

Nomenclature for Elastollan

Elastollan 1185 A 10 W 000

Elastollan	Grade	Hardness	Particle form	Lubricant	Additives	Additives
Elastollan is the registered trademark of Elastogran thermoplastic Polyurethane Elastomers. The product code consists of a letter and a number combination.	The letter or number characterizes the basis polyol B, C, S, 5, 6, 8 = Polyester 11 = Polyether 21 = Polyesterether R = glass-fibre reinforced grades LP-Laboratory product still in development SP-Special product: Product modified to meet customer's requirement.	A = Shore A D = Shore D	1 = cylindrical or lentil shaped pellets 5 = diced	0 = without lubricant 3, 5 = with lubricant	A = antistatic ESD = electronic sensitive devices FHF = flame retardant halogen free HPM = hard phase modified M = matt surface SPF = soft plasticizer free U = UV stabilized W/WH = plasticized	000 = natural colour 100 bis 999 = code for included additive

Master-batches

Delivery form, Packing, Storage and Shelf-life

Elastollan <u>Konz</u> and Elastollan <u>Konz V</u> are pigment and various additive master-batches. They can be used not only to colour, but also to improve processing and to improve stability against e.g. UV radiation, as blowing agent and for modification in various property areas.

Delivery form

Diced, cylindrical or lentil shaped pellets

Packing for all Elastollan grades excluding R grades

- Aluminium foil-lined PE bags, 25 kg net
- Oktabins with PE liner bags, ca. 1000kg net
- Big Bags, ca. 900kg net
- Tanker, ca. 20t net.

Packing for R grades

- Sealed drums with PE liner bags, 125kg net
- Oktabins with PE liner bags, ca. 1000kg net
- Tanker, ca. 20t net.

Storage and shelf-life

Approximately six months from delivery date in original sealed containers with cool dry storage.

Elastollan 1100 grades
Thermoplastic Polyether Polyurethane Elastomers with outstanding hydrolysis resistance, low temperature flexibility and resistance to micro-organisms.

'				Flootelles	Elastollan				
Physical properties	Units	DIN	ISO	1175 A W	1180 A	1185 A W	1185 A		
Suitable for: injection moulding ▲ extrusion ■ blow moulding ●				A	A	A	A =0		
Hardness	Shore A	53505	868	75	80	83	87		
Hardness	Shore D	53505	868				36		
Density	g/cm³	DIN EN ISO	1183-1-A	1,14	1,11	1,16	1,12		
Tensile strength	MPa	53504	37	40	45	40	45		
Elongation at break	%	53504	37	700	650	700	600		
Stress at 20% elongation	MPa	53504	37	2	2	2,5	2,5		
Stress at 100% elongation	MPa	53504	37	4	4,5	6	6		
Stress at 300% elongation	MPa	53504	37	8	8	8	10		
Modulus of elasticity – tensile test	MPa	DIN EN ISO	527						
Tear strength	kN/m	DIN ISO 34-	1/B/b	40	55	50	70		
Abrasion loss	mm³	53516	4649	45	30	40	25		
Compression set at room temperature	%	DIN ISO	815	20	25	20	25		
Compression set at 70°C	%	DIN ISO	815	40	45	35	45		
Tensile strength after storage in water at 80°C for 42 days	MPa	53504	37	28	30	30	32		
Elongation at break after storage in water at 80°C for 42 days	%	53504	37	750	700	700	600		
Notched impact strength (Charpy) +23°C Notched impact strength (Charpy) - 30°C	kJ/m² kJ/m²	DIN EN ISO DIN EN ISO		kB kB	kB kB	kB kB	kB kB		
Flammability rating		UL 94		V0/V2 ³⁾	НВ	V2	НВ		

¹⁾ Flame retardant halogen free

kB = no fracture

Typical applications

Cable sheathing, plugs and terminations, spiral tubing, films, ski-boot shells, ear tags, technical mouldings, e.g. mining screens, railway pads, seals.

Processability

Processable by injection moulding, extrusion and blow moulding

Process temperature (injection moulding): 170 to 240°C

Mould temperature: 20 to 70°C

Processing temperature (extrusion): 160 to 220°C.

