

# 3M™ Friction Shims

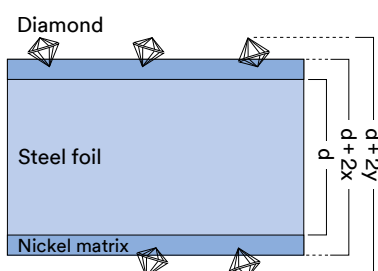
Formerly known as EKagrip®

Functional properties	3M™ Friction-increasing electroless nickel diamond coating		
Material properties *	Grade 10	Grade 25	Grade 35
Delivery form	Coated Shim with Grade 10	Coated Shim with Grade 25	Coated Shim with Grade 35
Color	Silver gray metallic	Silver gray metallic	Silver gray metallic
Shim material (preferably)	C75 S (acc. to EN10132-4)	C75 S (acc. to EN10132-4)	C75 S (acc. to EN10132-4)
Thickness d of shim	Standard 0.1 mm ± 0.01 mm (others upon request)	Standard 0.1 mm ± 0.01 mm (others upon request)	Standard 0.1 mm ± 0.01 mm (others upon request)
Base part processed by	Laser cutting or stamping	Laser cutting or stamping	Laser cutting or stamping
Matrix material	Electroless nickel phosphorus	Electroless nickel phosphorus	Electroless nickel phosphorus
Hard particle type	Diamond	Diamond	Diamond
Mean particle size	10 µm	25 µm	35 µm
Avg. concentration of diamonds on the surface	8 – 16%	8 – 25%	10 – 30%
Hardness of nickel-phosphorus matrix	400 – 600 HV 0.025	400 – 600 HV 0.025	400 – 600 HV 0.025
Thickness of matrix x	5 – 9 µm	13 – 17 µm	14 – 22 µm
Total layer thickness y	10 – 20 µm	25 – 35 µm	35 – 50 µm
Total thickness of coated shim (based on uncoated shim 0.1 mm ± 0.01 mm) d+2 y	0.13 mm ± 0.02 mm	0.16 mm ± 0.02 mm	0.19 mm ± 0.03 mm

Application requirements			
Surface roughness $R_z$ or average surface finish $R_a$ of counterpart (transversal to direction of machining)	$R_z < 5.0 \mu\text{m}$ $R_a < 1.0 \mu\text{m}$	$R_z < 12.5 \mu\text{m}$ $R_a < 2.5 \mu\text{m}$	$R_z < 17.0 \mu\text{m}$ $R_a < 3.5 \mu\text{m}$
Waviness height W, (total height of W-profile)	should be smaller than $R_z$		
Min. contact pressure	$p > 50 \text{ MPa}$	$p > 50 \text{ MPa}$	$p > 50 \text{ MPa}$
Max. service temperature	400°C	400°C	400°C

\*The figures are intended as a guide. On request, we will be pleased to provide you with a drawing frame for your specification.

## Diagram of an 3M™ Friction Shim



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The management system has been certified according to DIN EN ISO 9001, DIN EN ISO 50001, DIN EN ISO 14001.

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