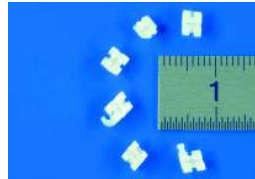
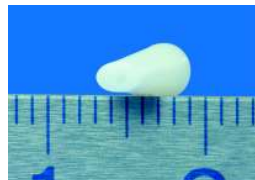


# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION

Pg 1 Bracket



Pg 2 Sleeve



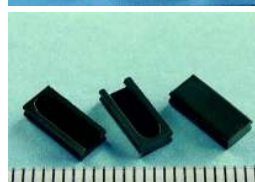
Pg 3 Screw



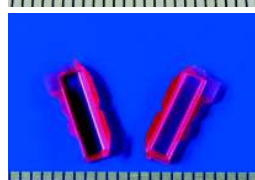
Pg 4 Support



Pg 5 Slide



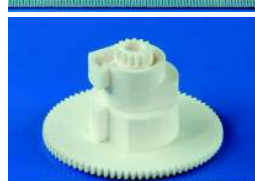
Pg 6 Cover



Pg 7 Nozzle



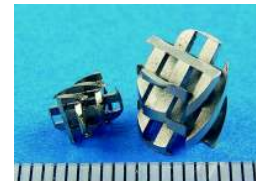
Pg 8 Cam Plate



Pg 9 Wire Guide



Pg 10 Static Mixer



Pg 11 Water Jet assembly



Pg 12 Nozzle



Pg 13 Tape Guide



Pg 14 Slide



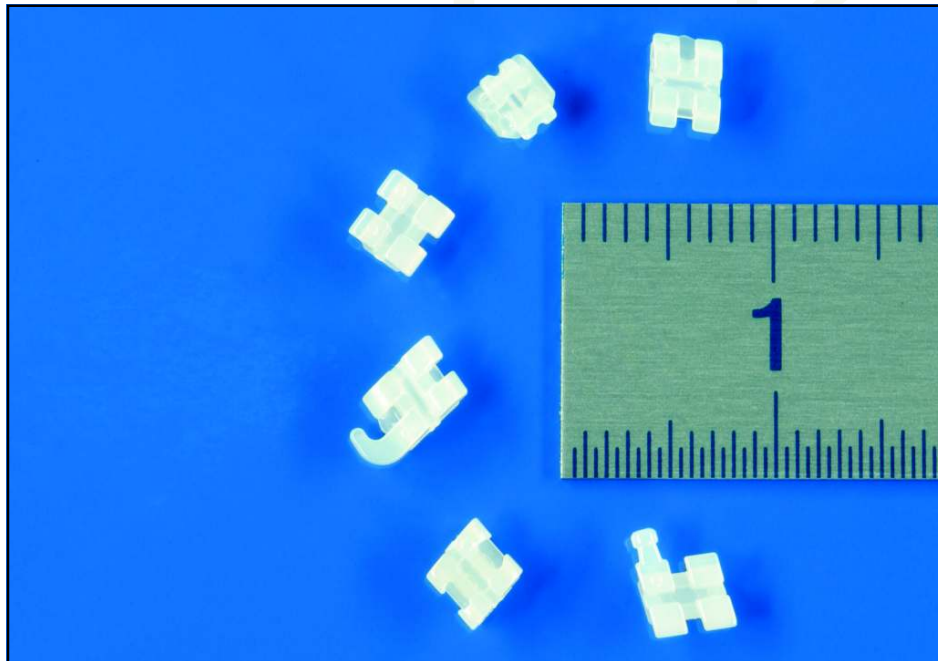
Pg 15 Dented Wheel



Pg 16 Material Specifications



# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Bracket	Orthodontic	Al <sub>2</sub> O <sub>3</sub> 99.99%	0.1	±0.01	Translucent



