POKETONE™
HYOSUNG POLYKETONE

30% Glass-reinforced high-flow injection moulding grade

POKETONE Polymer M33FG6A

POKETONE Thermoplastic Polymers are aliphatic polyketones, a revolutionary new class of semi-crystalline thermoplastics. Hyosung developed new catalyst to produce this unique polymer in 2013 and constructed commercial plant in 2015, in Ulsan, Korea.

POKETONE Polymer M33FG6A is a 30 percent short glass-fiber-reinforced high-flow injection moulding grade with mechanical properties that classify it as an engineering thermoplastic. This grade shows a unique balance of toughness and high modulus combined with good creep performance, strength and elevated temperature performance.

This grade exhibits very good processability, good impact resistance, high resilience and good creep performance. POKETONE Polymer M33FG6A can also withstand short-term exposure to elevated temperatures. Moreover this polymer exhibits high resistance to hydrocarbons, solvents, salt solutions, weak acids and weak bases.

POKETONE Polymer M33FG6A is a high-flow, low-viscosity polymer that should be considered for mouldings with long flow paths or thin walls. This grade is very easy to process on standrad injection moulding equipment. Cycle times are generally short and parts show good mould definition. POKETONE Polymer's low moisuture sensitivity means that no conditioning of parts before assembly or use is necessary.

Applications for POKETONE Polymer M33FG6A may be found in the automotive, electrical, electronics, undustrial and consumer applicance markets.

TABLE 1 : TYPICAL MECHANICAL PROPERTIES OF POKETONE POLYMER M33FG6A – Measured at 23℃

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Tensile strength at yield	D638	527-1	140 MPa	140 MPa
Tensile modulus	D638	527-1	7,700 MPa	7,500 MPa
Tensile elongation at break	D638	527-1	3.8 %	3.8 %
Flexural strength	D790	178	190 MPa	185 MPa
Flexural modulus	D790	178	6,700 MPa	6,150 MPa
Unnotched Izod impact	D256	180/U	-	104 kJ/m^2
Notched Izod impact strength	D256	180/A	120 J/m	13 kJ/m^2
Unnotched Charpy impact strength	-	179/1eU	-	N.B
Notched Charpy Impact strength	-	179/1eA	-	13 kJ/m^2

TABLE 2: TYPICAL PHYSICAL PROPERTIES OF POKETONE POLYMER M33FG6A – Measured at 23℃

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Specific gravity	D792	1183	1.47 g/cm^3	1.47 g/cm^3
Shore D hardness	D2240	868	-	83
Hardness Rockwell	D785	-	113	-
Water absorption equilibrium at 50% RH	D570	62	0.4 %	0.4 %
Water absorption at saturation	D570	62	1.7 %	1.7 %

