

FRICION MATERIALS
FOR RAILWAY AND INDUSTRY

FRIMATRAIL®
frenoplast.



TRAMS
& LIGHT RAIL VEHICLES



DISC BRAKE PADS FOR
TRAMWAYS AND
LIGHT RAIL VEHICLES

INFORMATION SHEET

Application:

Tramways with disc braking system:

Bombardier/Düwag:
E1, GT6, GT8, N8C, N8S-NF, N8C-NF

Bombardier:
NGT6, Cityrunner

Pesa:
120N, 121N, 122N, 120Na

Alstom:
Citadis

Alstom-Konstal:
116N, NGd99

FR138

Designation of friction material

FR154

Designation of friction material



**DISC BRAKE PADS FOR
TRAMWAYS AND
LIGHT RAIL VEHICLES**

Disc brake pads for trams

INFORMATION SHEET

FR138

Designation of friction material

Description

Asbestos-free, moulded friction material. It contains synthetic elastomers, thermo-setting resins, friction modifiers and mineral fibres reinforcing the structure.

The FR138 material does not show aggressiveness to the anti-friction material and ensures quiet braking without sparking. The advantage of this material is a stable coefficient of friction in variable atmospheric conditions.

Application

Disc brake pads for hydraulic brake systems of tram-cars and light rail vehicles. It may be applied up to the maximal speed of 100 km/h, in a wide range of unit pressures.

Recommended unit pressure [N/cm ²]	≤140
Maximum continuous temp. [°C]	220
Maximum temporary temp. [°C]	260

Friction properties

Nominal friction coefficient (for calculation only)	0,3
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**DISC BRAKE PADS FOR
TRAMWAYS AND
LIGHT RAIL VEHICLES**

Disc brake pads for trams

INFORMATION SHEET

FR154

Designation of friction material

Description

Asbestos-free, moulded friction material. It contains synthetic elastomers, thermo-setting resins, friction modifiers as well as mineral and organic fibres reinforcing the structure.

The FR154 material does not show aggressiveness to the anti-friction material and ensures quiet braking without sparking. A stable coefficient of friction and low wear level even for high loads and unit pressures. Brake pads made of FR154 material are certified by Institute of Spatial Management and Housing.

Application

Disc brake pads for hydraulic brake systems of tram-cars and light rail vehicles. It may be applied up to the maximal speeds of 100 km/h, in a wide range of unit pressures.

Recommended unit pressure [N/cm ²]	≤250
Maximum continuous temp. [°C]	250
Maximum temporary temp. [°C]	320

Friction properties

Nominal friction coefficient 0,38
(for calculation only)



DRUM BRAKE LININGS
FOR TRAMWAYS AND
LIGHT RAIL VEHICLES

Application:

Tramways with drum braking system e.g.:

13N, 105Na, 805Na, 111N, 112N, 114Na,
123N, 204WrAs, 205WrAs, KT4DtM,
T6A2D

FR106

Designation of friction material

DATA SHEET



**DRUM BRAKE LININGS
FOR TRAMWAYS AND
LIGHT RAIL VEHICLES**

General purpose friction material, linings for drum brakes for trams

INFORMATION SHEET

FR106

Designation of friction material

Description

Asbestos-free, moulded friction material. It is made on the basis of synthetic elastomers, thermo-setting resins, friction modifiers and mineral fibres reinforcing the structure.

Application

General-purpose friction material, for example brake pads for machines, clutches, brake of car truck shock absorber, brake strap.

