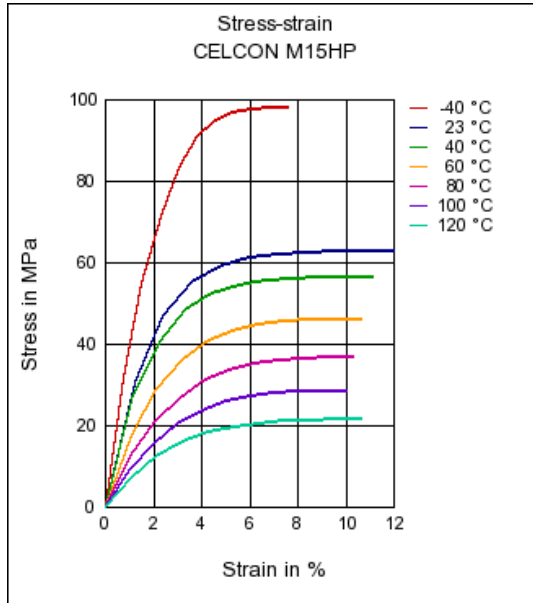
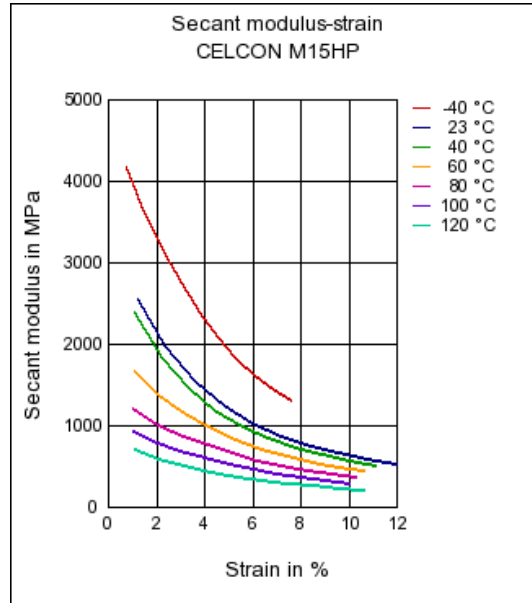
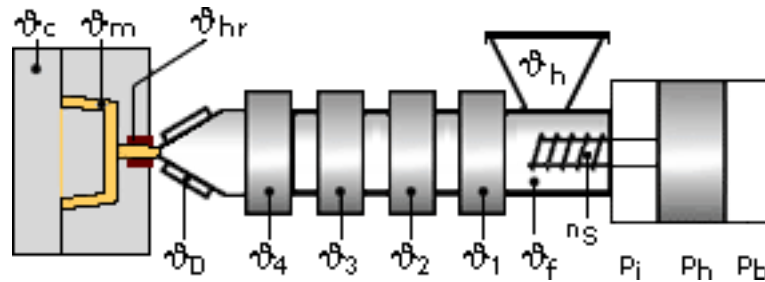

CELCON® M15HP | POM | Unfilled

Description

Celcon® acetal copolymer grade M15HP is a creep resistant, high viscosity polymer providing optimum performance in general purpose injection molding. This grade provides overall excellent performance in applications requiring high stiffness.

Chemical abbreviation according to ISO 1043-1: POM

Physical properties	Value	Unit	Test Standard
Density	1410	kg/m ³	ISO 1183
Melt volume rate (MVR)	1.3	cm ³ /10min	ISO 1133
MVR test temperature	190	°C	ISO 1133
MVR test load	2.16	kg	ISO 1133
Mold shrinkage - parallel	2.3	%	ISO 294-4
Mold shrinkage - normal	1.9	%	ISO 294-4
Water absorption (23°C-sat)	0.75	%	ISO 62
Humidity absorption (23°C/50%RH)	0.2	%	ISO 62
Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	2800	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	68	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	16	%	ISO 527-2/1A
Flexural modulus (23°C)	2750	MPa	ISO 178
Charpy impact strength @ 23°C	280.0	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	235.0	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	11.0	kJ/m ²	ISO 179/1eA
Charpy notched impact strength @ -30°C	8.5	kJ/m ²	ISO 179/1eA
Notched impact strength (Izod) @ 23°C	9.5	kJ/m ²	ISO 180/1A
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	173	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	101	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	158	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	1.1	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	1.2	E-4/°C	ISO 11359-2
Test specimen production	Value	Unit	Test Standard
Processing conditions acc. ISO	9988-2	-	Internal
Rheological Calculation properties	Value	Unit	Test Standard
Density of melt	1170	kg/m ³	Internal

CELCON® M15HP | POM | Unfilled
Stress-strain

Secant modulus-strain

Typical injection moulding processing conditions

Pre Drying:

Drying is not normally required. If material has come in contact with moisture through improper storage or handling or through regrind use, drying may be necessary to prevent splay and odor problems.

Drying time: 3 h

Drying temperature: 80 - 100 °C

Temperature:

	\varnothing Manifold	\varnothing Mold	\varnothing Melt	\varnothing Nozzle	\varnothing Zone4	\varnothing Zone3	\varnothing Zone2	\varnothing Zone1
min (°C)	190	90	205	190	190	190	190	190
max (°C)	220	120	220	220	220	215	210	200

CELCON® M15HP | POM | Unfilled

Pressure:

	Inj press	Hold press	Back pressure
min (bar)	900	900	0
max (bar)	1400	1400	5

Speed:**Injection speed: slow**

Injection Molding

Standard reciprocating screw injection molding machines with a high compression screw (minimum 3:1 and preferably 4:1) and low back pressure (0.35 Mpa/50 PSI) are favored. Using a low compression screw (i.e.-general purpose with a 2:1 compression ratio) can result in unmelted particles and poor thermal homogeneity. Using a high back pressure to make up for a low compression ratio may lead to excessive shear heating and deterioration of the Celcon material.

Melt temperature: Preferred range 205-220 C (400-430 F) Melt temperature should never exceed 230 C (450 F).
Mold surface temperature: preferred range 93-121 C (200-250 F) especially with wall thickness less than 1.5 mm (0.060 in.).
Wall thickness greater than 3 mm (1/8 in.) may use a cooler (82 C/180 F) mold surface temperature and wall thickness over 6 mm (1/4 in.) may use a cold mold surface temperature as low as 25 C (80 F). In general, mold surface temperatures lower than 82 C (180 F) may produce a hazy surface or a surface with flow lines, pits and other included defects.

Film Extrusion

Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio of at least 3:1 and preferably 4:1 to assure good melting and melt homogeneity. The design should be approximately 35% each for feed and metering sections with the remaining 30% as the transition zone.

Melt temperature: 160-220 C (320-430 F)

Profile Extrusion

Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio of at least 3:1 and preferably 4:1 to assure good melting and melt homogeneity. The design should be approximately 35% each for feed and metering sections with the remaining 30% as the transition zone.

Melt temperature: 180-220 C (360-430 F).

Blow Molding

Consult product information services.

Calendering

Consult product information services.

Compression Molding

Consult product information services.

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