

CL BRAKES

HIGH PERFORMANCE
SINTERED
BRAKE PADS

PLAQUETTES DE FREIN
BRAKE PADS CATALOG

FRANÇAIS - ENGLISH



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SINTERED



HISTOIRE HISTORY

Depuis le 1^{er} avril 2008, la division Freins CL Brakes appartient au groupe Faiveley Transport. Créé en 1919, le groupe Faiveley Transport est le principal acteur des systèmes ferroviaires embarqués avec plus de 5000 salariés et plus de 30 sites dans le monde.

La division Freins CL Brakes, désormais appelée «Faiveley Transport Gennevilliers», conserve la fabrication de ses plaquettes en métal fritté sur le site historique de Carbone Lorraine en France.

Aujourd'hui, la technologie métal fritté de CL Brakes est présente dans le ferroviaire, l'aéronautique, l'éolien, l'automobile de compétition, la moto et le vélo.

Fort de son savoir-faire et de ses compétences industrielles, CL Brakes a su développer des plaquettes de frein hautes performances pour les VTT et vélos de route.

De l'utilisation au championnat du monde de descente à l'utilisation loisirs, les caractéristiques des plaquettes CL Brakes sont développées spécifiquement pour répondre aux attentes de chaque utilisateur selon ses besoins. Pour cela, le département Recherche & Développement va encore plus loin et utilise la technologie de transmission de données embarquées et va chercher dans chaque descente les freinages qui font la différence à l'arrivée.

Idéales pour la randonnée sportive, elles se révèlent d'autant plus performantes en conditions racing que se soit en enduro, descente, freeride ou en cross-country. Très prisées en compétition grâce à leur haut niveau de performance de friction, les plaquettes de frein CL Brakes sont à la pointe de la technologie.

Since April 1, 2008, the Braking division CL Brakes has belonged to Faiveley Transport group. Established in 1919, Faiveley Transport is the primary supplier for integrated on-board railway systems with more than 5000 employees in 30 countries all around the world.

The Braking division CL Brakes, now called «Faiveley Transport Gennevilliers», continues to manufacture sintered metal brake pads in the original location of Carbone Lorraine in France. Today, the sintered metal technology of CL Brakes is present on railway, aeronautics, wind power, motorsports, motorcycle and bike markets.

Thanks to its experience and its skills in high speed railway and aeronautical industries, CL Brakes developed high performance brake pads for mountain bikes and road bikes. From Downhill World Championship to leisure use, the technical characteristics of the CL Brakes pads are specifically developed to answer users' needs. In this respect, the Research & Development Department goes even further, using its knowledge of on board data acquisition to use every downhill to make the pads better.

Ideal for bike riding, they become highly performant in racing conditions (enduro, downhill, freeride and cross-country). Very popular in competition with their high level of friction, the CL Brakes pads are at the cutting edge of technology.

MADE IN
FRANCE



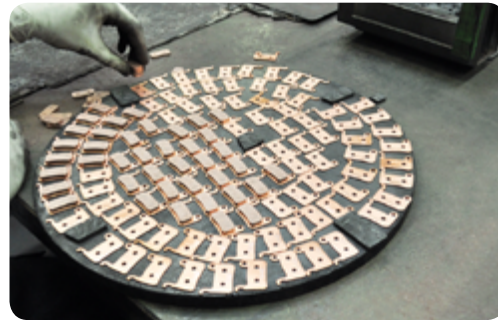
TECHNOLOGY

FABRICATION MANUFACTURING

Les plaquettes en métal fritté CL Brakes sont fabriquées à partir de poudres. Le produit contient au moins dix constituants (cuivre, bronze, fer, céramiques, graphites,...). Chacun de ces constituants a un rôle essentiel au cours du frottement de la plaquette sur le disque (confort, bruit et performance). Une fois mélangés, ces constituants forment le mélange de friction. Ce mélange est ensuite comprimé dans un outil qui lui donne sa forme finale.

