

CELCON® LW90-F2 | POM | Tribological
Description

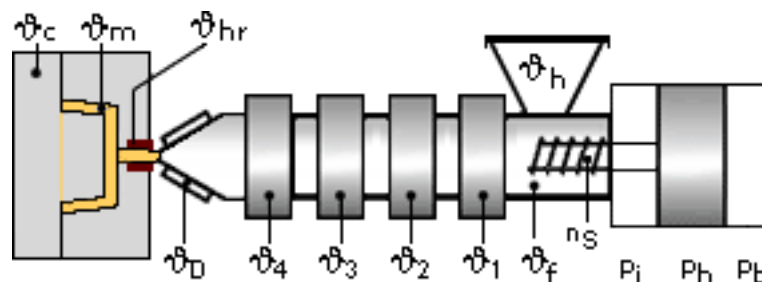
Celcon® LW90-F2 is an acetal copolymer formulated with a nominal 9 melt flow rate base polymer and a standard level of polytetrafluoroethylene filler (PTFE). It is designed for use in wear applications against plastic, metal, glass, or ceramic mating surfaces where silicone lubricants can not be tolerated.

Physical properties	Value	Unit	Test Standard
Density	1410	kg/m ³	ISO 1183
Melt volume rate (MVR)	8	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

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	2650	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	63	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	9	%	ISO 527-2/1A
Flexural modulus (23°C)	2600	MPa	ISO 178
Charpy impact strength @ 23°C	120.0	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	120.0	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	5.0	kJ/m ²	ISO 179/1eA
Notched impact strength (Izod) @ 23°C	5.1	kJ/m ²	ISO 180/1A

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	166	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	98	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	1	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	0.9	E-4/°C	ISO 11359-2

Test specimen production	Value	Unit	Test Standard
Processing conditions acc. ISO	9988-2	-	Internal

Typical injection moulding processing conditions


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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:

	[°] Manifold	[°] Mold	[°] Melt	[°] Nozzle	[°] Zone4	[°] Zone3	[°] Zone2	[°] Zone1
min (°C)	180	80	180	190	190	180	180	170
max (°C)	200	120	200	200	200	190	190	180

Pressure:

	Inj press	Hold press	Back pressure
min (bar)	600	600	0
max (bar)	1200	1200	5

Speed:

Injection speed: slow-medium

Special Info:

Heating above 205 deg C (~400 F) may cause poor surface characteristics.

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 2:1 compression ratio) can result in unmelted particles and poor melt homogeneity. Using a high back pressure to make up for a low compression ratio may lead to excessive shear heating and deterioration of the material.

Melt Temperature: Preferred range 182-199 C (360-390 F). Melt temperature should never exceed 230 C (450 F).

Mold Surface Temperature: Preferred range 82-93 C (180-200 F) especially with wall thickness less than 1.5 mm (0.060 in.). May require mold temperature as high as 120 C (250 F) to reproduce mold surface or to assure minimal molded in stress. Wall thickness greater than 3mm (1/8 in.) may use a cooler (65 C/150 F) mold surface temperature and wall thickness over 6mm (1/4 in.) may use a cold mold surface down to 25 C (80 F). In general, mold surface temperatures lower than 82 C (180 F) may hinder weld line formation and produce a hazy surface or a surface with flow lines, pits and other included defects that can hinder part performance.

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Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.

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