



Product Range

Rail Vehicles

BREMSKERL

Der Spezialist für Brems- und Kupplungsbeläge
The specialist for brake and clutch linings



Research & Development Center

1. High-Speed and High-Power Test-Benches

- Full scale test benches for brake linings
- 4 test benches for small scale

2. Testing options

- dry, wet, ice and snow capability
- universal testing machines to assess mechanical feature
- thermography
- crack depth test
- roughness test

3. Testing Options in laboratory

- EDX
- GCMS
- Microscopy
- Chemical tests
- Physical tests



UIC-approvals

- BREMSKERL 3000 UIC-approval 541-3 1.1
- BREMSKERL 7000 UIC-approval 541-3 4.2
- BREMSKERL 7699 UIC-approval 541-3 4.2 according appendix I6
- BREMSKERL 2000 UIC-approval 541-3 4.2 according appendix I6



These materials are UIC-approved according to UIC 541-3 for travelling speeds up to 200 kph and 300 kph.

National approved disc brake pads and brake blocks

Disc brake pads

- BREMSKERL 3000
- BREMSKERL 3200
- BREMSKERL 3500
- BREMSKERL 2100
- BREMSKERL 7000
- BREMSKERL 2000
- BREMSKERL 7699
- BREMSKERL 5818
- BREMSKERL 7478
- BREMSKERL 2050
- BREMSKERL 4971
- BREMSKERL 4972
- BREMSKERL 2010
- BREMSKERL 2405
- BREMSKERL 6481
- BREMSKERL 7776
- BREMSKERL 6120

Brake blocks

- BREMSKERL 175
- BREMSKERL 176
- BREMSKERL 177
- BREMSKERL 8700
- BREMSKERL 208
- BREMSKERL 209
- BREMSKERL 5426
- BREMSKERL 302
- BREMSKERL 303
- BREMSKERL 304
- BREMSKERL 305
- BREMSKERL 863

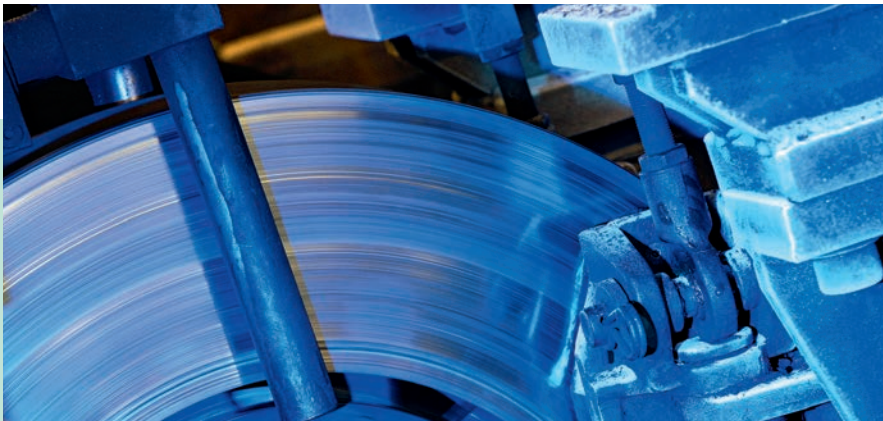


Research & Development Capability

Our Brake Linings are tested to the limit using our own high performance Test Rigs. Tests are performed using extreme loads and speeds with a maximum test speed of 500 kph.

References

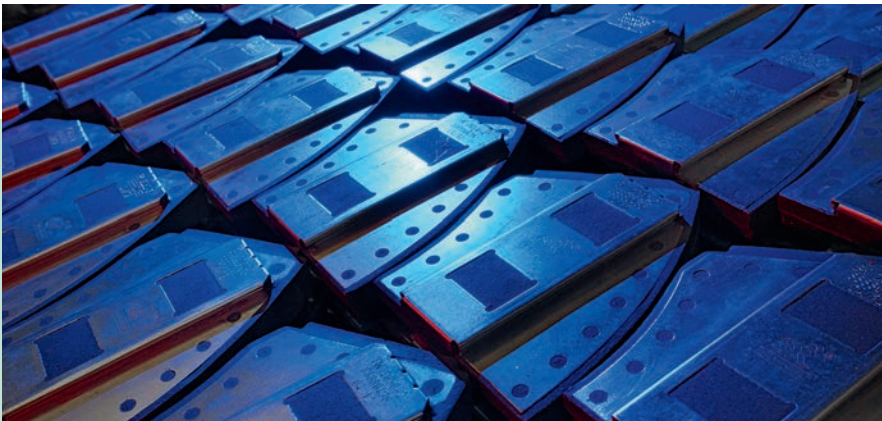
Customer	Country	Application
German Railways (DB AG)	Germany	UIC 175 cm ² 24+35 UIC 200 cm ² 24+35
Amtrak	USA	UIC 200 cm ² 24+35
Septa	USA	UIC 175 cm ² 24
Marc Trains	USA	UIC 200 cm ² 24
WMATA	USA	UIC 175 cm ² 24
Metro Los Angeles	USA	UIC 175 cm ² 24
FS (Trenitalia)	Italy	UIC 200 cm ² 24+35
Nedtrain	Netherlands	UIC 200 cm ² 24+35 NT- 24+35
SNCB	Belgium	UIC 200 cm ² 24+35



EuroMaint (SJ)	Sweden	UIC 200 cm ² 24+35
VR	Finland	UIC 200 cm ² 24+35
ÖBB	Austria	UIC 200 cm ² 24+35
SBB	Switzerland	UIC 200 cm ² 35
IRISH RAIL	Ireland	UIC 175 cm ² 24

Customer	Country	Application
Renfe	Spain	UIC 175 cm ² 24+35 UIC 200 cm ² 24+35 UIC 250 cm ² 35
TCDD	Turkey	UIC 175 cm ² 35 block 250, block 320
JR-West	Japan	different sizes
RATP	France	UIC 200 cm ² 35
Indian Railways	Indian	different blocks
Chinese Railways	China	different blocks
E.N.R.	Egypt	different blocks
Canadian National Railroad	USA	different blocks

and many other customers worldwide!



**BREMSKERL –
Certified safe and
reliable for a positive
future**

Environmental

The development of more efficient processes for a better environment is our personal ambition. Our materials contain no raw materials that are hazardous to health, and they meet current ROHS and REACH requirements.

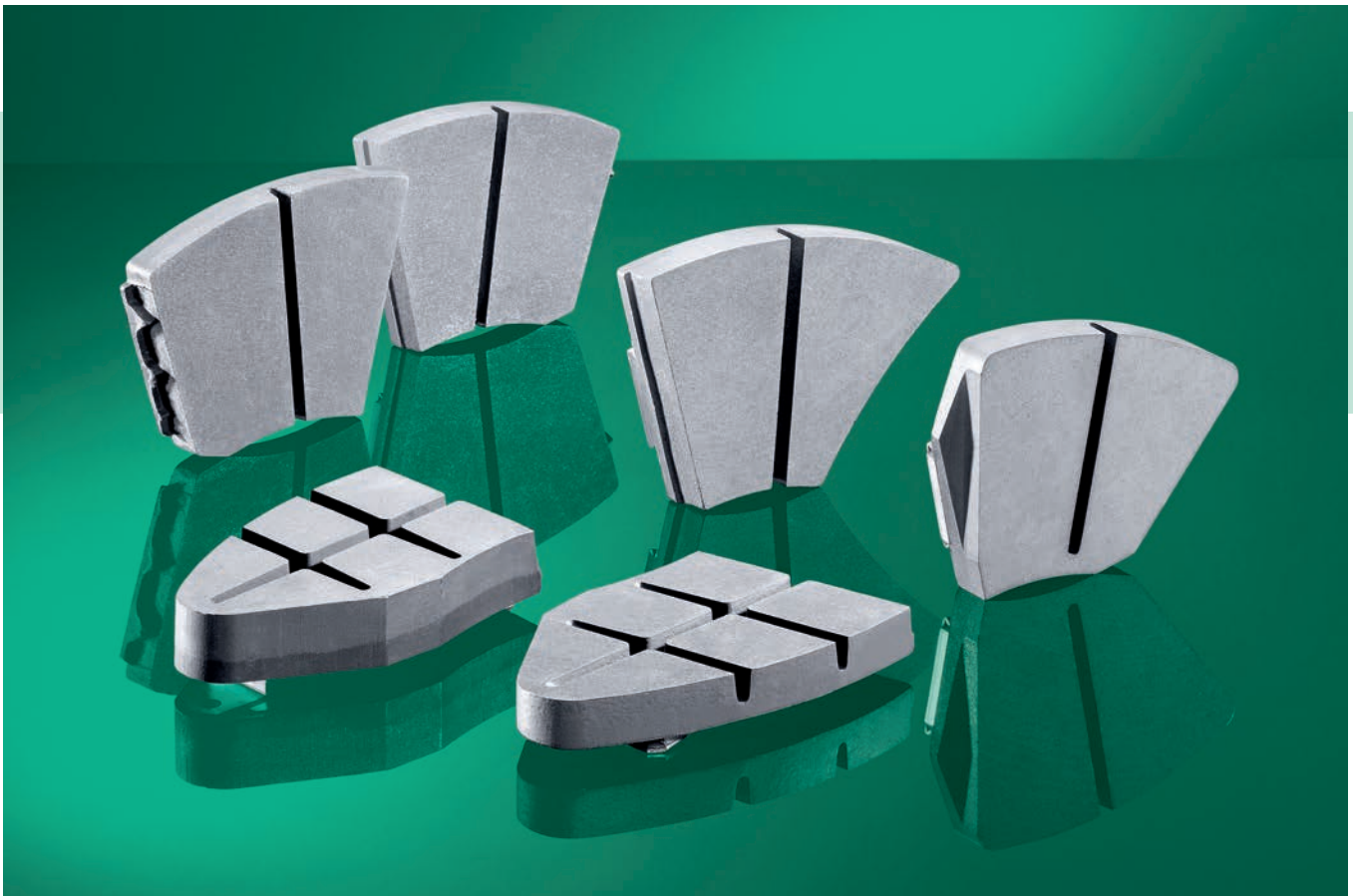
BREMSKERL linings also contain no heavy-metal materials or heavy-metal compounds and have been asbestos-free for over 30 years.

