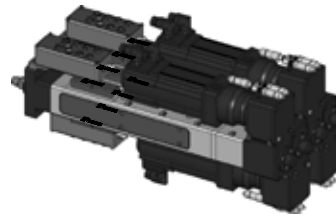
# TOX<sup>®</sup>-ElectricDrive servo drive extra narrow

## Type EPMK version 226, 10 and 25 kN

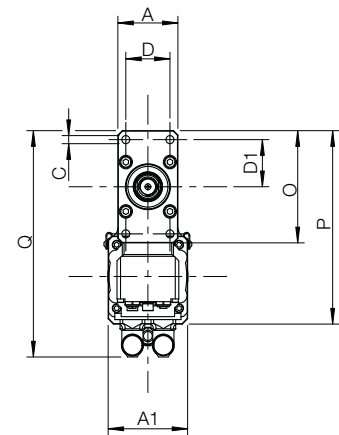
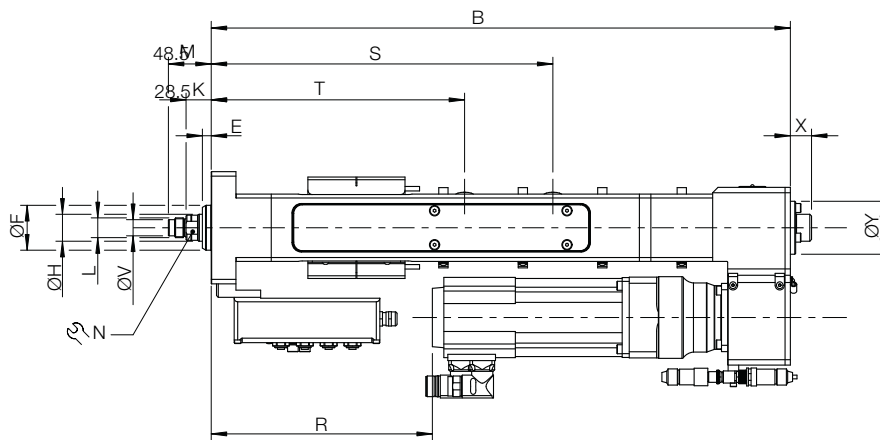


### Advantages

- extra narrow
- narrow space requirement



With its narrow design of only 68 mm, this servo press can be perfectly combined in series with an axial distance of less than 70 mm. This way, tasks can be realized in a confined space, e.g. when pressing valves into a cylinder head.



Dimensions in mm

### Dimensions and weights

Type	Stroke mm	Max. Nominal force kN	Weight approx. kg
EPMK 010.226.250	250	10	28
EPMK 025.226.250	250	25	28

Type	A	A1	B	C	D	D1	E	F	H	K	L	M	N	O	P	Q	R	S	T	V	X	Y
EPMK 010.226.250	68	90	656	9	50	52.5	10	Ø50	Ø30	20	M12x1.5	32	24	125	216	253	250	387	287	0	24	Ø59
EPMK 025.226.250	68	90	656	9	50	52.5	10	Ø50	Ø30	28.5	M20x2	48.5	24	125	215	253	250	387	287	18	24	Ø59

Specifications	EPMK 010.226.	EPMK 025.226.
<b>Mechanical</b>		
Nominal pressing force	10 kN	25 kN
Nominal pulling force	3 kN	7.5 kN
Max. speed	200 mm/s	200 mm/s
Distance repeatability <sup>1)</sup>	0,01 mm	
Max. tool weight without brake <sup>3)</sup>	10 kg	15 kg
<b>Sensors</b>		
Force transducer measuring range <sup>2)</sup>	0.5 – 10 kN	1.25 – 25 kN
Accuracy	≤ ± 1 % of rated force, pressing	
Resolver	■	■
Resolution (theoretically)	0.00123 mm	0.00123 mm
<b>Electrical</b>		
Protection class	IP54	
Mains supply	see data sheet 40.15 System & Components	
Climatic conditions	+ 10° to + 40° C, from 40° C performance loss, max. 55° C; air moisture < 75 %, without condensation	

<sup>1)</sup> In thermal transient condition

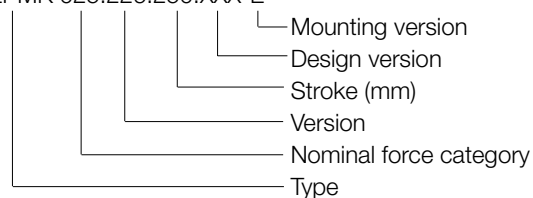
<sup>2)</sup> Recommended operating range 5 – 100 %

<sup>3)</sup> For higher weights, the tool can extend the piston when power is lost

A wide range of accessories is available for the servo drive type EPMK (see data sheet 40.90, TOX®-ElectricDrive Accessories).