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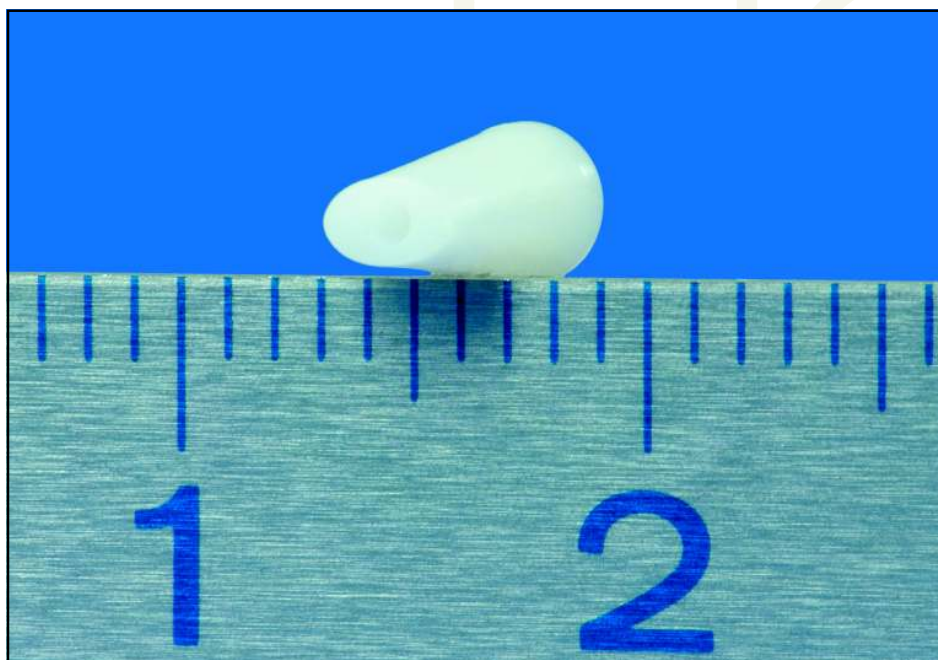
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Sleeve	Dental Implant	Al <sub>2</sub> O <sub>3</sub> 99.99%	0.4	± 0.02	Bio-compatible



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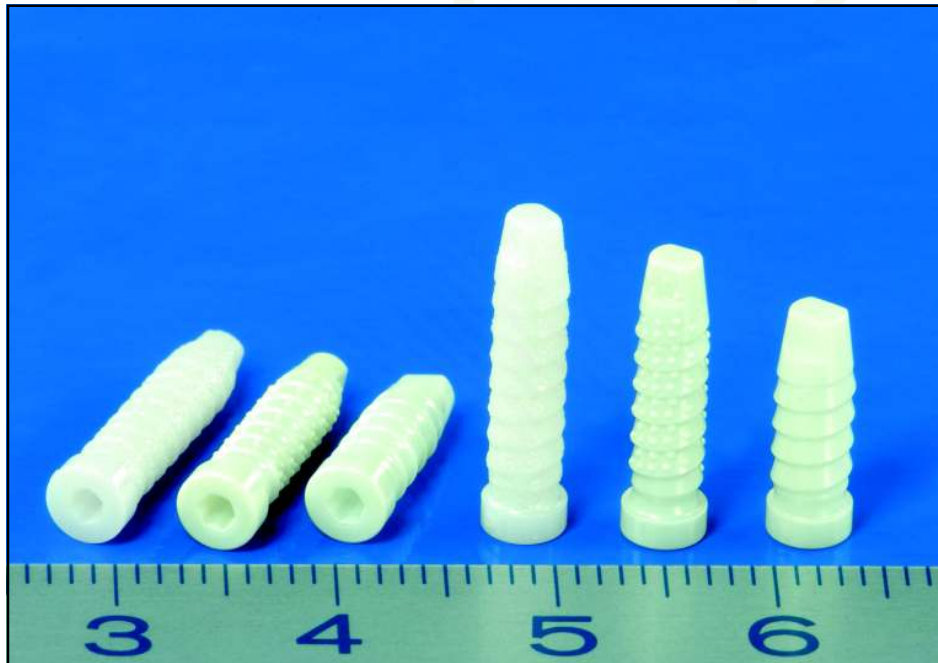
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Screw	Dental Implant	ZrO <sub>2</sub>	0.5	± 0.1	Bio-compatible



