Elevate Your Gear Systems with POKETONE™

Polyketone Solution for Mating Steel Gears

POKETONE
HYOSUNG POLYKETONE

- Contact: poketone@hyosung.com
- Web: www.poketone.com

POKETONE:
A High-performance Material for Gears

POKETONE is a new type of engineering plastic called aliphatic *polyketone* (*PK*). Its molecular chains alternate carbon monoxide and alpha olefin structures, giving it a strong and resistant composition.

POKETONE is suitable for a wide range of applications due to its balanced strength, chemical resistance, and *wear resistance*. Its unique properties allow it to endure repetitive deformations without failure, making it ideal for gear systems.

Properties of POKETONE Wear Resistant Grades

Property (ASTM)		M630F	M640A	M63AS1B
		General	High performance	Lubricated
Melting Temperature	D3418 (°C)	222	235	222
Tensile strength	D638 (MPa)	58	67	55
Elongation at break	D638 (%)	> 200	> 200	> 200
Flexural Strength	D790 (MPa)	53	54	55
Flexural Modulus	D790 (MPa)	1,350	1,500	1,300
Impact Strength	D256 (J/m)	220	300	122
HDT (0.45MPa)	D648 (°C)	195	215	190

POKETONE:
Outstanding Fatigue Resistant Polymer

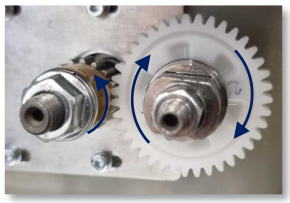
When selecting gear materials one of the most important factors to consider is its *fatigue strength*. It determines the material's ability to endure repeated loading cycles without damage or failure.

POKETONE excels in fatigue strength, making it an ideal choice for gear designs. Its exceptional fatigue resistance and reliable performance guarantee durability and optimal gear performance in different conditions.

Following Graphs depict PK's fatigue strength in gear applications, tested according to VDI 2736 guidelines. All tests were conducted on a high quality testing equipment and in a laboratory environment. The test conditions, i.e. torque gear temperature and speed were precisely controlled during all tests.

Gear Fatigue Test (PK vs Steel)

PK	Gear teeth	39
	Rotational speed	1,300 rpm
Steel	Gear teeth	17
	Rotational speed	2,982 rpm



POKETONE:
Better Choice than POM or PA66

POKETONE exhibits superior fatigue life compared to POM and PA66, particularly at high temperatures. This allows PK gear systems to operate with confidence in elevated temperatures, maintaining efficiency and durability, and delivering optimal performance in demanding applications.

Furthermore, PK is formaldehyde-free and ensures safety unlike POM. Also, PK is not prone to water absorption and maintains dimensional stability even in moisture conditions, making it a reliable choice over PA66.

Fatigue Strength of POKETONE Wear Resistant Grades

POM: Tecaform AH / PA66: Ultramid A4H