Day after day, we set ourselves the challenge of developing and manufacturing our products in an even more environmentally-friendly manner.

Product Range Disc Brake Pads

Quality	Load / Wheel [t]	Tested Speed max. [kph]	Tested Temp. [°C]	Friction Level as reference only	Type of Material	Main Application	UIC Category
3000	4-7	300	400	0,36	Composite	High-speed traffic	1.1
3200	4-9	320	550	0,36-0,39	Sinter	High-speed traffic	2.2 / 4.3
3500	4-9	250	500	0,36	Sinter	High-speed traffic	2.2 / 4.3
2100	5-8,5	220	370	0,38	Composite	Intercity traffic	4.2
7000	5-8	220	350	0,36	Composite	Intercity traffic	4.2
2000	5-8	220	350	0,36	Composite	Intercity traffic	4.2
7699	5-8	220	360	0,35	Composite	Intercity traffic	4.2
5818	5-8	200	350	0,35-0,38	Composite	Intercity traffic	4.2 / 2.1 / 3.1
7478	5-7	200	350	0,33	Composite	Intercity traffic	4.2
2050	4-9	200	400	0,36-0,43	Composite	Regional traffic	4.2 / 2.1
4971	4-8	160	450	0,37-0,41	Composite	Regional traffic	4.1 / 4.2
4972	4-8	160	470	0,35-0,39	Composite	Regional traffic	4.1 / 4.2
2010	4-10	160	470	0,38-0,42	Composite	Regional traffic	4.1
2405	5-10	200	480	0,34-0,39	Composite	Regional traffic	2.1 / 3.1 / 4.1 / 4.2
6481	4-10	160	350	0,34-0,38	Composite	Urban traffic	(4.1)
7776	4-10	160	350	0,28-0,32	Composite	Urban traffic	----
6120	4-8	140	400	0,28	Composite	Urban traffic	----

 UIC-approved
 UIC-approved according appendix I6
 UIC-Certification in process



BREMSKERL 3000



Range of Application

- disc brake pad for rail vehicles up to 300 kph
- high speed operation
- ICE 1/2; ICE-T at DB
- Mainline Passenger Coaches

Material Description

- organic composite formulation brake pad material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

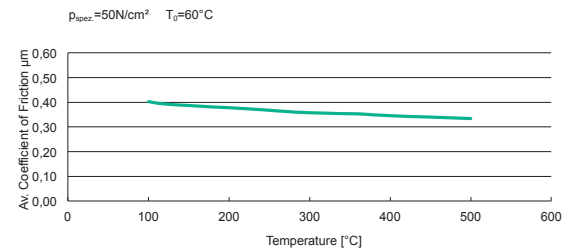
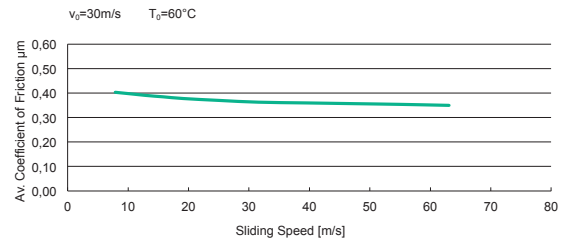
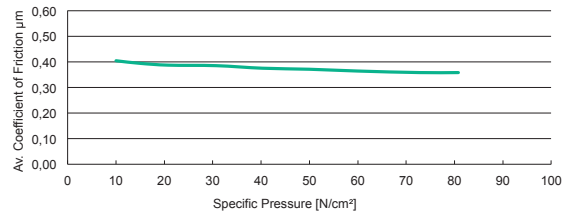
- excellent wet behaviour
- UIC-approved

Technical Data

average coefficient of friction (dry)		0,36
average pad wear (from UIC541-3; No.1 test)		0,42 cm³/MJ
Hardness	DIN EN ISO 2039-1	35 N/mm²
Tensile Strength	DIN EN ISO 527	4 MPa
Impact Strength	DIN EN ISO 179-1	5 kJ/m²
Density	DIN EN ISO 1183	2,08 g/cm³

Capacity

max. specific pressure	40 N/cm²
max. sliding speed	85 m/s
max. continuous application temperature	360 °C
max. short time application temperature	600 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 3200

Range of Application

- disc brake pad for rail vehicles
- high speed applications up to 350 kph
- suitable for medium loads

Material Description

- sintered material
- flexible segments
- **free of asbestos**

Other Characteristics

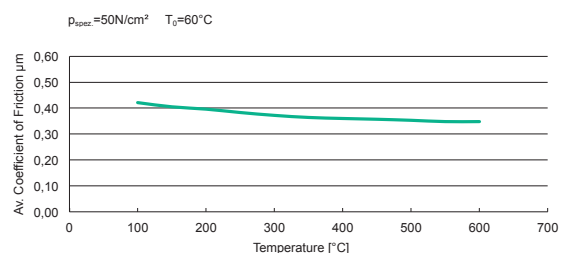
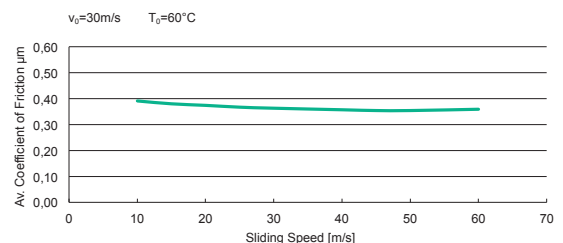
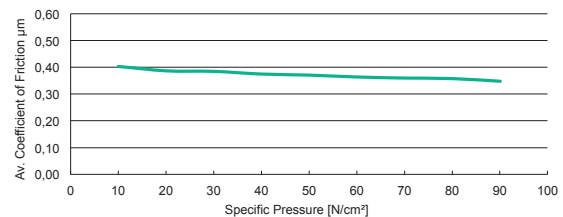
- good wet performance

Technical Data

average coefficient of friction (dry)		0,36 - 0,39
average pad wear		0,1 cm³/MJ
Hardness	DIN EN ISO 2039-1	135 N/mm²
Tensile Strength	DIN EN ISO 527	5 MPa
Impact Strength	DIN EN ISO 179-1	520 kJ/m²
Density	DIN EN ISO 1183	5,5 g/cm³

Capacity

max. specific pressure	130 N/cm²
max. sliding speed	85 m/s
max. continuous application temperature	520 °C
max. short time application temperature	870 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 3500

Range of Application

- disc brake pad for rail vehicles
- developed for high thermal loads

Material Description

- sintered formulation brake pad material
- back plates and dovetails corrosion protected
- optimized adaption to disc by flexible construction
- free of asbestos

Other Characteristics

- excellent wet behaviour
- suitable for high temperatures
- no odour at high temperatures

Technical Data

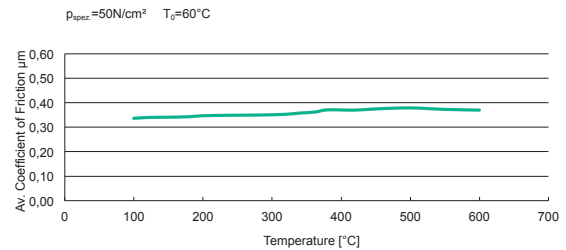
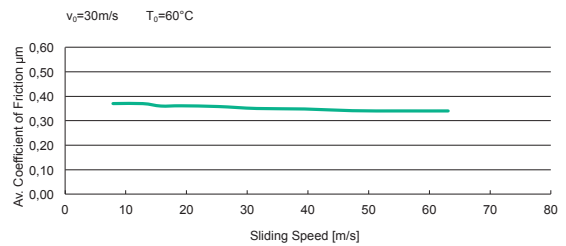
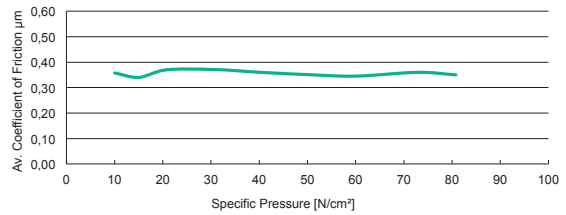
average coefficient of friction (dry)	0,36
average pad wear referring to the UIC 200 kph - test	0,12 cm³/MJ

Hardness	DIN EN ISO 2039-1	130 N/mm²
Tensile Strength	DIN EN ISO 527	11 MPa
Heat Capacity		600 J/(kg°C)
Density		5,6 g/cm³

Capacity

max. specific pressure	>250 N/cm²
max. sliding speed	120 m/s

max. continuous application temperature	500 °C
max. short time application temperature	900 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 2100

Range of Application

- disc brake pad for rail vehicles up to 220 kph
- standard disc brake pad material for medium loads

Material Description

- organic composite formulation brake pad material
- contains metal
- free of asbestos, heavy metal free

Other Characteristics

- low wear rates
- excellent wet behaviour

Technical Data

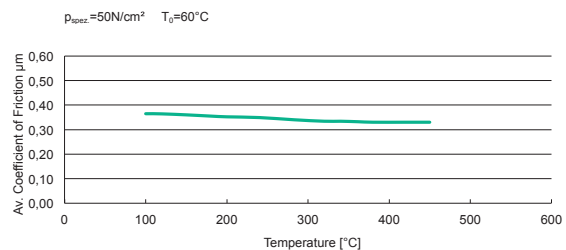
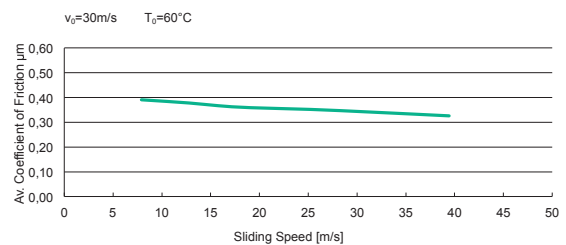
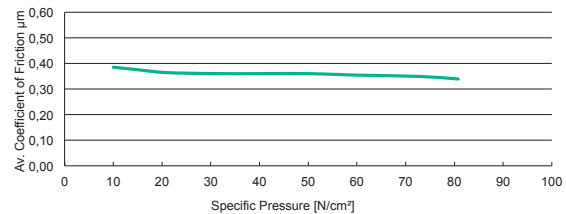
average coefficient of friction (dry)	0,38
average pad wear (from UIC541-3; 2B test)	0,19 cm³/MJ