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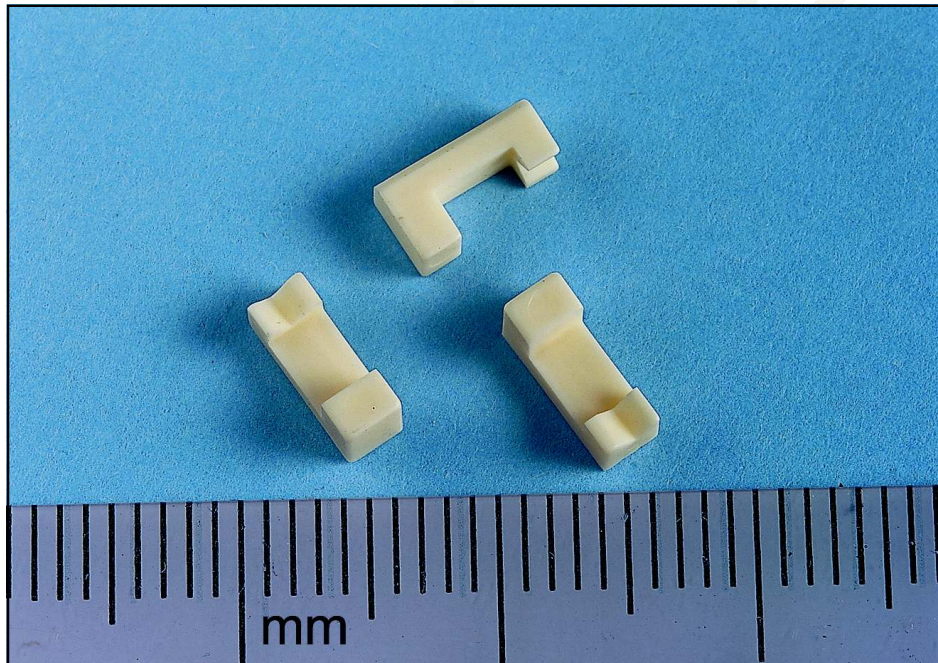
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Support	Measuring Instrument	Al <sub>2</sub> O <sub>3</sub> 99.7%	0.15	± 0.02	



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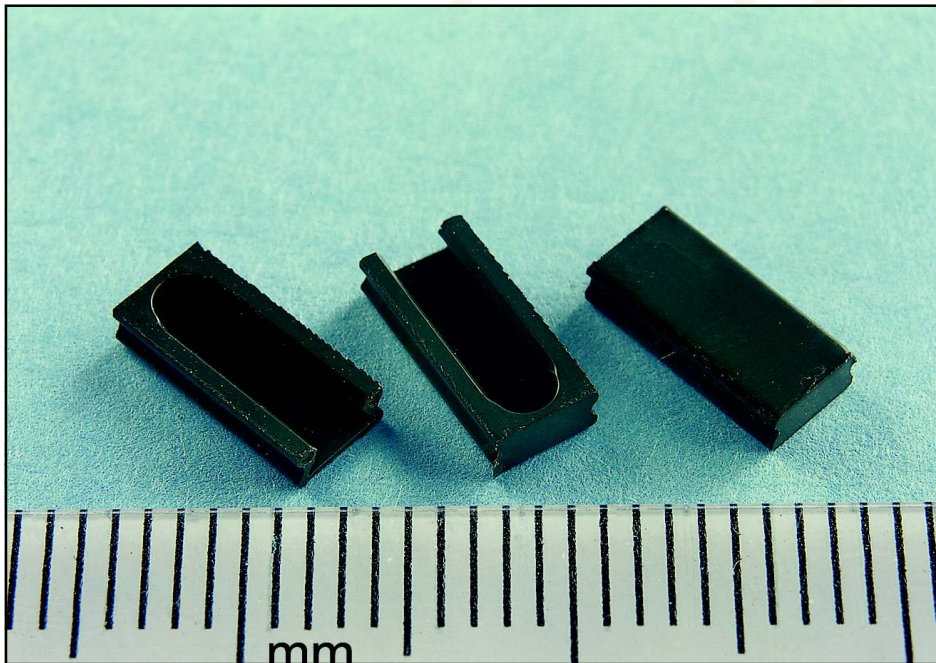
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Slide	Optical Instrument	Al <sub>2</sub> O <sub>3</sub> + Doping	0.09	± 0.03	Black, red or blue



