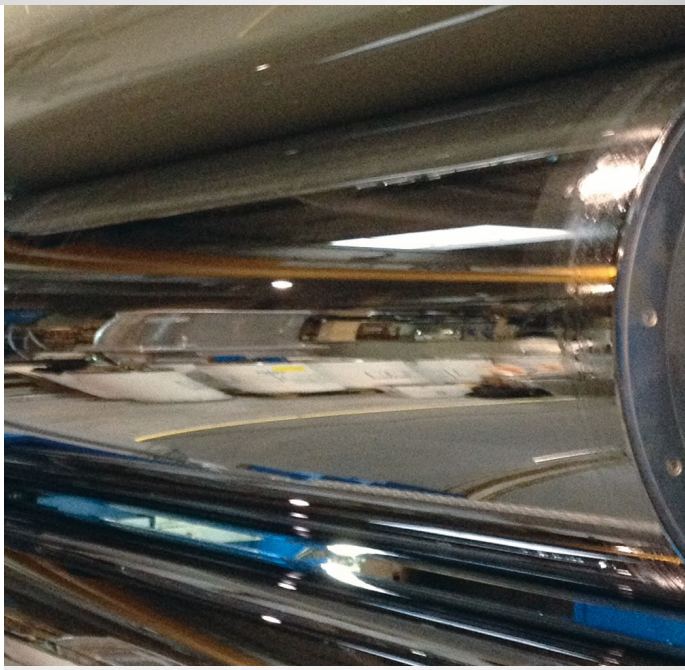
Energizing Productivity

Plastic Smoothing Rolls



Situation:

In case of power failure, safety standards require that the rolls seperate at least 30 mm.

Problem:

In case of power failure, the machine has no energy to seperate the rolls. Panels get stuck to the roll and lead to contamination or worst case damage to the rolls.

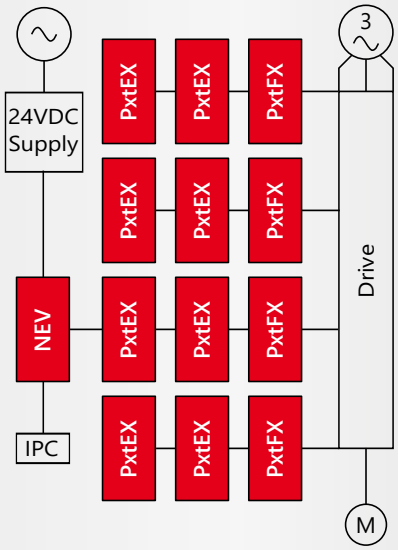
Intention:

Smooth seperation of the rolls in case of power failure

thus avoiding long downtimes and high setup- and downtime costs as well as possible damages to the roll.

Solution:

> Use of PxtFX via "Plug & Play": Supplying the drive with the energy that is necessary for the smooth seperation of the rolls.
> Use of NEV to supply the 24V power grid for controls and sensorics.



Results:

1. Controlled opening of the rolls in case of power failure
2. Damages to the machine and the workpiece are avoided
3. Machine protection and material savings

Controlled stops on power failure

Compensate voltage dips

Bridging power failures

Further information:

Smoothing Rolls

We look forward to hearing from you!

Michael Koch GmbH, Zum Grenzgraben 28, 76698 Ubstadt-Weiher
Tel. +49 7251 9626-200, www.brakeenergy.com, mail@bremsenergie.de

Technical data PxTFX

Version December 09, 2020

Criteria	PxTFX
Weight	6.0 kg (stand-alone) 9.6 kg (stand-alone with 1 energy module) 13.3 kg (stand-alone with 2 energy modules)
Dimensions H x W x D	297 x 100 x 167 mm (stand-alone) 297 x 100 x 276 mm (stand-alone with 1 energy module) 297 x 100 x 385 mm (stand-alone with 2 energy modules)
Ambient temperature	-10°C up to +65°C (transport, storage)
	0°C up to +40°C (in operation)
Humidity	≤ 95% (transport, storage)
	≤ 85% (in operation)
Cooling	Forced air cooling via fan. Operation in relation to heat sink temperature. Adjustable, e.g. for UPS application
Limitation for installations in elevated areas	<2000 m: No limitations / overvoltage category III >2000 m: reduction of performance / overvoltage category II
Recuperation of braking energy	Plug & Play due to automated detection of brake-chopper switch-on threshold U_{BRC}
Min. starting voltage level for the system (DC link or Energy storage)	Approx. 45 VDC
Min. Operating voltage level U_{Zmin}	180 VDC (Wake-up-phase: U_{ZStart} 48-180 VDC)
Max. Operating voltage level U_{Zmax}	848 VDC (UL) / 1000 VDC (IEC)
Operation conditions	$U_Z > U_C$. Otherwise immediate stop = safe separation of DC link from energy storage
24 VDC In	Galvanically isolated For communication tasks with PxTFX without connecting it to DC link or energy storage, e.g. for setting parameters at the desk (Note: not protected against polarity reversal)
Energy of integrated capacities[1]	0 kJ (stand-alone) 2 kJ (stand-alone with 1 energy module) 4 kJ (stand-alone with 2 energy modules)
Expansion of capacities	No limitation, expandable with PxTEX or EM in steps of 2kJ

[1] Data refer to connection to a DC link of a drive controller with 400 V AC supply voltage. Other data on request.