Hardness	DIN EN ISO 2039-1	38 N/mm²
Tensile Strength	DIN EN ISO 527	4,6 MPa
Impact Strength	DIN EN ISO 179-1	5,2 kJ/m²
Density	DIN EN ISO 1183	2,06 g/cm³

Capacity

max. specific pressure	85 N/cm²
max. sliding speed	55 m/s

max. continuous application temperature	360 °C
max. short time application temperature	450 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 7000

Range of Application

- disc brake pad for rail vehicles up to 220 kph
- standard disc brake pad material for medium loads
- UIC-Passanger coaches

Material Description

- organic composite formulation brake pad material
- free of mineral fibres
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- minimised odour
- excellent wet performance
- UIC-approved

Technical Data

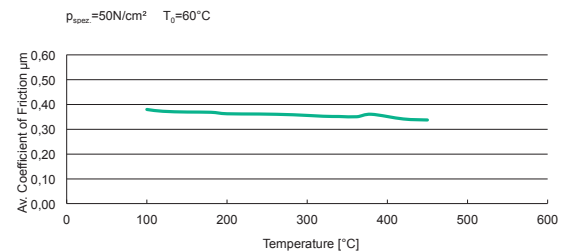
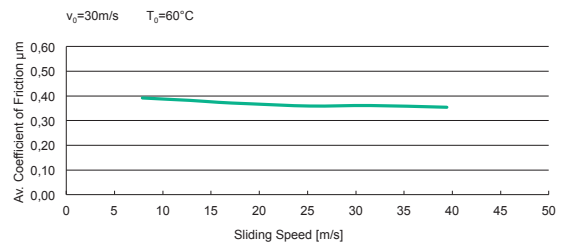
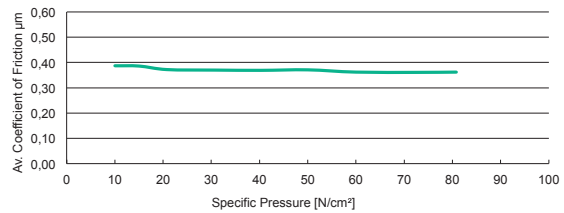
average coefficient of friction (dry)	0,36
average pad wear (from UIC541-3; 2B test)	0,17 cm³/MJ

Hardness	DIN EN ISO 2039-1	42 N/mm²
Tensile Strength	DIN EN ISO 527	3,8 MPa
Impact Strength	DIN EN ISO 179-1	4,3 kJ/m²
Density	DIN EN ISO 1183	2 g/cm³

Capacity

max. specific pressure	105 N/cm²
max. sliding speed	60 m/s

max. continuous application temperature	370 °C
max. short time application temperature	460 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 2000

Range of Application

- disc brake pad for rail vehicles up to 220 kph
- standard disc brake pad material for medium loads
- in operation for all car types up to 200 kph
- Mainline railway passenger cars; EMUs, DMUs, DEMUs

Material Description

- organic composite formulation brake pad material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- excellent behaviour under wet conditions
- UIC-approved

Technical Data

average coefficient of friction (dry)	0,36
average pad wear (from UIC541-3; 2B test)	0,24 cm³/MJ

Hardness	DIN EN ISO 2039-1	35 N/mm²
Tensile Strength	DIN EN ISO 527	4,1 MPa
Impact Strength	DIN EN ISO 179-1	4,5 kJ/m²
Density	DIN EN ISO 1183	2,05 g/cm³

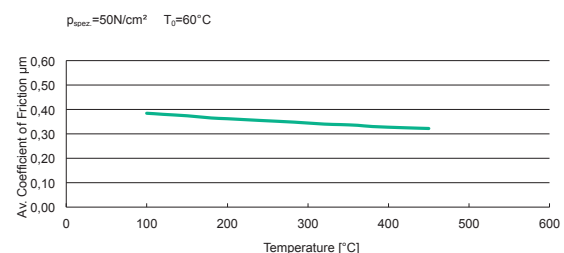
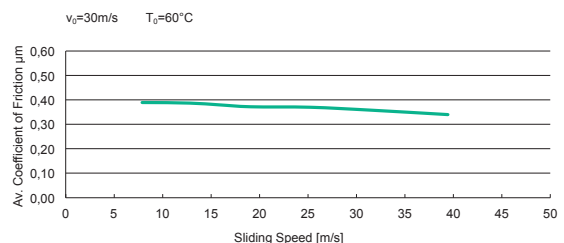
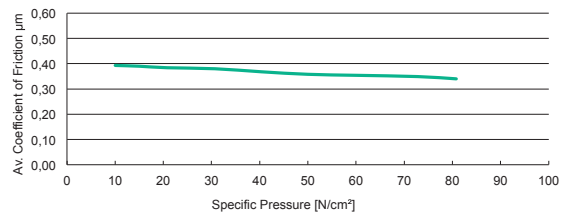
Capacity

max. specific pressure	100 N/cm²
max. sliding speed	55 m/s

max. continuous application temperature	300 °C
max. short time application temperature	450 °C



according 541-3 appendix I6



* performance data based on internal dynamometer reference tests

BREMSKERL 7699



according 541-3 appendix I6

Range of Application

- disc brake pad for rail vehicles up to 220 kph
- standard disc brake pad material for medium loads

Material Description

- organic composite formulation brake pad material
- containing metal
- free of mineral fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- good wet behaviour
- UIC-approved

Technical Data

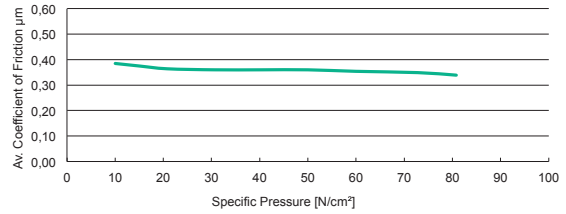
average coefficient of friction (dry)	0,35
average pad wear (from UIC541-3; 2B test)	0,21 cm³/MJ

Hardness	DIN EN ISO 2039-1	32 N/mm²
Tensile Strength	DIN EN ISO 527	3,8 MPa
Impact Strength	DIN EN ISO 179-1	4,6 kJ/m²
Density	DIN EN ISO 1183	1,94 g/cm³

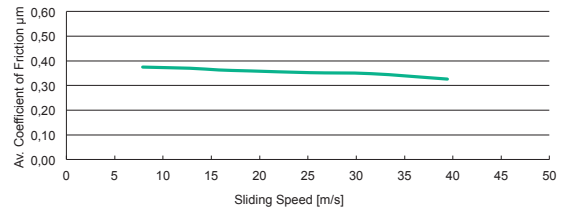
Capacity

max. specific pressure	80 N/cm²
max. sliding speed	55 m/s

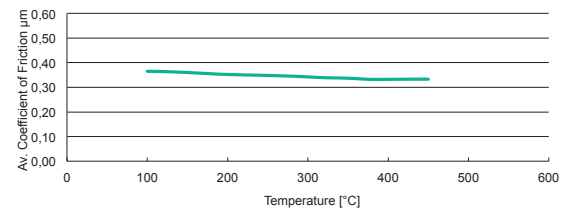
max. continuous application temperature	350 °C
max. short time application temperature	450 °C



$v_0=30\text{m/s}$ $T_0=60^\circ\text{C}$



$p_{\text{spez}}=50\text{N/cm}^2$ $T_0=60^\circ\text{C}$



* performance data based on internal dynamometer reference tests

BREMSKERL 5818

Range of Application

- disc brake pad for rail vehicles
- operation under high braking forces and high temperatures
- medium to high thermal loads
- UIC continuation permit

Material Description

- organic composite formulation brake pad material
- containing metal
- **free of asbestos, heavy metal free**

Other Characteristics

- good wear characteristics

Technical Data

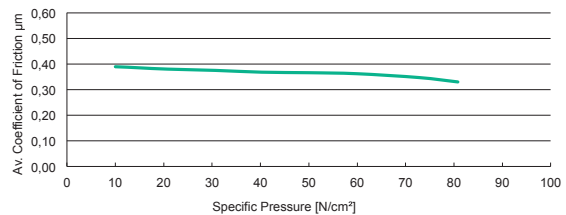
average coefficient of friction (dry)	0,35 - 0,38
average pad wear	0,17 cm³/MJ

Hardness	DIN EN ISO 2039-1	30 N/mm²
Tensile Strength	DIN EN ISO 527	3 MPa
Impact Strength	DIN EN ISO 179-1	4,3 kJ/m²
Density	DIN EN ISO 1183	1,95 g/cm³

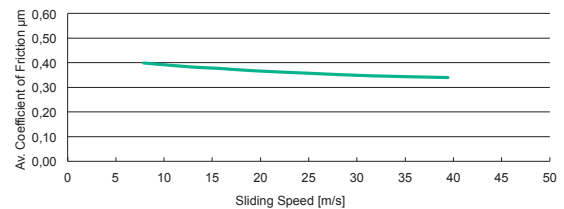
Capacity

max. specific pressure	160 N/cm²
max. sliding speed	50 m/s

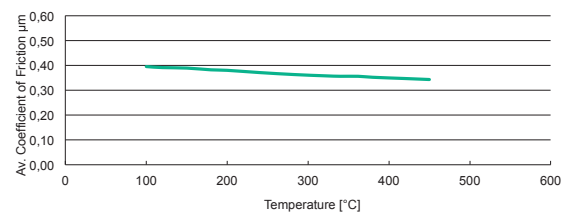
max. continuous application temperature	250 °C
max. short time application temperature	450 °C



$v_0=30\text{m/s}$ $T_0=60^\circ\text{C}$



$p_{\text{spez}}=50\text{N/cm}^2$ $T_0=60^\circ\text{C}$



* performance data based on internal dynamometer reference tests

BREMSKERL 7478

Range of Application

- disc brake pad for rail vehicles up to 200 kph
- medium thermal loads

Material Description

- organic composite formulation brake pad material
- containing metal
- **free of asbestos, heavy metal free**