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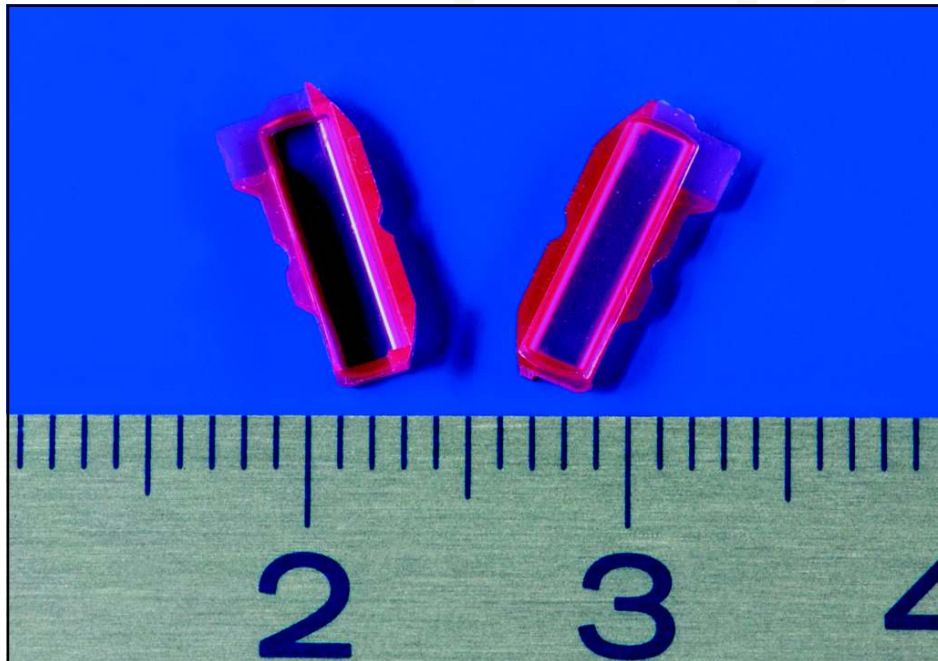
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Cover	Microelectronic	Polycrystalline Ruby	0.08	±0.005	Red, translucent



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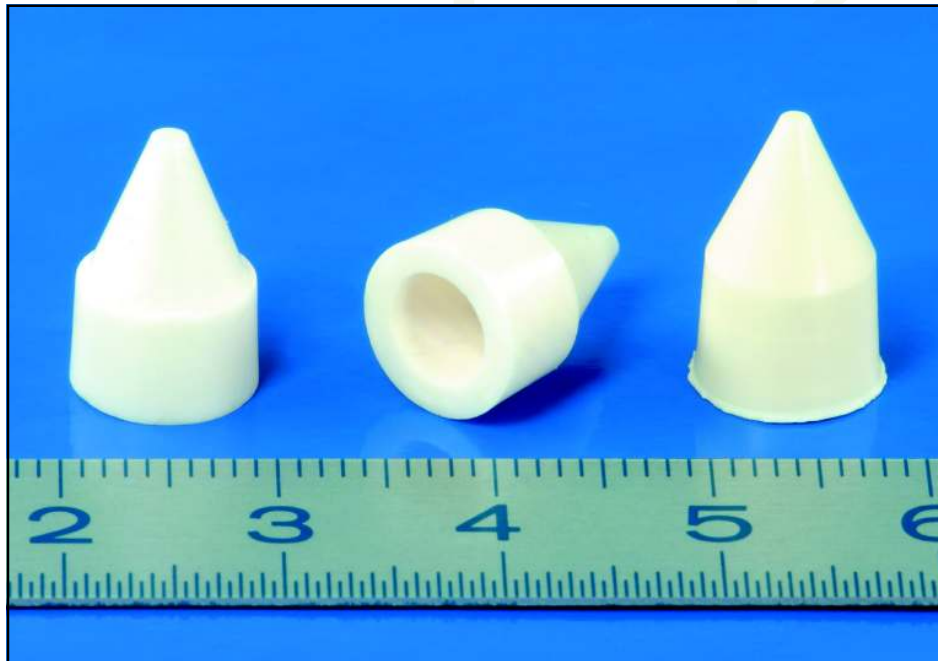
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Nozzle	Medical Device	Al <sub>2</sub> O <sub>3</sub> 99.7%	1.2	±0.003	Bore (Hole) Ø 0.05 mm