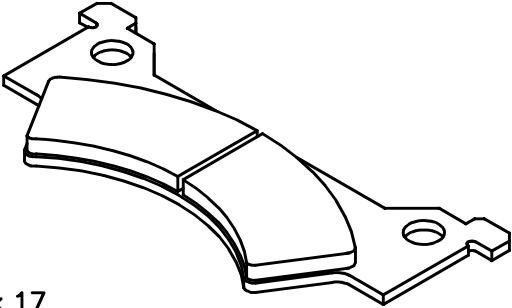
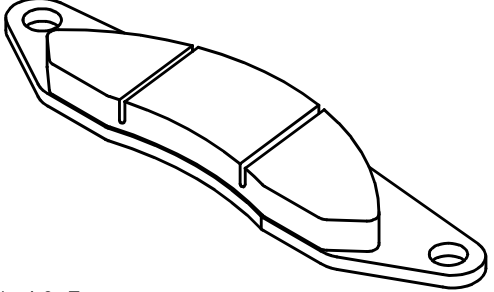
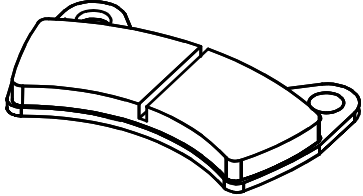
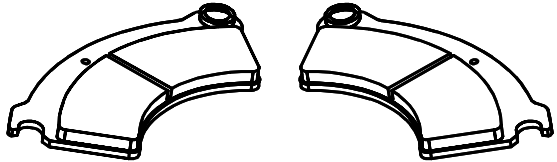
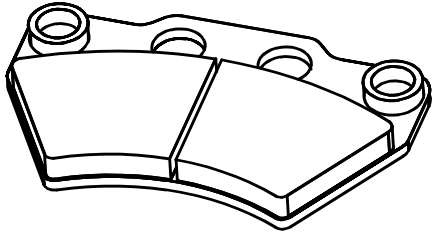
Recommended unit pressure [N/cm ²]	≤100
Maximum continuous temp. [°C]	350
Maximum temporary temp. [°C]	400

Friction properties

Nominal friction coefficient (for calculation only)	0,35
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DISC BRAKE PADS FOR TRAMS