Other Characteristics

- good wear characteristics
- low noise

Technical Data

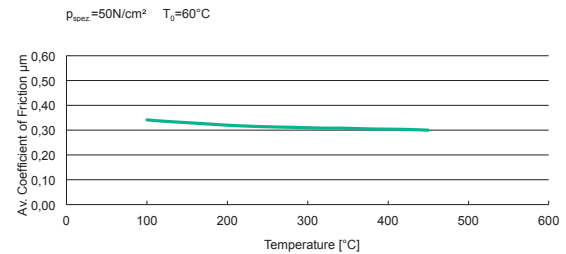
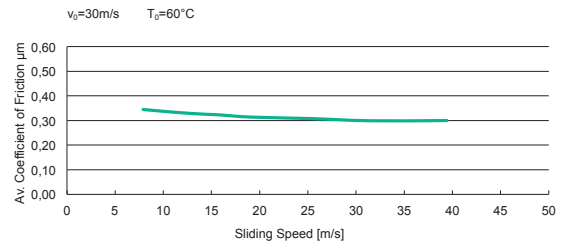
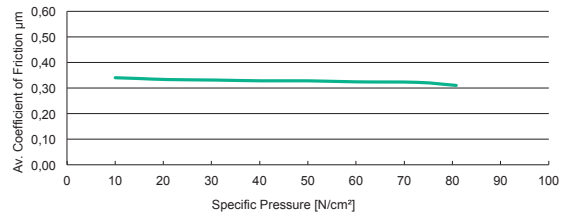
average coefficient of friction (dry)	0,33
average pad wear	0,19 cm³/MJ

Hardness	DIN EN ISO 2039-1	60 N/mm²
Tensile Strength	DIN EN ISO 527	5 MPa
Impact Strength	DIN EN ISO 179-1	3,1 kJ/m²
Density	DIN EN ISO 1183	2 g/cm³

Capacity

max. specific pressure	180 N/cm²
max. sliding speed	55 m/s

max. continuous application temperature	300 °C
max. short time application temperature	450 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 2050

Range of Application

- disc brake pad for rail vehicles
- suitable for suburban and regional commuter railway traffic
- suitable for medium to high loads

Material Description

- organic composite formulation brake pad material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- excellent wear behaviour
- very smooth to disc material

Technical Data

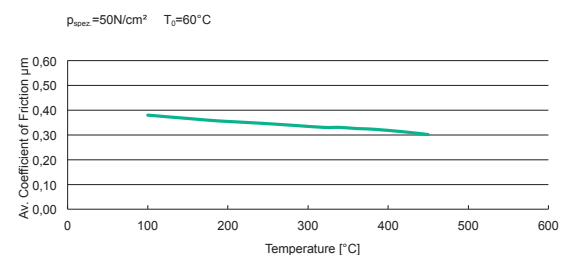
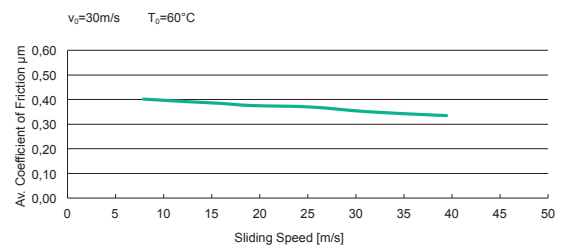
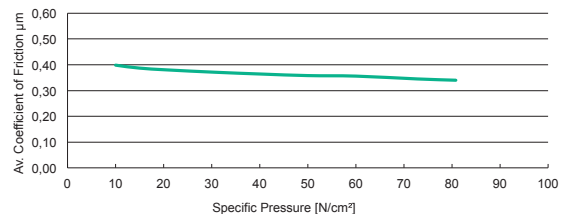
average coefficient of friction (dry)	0,36 - 0,43
average pad wear	0,13 cm³/MJ

Hardness	DIN EN ISO 2039-1	35 N/mm²
Tensile Strength	DIN EN ISO 527	3,5 MPa
Impact Strength	DIN EN ISO 179-1	4 kJ/m²
Density	DIN EN ISO 1183	2,03 g/cm³

Capacity

max. specific pressure	110 N/cm²
max. sliding speed	40 m/s

max. continuous application temperature	350 °C
max. short time application temperature	550 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 4971

Range of Application

- disc brake pad for rail vehicles
- particularly suitable for metropolitan and suburban commuter railway traffic
- suitable for medium to high axle loads

Material Description

- organic composite formulation brake pad material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- very constant friction level

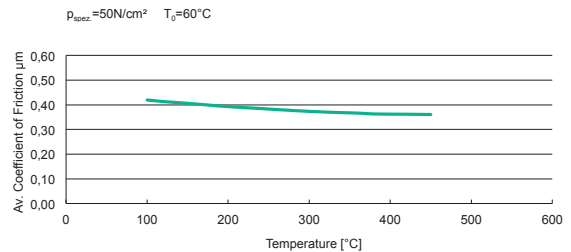
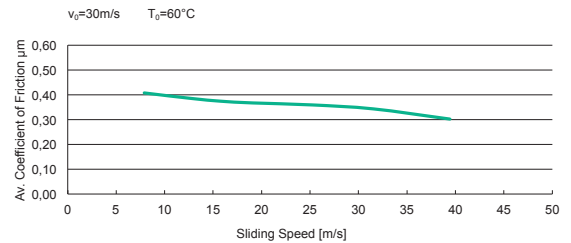
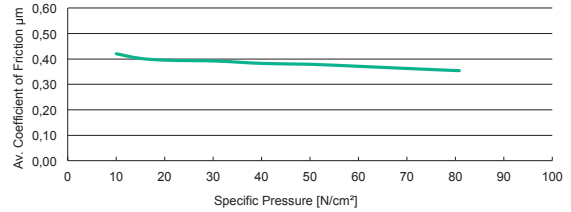
Technical Data

average coefficient of friction (dry) **0,37 - 0,41**

Hardness	DIN EN ISO 2039-1	42 N/mm²
Tensile Strength	DIN EN ISO 527	3,7 MPa
Impact Strength	DIN EN ISO 179-1	5 kJ/m²
Density	DIN EN ISO 1183	1,9 g/cm³

Capacity

max. specific pressure	120 N/cm²
max. sliding speed	35 m/s
max. continuous application temperature	350 °C
max. short time application temperature	450 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 4972

Range of Application

- disc brake pad for rail vehicles
- particularly suitable for metropolitan and suburban commuter railway traffic
- suitable for medium to high loads

Material Description

- organic composite formulation brake pad material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- constant friction
- minimized odour

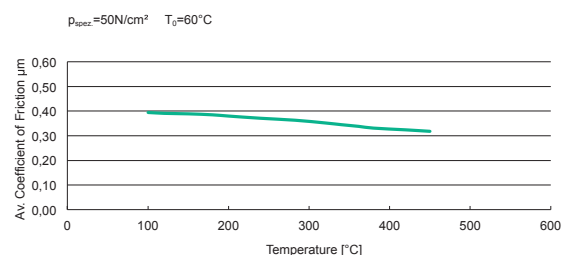
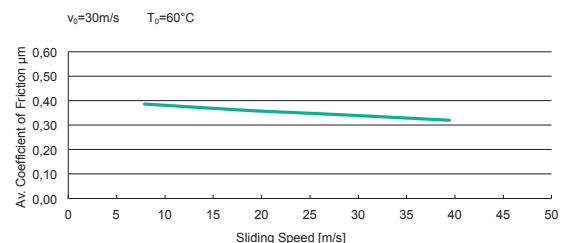
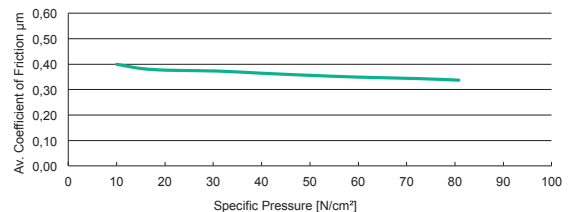
Technical Data

average coefficient of friction (dry) **0,35 - 0,39**

Hardness	DIN EN ISO 2039-1	68 N/mm²
Tensile Strength	DIN EN ISO 527	3,8 MPa
Impact Strength	DIN EN ISO 179-1	5,4 kJ/m²
Density	DIN EN ISO 1183	1,95 g/cm³

Capacity

max. specific pressure	100 N/cm²
max. sliding speed	35 m/s
max. continuous application temperature	330 °C
max. short time application temperature	420 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 2010

Range of Application

- disc brake pad for rail vehicles
- particularly suitable for metropolitan and suburban commuter railway traffic
- suitable for medium to high loads

Material Description

- organic composite formulation brake pad material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- minimized odour
- low wear rate

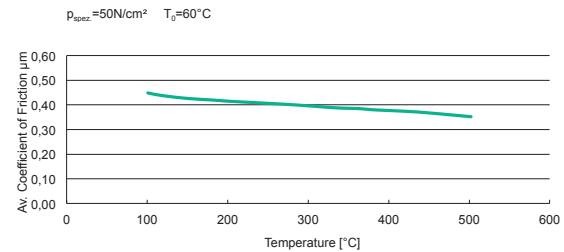
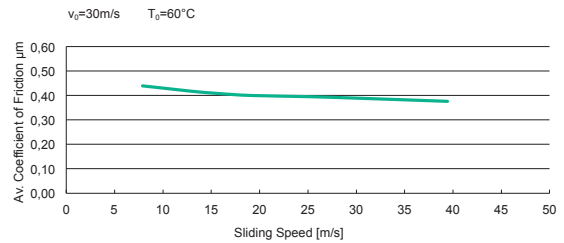
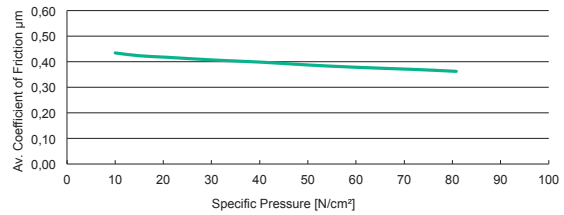
Technical Data

average coefficient of friction (dry)	0,38 - 0,42
average pad wear	0,12 cm³/MJ

Hardness	DIN EN ISO 2039-1	30 N/mm²
Tensile Strength	DIN EN ISO 527	3,6 MPa
Impact Strength	DIN EN ISO 179-1	4 kJ/m²
Density	DIN EN ISO 1183	2,05 g/cm³