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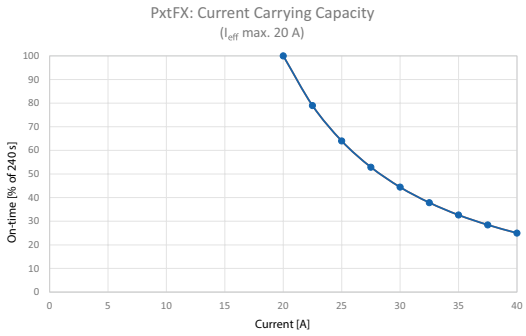

Criteria	PxTFX
Max. Energy Storage current Ic	20 A continuous 40 A peak for 60s (I_{eff} = 20 A at t_{Cycle} = 240s)
Max. Power P_{max}[1] (U_C = 450 VDC)	9 kW continuous 18 kW peak for 60s
Ground rule for power flow	$P_C = P_Z$
Operation frequency level	15 kHz, in operation load-dependent reduction down to 7.5 kHz Manually adjustable up to 18 kHz
Max. recuperation of energy	Cycle time 1s: 1 energy module up to 4,32 MJ/operating hour 2 energy modules up to 8,64 MJ/operating hour
Load monitoring	DC link side and energy storage side (in each case I^2t)
Connection DC link	Front, top
Connection for PxTEX, EM or NEV	Front, bottom
Communication	3 digital In, 3 digital Out K-Bus interface for operating data output 4 LEDs, SD-Card, Reset-button for restart Boot-button for boot loading from SD-Card
Visualization	Charging indicator for each Energy module (flashing LED according to voltage level)
Firmware-Updates	On Koch company site (Fabrikle) or With SD-Card at customers site or Via PxTCC (USB K-Bus interface) with PC
Protection	Internal fuses Individual protection of each energy module
Precharging circuit	Connection directly to DC link interference-free possible, independent from further precharging circuits
Reverse polarity protection	To DC link: In case connecting with reverse polarity PxTFX blocks and disconnects the DC link side from energy storage side
Charging protection	To DC link

[1] Data refer to connection to a DC link of a drive controller with 400 V AC supply voltage. Other data on request.

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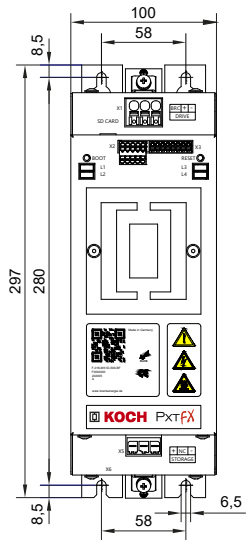
Technical data PxTFX

Version December 09, 2020

Criteria	PxTFX
Charging protection switch LSS	Connection of charged Energy storage modules interference-free possible (But: No protection against connecting with reverse polarity!)
Max. cable length to DC link	2 m
Max. cable length to energy storage modules	20 m
Parallel operation	Theoretically unlimited number of devices Self-adjusting Automated Master-/Slave-setting for communication
Retrofit	Can be retrofitted into existing systems
Typeplate/Device information	Electronic via QR-Code and App (Android and iOS): Further device specific information Management-features
Internal digital storage	Operation hours meter

Installation dimensions



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Technical data PxTEX

Version December 09, 2020

Criteria	PxTEX
Weight	5.0 kg (stand-alone) 8.7 kg (stand-alone with 1 energy module) 12.3 kg (stand-alone with 2 energy modules)
Dimensions H x W x D	297 x 102 x 167 mm (stand-alone) 297 x 102 x 276 mm (stand-alone with 1 energy module) 297 x 102 x 385 mm (stand-alone with 2 energy modules)
Ambient temperature	-10°C up to +65°C (transport, storage) 0°C up to +40°C (in operation)
Humidity	≤ 95% (transport, storage) ≤ 85% (in operation)
Cooling	Convection
Limitation for installations in elevated areas	<2000 m: No limitations / overvoltage category III >2000 m: reduction of performance / overvoltage category II
Energy of integrated capacities[2]	2 kJ (stand-alone) 4 kJ (stand-alone with 1 energy module) 6 kJ (stand-alone with 2 energy modules)
Visualization	Charging indicator for each 2kJ energy module (flashing LED according to voltage level)
Connection for PxTFX	Front, bottom
Connection for PxTEX, EM or NEV	Front, bottom
Connection for integrated safe discharging resistor	Top
Protection	Internal fuses Individual protection of each energy module
Max. cable length to PxTRX or storage	20 m
Typeplate/Device information	Electronic via QR-Code and App (Android and iOS): Further device specific information Management-features

[2] Data refer to connection to a DC link of a drive controller with 400 V AC supply voltage. Other data on request.

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