²⁾ Extrusion quality for pneumatic tubing

³⁾ according to wall section

1185 A M	1185 A WM	1185 A FHF ¹⁾	1190 A	1195 A	1198 A ²⁾	1154 D	1154 D FHF ¹⁾	1160 D	1164 D	1174 D
•	•					A	A .			
88	87	89	92	96						
39	39	37	42	48	52	53	58	60	64	73
1,11	1,15	1,23	1,14	1,15	1,16	1,17	1,27	1,18	1,18	1,20
45	35	35	50	55	50	50	30	50	50	50
600	600	600	550	500	450	450	400	400	350	300
3,5	4	3,5	4,5	6	9	11	13	13	16	25
7	7	8	8,5	10	15	17	19	19	25	30
12	13	13	16	18	28	38	33	41	45	45
						150	160	200	250	560
60	55	60	85	100	125	150	110	170	190	220
60	38	35	25	25	25	20	30	20	20	20
35	20	25	25	30	35	40	30	40	40	50
45	35	45	45	45	50	50	45	50	50	55
30	30	20	35	37	35	35	20	35	35	35
650	600	600	600	500	450	450	400	450	400	400
kB	kB	kB	kB	kB	kB	kB	50	kB	kB	kB
kB	kB	120	kB	kB	190	18	3	16	12	5
		VO		НВ			V0/V2 ³⁾			

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan C grades
Thermoplastic Polyester Polyurethane Elastomers with excellent mechanical properties and chemical resistance, outstanding wear resistance, high tear and tensile strength, good damping characteristics and a high resilience performance.

Physical properties	Unit	DIN	ISO	Elastollan C 65 A HPM	C 70 A HPM	C 75 A HPM	C 85 A HPM	C 78 A
Suitable for: injection moulding ▲ extrusion ■ blow moulding ●		5	100	A	A= •	A= •	A	▲■
Hardness	Shore A	53505	868	65	70	75	85	80
Hardness	Shore D	53505	868					
Density	g/cm³	DIN EN ISO) 1183-1-A	1,19	1,17	1,20	1,23	1,18
Tensile strength	MPa	53504	37	40	45	50	50	50
Elongation at break	%	53504	37	800	750	700	650	650
Stress at 20% elongation	MPa	53504	37	1,5	1,5	2	3,5	2
Stress at 100% elongation	MPa	53504	37	2,0	2,5	3,5	6,0	4
Stress at 300% elongation	MPa	53504	37	4,0	4,5	6	11	7,5
Modulus of elasticity – tensile test	MPa	DIN EN ISO	527					
Tear strength	kN/m	DIN ISO 34	-1/B/b	40	40	45	70	60
Abrasion loss	mm³	53516	4649	40	35	35	40	30
Compression set at room temperature	%	DIN ISO	815	20	15	15	15	25
Compression set at 70°C	%	DIN ISO	815	30	25	25	25	35
Tensile strength after storage in water at 80°C for 21 days	MPa	53504	37	25	30	35	35	35
Elongation at break after storage in water at 80°C for 21 days	%	53504	37	900	850	800	800	650
Notched impact strength (Charpy)+23°C Notched impact strength (Charpy)- 30°C	kJ/m² kJ/m²	DIN EN ISO DIN EN ISO		kB kB	kB kB	kB kB	kB kB	kB kB
Flammability rating		UL 94						

¹⁾ Extrusion quality for round belt

kB = no fracture

Characteristic properties

Spiral tubing, pneumatic tubing, round and v-belting, technical mouldings, e.g. bushes, dust caps, seals, blow moulded bellows, mining screens.

Processability

Processable by injection moulding, extrusion and blow moulding.

Process temperature (injection moulding): 170 to 240°C

Mould temperature: 20 to 70°C

Process temperature (extrusion): 150 to 230°C.