Capacity

max. specific pressure	220 N/cm²
max. sliding speed	50 m/s
max. continuous application temperature	380 °C
max. short time application temperature	600 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 2405

Range of Application

- disc brake pad for rail vehicles
- short distance traffic with high braking forces and high temperatures
- medium to high thermal loads

Material Description

- organic composite formulation brake pad material
- containing metal
- **free of asbestos, heavy metal free**

Other Characteristics

- good wear characteristics

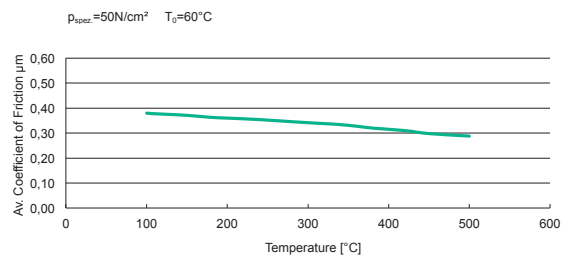
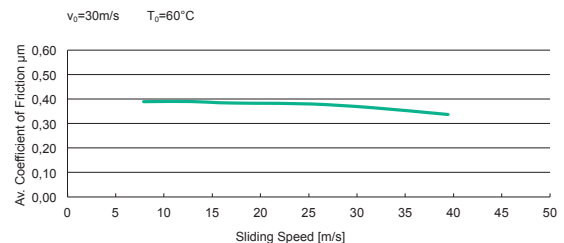
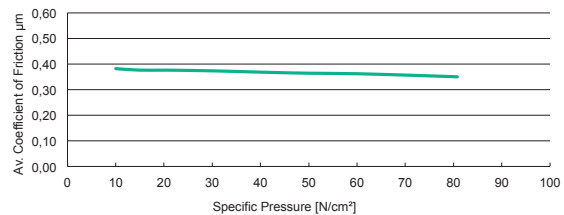
Technical Data

average coefficient of friction (dry)	0,34 - 0,39
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Hardness	DIN EN ISO 2039-1	80 N/mm²
Tensile Strength	DIN EN ISO 527	11,5 MPa
Impact Strength	DIN EN ISO 179-1	4,2 kJ/m²
Density	DIN EN ISO 1183	2,08 g/cm³

Capacity

max. specific pressure	140 N/cm²
max. sliding speed	40 m/s
max. continuous application temperature	420 °C
max. short time application temperature	540 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 6481

Range of Application

- disc brake pad for rail vehicles
- short distance traffic with high braking forces and high temperatures
- medium to high thermal loads

Material Description

- organic composite formulation brake pad material
- containing metal
- free of asbestos, heavy metal free

Other Characteristics

- good wear characteristics
- high thermal stability

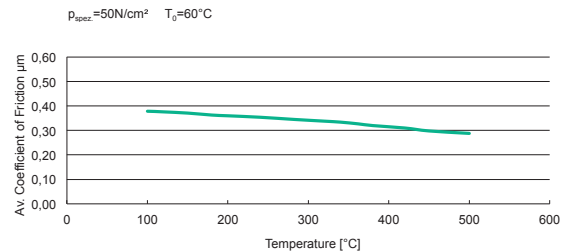
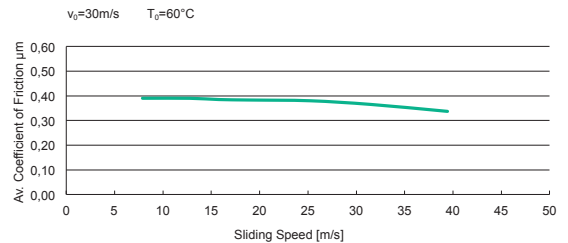
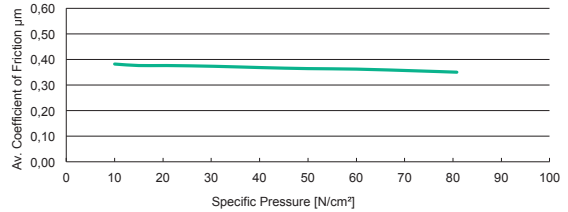
Technical Data

average coefficient of friction (dry) **0,32 - 0,36**

Hardness	DIN EN ISO 2039-1	130 N/mm²
Tensile Strength	DIN EN ISO 527	11 MPa
Impact Strength	DIN EN ISO 179-1	6,5 kJ/m²
Density	DIN EN ISO 1183	2,2 g/cm³

Capacity

max. specific pressure	250 N/cm²
max. sliding speed	40 m/s
max. continuous application temperature	400 °C
max. short time application temperature	500 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 7776

Range of Application

- disc brake pad for rail vehicles
- short distance traffic with high braking forces and high temperatures
- medium to high thermal loads

Material Description

- organic composite formulation brake pad material
- containing metal
- reduced metal content
- free of asbestos, heavy metal free

Other Characteristics

- good wear characteristics

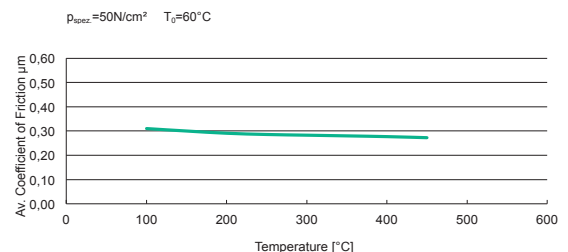
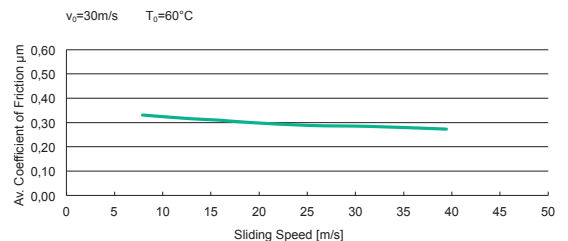
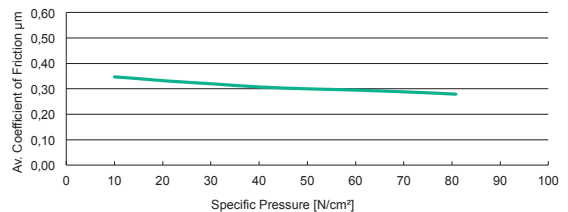
Technical Data

average coefficient of friction (dry) **0,28 - 0,32**

Hardness	DIN EN ISO 2039-1	120 N/mm²
Tensile Strength	DIN EN ISO 527	9 MPa
Impact Strength	DIN EN ISO 179-1	4,1 kJ/m²
Density	DIN EN ISO 1183	2,15 g/cm³

Capacity

max. specific pressure	250 N/cm²
max. sliding speed	36 m/s
max. continuous application temperature	390 °C
max. short time application temperature	550 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 6120

Range of Application

- disc brake pad for rail vehicles
- suitable for suburban and regional commuter railway traffic
- suitable for medium loads

Material Description

- organic composite formulation brake pad material
- metal free
- free of asbestos, heavy metal free

Other Characteristics

- low noise

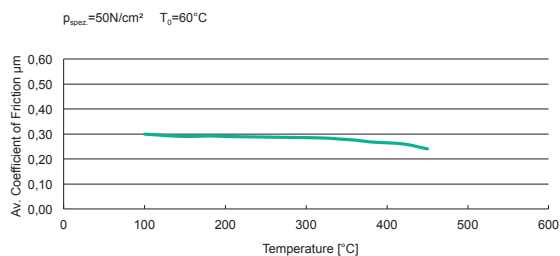
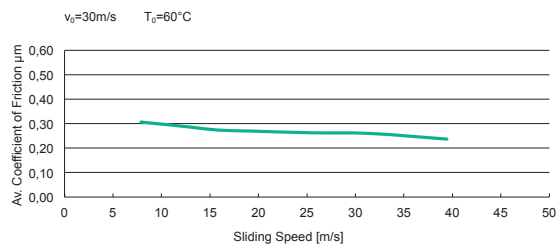
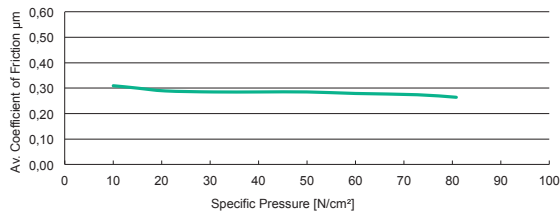
Technical Data

average coefficient of friction (dry) **0,28**

Hardness	DIN EN ISO 2039-1	45 N/mm²
Tensile Strength	DIN EN ISO 527	4 MPa
Impact Strength	DIN EN ISO 179-1	6,5 kJ/m²
Density	DIN EN ISO 1183	1,8 g/cm³

Capacity

max. specific pressure	160 N/cm²
max. sliding speed	25 m/s
max. continuous application temperature	250 °C
max. short time application temperature	400 °C

