

## Brakes – Disc brakes and their applications - General conditions for the certification of brake parts

### Appendix I

#### *Brake pads certified in international traffic*

- Appendix I consists of 16 tables, one for each category of rolling stock or of service type;
- The tables:
  - Type Ra/b – Brake pads for high speed trains (up to 300 km/h – max. 13,8 MJ – organic or sintered pads),
  - Type S – Brake pads for passenger cars (up to 200 km/h, organic pads), and
  - Type T – Brake pads for passenger cars (up to 200 km/h, sintered pads)are inserted at the beginning;
- Table I 15 contains the brake pads which have received a provisional certification limited in time to enable them to undergo the inservice tests;
- Table I 16 contains the brake pads which UIC certification has expired, but which may still be used on particular vehicles.



## Appendix I – Brake pads certified in international traffic

### Appendix I 1a: Type R1a - Brake pads for high speed trains (up to 300 km/h ; organic brake pads, max. 13.8 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Bremskerl	BK 3000 (2)	no. R1a and no. S2.1	Company Bremskerl	01.04.2006 (4) 01.04.2016 (5)	31.03.2016 (4) 31.03.2026 (5)
Puran	BZP 625	no. R1a and no. S2.1	Company Puran	01.07.2014	30.06.2024

- (2) Bench tests on a grey cast-iron brake disc  
 (4) First certification  
 (5) Prolongation of certification

### Appendix I 1b: Type R1b - Brake pads for high speed trains (up to 320 km/h sintered brake pads max. 17.8 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
CoFren	Frendo SP 201/320 SI (3)	no. R1b et no. S2.1	Company CoFren	01.02.2007 (4) 01.02.2017 (5)	31.01.2017 (4) 31.01.2027 (5)
Ferodo	I/D 1005 (3)	no. R1b and no. S2.1	Company Federal Mogul Operations Italy S.r.l.	30.06.2008	30.06.2018

- (3) Bench tests on a cast steel brake disc  
 (4) First certification  
 (5) Prolongation of certification

### Appendix I 1.2: Type R2 - Brake pads for high-speed trains (up to 320/330 km/h sintered brake pads 17.8/32.85 MJ max)<sup>1</sup>

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Faiveley Transport	G 35 (3)	no. 5A (7th edition of Leaflet) and no. S2.1	Faiveley Transport Gennevilliers	30.06.2008	30.06.2018
CoFren	T30S (4)	no. 5A (7th edition of Leaflet) and no. S2.1	Wabtec	01.07.2012	30.06.2022
Puran	CRH5 (3)	Nr. 5A (7th edition of Leaflet) and no. S2.1	Puran	01.07.2017	30.06.2027
TYSJ	TS 399B Isobar	Nr. 5B (7th edition of Leaflet)	Tianyshangjia	01.07.2017	30.06.2027

- (3) Bench test carried out on a disc brake of cast steel;  
 (4) Bench test carried out on a non-ventilated disc brake of forged steel

<sup>1</sup> This category doesn't exist anymore in the 8th edition of UIC Leaflet 541-3. A re-certification of the pads can be made in category F1 of the 8th edition.