²⁾ Extrusion quality for pneumatic tubing

C 80 A	C 85 A	C 88 A ¹⁾	C 90 A	C 95 A	C 98 A ²⁾	C 59 D	C 60 D	C 64 D	C 74 D
A	A= •	•	A= •	A	•	A	A	A	A
82	87	88	93	96					
	36	37	41	47	52	57	60	63	73
1,19	1,19	1,19	1,20	1,21	1,22	1,23	1,23	1,24	1,25
50	50	50	55	55	50	50	50	45	45
650	650	600	550	550	550	500	450	400	350
2,5	3	3,5	7	8	11	12	16	17	28
4,5	5,5	6	9	11	14	17	20	24	30
8,5	9,5	13	15	22	26	30	35	35	35
					160	250	330	390	730
65	70	75	95	120	130	160	180	200	240
30	30	30	25	25	30	20	20	20	20
25	25	25	25	30	30	30	40	40	40
35	35	40	40	45	50	50	50	55	60
35	38	38	40	40	40	43	43		45
650	650	650	550	500	550	480	450	420	380
k₽	kB	kB	k₽	V R	kB	kB	kB	kB	120
kB	kB	kB	kB	kB	25	12	8 8	7	4
	НВ				НВ	НВ			НВ
	82 1,19 50 650 2,5 4,5 8,5 65 30 25 35 35 650	82 87 36 1,19 50 50 650 650 2,5 3 4,5 5,5 8,5 9,5 65 70 30 30 25 25 35 35 35 38 650 650 kB kB kB kB kB kB kB kB	A■● ■ 82 87 88 36 37 1,19 1,19 1,19 50 50 50 650 650 600 2,5 3 3,5 4,5 5,5 6 8,5 9,5 13 65 70 75 30 30 30 25 25 25 35 35 40 35 38 38 650 650 650 kB kB kB kB kB kB kB kB kB kB kB kB	A∎● ■ A∎● 82 87 88 93 36 37 41 1,19 1,19 1,20 50 50 55 650 650 600 550 2,5 3 3,5 7 4,5 5,5 6 9 8,5 9,5 13 15 65 70 75 95 30 30 30 25 25 25 25 25 35 35 40 40 35 38 38 40 650 650 650 550 kB kB kB kB kB kB kB kB kB kB	A■● A■● A■● 82 87 88 93 96 36 37 41 47 1,19 1,19 1,20 1,21 50 50 55 55 650 650 600 550 550 2,5 3 3,5 7 8 4,5 5,5 6 9 11 8,5 9,5 13 15 22 65 70 75 95 120 30 30 30 25 25 25 25 25 30 35 35 40 40 45 35 38 38 40 40 650 650 650 550 500 KB KB KB KB KB KB KB KB KB KB KB KB	A∎ A∎ A∎ ■ 82 87 88 93 96 36 37 41 47 52 1,19 1,19 1,20 1,21 1,22 50 50 55 55 50 650 650 600 550 550 550 2,5 3 3,5 7 8 11 4,5 5,5 6 9 11 14 8,5 9,5 13 15 22 26 160 65 70 75 95 120 130 30 30 30 25 25 30 30 25 25 25 25 30 30 30 35 35 40 40 45 50 35 38 38 40 40 40 45 50 550 550 550 8 11 14 40 40 40 40 45 <	A∎● A∎● A∎ A 82 87 88 93 96 36 37 41 47 52 57 1,19 1,19 1,20 1,21 1,22 1,23 50 50 50 55 55 50 50 650 650 600 550 550 500 500 2,5 3 3,5 7 8 11 12 4,5 5,5 6 9 11 14 17 8,5 9,5 13 15 22 26 30 65 70 75 95 120 130 160 30 30 30 25 25 30 20 25 25 25 30 30 30 30 35 38 38 40 40 45 50 50 35 38 38 40 40 40 43 650 650 650 550	A∎ A∎ A∎ A A 82 87 88 93 96 52 57 60 1,19 1,19 1,19 1,20 1,21 1,22 1,23 1,23 50 50 50 55 55 50 50 50 650 650 600 550 550 550 500 450 2,5 3 3,5 7 8 11 12 16 4,5 5,5 6 9 11 14 17 20 8,5 9,5 13 15 22 26 30 35 65 70 75 95 120 130 160 180 30 30 30 25 25 30 30 40 35 35 40 40 45 50 50 50 35 38 38 40 40 40 40 43 43 650 650 650 550	A∎ A∎ B A A A 82 87 88 93 96

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan B grades
Thermoplastic Polyester Polyurethane Elastomers with excellent mechanical properties, outstanding wear resistance, high tensile strength, good damping and resiliance performance and superior low temperature flexibility.