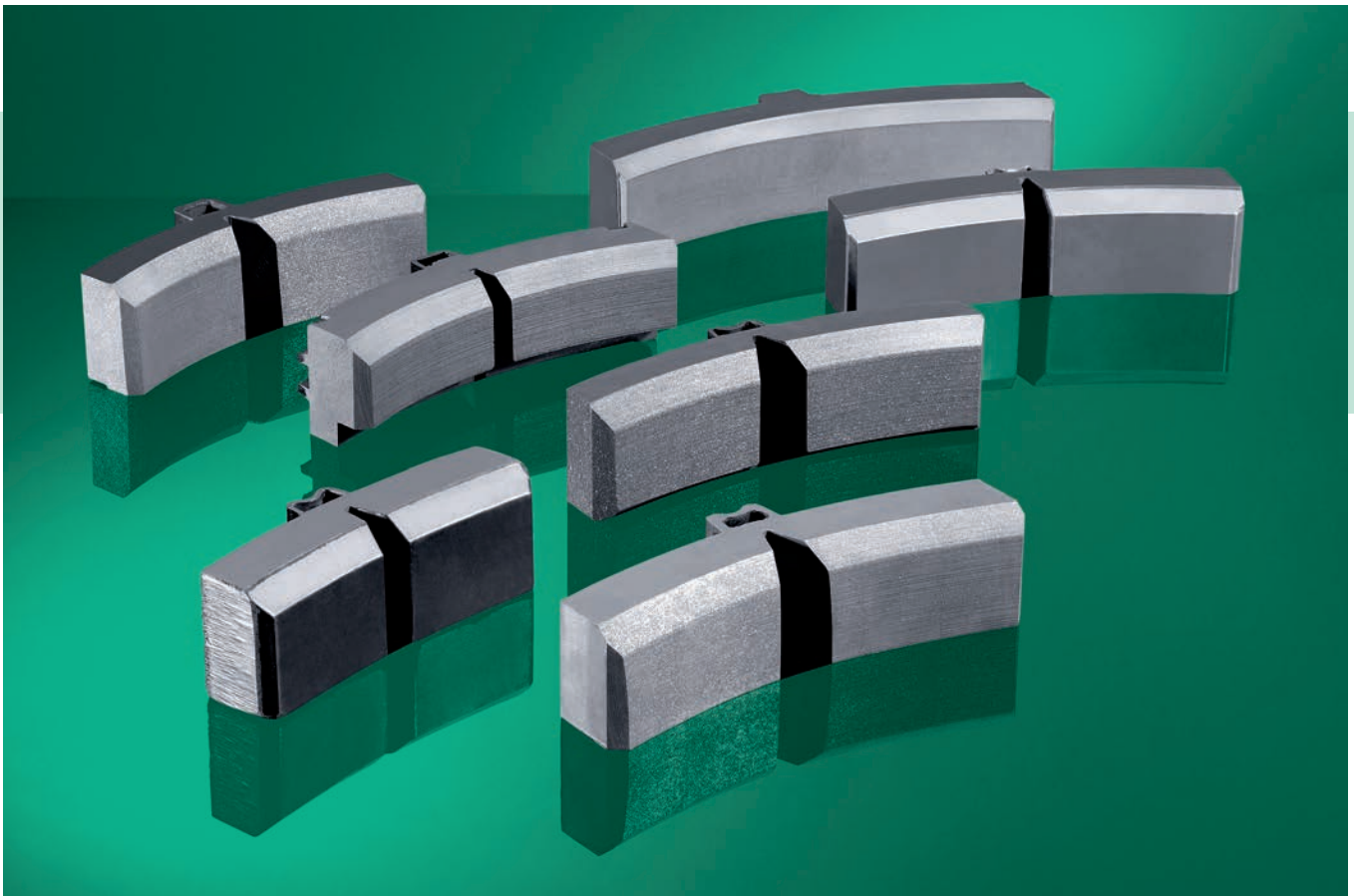


* performance data based on internal dynamometer reference tests

Product Range Brake Blocks

Material	Load/Wheel [t]	Tested speed max. [kph]	Thermal Load [°C]	Friction Level	Type of Material	Application Example
175	2,5–11,25	120	440	0,09–0,16 (LL)	composite	Passenger- and freight traffic
176	2,5–11,25	120	420	0,11–0,18 (LL)	composite	Freight traffic
177	2,5–11,25	120	600	0,09–0,20 (LL)	composite	Freight traffic UIC 541-4; Cast iron replacement
8700	2,5–11,25	140	450	0,14–0,20 (L)	composite	Passenger coaches
208	2,5–11,25	160	430	0,16–0,24 (L)	composite	Passenger- and freight traffic
209	2,5–11,25	140	410	0,17–0,25 (L)	composite	Passenger- and freight traffic / UIC 541-4
5426	2,5–11,25	140	400	0,25–0,33 (K)	composite	Freight waggons; Locomotives
302	2,5–11,25	120	450	0,22–0,29 (K)	composite	Coaches; Freight traffic
303	2,5–11,25	120	450	0,26–0,33 (K)	composite	Freight traffic UIC 541-4
304	2,5–11,25	140	450	0,33–0,42 (K)	composite	Freight waggons; Shunting locos
305	1,5–11,25	120	600	0,25–0,33 (K)	composite	Freight traffic UIC 541-4
863	2,5–12,5	125	460	0,35–0,45 (K)	composite	Heavy weight freight waggons

UIC-Certification in process



BREMSKERL 175

Range of Application

- brake block for railway systems
- UIC-LL-type
- replacement for cast iron blocks

Material Description

- organic composite formulation brake block material
- containing metal
- free of asbestos, heavy metal free

Other Characteristics

- optimized behaviour under wet conditions
- minimized odour
- low wear

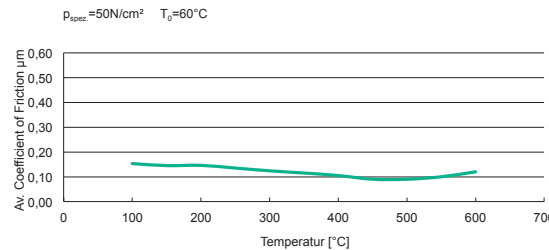
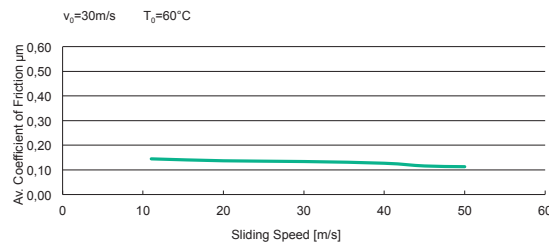
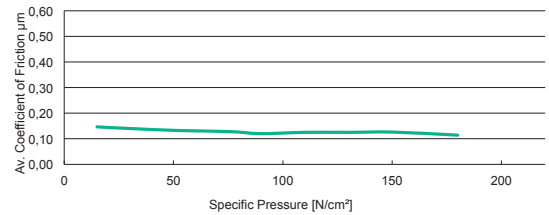
Technical Data

average coefficient of friction (dry) **0,09 - 0,17**

Hardness	DIN EN ISO 2039-1	70 N/mm²
Tensile Strength	DIN EN ISO 527	5 MPa
Impact Strength	DIN EN ISO 179-1	9 kJ/m²
Density	DIN EN ISO 1183	2,12 g/cm³

Capacity

max. specific pressure	230 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	400 °C
max. short time application temperature	560 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 176

Range of Application

- brake block for railway systems
- LL-L-type
- suitable for freight- and passenger transport

Material Description

- organic composite formulation brake block material
- containing metal
- free of asbestos, heavy metal free

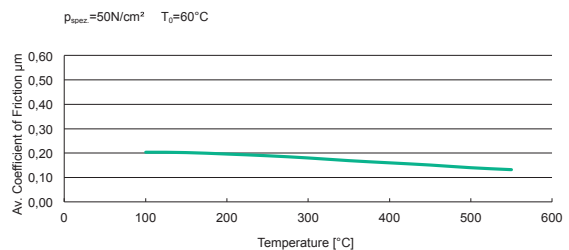
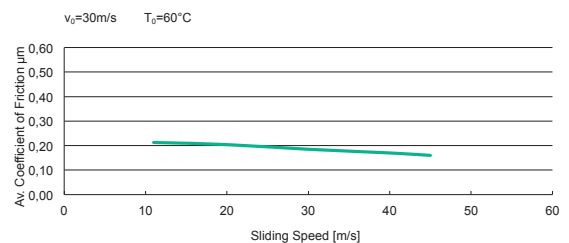
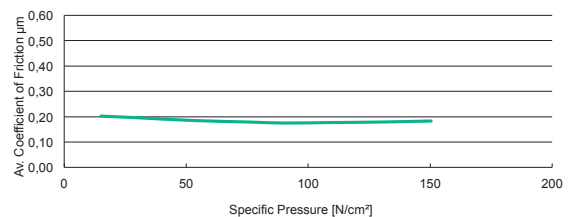
Technical Data

average coefficient of friction (dry) **0,11 - 0,21**

Hardness	DIN EN ISO 2039-1	70 N/mm²
Tensile Strength	DIN EN ISO 527	5 MPa
Impact Strength	DIN EN ISO 179-1	9 kJ/m²
Density	DIN EN ISO 1183	2,12 g/cm³

Capacity

max. specific pressure	230 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	400 °C
max. short time application temperature	560 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 177



Range of Application

- brake block for railway systems
- LL-type
- replacement for cast iron blocks

Material Description

- organic composite formulation brake block material
- containing metal
- free of asbestos, heavy metal free

Other Characteristics

- optimized behaviour under wet conditions
- minimized odour
- low wear

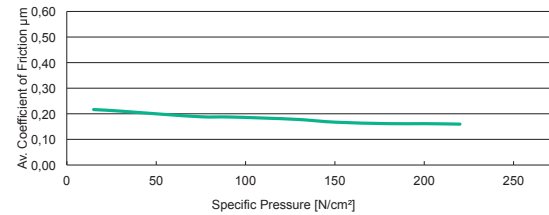
Technical Data

average coefficient of friction (dry) **0,09 - 0,2**

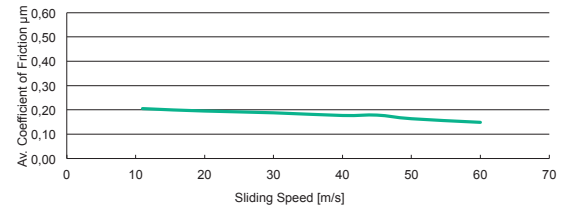
Hardness	DIN EN ISO 2039-1	65 N/mm²
Tensile Strength	DIN EN ISO 527	5 MPa
Impact Strength	DIN EN ISO 179-1	4,8 kJ/m²
Density	DIN EN ISO 1183	2,12 g/cm³