**Appendix I 2: Type S - Brake pads for passenger coaches**  
 (up to 200 km/h; organic brake pads)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
CoFren	Frendo 2150 (2)	no. S1 and no. S2.1	Wabtec	01.02.2004 (4) 01.02.2014 (5)	31.01.2014 (4) 31.01.2024 (5)
CoFren	CoFren 2199 (2)	no. S1 and no. S2.1	Wabtec	01.02.2017	31.01.2027
Honeywell	Jurid 878 (2)	no. S1 and no. S2.1	Honeywell	01.02.2004 (4) 01.02.2014 (5)	31.01.2014 (4) 31.01.2024 (5)
Becorit	B 36 (2)	no. S1 and no. S2.1	Company Becorit	01.04.2006 (4) 01.02.2016 (5)	31.03.2016 (4) 31.01.2026 (5)
Frenoplast	FR 20H.2 (2)	no. S1 and no. S2.1	Company Frenoplast	01.04.1997 (4) 01.02.2017 (5)	31.01.2017 (4) 31.01.2027 (5)
Becorit	V 30 (2)	no. S1 and no. S2.1	Company Becorit	01.04.1998 (4) 01.02.2008 (5)	31.03.2018
Flertex	666 (2)	no. S1 and no. S2.1	Company Flertex SA	30.06.2008	30.06.2018
Cosid	828 (2)	no. S1 and no. S2.1	Company TMD Friction EsCo	30.06.2008	30.06.2018
Bremskerl	BK 7000 (2)	no. S1 and no. S2.1	Company Bremskerl	20.01.2010	31.12.2019
ICER Brakes	ICER 106 (2)	no. S1 and no. S2.1	Company ICER Brakes	01.02.2011	01.02.2021
Becorit	B 66 (2)	no. S1 and no. S2.1	Wabtec	01.02.2013	31.01.2023
ICER Brakes	ICER 203 (2)	no. S1 and no. S2.1	ICER Brakes	01.02.2014	31.02.2024
Puran	BZP 625 (2) & (6)	no. S1 and no. S2.1	Company Puran	01.08.2015	31.07.2025

- (1) Bench tests on a grey cast-iron brake disc and a cast steel brake disc
- (2) Bench test on a grey cast-iron brake disc
- (3) Bench test carried out on a cast steel brake disc;
- (4) First certification
- (5) Prolongation of certification
- (6) Extension of certification

**Appendix I.3: Type T - Brake pads for passengers coaches**  
 (up to 200 km/h ; sintered brake pads)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
CoFren	FrenDo SP 134/201 (1)	no. T1 and no. T2	FS – Trenitalia Wabtec (5)	15.11.2005 (4)	31.07.2025 (5)
CoFren	CoFren SP 140FF/350 (1) & (2)	no. T1 and no. T2 no. S1 and no. S2.1	Wabtec	01.07.2017	30.06.2027

- (1) Bench test carried out on a brake disc of cast steel
- (2) Bench test carried out on a brake disc of grey cast-iron
- (4) First certification
- (5) Prolongation of certification

**Appendix I 4 Type 4.4 - Brake pads for passengers coaches**  
 (extreme winter conditions)  
 (up to 200 km/h ; organic brake pads)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 5: Type B1 - Brake pads for wagons**  
 (up to 120 km/h; deceleration max. 0,88 m/s<sup>2</sup>; 6,3 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 6: Type B2 – Brake pads on discs for motor units**  
 (up to 160/200 km/h; wheel mounted discs; 12,3 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 7: Type B3 – Brake pads discs for motor units**  
 (up to 160/200 km/h; wheel mounted discs; 15,4 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 8: Type B4 – Brake pads on discs for locomotives**  
 (up to 200 km/h; wheel mounted discs; max. 18,5 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 9: Type B5 – Brake pads discs for motor units**  
 (up to 250 km/h; axle mounted discs; max. 15,7 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 10: Type B6 - Brake pads on discs for motor units**  
 (up to 250 km/h; wheel mounted discs, max. 25,3 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 11: Type B7 – Brake pads on discs for motor units**  
 (up to 300 km/h; wheel mounted discs; max. 27,8 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 12: Type B8 – Brake pads on discs for motor units**  
 (up to 350 km/h; axle mounted discs; max. 23,6 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 13: Type B9 – Brake pads on discs for motor units**  
 (up to 350/400 km/h; axle mounted discs; max. 28,4/37 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 14: Type B10 – Brake pads on discs for motor units**  
 (up to 350 km/h; wheel mounted discs; max. 33,1 MJ)

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Request by	Date of certification	End of validity of the certification
Currently no certified brake pads					

**Appendix I 15: Preliminary approval – Brake pads which have undergone the actual test programmes with success and which may undergo inservice tests in view of obtaining the definitive approval**

