Properties of delrin 150 (polyoxymethylene)

Properties	Verification ASTM	Homo-polymer «Delrin»
Density	D 792	1.42g/cm³
Tensile strength At -55°C At +23°C At +70°C At +100°C At +122°C	D 638	 101 N/mm² 69 N/mm² 48 N/mm² 36 N/mm² 26 N/mm²
Elongation at break At -55°C At +23°C At +70°C At +100°C At +122°C	D 638	 0,38% 75% 230% < 260% > 260%
Tensile E modulus	D 638	3100 N/mm²
Shear strength	D 732	66 N/mm²
Flexural modulus At -55°C At +23°C At +70°C At +100°C At +122°C	D 790	 3650 N/mm² 2620 N/mm² 1550 N/mm² 895 N/mm² 620 N/mm²
Flexural fatigue endurance limit	D 671	32 N/mm²
Melting point	D 2133	175°C
Deflection temperature under flexural load 1,8 N/mm² 0,5 N/mm²	D 648	 136°C 172°C
Coefficient of linear thermal expansion From -40°C to +30°C From -30°C to +60°C From +60°C to +105°C From +105°C to +150°C	D 696	 10,4 1x10-5°C 12,2 1x10-5°C 13,7 1x10-5°C 14,9 1x10-5°C
Volume resistivity	D 257	10^{15} ohm.cm
Surface resistivity	D 257	10^{13} ohm.cm
Dissipation factor	D 150	0,05 MHz
Compressive stress At 1% de deformation At 10% de deformation	D 695	 36 N/mm² 124 N/mm²

Properties	Verification ASTM	Homo-polymer «Delrin»
Izod impact strength Unnotched Notched à -40°C Notched à +23°C	D 256	 no break 96 J/m 23 J/m
Tensile impact strength	D 1822	350 kJ/m²
Deformation under load (14Nmm² to 50°C)	D 621	0,5%
Hardness (Rockwell)	D 785	M94 - R120
Water absorption 24H immersion Equilibrium 50%RH Equilibrium continous immersion Coefficient of dynamic	D 570	 0,25% 0,22% 0,90%
Friction against steel - dry Water lubrificated Oil lubrificated Against brass Against aluminium Against polyacetal	D 1894 -61 T	 0,10 - 0,30 0,10 - 0,20 0,05 - 0,10 0,15 0,15 0,35
Flammability	UL 94	HB
Thermal conductivity		0,37W/mK
Specific conductivity		1,47kJ/kgK
Maximum continuous use temperature In air In water		 +90°C +65°C
Maximum intermittent use temperature In air In water		 +150°C +80°C
Minimum continuous use temperature		-40°C
Dielectric strength short-time (2.3mm sheet)	D149	20kV/mm
Dielectric constant	D150	3,7 10^2-10^6Hz

Cross reference for International standards

French afnor standards	DIN Symbols	German werkstöff standards	British standars New	British standars Old	American standards	% Carbon
	9521	1,0711	220M07	En 1 A	1212	0,00/0,15
XC18	C15	1,0401	080M15		1015	0,12/0,18
XC25	C22	1,0402	070M20	EN3 A	1020	0,16/0,24
XC38	C35	1,0501	080A32	EN5 C	1035	0,30/0,35
50C30	C25	1,0406	070M26		1025	
			080M30	EN6		
60C40	C40	1,0511	080M40	EN8	1040	0,36/0,44
55C35	C22	1,0501	080A35 & 37	EN8 A & B	1035	0,33/0,38
XC42H1	CK40	1,1186	080A40	EN8C	1040	0,38/0,43
35MF6	35S20	1,0726	212M36	EN8M	1140	0,32/0,40
XC48	C45	1,0503	080M46	EN8	1045	0,42/0,50
XC38	C55	1,0535	070M55S	EN9	1055	0,52/0,60
32C4	34Cr4	1,7033	530A32	EN18B	5132	0,28/0,33
42CD4	42CrMo4	1,7225	708M40	EN19A	4140, 4142	0,36/0,44
35CD4	34CrMo4	1,7220	708A37	EN19B	4135, 4137	0,35/0,40
35NCD6	34CrNiMo6	1,6582	817M40	EN24	4340	0,36/0,44
35NCD14	32NiCrMo145	1,6746	0826M40	EN26		0,36/0,44
35NCD16	30NiCrMo166	1,6747	835M30	EN30B		0,26/0,34
100C6	100Cr6	1,3505	535A99	EN31	52100	1,20/1,60
			214M15	EN202		
34C10	C10	1,0301	045M10	EN32A	1010	0,07/0,13
	15S20	1,0723	212M15	EN32M		0,12/0,18
12NC15	14NiCr14	1,5752	655M13	EN36A	3415,3310,9314	0,10/0,16
16NCD17		1,6723	835M15	EN39B		0,12/0,18
30CD12	32CrMo12	1,7361	722M24	EN40B		0,20/0,28
XC48H1	CK50	1,1206	080M50	EN43A	1050	0,45/0,55
Z12CF13	X12CrS13	1,4005	416S21	EN56	416 (S/steel)	0,09/0,15
Z10CNF18.09	X10CrNiS189	1,4305	303S21	EN58	303 (S/steel)	
Z6CND17.12	X5CrNiMo17133	1,4436	316S16	EN58J	316 (S/steel)	
20NCD2	21NiCrMo2	1,6523	805M20			0,17/0,23

Materials		WERKSTöFF classification	Elastic limit Re (N/mm²)	Tensile strength Rm (N/mm²)	Elongation Lo = 5do A%	Break lateral contraction Z%	J Resilience
Case-hardening steel (Ø30mm)	34C10	1.0301	295	490-640	16	45	69
	20NCD2	1.6523	590	780-1080	10	40	41
Improved steel (Ø40mm)	60C40	1.1186	400	630-780	18	35	50
	35NCD6	1.6582	900	1100-1300	10	45	50

Materials (Values for cross-section of small dimensions)	WERKSTöFF classification	Elastic limit $Rpo_{,2}$ to 0,2% and $Rpo_{,1}$ to 0,1% (N/mm²)	Tensile strength Rm (N/mm²)	Elongation Lo = 5do A%	Break lateral Z%	J resilience
Stainless steel Z10CNF18.09 (303)	1.4305	195-230	500-700	35	60	85
Stainless steel Z2CNF18.10 (304)	1.4306	180-215	460-680	45	60	85
Stainless steel Z6CND17.12 (316)	1.4401	205-240	510-710	40	60	85