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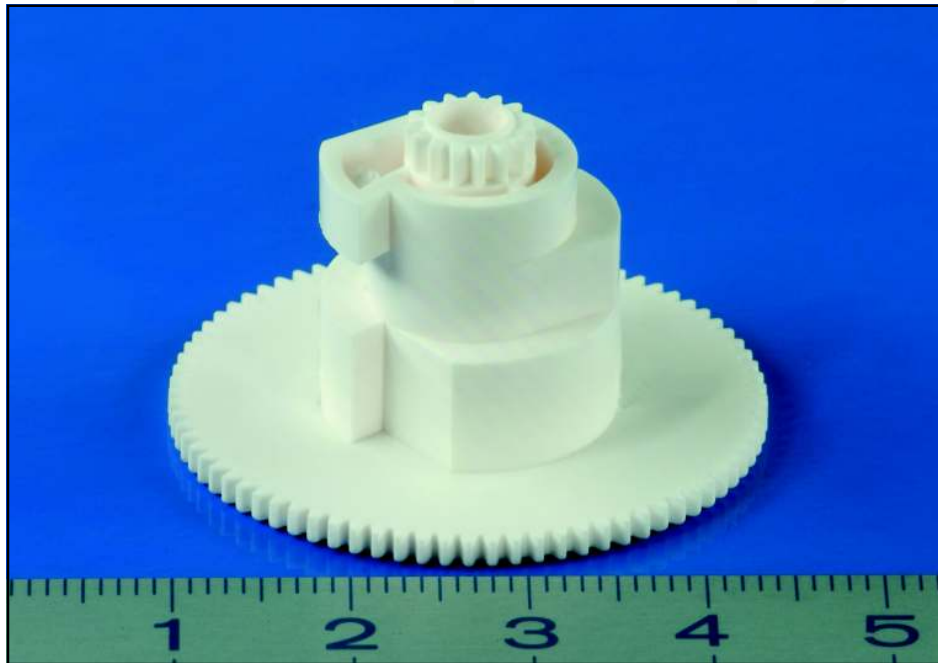
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Cam Plate	Electromechanical Equipment	Al <sub>2</sub> O <sub>3</sub> 99.7%	10.3	± 0.05	toothed



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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Wire Guide	Semiconductor Industry	Al <sub>2</sub> O <sub>3</sub> 99.99%	0.31	± 0.01	Translucent