La pièce obtenue est ensuite positionnée sur son support métallique cuivré puis introduite dans un four à plus de 1200°C. C'est le processus de frittage : un constituant du produit fond, consolide le matériau et le brase sur son support. La plaquette est ensuite rectifiée, contrôlée puis emballée.

En étroite relation avec les teams et pilotes de pointe CL Brakes, le département R&D réalise de multiples tests sur ses bancs d'essais pour concevoir des produits encore plus performants.



The sintered metal CL Brakes pads are made from powders. The friction compound contains at least 10 components (copper, bronze, iron, ceramics, graphite, ...). These friction components play an essential role when the pad rubs against the disc (feel, noise and performance). Once melted, these components form the friction material. This mixture is compressed in a mould that gives the final shape.

The final shape is placed on its metallic copper backplate and is putted in a furnace up to 1200°C. This is the sintering process: a component melts, consolidates the material and makes it fuse with the backing plate. Once finished, the pad is rectified, quality checked and packaged for delivery.

In close relationship with the top CL Brakes teams and riders, the R&D department realizes multiple tests on its test benches to design even more performant products.

TECHNOLOGIE NONITECH NONITECH TECHNOLOGY

La plupart des plaquettes de frein sont fabriquées avec du nickel. Des études ont montré que le nickel pouvait nuire à la santé. Pour protéger ses employés, ses clients et l'environnement, la recherche CL Brakes a développé la technologie NoNiTech pour concevoir des produits sans plomb, sans amiante et sans nickel.

Most of sintered brake pads are made with nickel. Some studies have shown that nickel can jeopardize health. To protect its employees, its customers and the environment, the CL Brakes research has developed the NoNiTech technology to manufacture products free of lead, asbestos and nickel.



GAMME RANGE

VX SINTERED



SPORT LOISIRS | SPORT LEISURE

Pour une utilisation sport et loisirs

- facile à doser
- progressivité dans le freinage
- silencieuses
- durée de vie accrue
- faible usure des plaquettes et des disques même lors de longues descentes répétées

For sport and leisure use

- easy to modulate
- progressive feel
- noiseless
- improved lifetime
- low wear of pads and discs even on long and repeated downhill runs

COEFFICIENT DE FRICTION / FRICTION COEFFICIENT

$\mu = 0.60$ (27km/h - 60km/h)

$\mu = 0.35$ (10km/h)

Puissance de freinage

Braking power



VRX CERAMIC



COMPÉTITION | RACING

Pour une utilisation compétition

- écran thermique céramique pour diminuer la chaleur transférée au piston
- excellent grip à haute vitesse
- longue durée de vie
- réduction de l'usure des disques
- puissance de freinage élevée même sur des terrains boueux, poussiéreux et pluvieux

For racing use

- ceramic backing plate reducing heat transfer to the piston
- excellent grip at high speed
- long life performance
- reduction of wear of discs
- powerful braking in muddy, dusty and rainy conditions

COEFFICIENT DE FRICTION / FRICTION COEFFICIENT

$\mu = 0.63$ (27km/h - 60km/h)

$\mu = 0.37$ (10km/h)

Puissance de freinage

Braking power



UTILISATION | USE

La gamme a été spécialement étudiée pour offrir des freinages puissants en toute condition. L'enduro, le cross-country, le freeride et la descente sont les terrains de jeux favoris des plaquettes CL Brakes.

The range has been specially studied to offer a powerful braking in all conditions. The enduro, cross-country, freeride and downhill are the best terrains for the CL Brakes pads.