Manufacturer/ Name of product	Designation of type of brake pad	Test program(s) performed	Application	Date of preliminary approval	End of validity of the preliminary approval
Becorit	F 570* BMBS	no. D2	motor units up to 250 km/h	20.04.2017	19.04.2019
CoFren	CFSP 150/T42	no. 5A and 5B of the 7th edition, as well as no. S2.1,	high speed trains with axle mounted discs up to 320 km/h or wheel mounted discs up to 330 km/h	15.01.2016	14.01.2018
Ferodo	6205	no. Rb and no. S2.1	high speed trains up to 320 km/h	30.06.2014	29.06.2016
Flertex	725	no. Ra and no. S2.1	high speed trains up to 300 km/h	09.07.2015	30.06.2019
Flertex	726-1	no. Ra and no. S2.1	high speed trains up to 300 km/h	09.07.2015	30.06.2019
Jurid	707	no. 5B of the 7th edition	high speed trains with axle mounted discs up to 330 km/h	25.04.2016	24.04.2018
Knorr-Bremse	Flexpad Silent 114	no. Rb and no. S2.1 as well as 5B of the 7th edition	high speed trains with axle mounted discs up to 320 km/h or wheel mounted discs up to 330 km/h	05.07.2013	04.07.2019
Puran	CRH5	no. 5A of the 7th edition, as well as no. S2.1,	high speed trains up to 320 km/h	04.07.2014	03.07.2016
Puran	BZP 826	no. Ra and no. S2.1	high speed trains up to 300 km/h	07.07.2015	06.07.2017
Tianyishangjia	TYSJ TS 588B	no. 5B of the 7th edition	high speed trains with wheel mounted discs up to 330 km/h	24.02.2017	23.02.2019
Tianyishangjia	TYSJ TS 399B Isobar	no. 5B of the 7th edition	high speed trains with wheel mounted discs up to 330 km/h	24.02.2017	23.02.2019

## Appendix I 16: Right of continued use – brake pads no longer authorised for use on new-build or retrofitted vehicles, but which may continue to be operated on existing vehicles to which they are already fitted.

Manufacturer/ Name of product	Désignation of type of brake pad	Test program(s) performed	Application	Date of certification	End of validity of the certification
Jurid	869	no. 2 (200 km/h) Acc. to Leaflet 541-3, 2 <sup>nd</sup> edition	Passenger coaches up to 200 km/h	01.01.1984	31.12.2005
Becorit	918 (1)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.03.1986	31.12.2005
Ferodo	ID 425L (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.01.1989	31.12.2005
Bremserl	5818 (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.01.1989	31.12.2005
Bremserl	6792 (1)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.01.1989	31.12.2005
Jurid	877 (1)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.01.1989	31.12.2005
Bremserl	7240 (1)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.05.1990	31.12.2005
Frendo	2126 (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.06.1990	31.12.2005
Faist Licence Textar	T 543 (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 3 <sup>rd</sup> edition	Passenger coaches up to 200 km/h	01.01.1993	31.12.2005
Icer	918 (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 4 <sup>th</sup> edition	Passenger coaches up to 200 km/h	01.01.1994	31.12.2005
Flertex	664 HD (3)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 4 <sup>th</sup> edition	Passenger coaches up to 200 km/h	01.03.1995	28.02.2005
Rona	918 (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 4 <sup>th</sup> edition	Passenger coaches up to 200 km/h	01.04.1996	28.02.2006
Textar	T 550 (2)	no. 2 (200 km/h) no. 3 (200 km/h) Acc. to Leaflet 541-3, 4 <sup>th</sup> edition	Passenger coaches up to 200 km/h	01.04.1997	31.03.2007
Bremserl	BK 2000 (2)	no. 2 (200 km/h) and no. 3 (200 km/h + 140 km/h) Acc. to Leaflet 541-3, 4 <sup>th</sup> edition	Passenger coaches up to 200 km/h	01.01.1999 (4) 12.12.2008 (5)	31.12.2008 (4) 12.12.2013 (5)
Bremserl	BK 7699 (1)	no. 2 (200 km/h) and no. 3 (200 km/h + 140 km/h) Acc. to Leaflet 541-3, 4 <sup>th</sup> edition	Passenger coaches up to 200 km/h	01.01.1999 (4) 12.12.2008 (5)	31.12.2008 (4) 12.12.2013 (5)

- (1) Bench tests on a grey cast-iron brake disc and a cast steel brake disc  
 (2) Bench test on a grey cast-iron brake disc  
 (3) Bench test carried out on a cast steel brake disc;  
 (4) First certification  
 (5) Extension of certification