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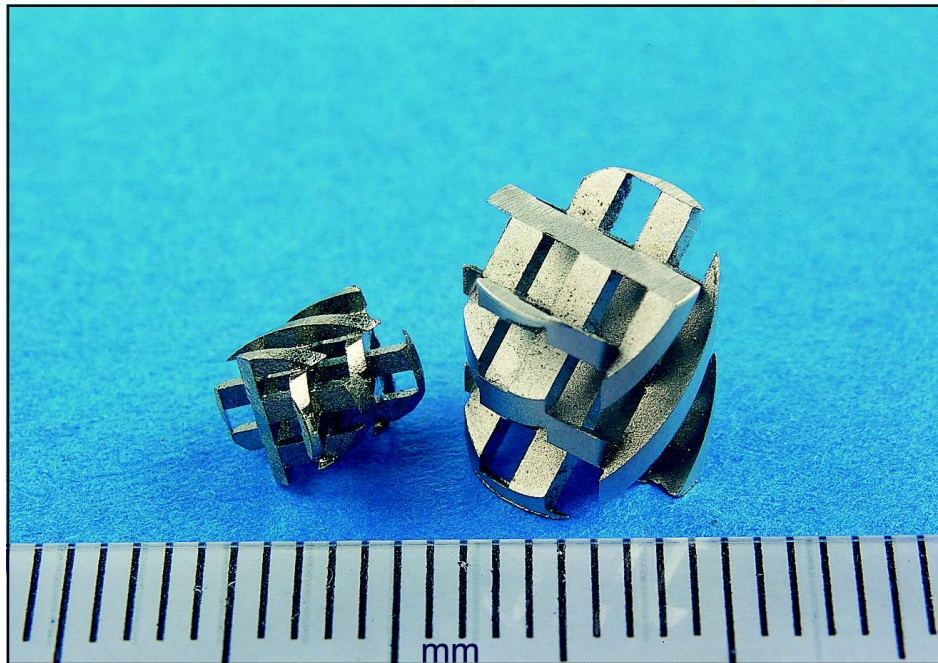
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Static Mixer	Chemistry and Powder Processing	Stellite6	0.6 / 3	± 0.02	Corrosion-proof



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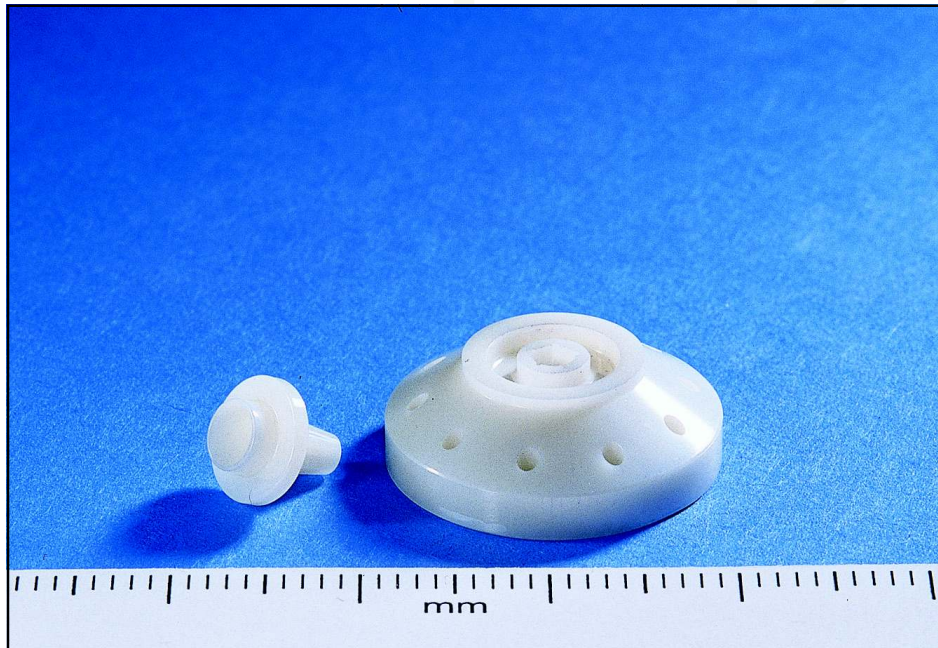
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Water Jet Assembly	Machine Tool	ZrO <sub>2</sub>	0.45 / 4.95	±0.005	



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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Nozzle	Pick-and-Place Machine	ZrO <sub>2</sub>	0.09 - 0.2	± 0.01	Lightabsorbing black colour