COMPÉTITION RACING



TEAM LAPIERRE INTERNATIONAL

World DH Cup UCI, World DH Championship and French DH Championship

 Best results:

Loïc BRUNI

- World DH Junior Cup: Champion 2012
- World DH Elite Cup: 4th in 2013 and 10th in 2014
- French DH Championship: Champion 2013, 2014, 2015

Loris VERGIER

- World DH Junior Cup: Champion 2013 / 2014
- World DH Junior Championship: Champion 2014 and Vice-champion 2013
- French DH Championship: Champion 2014


Finn ILES

- Crankworx Whistler (Whip Off World Championship): Champion 2014



QUENTIN DERBIER

4XProTour (World 4X Cup), World 4X Championship, Avalanche Cup Lyon


 Best results:

- 4XProTour (World 4X Cup): Champion 2015 and Vice-champion 2014
- 4X World Championship: Vice-champion 2014
- Avalanche Cup de Lyon (French Sprint DH Cup): Champion 2013 / 2014 / 2015



CHLOÉ / MATHIEU GALLEAN

Regional Alpes-Maritimes DH Championship, Regional Provence Alpes-Côte-d'Azur DH Championship, Transvesubienne

 Best results:

Chloé GALLEAN

- Avalanche Lyon Cup (Women): 3rd in 2015
- Urban DH Sanrem: Champion in 2015
- World DH Junior Cup: 5th in 2013
- French DH Junior Cup: Vice-champion 2013

Mathieu GALLEAN

- Regional Alpes-Maritimes DH Championship: Champion 2014
- Regional Provence Alpes-Côte-d'Azur DH Championship: Champion 2014
- French DH Cup (Elite): 5th in 2013
- Avalanche Lyon Cup: 3rd in 2013

COMPÉTITION RACING



YANNICK MAGGIOLINI

2015 : French DH Vice-champion, French DH Cup Vice-champion, European Cup at Les 2 Alpes (6th)



TEAM RIDE INOV

French DH Championship, Regional 4X Championship, Regional Languedoc Roussillon DH Championship



PIERRE-ARNAUD LEMAGNAN

MTB Marathons



VICMA BIKE TEAM

Open XCO Spain, Open XCO Madrid, Catalunya Cup, ...



MONDRAKER AUSTRALIAN TEAM

Australian Enduro, DH & HC Championships

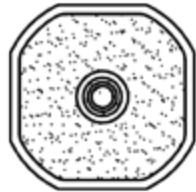


JOÃO RODRIGUES

Portugal DH Championship, Regional Madeiro DH Cup, National Enduro Championship, Urban DH, Enduro Trophy

FORMES SHAPES

4001



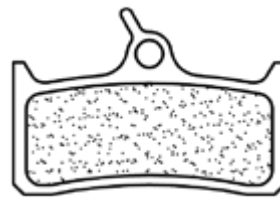
Formula Evoluzion
Hydraulic

4003



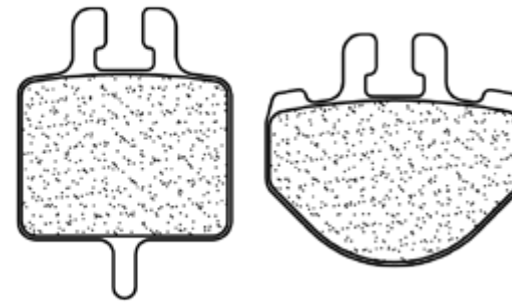
Magura Clara (2000) -
Louise (1998-2001)

4004



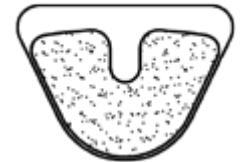
Shimano Deore XT BR-M755 - Grimeca
System 8, 16 - Trickstuff The Cleg 4 -
Cleg DH - Sram 9.0 - Hope Mono, Tech
M4 (2009) - Tech 4 E4 - Stealth Race E4