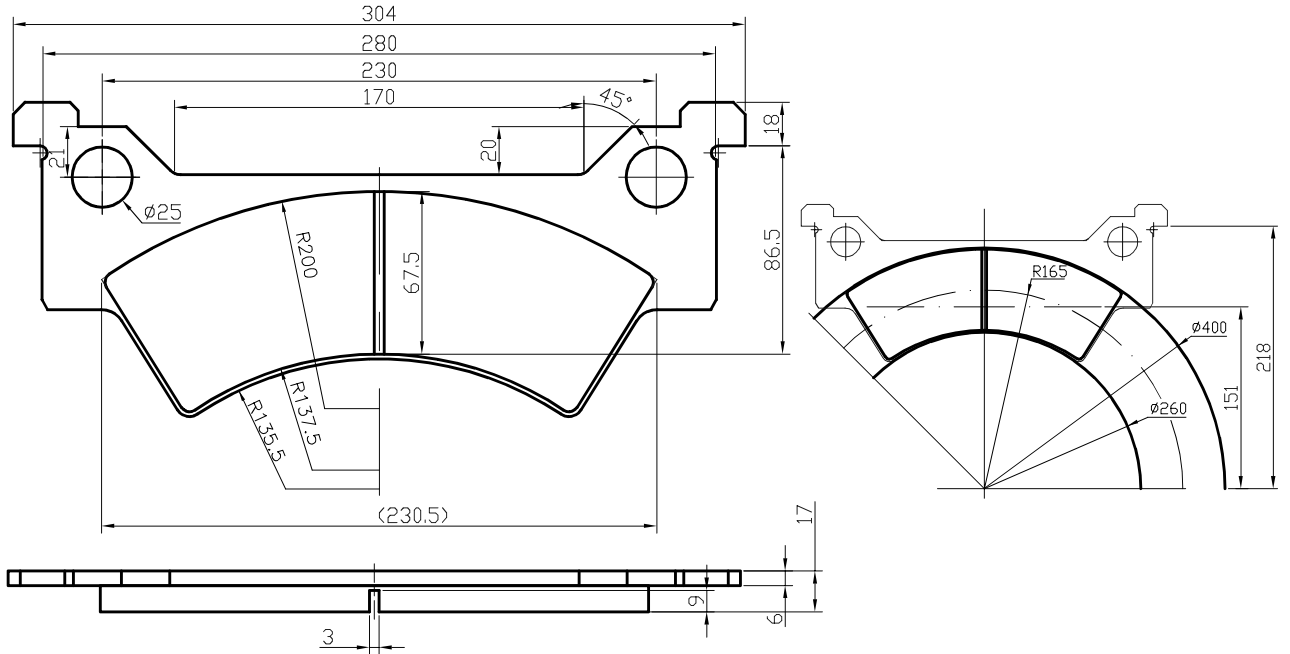
DATA SHEET

<p style="text-align: center;">F2045</p>  <p>thick.17 140 cm²</p>	<p style="text-align: center;">F2054</p>  <p>thick.19,5 130 cm²</p>
<p style="text-align: center;">F2071</p>  <p>thick. 20 120 cm²</p>	<p style="text-align: center;">F2076 F2075 left right</p>  <p>thick. 17 135 cm²</p>