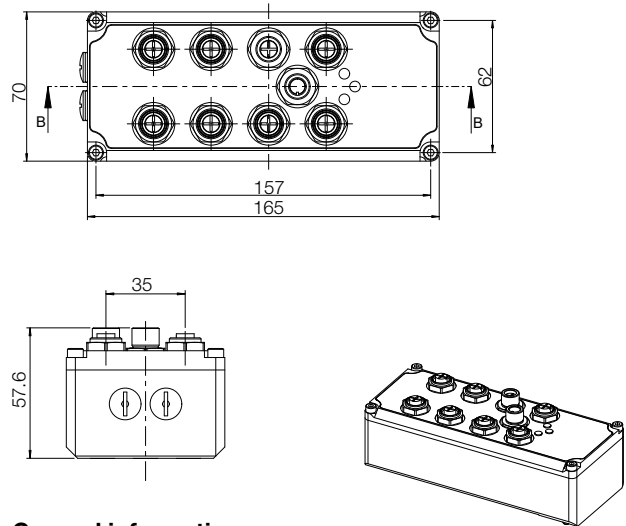
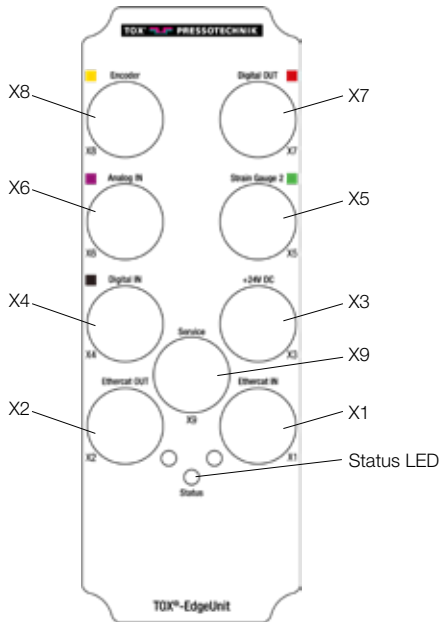
#### Ordering example

EPMK 025.226.250.XXX-E



# TOX<sup>®</sup>-EdgeUnit

**TOX<sup>®</sup>-EdgeUnit is the decentralized intelligence for each TOX<sup>®</sup>-ElectricPowerDrive**



## General information:

- Ambient temperature: 0 ... 50°C
- IP protection: IP 65 (plug closed)
- Housing: aluminum
- Status LED shows different states of the TOX<sup>®</sup>-EdgeUnit
- Integrated memory

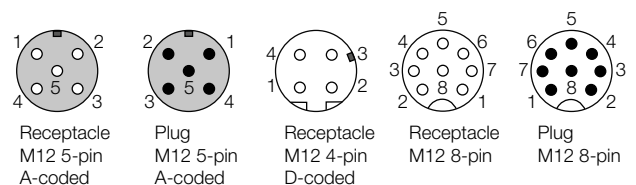
## Technical data/interfaces

<b>X1</b> ■	<b>Ethercat IN, incl. status LED</b>
Pin assignment	M12 4-pin Bushing, D-coded
<b>X2</b> ■	<b>Ethercat OUT, incl. status LED</b>
Pin assignment	M12 4-pin Bushing, D-coded
<b>X3</b>	<b>Power supply</b>
Voltage	+ 24VDC (18 ... 28 VDC)
Current draw	US1 <0,25A (without loads at Pin1, X4-7) US2 ~0A (without outputs at X7)
US1 US2	Logic voltage + sensors Output voltage (not electrically isolated)
Pin assignment	M12 5-pin, plug A-coded
<b>X4</b> ■	<b>Digital IN</b>
Digital IN 1 / Digital IN 2	24VDC
Logic level 0 (LOW)	0V ... 10V
Logic level 1 (HIGH)	16V ... 28V
Input current	max. 2 mA (at 24V)
Pin assignment	M12 5-pin bushing, A-coded
<b>X5*</b> ■	<b>Strain Gauge 2</b>
Measuring range	1.157 mV/V – 3,25 mV/V (intensifier adjustable)
Voltage VDC	5V
Shunt resistor	typ. 700 Ω
Resolution	16 Bit
Pin assignment	M12 5-pin bushing, A-coded