4005



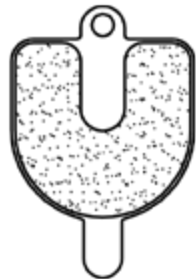
Grimeca System 1, 1.1, 7, 15

4008



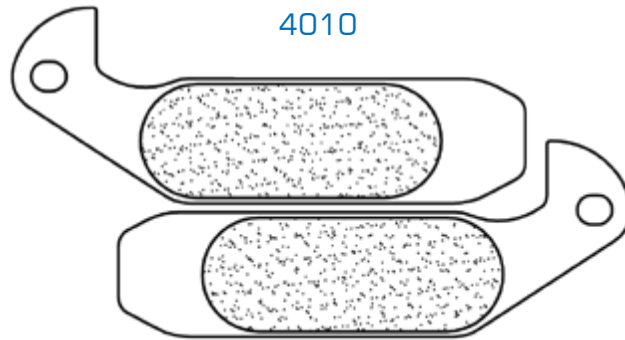
Diatech Kinetic Nifon
Mechanical

4009



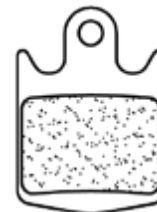
RST Mechanical

4010



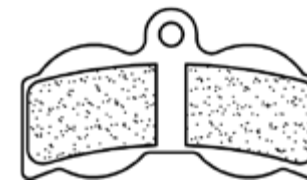
Magura Gustav M (-2006)

4011



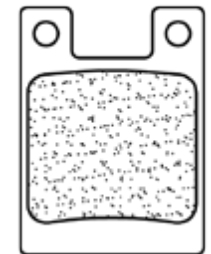
Hope M4 4 piston (2003)
(2 pairs per caliper) - DH4 -
Enduro 4

4012



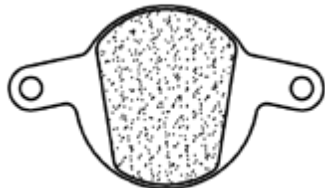
Hope XC4 4 piston (2003)

4015



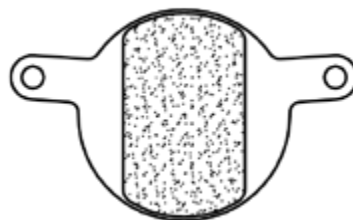
Hope C2 - O2 (2 piston)

4017



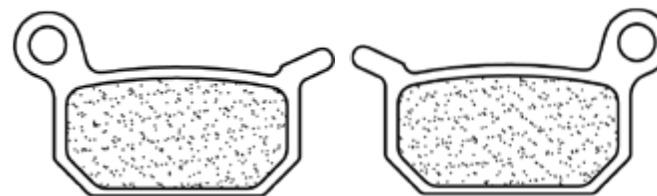
Magura Clara (2001-
2002) - Louise (2002-
2006) - Louise FR -
Promax DSK-903

4018



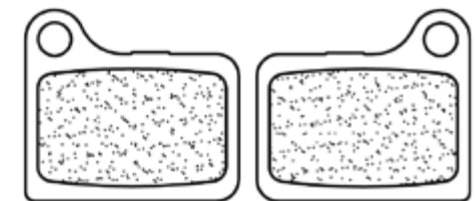
Magura Julie (2001 - 2008)

4019



Formula B4 Hydraulic 2 piston & 4 piston 2002
Type - B4 Team - 4 Racing XC, FR, DH, DR, Pro,
Pro+, SL - Extreme - Grimeca System 13

4020

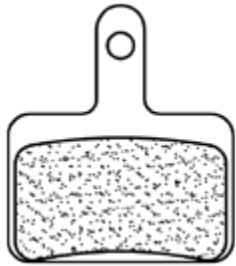


Shimano Deore BR-M555-M556 -
Nexave BR-C92-900-901-910



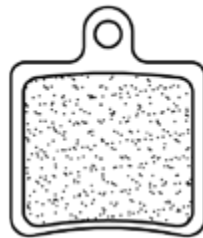
FORMES SHAPES

4021



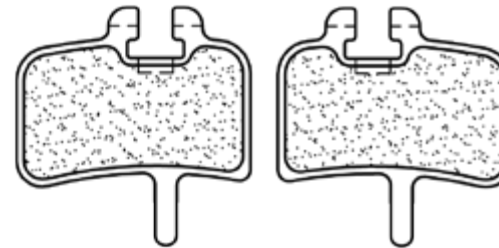
Shimano Deore BR-M355-375-395-396-415-416-416A-445-446-447-465-475-485-486-495-515-525-575-596-T615-T675 - BR-M4050 - XLC BR-D01 - Nexave BR-C501-C601-607 - Tektro Aries, Auriga, Auriga Comp-E-Comp-Pro-Sub-E-Sub-Tune-E-Tune-Twin-E-Twin - TRP HY / RD, Aquila, Draco, Draco2, Draco WS, Gemini, Gemini SL, HDC 330, Mira, Orion, Orion SL, Spyre, Vela, Volans, Hylex - Giant MPH Root - MPH (2009) - Promax Q6 (DSK-909)