<p style="text-align: center;">F2085</p>  <p>thick. 19 110 cm²</p>	

DISC BRAKE PADS FOR TRAMS

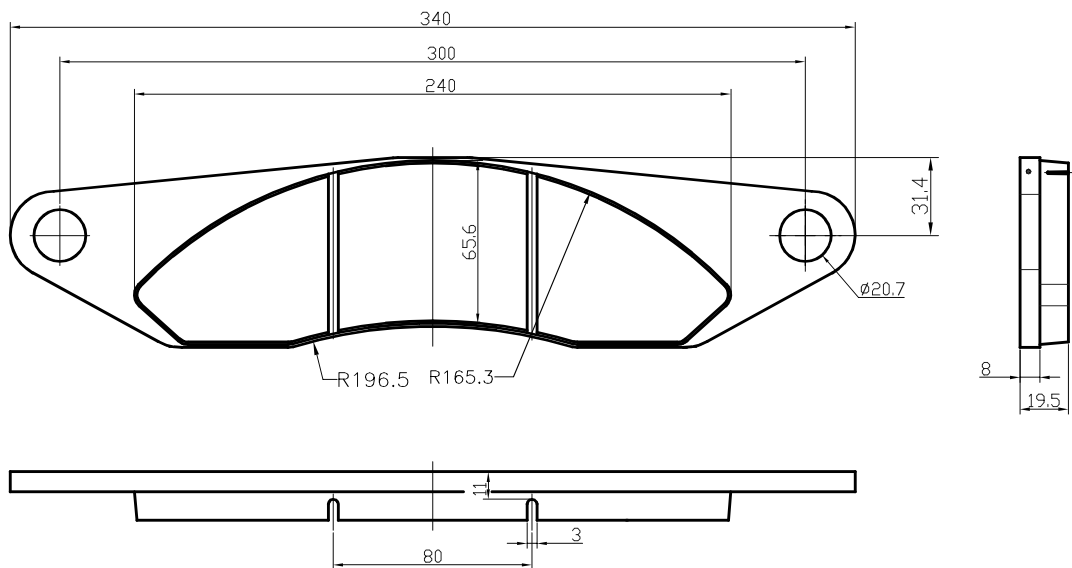
CHARACTERISTIC DIMENSIONS

DISC BRAKE PAD 140 cm²
CITADIS



FP - No
F2045

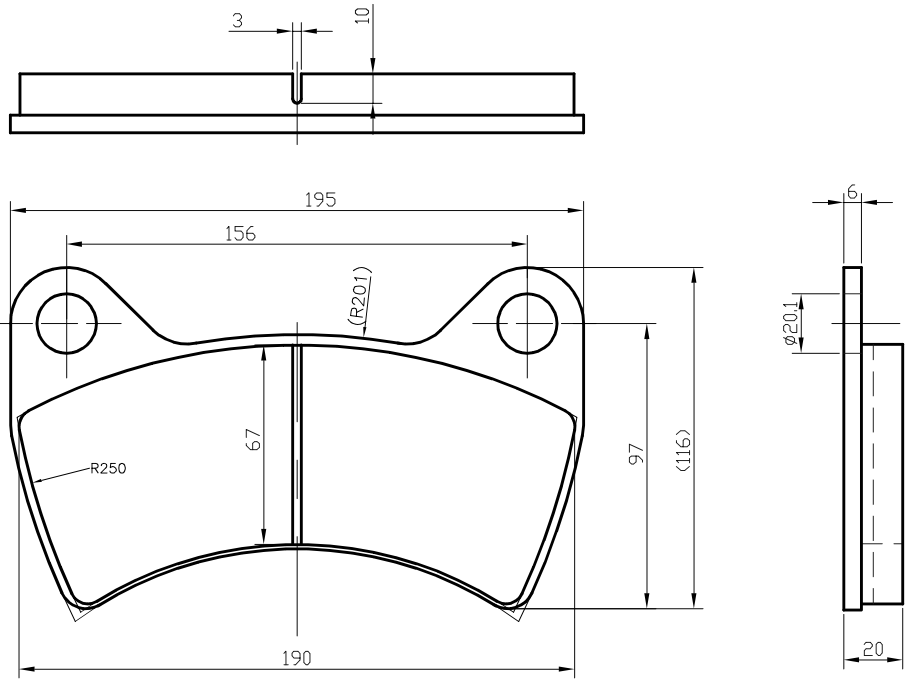
DISC BRAKE PAD 130 cm²
PESA 120N, 121N, 122N