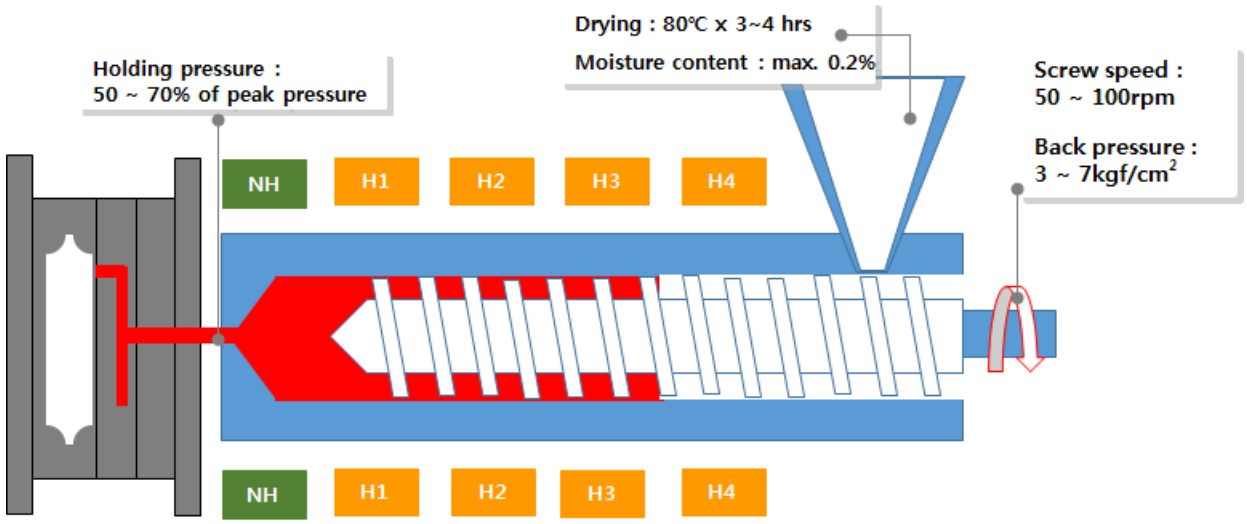
TABLE 3: TYPICAL THERMAL PROPERTIES OF POKETONE POLYMER M33FG6A

	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Melting temperature	D3418	11357	222℃	222℃
Coefficient of linear thermal expansion, 25℃ to 55℃	E831 TD MD	-	9.7*10^{-5} 2.8*10^{-5}	-
Vicat softening point	D1525 5 kg	306/B50 50N	210℃	210℃
Heat deflection temperature	D648 66psi 264psi	75 0.45 MPa 1.8 MPa	215℃ 210℃	215℃ 210℃

TABLE 4: TYPICAL PROCESS RELATED PROPERTIES OF POKETONE POLYMER M33FG6A				
	Test Method & Conditions		ASTM Values	ISO Values
	ASTM	ISO	SI	SI
Melt flow index 240℃/2.16kg	D1238	1133	14 g/10 min	13㎖/10min
Mould shrinkage	D955 MD, 3mm TD, 3mm MD, 2mm TD, 2mm	-	 0.2% 1.1% 0.1% 0.9%	-

TABLE 5: TYPICAL ELECTRICAL PROPERTIES OF POKETONE POLYMER M33FG6A		
	Test Method & Conditions	ASTM Values
	ASTM	SI
Dielectric strength, Short term	D149 3 mm 2 mm	 17 kV/mm 22 kV/mm
Volume resistivity	D257	10^{14} ohm cm
Surface resistivity	D257	10^{17} ohm/sq.
Dielectric constant at 60Hz	D150	6.3
Dissipation factor at 60Hz	D150	0.011

POKETONE Injection Processing Guide



℃	Melting Temp.	NH	H1	H2	H3	H4
M330A/F/U/V + GF	240~260	240	240	235	230	225
M630A/FU/V + GF	245~265	250	250	240	235	230
M930A/F/U/V + GF	235~255	235	230	225	220	220

Setting Temperature

- Recommended melting temperature: 235-250℃ (460-490°F)
- Do not exceed 265℃ (509°F). Long residence times at high end of the temperature range can cause thermal degradation & loss of physical properties.
- Mold Temperature: regarding POKETONE base grade, recommended setting temperature is at 60-80℃. In case of POKETONE glass-fiber reinforced grades, the temperature should be higher at least over 120℃ for better surface quality.

Cleaning Guide

- Please immediately clean barrels thoroughly after producing POKETONE products. Recommend high viscosity HDPE, PCTG and PP (Hyosung R200P). Other commercial purging compounds are also available.

Drying

- Recommend drying POKETONE pellet at 80℃ for about 3~4 hours. POKETONE should be dried by an oven or hopper drier to prevent surface problem like silver streak, drooling or voids.
- If the drying temperature is too high or the drying time is too long, it would be able to bring about discoloration of pellets.

If you need any further technical information, please contact our sales or marketing team who will be happy to assist you with any questions you may have. Feel free to visit our website. www.poly-ketone.com