4022



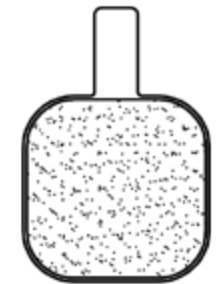
Hope Mini 2 piston (2001)

4024



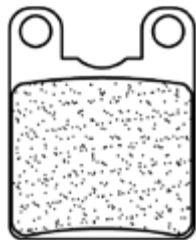
Hayes HFX 9 Carbon, XC, HD - HFX 9 Hydraulic - HFX Mag Plus, HD - MX1 Hydraulic & Mechanical - Imperial DX-04 - Promax DC 600-900

4025



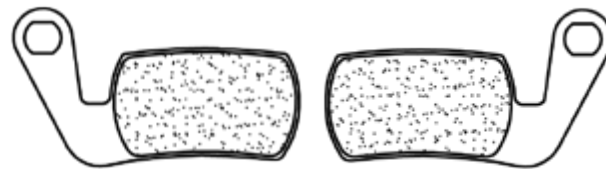
Tektro Gemini - Novela (-2003)

4026



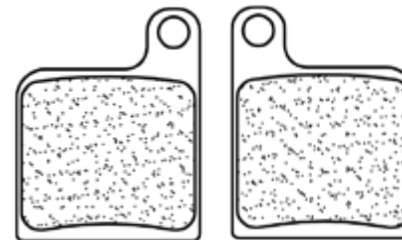
Giant MPH1 (2000)

4027



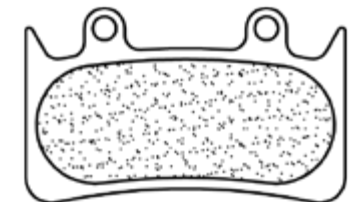
Magura Marta - Marta SL (2002-2008) - Clarks Skeletal

4028



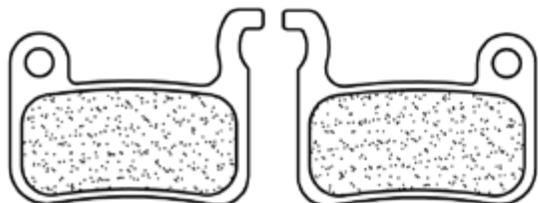
Giant MPH (2001-2005) - MPH2 - MPH 2.5 - MPH3

4030



Hope 6 Piston Mono 6Ti

4031



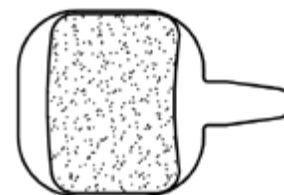
Shimano XTR BR-M965-966-975-975P - LX BR-M585-655-765-800-975-T605 - Deore BR-M535-595 - SLX BR-M665 - XT BR-M765-775-965-966-975 - Hone BR-M601 - Saint BR-M800 - Alfine S500-501 R505 - Tektro TRP Dash, Dash Carbon

4032



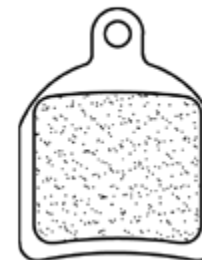
Hope Mono Mini

4033



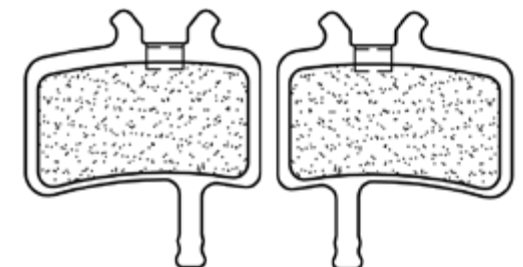
Tektro IO Hydraulic & Mechanical - Gemini (2003-) - Novela (2003-)