Capacity

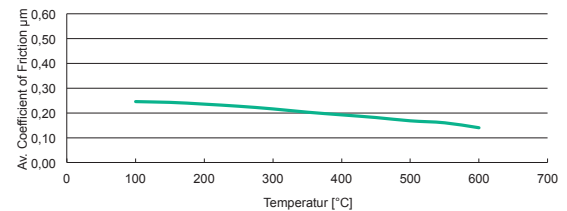
max. specific pressure	210 N/cm²
max. sliding speed	40 m/s
max. continuous application temperature	450 °C
max. short time application temperature	750 °C



$v_0=30\text{m/s}$ $T_0=60^\circ\text{C}$



$p_{\text{spez}}=50\text{N/cm}^2$ $T_0=60^\circ\text{C}$



* performance data based on internal dynamometer reference tests

BREMSKERL 8700

Range of Application

- brake block for railway systems
- L-type
- suitable for freight- and passenger transport

Material Description

- organic composite formulation brake block material
- containing metal fibres
- free of asbestos, heavy metal free

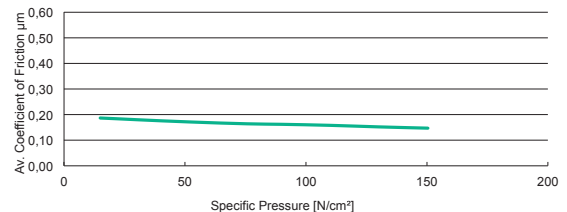
Technical Data

average coefficient of friction (dry) **0,14 - 0,2**

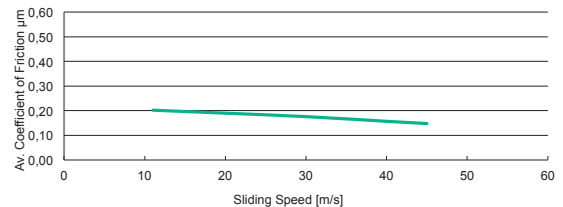
Hardness	DIN EN ISO 2039-1	110 N/mm²
Tensile Strength	DIN EN ISO 527	7,5 MPa
Impact Strength	DIN EN ISO 179-1	1,9 kJ/m²
Density	DIN EN ISO 1183	2,09 g/cm³

Capacity

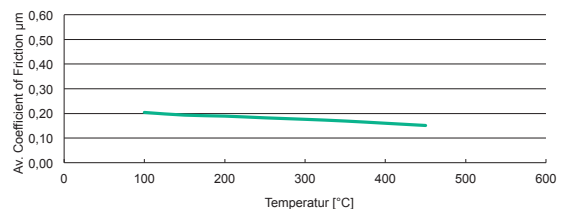
max. specific pressure	170 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	350 °C
max. short time application temperature	550 °C



$v_0=30\text{m/s}$ $T_0=60^\circ\text{C}$



$p_{\text{spez}}=50\text{N/cm}^2$ $T_0=60^\circ\text{C}$



* performance data based on internal dynamometer reference tests

BREMSKERL 208

Range of Application

- brake block for railway systems
- L-type
- suitable for freight- and passenger transport

Material Description

- organic composite formulation brake block material
- containing metal
- free of asbestos, heavy metal free

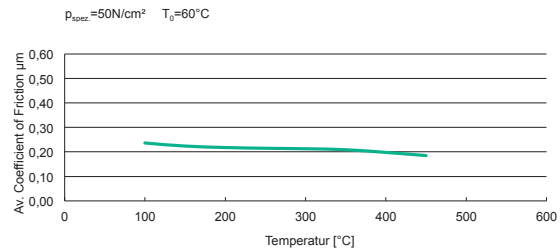
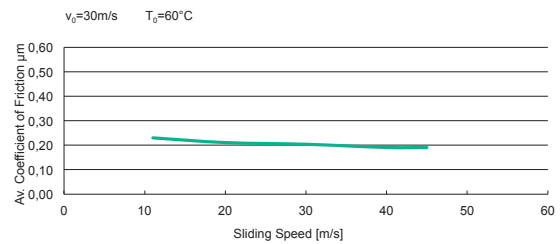
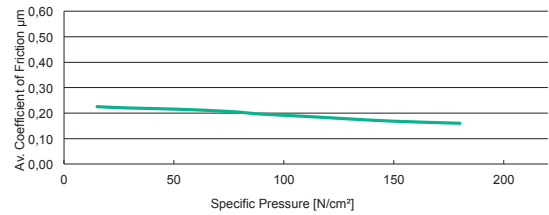
Technical Data

average coefficient of friction (dry) **0,16 - 0,24**

Hardness	DIN EN ISO 2039-1	35 N/mm²
Tensile Strength	DIN EN ISO 527	5 MPa
Impact Strength	DIN EN ISO 179-1	6,3 kJ/m²
Density	DIN EN ISO 1183	2,26 g/cm³

Capacity

max. specific pressure	180 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	350 °C
max. short time application temperature	530 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 209

Range of Application

- brake block for railway systems
- L-type
- suitable for freight- and passenger transport

Material Description

- organic composite formulation brake block material
- containing metal
- free of asbestos, heavy metal free

Other Characteristics

- optimized wet behaviour
- minimized odour appearance
- low block and wheel wear

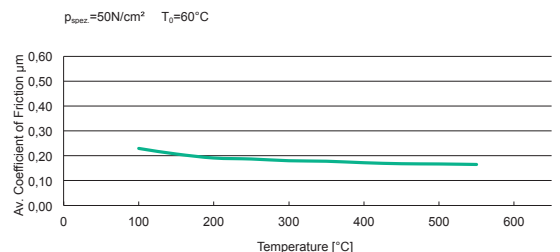
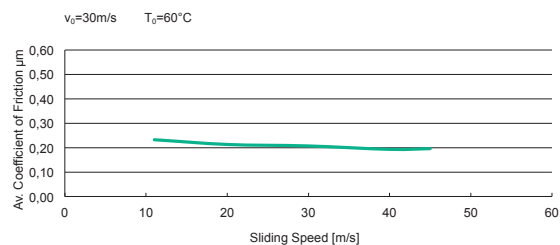
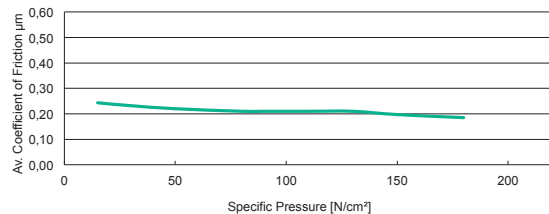
Technical Data

average coefficient of friction (dry) **0,17 - 0,25**

Hardness	DIN EN ISO 2039-1	50 N/mm²
Tensile Strength	DIN EN ISO 527	6,1 MPa
Impact Strength	DIN EN ISO 179-1	7 kJ/m²
Density	DIN EN ISO 1183	2,3 g/cm³

Capacity

max. specific pressure	190 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	330 °C
max. short time application temperature	530 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 5426

Range of Application

- brake block for railway systems
- K-type
- suitable for locomotives and freight cars with high axle loads
- medium to high loads

Material Description

- organic composite formulation brake block material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- constant friction level at medium to high loads
- rigid; high mechanic resistance

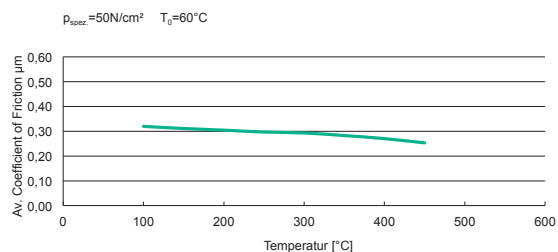
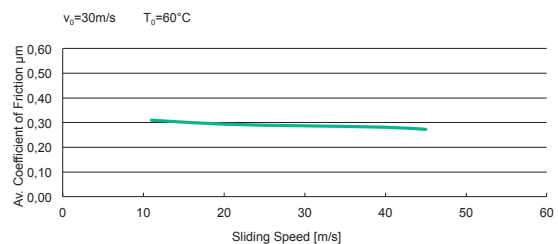
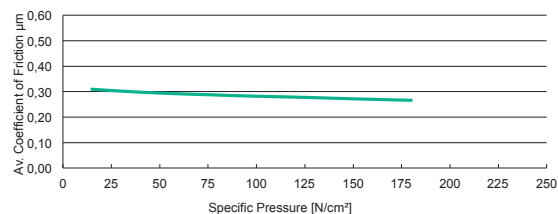
Technical Data

average coefficient of friction (dry) **0,24 - 0,33**

Hardness	DIN EN ISO 2039-1	100 N/mm²
Tensile Strength	DIN EN ISO 527	8 MPa
Impact Strength	DIN EN ISO 179-1	2,5 kJ/m²
Density	DIN EN ISO 1183	2,19 g/cm³

Capacity

max. specific pressure	200 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	370 °C
max. short time application temperature	560 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 302

Range of Application

- brake block for railway systems
- K-/L-type acc. UIC 541-4
- suitable for freight- and passenger transport

Material Description

- organic composite formulation brake block material
- containing metal
- **free of asbestos, heavy metal free**

Other Characteristics

- optimized behaviour under wet conditions
- minimized odour
- low wear

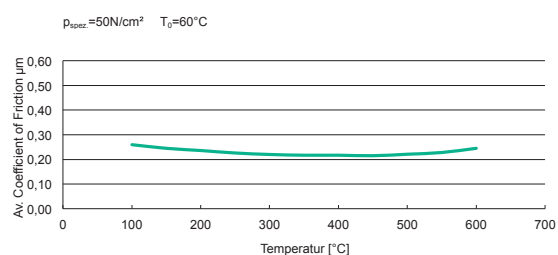
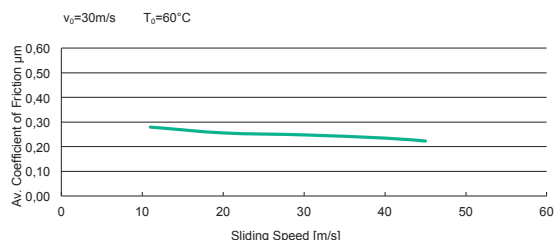
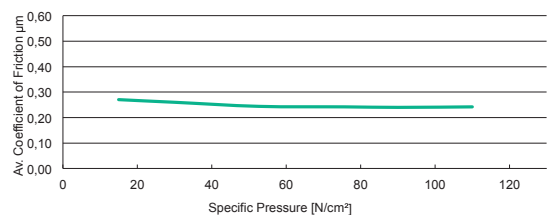
Technical Data

average coefficient of friction (dry) **0,22 - 0,29**

Hardness	DIN EN ISO 2039-1	80 N/mm²
Tensile Strength	DIN EN ISO 527	4,2 MPa
Impact Strength	DIN EN ISO 179-1	3,5 kJ/m²
Density	DIN EN ISO 1183	2,1 g/cm³
Compressive Strength	DIN EN ISO 604	40 MPa