FP - No
F2054

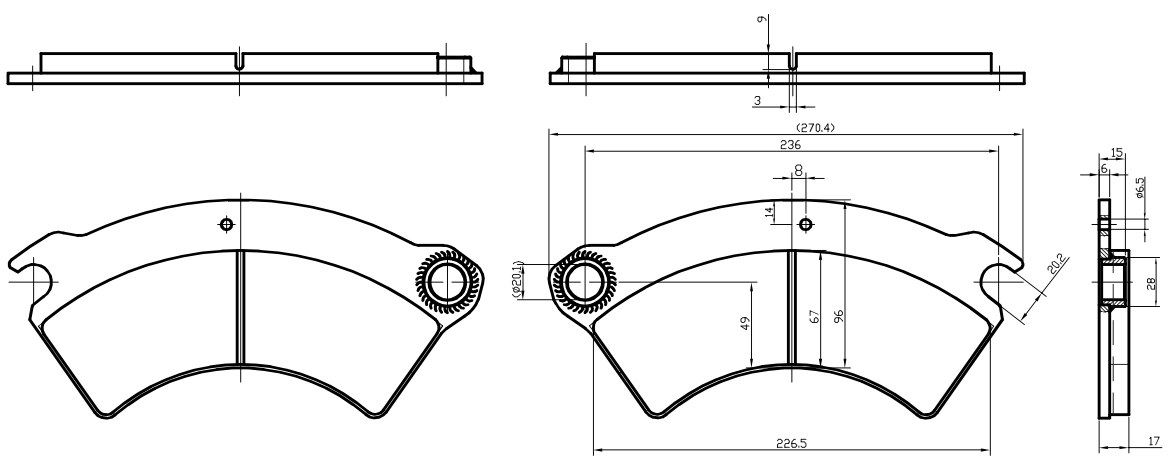
DISC BRAKE PADS FOR TRAMS

DISC BRAKE PAD 120 cm²
NGT6



FP - No	
F2071	

DISC BRAKE PAD 135 cm²
NGT6



LEWA

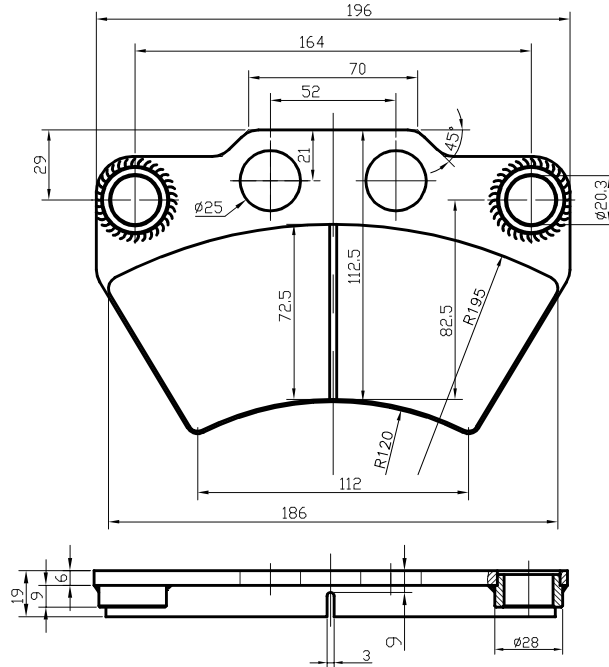
FP - No	
left	right
F2076	F2075

PRAWA

CHARACTERISTIC DIMENSIONS

DISC BRAKE PADS FOR TRAMS

DISC BRAKE PAD 110 cm²
120Na

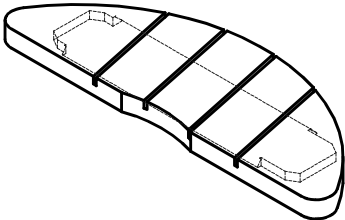
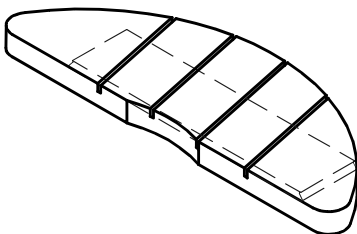
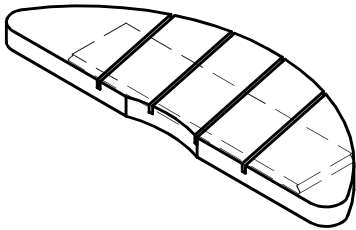
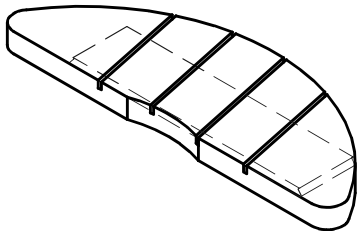
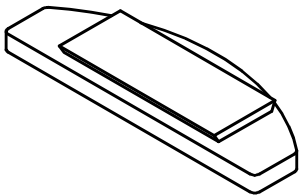
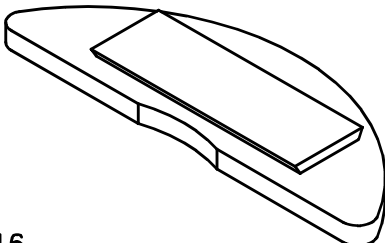


FP - No
F2085

CHARACTERISTIC DIMENSIONS

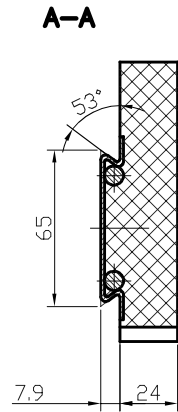
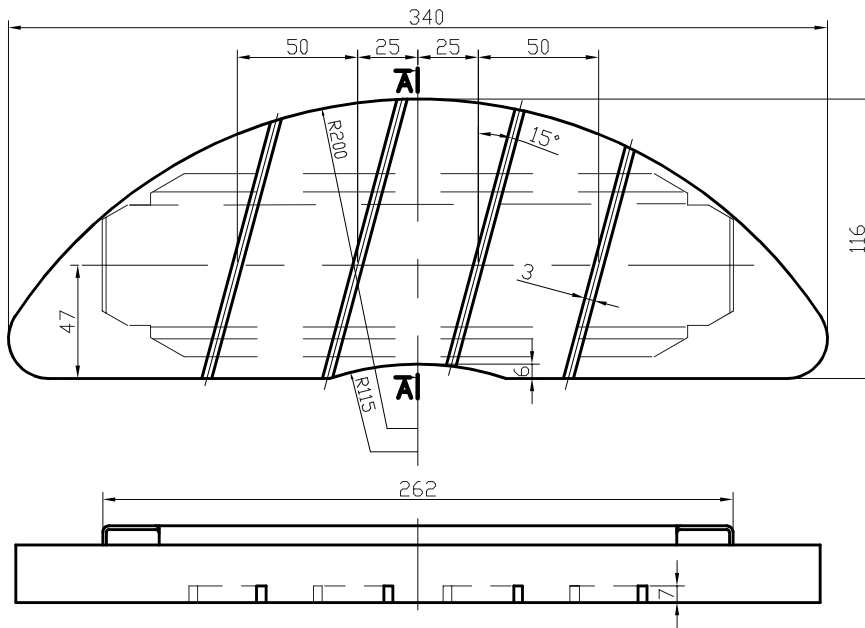
DISC BRAKE PADS FOR RAIL VEHICLES