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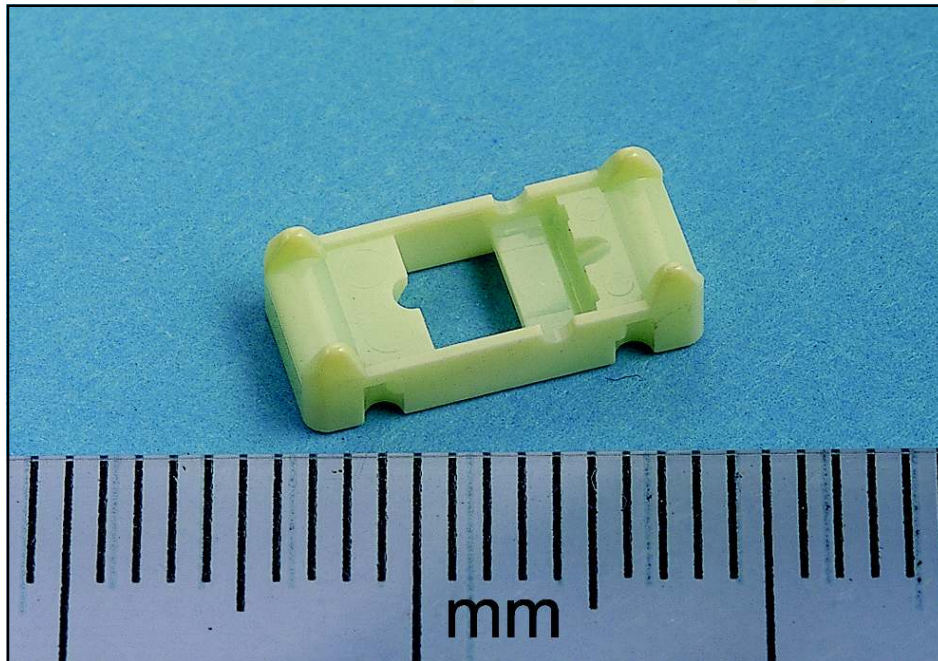
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
TapeGuide	Audio Instrument	ZrO <sub>2</sub>	0.05	± 0.01	Surface Quality Ra 0.1



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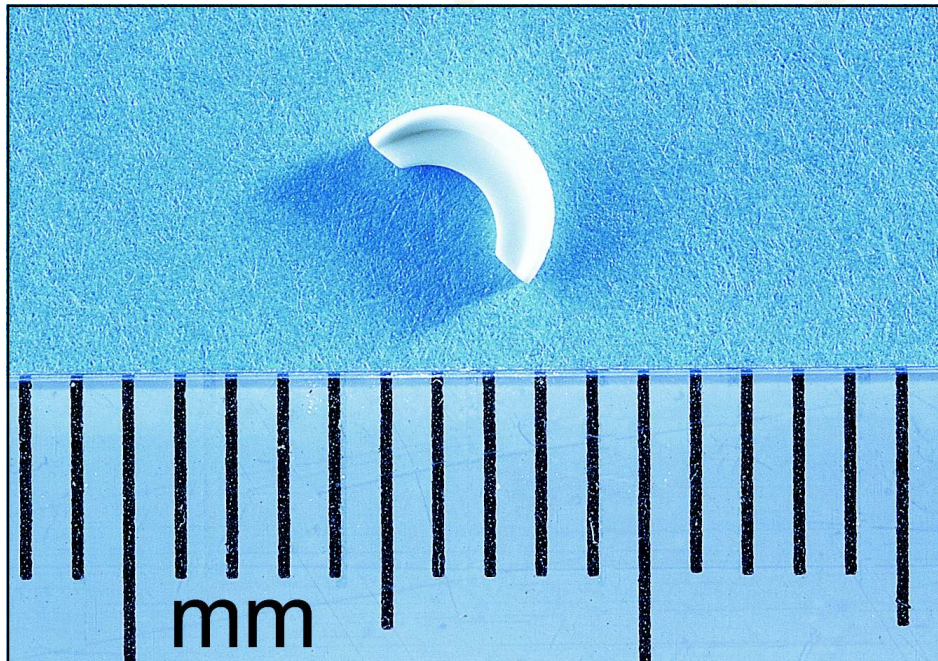
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Slide	Dental Device	ZrO <sub>2</sub> + Al <sub>2</sub> O <sub>3</sub>	0.02	±0.005	Sterilizable