				Flootellon			
Physical properties	Unit	DIN	ISO	Elastollan B 60 A WHA ¹⁾	B 60 A ESD ¹⁾	B 80 A	B 85 A
Suitable for: Injection moulding ▲ extrusion ■				•	A	A	A
Hardness	Shore A	53505	868	60	65	82	83
Hardness	Shore D	53505	868				
Density	g/cm³	DIN EN ISO	1183-1-A	1,17	1,17	1,19	1,20
Tensile strength	MPa	53504	37	35	20	50	55
Elongation at break	%	53504	37	900	800	600	600
Stress at 20% elongation	MPa	53504	37	1	1	2	2
Stress at 100% elongation	MPa	53504	37	2,5	2,5	5	4
Stress at 300% elongation	MPa	53504	37	6,5	6,5	14,5	15
Modulus of elasticity – tensile test	MPa	DIN EN ISO	527				
Tear strength	kN/m	DIN ISO 34-	1/B/b	50	40	85	75
Abrasion loss	mm³	53516	4649	40	120	35	35
Compression set at room temperature	%	DIN ISO	815	20	20	20	25
Compression set at 70°C	%	DIN ISO	815	30	30	30	35
Tensile strength after storage in water at 80°C for 21 days	MPa	53504	37	20	20	40	40
Elongation at break after storage in water at 80°C for 21 days	%	53504	37	1000	900	600	600
Notched impact strength (Charpy) +23°C Notched impact strength (Charpy) - 30°C	kJ/m² kJ/m²	DIN EN ISO		kB kB	kB kB	kB kB	kB kB

Selected types in the B range are available on request, with included UV stabilisation.

1) for safety shoes, volume resistivity (IEC 60093): $B 60 A WHA = 10^9 Ohm x cm$ $B 60 A ESD = 10^7 Ohm x cm$

kB = no break

Typical applications

Sport-shoe soles and accessories, skiboot shells, technical mouldings, e.g. seals, castor tyres, tubing.

Processing

Processable by injection moulding and extrusion.

Process temperature (injection moulding): 175 to 230°C

Mould temperature: 20 to 70°C

Process temperature (extrusion): 175 to 230°C.

21 50	B 95 A 96 48 1,22 55 550	50 1,22	B 60 D 60 1,23 55	A 64 1,24
21 50	96 48 1,22 55	50 1,22 55	60	64
21 50	48 1,22 55	1,22	1,23	
50	1,22 55	1,22	1,23	
50	55	55		1,24
50			55	
50				55
		500	500	450
	7	8	13	17
				19
				35
				320
	100			180
				25
				35
				50
	40	40	40	40
50	500	500	450	400
}	kB 200	kB 18	kB 10	kB 8
}	0	22 100 30 30 40 40 40 500	22 30 140 140 100 130 30 25 30 35 40 45 40 40 40 500 500 500	22 30 30 30 30 140 240 140 240 150 30 25 25 35 35 40 45 45 45 45 40 40 40 40 40 40 40 60 500 500 450

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan 600 grades

<u>Transparent</u>, thermoplastic Polyester Polyurethane Elastomers with excellent mechanical properties and wear resistance, good damping characteristics and a high resiliance performance

ı				l			
Physical properties	Unit	DIN	ISO	Elastollan 670 AWHU	685 AU	690 AU	695 AU
Suitable for: Injection moulding ▲ extrusion ■				A	A	A	A
Hardness	Shore A	53505	868	70	86	90	
Hardness	Shore D	53505	868				50
Density	g/cm³	DIN EN ISO	1183-1-A	1,19	1,21	1,21	1,22
Tensile strength	MPa	53504	37	35	50	50	50
Elongation at break	%	53504	37	650	600	550	500
Stress at 20 % elongation	MPa	53504	37	1	2,8	4	6
Stress at 100 % elongation	MPa	53504	37	3	5,5	7	10
Tear strength	kN/m	DIN ISO 34-	1/B/b	40	75	85	100
Abrasion loss	mm³	53516	4649	40	40	40	40
Compression set at room temperature	%	DIN ISO	815	25	25	25	25
Compression set at 70 °C	%	DIN ISO	815	40	45	45	40
Tensile strength after storage in water at 80 °C for 21 days	MPa	53504	37	30	40	40	40
Elongation at break after storage in water at 80 °C for 21 days	%	53504	37	700	650	600	550
Notched impact strength +23°C Notched impact strength -30°C	kJ/m² kJ/m²	DIN EN ISO DIN EN ISO		kB kB	kB kB	kB kB	kB 200