<b>X6*</b> ■	<b>Analog IN</b>
Analog IN 1	-10 ... 10VDC, 16 bit
Analog IN 2	0 ... 10VDC, 12 bit
Pin assignment	M12 5-pin bushing, A-coded
<b>X7</b> ■	<b>Digital OUT</b>
Digital OUT 0 / Digital OUT 1	24VDC, US2
Output current	max. 2 A (per channel) / overcurrent and short-circuit proof
Pin assignment	M12 5-pin bushing, A-coded
<b>X8*</b> ■	<b>Encoder</b>
Pin assignment	M12 8-pin bushing, A-coded
<b>X9</b>	<b>Service pin</b>
Pin assignment	M12 8-pin Plug, A-coded

\*Compatible sensor types available on request

## M12 pin assignment



# Pin assignments

## EdgeUnit

Version	Designation	Description
X1 Receptacle 4-pin, D-coded 	EtherCat In	Pin 1 = TD+ Pin 2 = RD+ Pin 3 = TD- Pin 4 = RD-
X2 	EtherCat Out	Pin 1 = TD+ Pin 2 = RD+ Pin 3 = TD- Pin 4 = RD-
X3 Plug 5-pin, A-coded 	Power	Pin 1 = 24V US2 Pin 2 = GND US2 Pin 3 = 24V US1 Pin 4 = GND US1 Pin 5 = PE GND US1 = GND US2 = GND
X4 Receptacle 5-pin, A-coded 	Digital In	Pin 1 = 24V US1 Pin 2 = DIN2 24V Pin 3 = GND Pin 4 = DIN1 24V Pin 5 = PE
X5 	Strain Gauge 2	Pin 1 = Strain Gauge Sig (neg) Pin 2 = 5V Strain Gauge Ref Pin 3 = GND Pin 4 = Strain Gauge Sig (pos) Pin 5 = -
X6 	Analog In	Pin 1 = 24V US1 Pin 2 = AIN2 0 ... 10V Pin 3 = GND Pin 4 = AIN1 -10 ... 10V Pin 5 = PE
X7 	Digital Out	Pin 1 = 24V US1 Pin 2 = DOUT1 24V US2 (2A) Pin 3 = GND Pin 4 = DOUT0 24V US2 (2A) Pin 5 = PE
X8 Receptacle 8-pin 	Encoder	Pin 1 = 5V Pin 2 = APR Pin 3 = ANR Pin 4 = BPR Pin 5 = BNR Pin 6 = CPR Pin 7 = CNR Pin 8 = GND

## Motor/Motor holding brake (optional)

For EXe-K 010, 030, 060 and EPMK 010, 025

Pin	Designation	Description	Plug
1	BD1	Immobilisation brake DC +/-AC	
2	BD2	Immobilisation brake DC -/AC	
PE	PE	Protective conductor	
4	U	Power leg U	
5	V	Power leg V	
6	W	Power leg W	

Type: Intercontec ICN-M23, 6-pin

For EXe-K 100, 200

Pin	Designation	Description	Plug
U	U	Power leg U	
+	BD1	Immobilisation brake +	
-	BD1	Immobilisation brake -	
W	W	Power leg W	
V	V	Power leg V	
PE	PE	Protective conductor	
1		Not occupied	
2		Not occupied	

Type: Intercontec ICN-M40, 8-pin

## Resolver

Pin	Designation	Description	Plug
1	+Ref	Transformer windings	
2	-Ref	Transformer windings	
3	+VCC ETS	Not assigned	
4	+COS	Stator winding Cosinus	
5	-COS	Stator winding Cosinus	
6	+SIN	Stator windings Sinus	
7	-SIN	Stator windings Sinus	
8		Not assigned	
9		Not assigned	
10	Shield	Housing shield of transmitter	
11	+	Temperature monitoring: PT1000	
12	-	Temperature monitoring: PT1000	

Type: Intercontec ICN-M23, 12-pin