4034



Hope Mono Trial - Tech Trial - Trial Zone - Echo TR Hydraulic

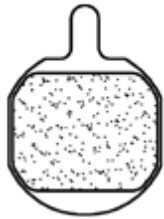
4035



Avid System Juicy 3, 3.5, 5, 7, Carbon & Ultimate - BB7 series - Promax Hornet (DSK-907) - Q3 (DSK-905)

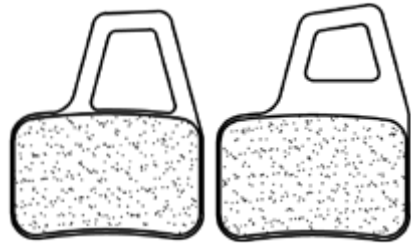
FORMES SHAPES

4036



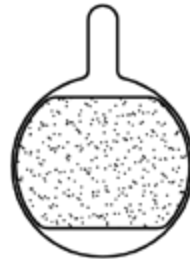
Hayes Sole - CX-5 - GX-C - GX-2 - MX2 (2004) - MX2-XC - MX3 Mechanical - MX4 - MX5 - Quad QHD-4, 5 & SP

4037



Hayes El Camino Hydraulic

4039



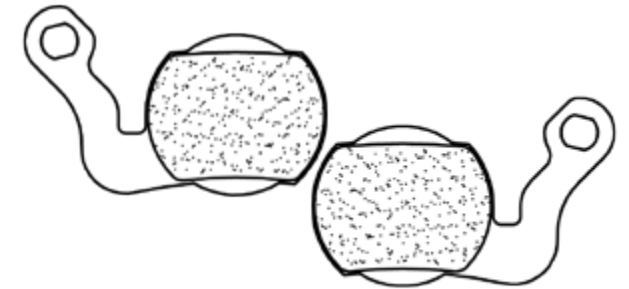
Promax DSK-200-320-400-410-420-601-610-610J-650-650J-700-810 Mechanical - Xnine

4041



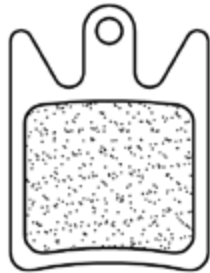
Formula Oro K18, K24

4042



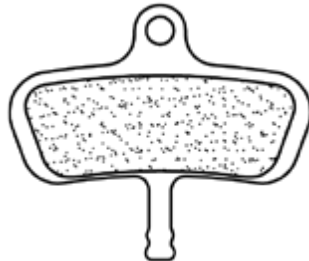
Magura Marta (2009) - Magura Louise (2007-2011) - Magura Julie HP (2009-) - Marta SL (2009-)

4044



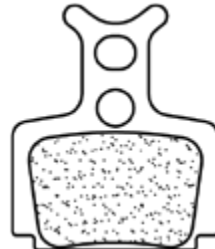
Hope Mono & Tech V2

4045



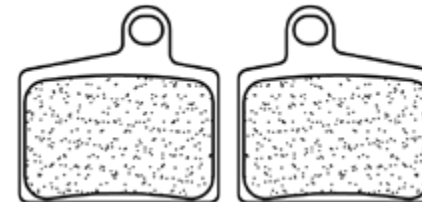
Avid Code (2007-2010)

4046



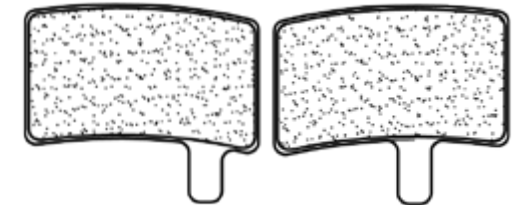
Formula Mega - The One - R0 - R1 - RX - RR1 - T1 - C1 - CR1 - CR3