## Notes concerning updates:

Date of updater	Body in charge	Decision
07.04.2004	Steering Body of CTR	Creation of an Internet site UIC for approved vehicle components; removal of the corresponding appendices in UIC Leaflets
01.09.2004	SC Braking and Running gear Session of July 2004	First publication on Internet site of UIC of the tables extracted the UIC leaflet 541-3, 5nd edition, Appendix I by supplementing them by Brake pads approved since the last edition of the leaflet (4nd edition) in Appendix I: Becorit V30, Bremskerl 2000, Bremskerl 7699, Italian Brakes FS 5M1, FrenDo 2150, Jurid 878
15.09.2005	SG 5 Braking and Running gear Session of July 2005;	<u>Appendix I 4.2:</u> 1.) topic. 7.2 – Jurid 878 suspended Homologation until a nondefinite date;  2.) At the time of the revision, the following modifications were carried out : <ul style="list-style-type: none"> <li>• column 3, the programs were carried in the table starting from Brake pads "Róna 918" for all the following pads</li> <li>• adaptation of the structure of the table: additional mention of the edition of the leaflet in the column "Programme test ";</li> <li>• for the brake pad "Textar T 550", the date of homologation 01.07.1997 was corrected to the 01.04.1997 and the end of the validity adapted to the 31.03.2007</li> <li>• for the brake pad "Bremskerl 7699", the reference (1) was added</li> <li>• for the brake pad "Italian Brakes FS 5M1", the reference (1) was corrected in reference (2);</li> </ul>
15.11.2005	SG 5 Braking and Running gear Session of July 2005; with later written approval	<u>Appendix I 4.3:</u> o. d. j. 3.9 – Certification FrenDo SP 134/201
01.01.2006	SG 5 Braking and Running gear Session of July 2005 Point 3.4	<u>Appendix I 4.2:</u> Expiry of the certification and removal of Brake pads below: : <i>JURID 869, BECORIT 918, FERODO ID 425L, BREMSKERL 5818, BREMSKERL 6792, JURID 877, BREMSKERL 7240, FRENDO 2126, FAIST LICENCE TEXTAR T 543, ICER 918, FLERTEX 664 HD</i>
15.04.2006	SG 5 Braking and Running gear Session of January 2006 Point 3.4 February 2006: Audit with inquiry 14 of SG5,	<u>Appendix I 4.2:</u> January 2006: admission expires, brake pad "RONA 918" is removed; February 2006: Audit to. Honeywell; Jurid 878 again admitted;
15.05.2006	SG 5 Braking and Running gear Session of march 2006 ; point 2.1 ; 2.2	<u>Appendix I 1.1:</u> Certification of Bremskerl BK 3000 <u>Appendix I 4.2:</u> Certification of Becorit B36
12.03.2007	SG 5 Braking and Running gear Session of January 2007 point : 3.4.1; 3.4.2; 7.2	<u>Appendix I 1.1:</u> Séparation in Appendix 1.1a and Appendix 1.1b <u>Appendix I 1.1.b:</u> Certification FrenDo SP 201/320 SI <u>Appendix I 4.2:</u> Renewal of admission Frenoplast FR 20H.2; Expiration of admission and removal of Textar T550 <u>General:</u> The text of the references (1), (2) and (3) was specified; The references (4) and (5) were added
01.04.2008	SG 5 Braking and Running gear Session of January 2008 point : 3.4.4	<u>Appendix I 4.2:</u> Renewal of admission Becorit V30