DATA SHEET

<p style="text-align: center;">F9160</p>  <p>thick. 24 300 cm²</p>	<p style="text-align: center;">F9180</p>  <p>thick. 16 300 cm²</p>
<p style="text-align: center;">F9195</p>  <p>thick. 24 300 cm²</p>	<p style="text-align: center;">F9220</p>  <p>thick. 20 300 cm²</p>
<p style="text-align: center;">F9233</p>  <p>thick. 16 195 cm²</p>	<p style="text-align: center;">F9241</p>  <p>thick. 16 300 cm²</p>

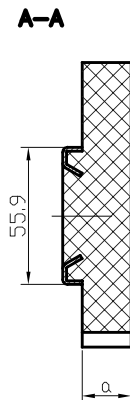
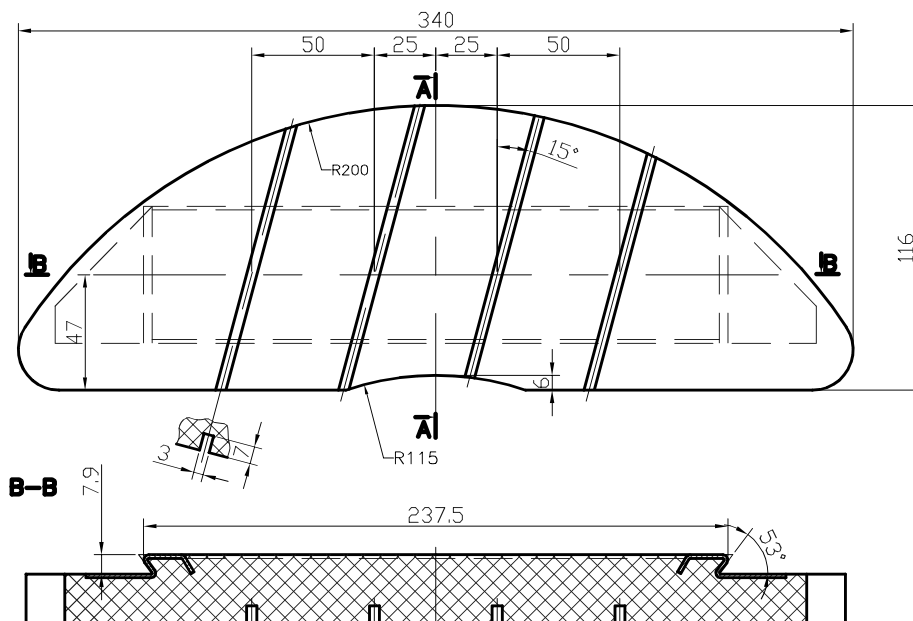
DISC BRAKE PADS FOR RAIL VEHICLES