4047



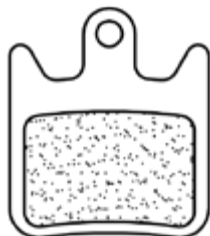
Hayes Stroker Ryde - Dyno Sport - Radar

4048



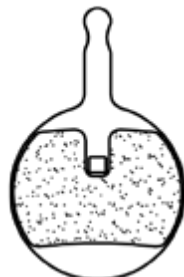
Hayes Stroker Trail - Carbon - Gram

4049



Hope Tech X2

4050



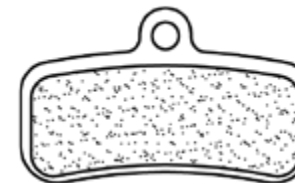
Avid BB5 Mechanical - Promax DSK-310-710-720-913, Decipher, Render - Shimano XLC BR-D02-D03

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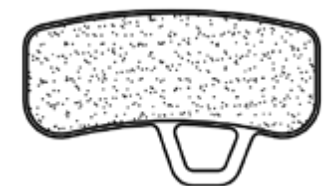
Avid Elixir 1, 3, 5, 7, Carbon, CR, R - Avid DB1, DB3 - Sram DB5, X0, X7, X9, XX

4052



Shimano Saint BR-M810 (2008) - 820 - Zee BR-M640 - Tektro TRP Quadiem, Quadiem SL

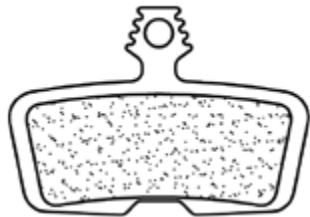
4053



Hayes Stroker Ace 4 piston

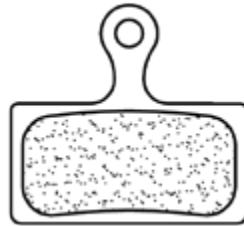
FORMES SHAPES

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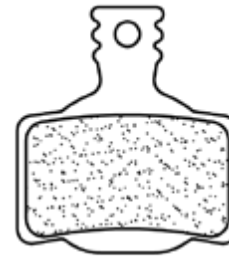
Avid Code R 4 piston (2011-)

4055



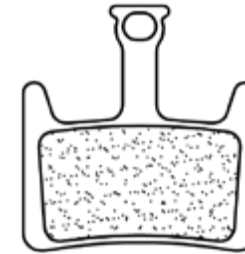
Shimano XTR BR-M978-985-987-9000-9020 -
XT BR-M785-M8000 - SLX BR-M666-675 - Deore BR-
M615 - BR-RS785 - FSA K-Force DB-XC-9000 - FSA After-
burner DB-XC-9150 - Alfine S700 - CX75 - R315-515-785

4056



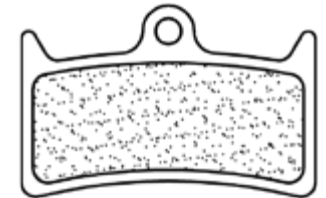
Magura MTS - MT2 -
MT4 - MT6 - MT8

4057



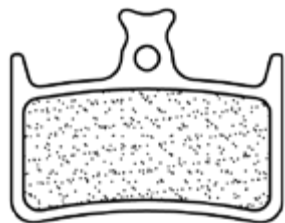
Hayes Prime

4058



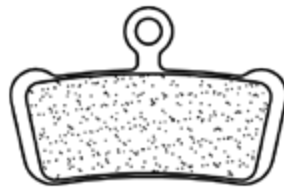
Hope V4

4059



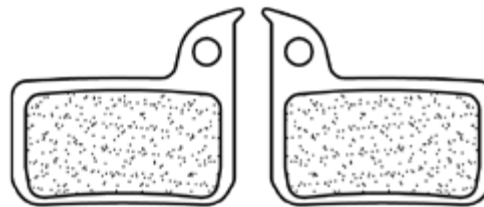
Hope E4
(2 pairs per caliper)

4060



Avid XO Trail 4 piston -
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4061



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4062




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