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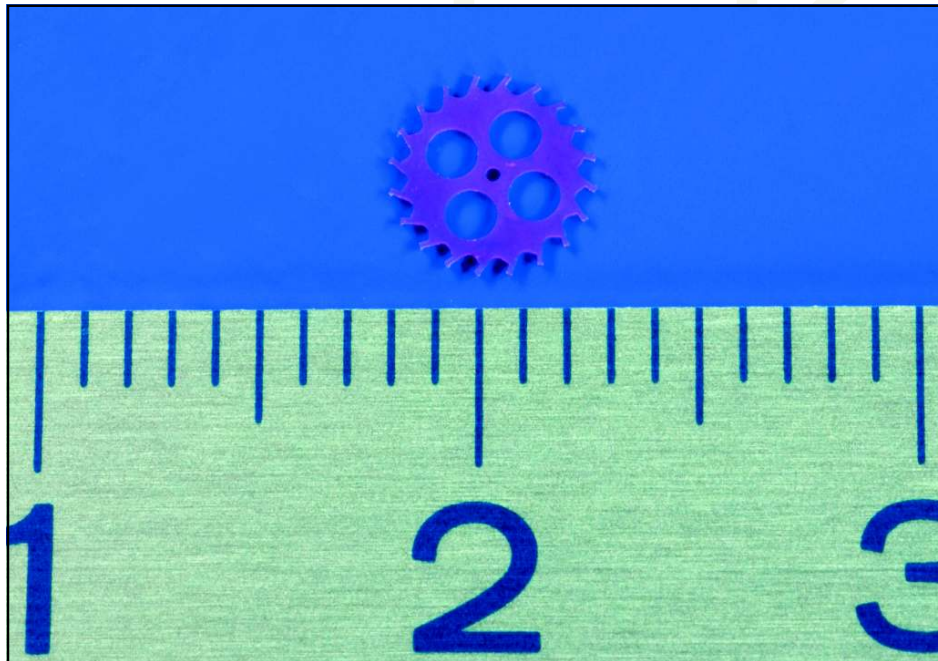
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# CERAMIC AND METAL INJECTION MOLDING CASE APPLICATION



Technical Data					
Part	Application	Material	Weight [g]	Tolerance [mm]	Special Characteristic
Dented Wheel	Watch Industry	Polycrystalline Ruby	0.0053	-	2 sides lapped toothed



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# MATERIAL SPECIFICATIONS

FINE CERAMICS		ALUMINA					ZIRCONIA				
Properties	Units	Al <sub>2</sub> O <sub>3</sub> 99.7%	Al <sub>2</sub> O <sub>3</sub> 99.99%	Polycrystalline Ruby	Zirconia Toughened Alumina	Zirconia Toughened Alumina	Zirconia ZrO <sub>2</sub> -3Y	Zirconia Alumina	Zirconia Alumina	Zirconia Alumina	Zirconia ESD
SP Denomination		A	C	R	CT	AZ	Z	ZF	AZO	ZESD	
Density	g/cm <sup>3</sup>	3.9	3.98	3.9	4.0	4.25	6.0	6.0	5.5	6.0	
Color		White	White (Translucent available)	Red (Translucent available)	White	White	Ivory or Anthracite	White	White	Anthracite	
Flexural Strength	MPa	310	510	520	550	610	1'200	1'400	2'200	--	
Compressive Strength	MPa	3'200	3'700	3'700	2'500	2'000	1'850	--	--	--	
Hardness	HV 1	1'800	2'100	2'200	2'050	2'000	1'300	1'300	1'500	1'100	
Grain Size	µm	< 8	< 2	< 2	< 1	< 0.5	< 0.5	< 0.3	< 0.5	--	
Characteristics										Electrostatic Dissipative 10 <sup>10</sup> Ω * cm	

Revised: Feb/04

All properties are typical and considered accurate according to tests used by Small Precision Tools. SPT does not guarantee results or warrant that materials are suitable for any particular purpose. Material selection and testing is the responsibility of the user.

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