DISC BRAKE PAD 300 cm²



FP - No
F9160

DISC BRAKE PAD 300cm²

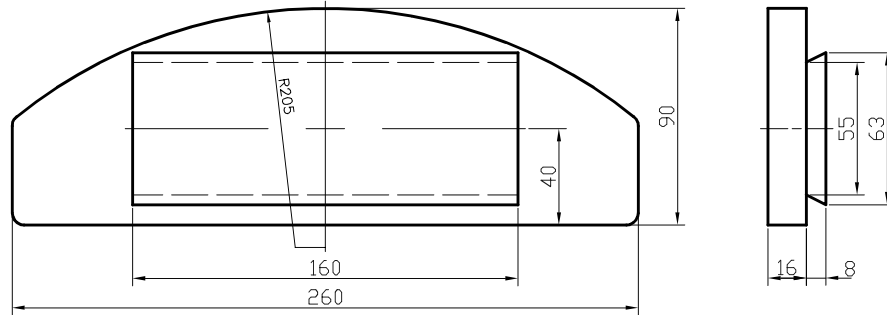


Dimension	FP-No
a	
16	F9180
20	F9220
24	F9195

CHARACTERISTIC DIMENSIONS

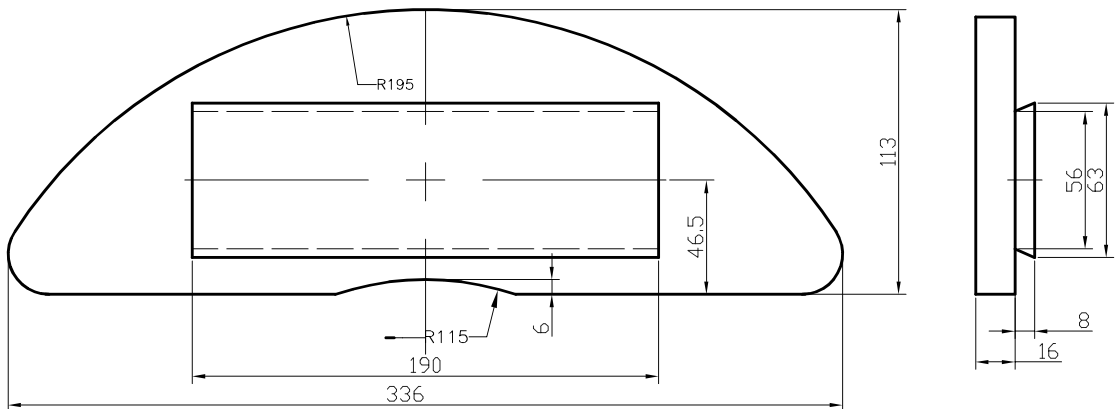
DISC BRAKE PADS FOR RAIL VEHICLES

DISC BRAKE PAD 195 cm²



FP - No
F9233

DISC BRAKE PAD 300 cm²

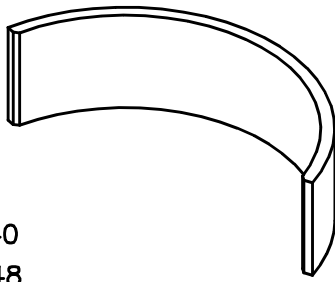
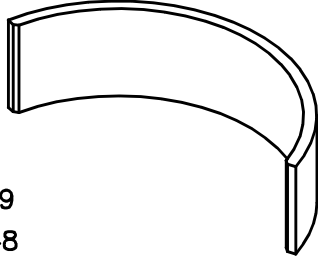
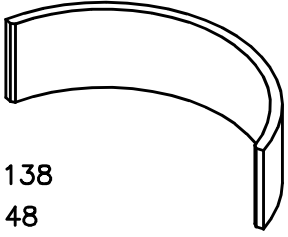
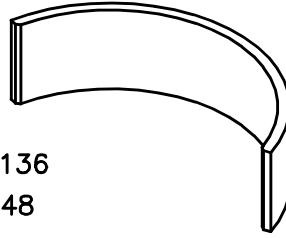
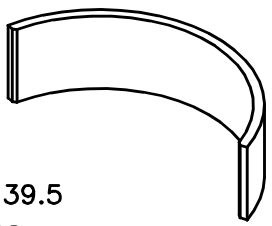
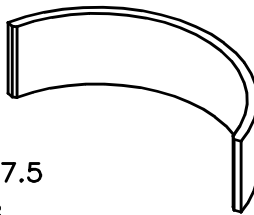