Capacity

max. specific pressure	130 N/cm²
max. sliding speed	45 m/s
max. continuous application temperature	450 °C
max. short time application temperature	620 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 303

Range of Application

- brake block for railway systems
- high friction level (K-type)

Material Description

- organic composite formulation brake block material
- containing metal fibres
- **free of asbestos, heavy metal free**

Other Characteristics

- stable coefficient of friction at medium to high loads
- excellent wear behaviour
- tested under winter conditions
- low wheel wear rates

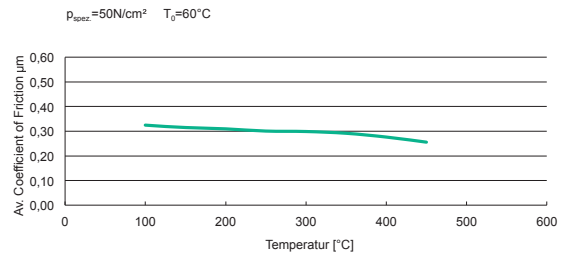
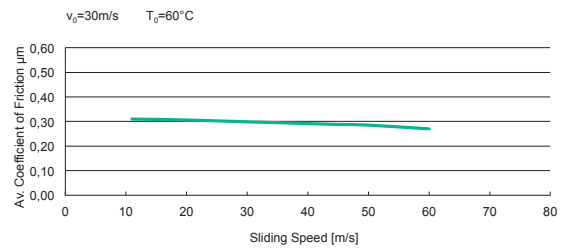
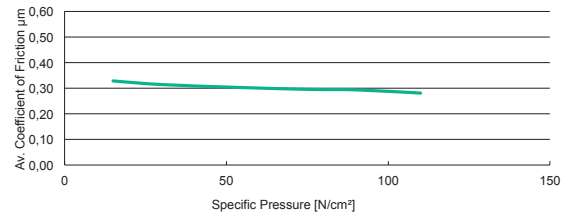
Technical Data

average coefficient of friction (dry) **0,26 - 0,33**

Hardness	DIN EN ISO 2039-1	80 N/mm²
Tensile Strength	DIN EN ISO 527	8 MPa
Impact Strength	DIN EN ISO 179-1	6 kJ/m²
Density	DIN EN ISO 1183	2,13 g/cm³

Capacity

max. specific pressure	130 N/cm²
max. sliding speed	55 m/s
max. continuous application temperature	390 °C
max. short time application temperature	600 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 304

Range of Application

- brake block for railway systems
- high friction level (K-type)

Material Description

- organic composite formulation brake block material
- **free of asbestos, heavy metal free**

Other Characteristics

- stable coefficient of friction at high loads
- high thermal stability

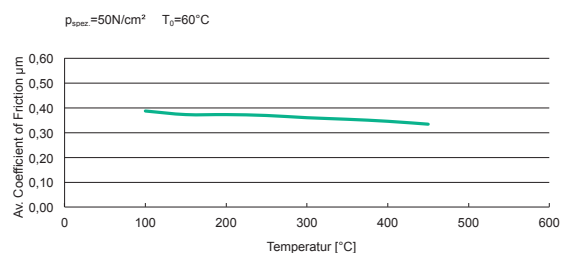
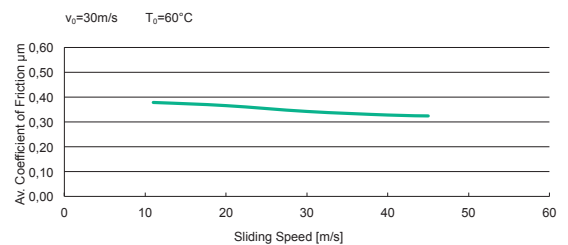
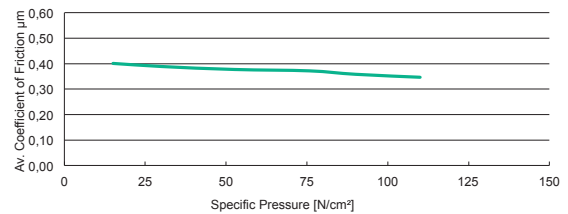
Technical Data

average coefficient of friction (dry) **0,33 - 0,42**

Hardness	DIN EN ISO 2039-1	35 N/mm²
Tensile Strength	DIN EN ISO 527	4,3 MPa
Impact Strength	DIN EN ISO 179-1	7,1 kJ/m²
Density	DIN EN ISO 1183	2,06 g/cm³

Capacity

max. specific pressure	250 N/cm²
max. sliding speed	40 m/s
max. continuous application temperature	350 °C
max. short time application temperature	550 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 305



Range of Application

- brake block for railway systems
- high friction level (K-type) acc. UIC 541-4

Material Description

- organic composite formulation brake block material
- containing metal fibres
- free of asbestos, heavy metal free

Other Characteristics

- stable coefficient of friction at medium to high loads
- excellent wear behaviour
- tested under winter conditions
- low wheel wear rates
- UIC homologation planned

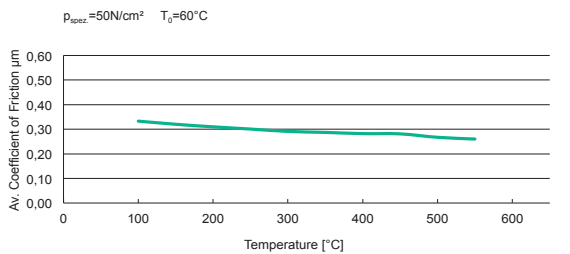
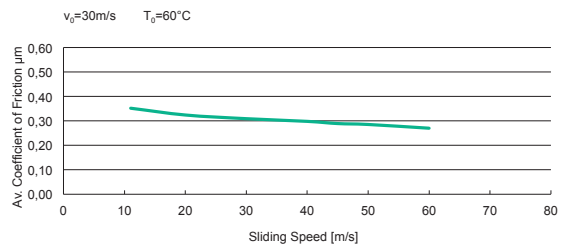
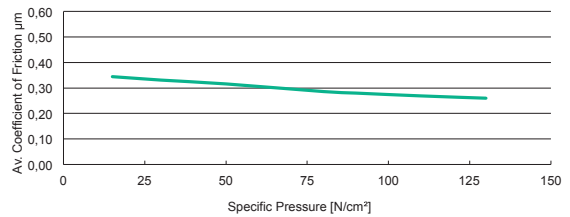
Technical Data

average coefficient of friction (dry) **0,25 - 0,33**

Hardness	DIN EN ISO 2039-1	80 N/mm²
Tensile Strength	DIN EN ISO 527	8 MPa
Impact Strength	DIN EN ISO 179-1	6 kJ/m²
Density	DIN EN ISO 1183	2,13 g/cm³

Capacity

max. specific pressure	130 N/cm²
max. sliding speed	55 m/s
max. continuous application temperature	390 °C
max. short time application temperature	600 °C



* performance data based on internal dynamometer reference tests

BREMSKERL 863

Range of Application

- brake block for railway systems
- high friction level (K-type)
- freight waggons
- shunting engines

Material Description

- organic composite formulation brake block material
- containing metal
- free of asbestos, heavy metal free

Other Characteristics

- stable coefficient of friction at high loads
- high thermal stability

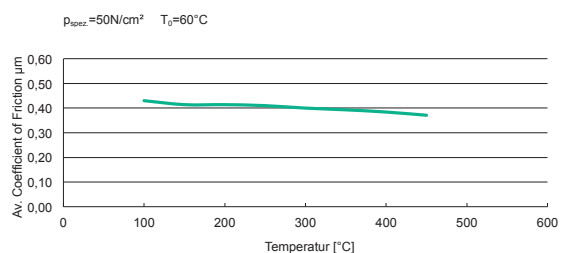
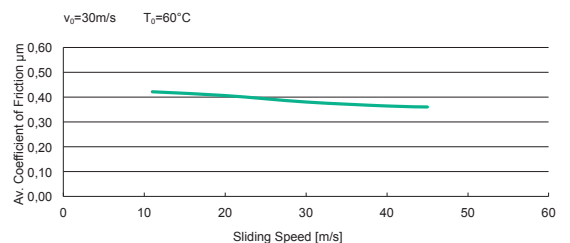
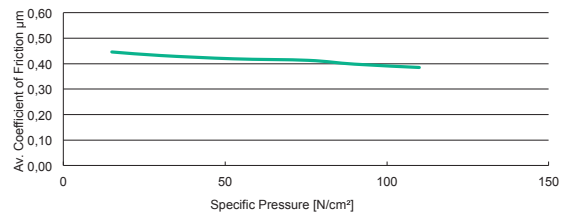
Technical Data

average coefficient of friction (dry) **0,35 - 0,45**

Hardness	DIN EN ISO 2039-1	35 N/mm²
Tensile Strength	DIN EN ISO 527	4,3 MPa
Impact Strength	DIN EN ISO 179-1	7,1 kJ/m²
Density	DIN EN ISO 1183	2,06 g/cm³

Capacity

max. specific pressure	250 N/cm²
max. sliding speed	40 m/s
max. continuous application temperature	350 °C
max. short time application temperature	550 °C



* performance data based on internal dynamometer reference tests

Quality characteristics

- reduced wear of friction and counter material
- constant static friction coefficient
- certified safety
- environmentally friendly
- reduced Life-Cycle-Costs

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