Date of updater	Body in charge	Decision
01.07.2009	SET 7 „Braking“ Session of June 2008; point 3.3.6;	<u>Appendix I 1.1.a:</u> Certification Ferodo I/D 1005  <u>Appendix I 4.2:</u> Renewal of admission Bremskerl BK 2000; Renewal of admission Bremskerl BK 7699; Certification Flertex 666; Certification Cosid 828; Certification FT G35
20.09.2009	Error correction:	<u>Appendix I 1.1.a:</u> Certification of Ferodo I/D 1005 deleted;  <u>Appendix I 1.1.b:</u> Certification of Ferodo I/D 1005 introduced
12.04.2010	SET 7 „Braking“ Session of January 2010 point 3.2.n	<u>Appendix I 4.2:</u> Renewal of admission of Italian Brakes IB FS5M1 Certification of Bremskerl BK 7000
06.05.2010		<u>Appendix I 4.2:</u> Correction Bremskerl BK2000, BK7699 (only English version) Different format adaptations
11.07.2010		<u>Appendix I 4.2:</u> Correction Bremskerl BK2000, BK7699
20.01.2011	SET 7 „Braking“ Session of January 2010 point 2.9	New <u>appendix I 6</u>
30.01.2011	SET 7 „Braking“ Session of January 2011 point 3.2.2	<u>Appendix I 4.2:</u> Certification of ICER 106 from ICER Brakes
30.01.2011		Deleting of references according to which Leaflet edition the test programs were performed. Tests are always performed according to test programs of valid edition of Leaflet
05.02.2012	SET 7 „Braking“ Session of January 2012 point 4.3.4	Certification for brake blocks Italian Brakes FS5M1 withdrawn until further notice
01.07.2012	SET 7 „Braking“ Session of June 2012 point 3.2.1	<u>Appendix I 1.2:</u> Certification of CoFren T30S from Wabtec
01.02.2013	SET 7 „Braking“ Session of January 2013 point 3.2.1	<u>Appendix I 4.2:</u> Certification of Becorit B 66 from Wabtec
01.02.2014	SET 7 „Braking“ Session of January 2014 points 3.2.1, 3.2.2 & 3.2.3	<u>Appendix I 4.2:</u> Prolongation of certification of FrenDo 2150 from Wabtec Prolongation of certification of Jurid 878 from Honeywell Certification of ICER 203 from ICER Brakes <u>Appendix I 6:</u> Introduction of Bremskerl BK 2000 and BK 7699 after expiry of their certification
01.07.2014	SET 7 „Braking“ Session of June 2014 point 3.2.1	<u>Appendix I 1.1.a:</u> Certification of Puran BZP 625
01.08.2015	SET 7 „Braking“ Session of July 2015 point 3.2.5, 3.2.6 & 3.2.1 E-Mail-inquiries from 10/07/2015 and 08/07/2015 respectively	<u>Appendix I 4.3:</u> Prolongation of certification of CoFren SP 134/201 from Wabtec Introduction of CoFren SP 140FF/350 from Wabtec <u>Appendix I 4.2:</u> Extension of certification of Puran BZP 625

Date of updater	Body in charge	Decision
01.02.2016	SET 7 „Braking“ Session of January 2016 point 3.2.3	<u>Appendix I 4.2:</u> Prolongation of certification of Becorit B 36
01.07.2016	SET 7 „Braking“ Session of June 2016 points 3.2.2 & 3.2.3	<u>Appendix I 1.1a:</u> Prolongation of certification of Bremskerl 3000 <u>Appendix I 2.2:</u> Certification of Puran PRF 1103
01.02.2017	SET 7 „Braking“ Session of January 2017 points 3.2.1, 3.2.3 & 3.2.4	<u>Appendix I 4.2:</u> Certification of CoFren 2199 <u>Appendix I 1.1b:</u> Prolongation of certification of CoFren SP 201/320 SI <u>Appendix I 4.2:</u> Prolongation of certification of Frenoplast FR 20H.2
01.05.2017	New edition of Appendix I after publication of the 8th edition of the Leaflet	<u>Appendix I 2:</u> Certification of CoFren 2199 <u>Appendix I 1b:</u> Prolongation of certification of CoFren SP 201/320 SI <u>Appendix I 2:</u> Prolongation of certification of Frenoplast FR 20H.20 <u>Appendix I 15:</u> Preliminary approval of Becorit F 570* BMBS Preliminary approval of TYSJ TS588B Preliminary approval of TYSJ TS399B Isobar
01.07.2017	SET 7 „Braking“ Session of June 2017 points 3.2.1, 3.2.3 & 3.2.4	<u>Appendix I 1.2:</u> Certification of Puran CRH5 Certification of TYSJ TS399B Isobar <u>Appendix I 3:</u> Certification of CoFren SP140FF