FP - No
F9241

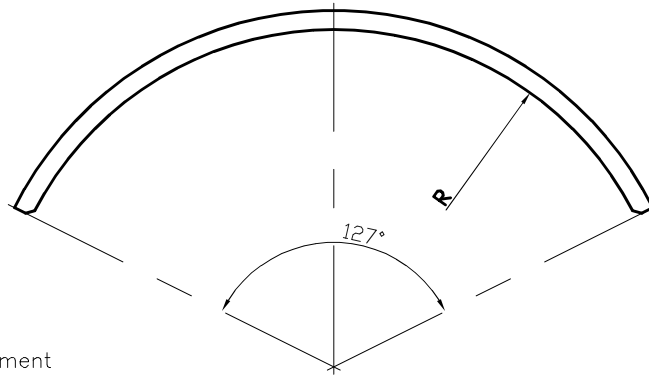
CHARACTERISTIC DIMENSIONS

FRICITION LININGS FOR DRUM BRAKES

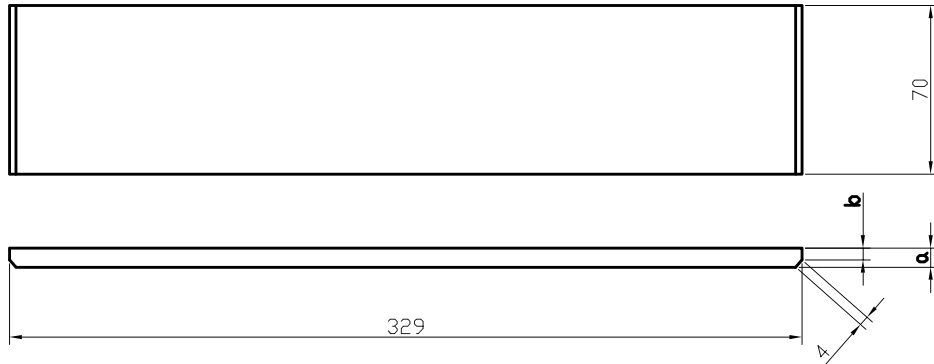
DATA SHEET

<p style="text-align: right;">F1092</p>  <p>R(inner) 140 R(outer) 148 thick. 8 l. 265 w. 70</p>	<p style="text-align: right;">F1093</p>  <p>R(inner) 139 R(outer) 148 thick. 9 l. 265 w. 70</p>
<p style="text-align: right;">F1094</p>  <p>R(inner) 138 R(outer) 148 thick. 10 l. 265 w. 70</p>	<p style="text-align: right;">F1095</p>  <p>R(inner) 136 R(outer) 148 thick. 12 l. 265 w. 70</p>
<p style="text-align: right;">F1099</p>  <p>R(inner) 139.5 R(outer) 148 thick. 8.5 l. 265 w. 70</p>	<p style="text-align: right;">F1107</p>  <p>R(inner) 137.5 R(outer) 148 thick. 10.5 l. 265 w. 70</p>

FRICITION LININGS FOR DRUM BRAKES



Development

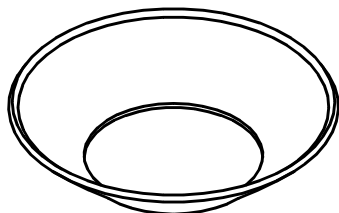


CHARACTERISTIC DIMENSIONS

Dimension			FP-No
a	b	R	
8	5	140	F1092
8.5	5.5	139.5	F1099
9	6	139	F1093
10	7	138	F1094
10.5	7.5	137.5	F1107
12	9	136	F1095

CENTRE PIVOT LINERS

F9382



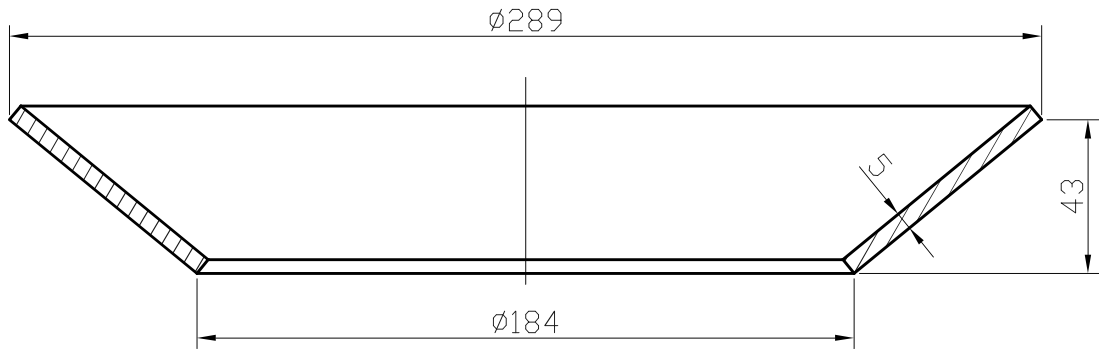
∅ 289 / 184

thick. 5

DATA SHEET

CENTRE PIVOT LINERS

102N i 105N



FP - No
F9382

CHARACTERISTIC DIMENSIONS

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1st edition, 09.2016