Materials in the 600 series are available with omission of the standard UV stabilisation.

kB = no break

Typical applications

Decorative parts and damping elements for the sport-shoe industry, ski tips, tubes and films.

Processing

Processable by injection moulding and extrusion

Process temperature injection moulding: 175 to 230°C

Mould temperature: 20 to 70°C

Process temperature extrusion: 175 to 220°C.

66	0 DU	664 DU				
	•	A				
	60	65				
	1,23	1,23				
	50	40				
	400	350				
	8	12				
	14	20				
	120	130				
	40	30				
	30	35				
	40	40				
	40	40				
	450	400				
	kB 7	kB 9				
	1	9				

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan S grades
Thermoplastic Polyester Polyurethane Elastomers with excellent mechanical properties and wear resistance, good damping characteristics and a high resiliance performance.

				Elastollan			
Physical properties	Unit	DIN	ISO	S 50 A SPF	S 60 A SPF	S 70 A SPF	S 60 AWH ¹⁾
Suitable for: Injection moulding ▲ extrusion ■ blow moulding ●				A	A	A	A
Hardness	Shore A	53505	868	55	60	70	60
Hardness	Shore D	53505	868				
Density	g/cm³	DIN EN ISO	1183-1-A	1,2	1,2	1,2	1.19
Tensile strength	MPa	53504	37	35	40	40	30
Elongation at break	%	53504	37	900	850	750	800
Stress at 20% elongation	MPa	53504	37	0,8	1	1,4	1
Stress at 100% elongation	MPa	53504	37	1,1	2,4	3,3	2,5
Stress at 300% elongation	MPa	53504	37	3,3	4,2	5,9	5
Modulus of elasticity – tensile test	MPa	DIN EN ISO	527				
Tear strength	kN/m	DIN ISO 34-	1/B/b	40	50	60	35
Arasion loss	mm³	53516	4649	35	30	30	50
Compression set at room temperature	%	DIN ISO	815	30	25	25	20
Compression set at 70°C	%	DIN ISO	815	45	40	35	35
Notched impact strength (Charpy) +23°C Notched impact strength (Charpy) - 30°C	kJ/m² kJ/m²	DIN EN ISO DIN EN ISO	179 179	kB kB	kB kB	kB kB	kB kB
Flammability rating		UL 94					
, u							

1) for Combi-sole

kB = no break

Typical applications

Shoe-soles, top pieces, tubes, technical parts e.g. castor tyres.

Processing

Processable by injection moulding and extrusion

Process temperature (injection moulding): 175 to 240°C

Mould temperature: 20 to 70°C

Process temperature (extrusion):

175 to 220°C.

S 70 AWH ¹⁾	S 80 A	S 85 A	S 90 A	S 95 A	S 98 A	S 60 D	S 64 D	S 74 D	
68	81	85	93	96					
			41	48	55	60	64	75	
1,20	1,22	1,23	1,24	1,24	1,25	1,25	1,26	1,26	
30	50	55	55	50	45	45	45	40	
850	750	650	600	550	500	500	450	300	
1,2	2	2	6	8	13	15	22	25	
2,9	4	5	9	11	16	18	23	30	
5,3	8	8	13	20	23	34	38	40	
					200	250	410	800	
50	60	70	95	120	150	170	200	240	
65	40	35	30	30	25	25	25	25	
20	25	25	25	25	30	40	45	55	
35	35	35	45	45	45	50	55	60	
kB	kB	kB	kB	kB	kB	kB	140	170	
kB	kB	kB	kB	14	13	4	4	3	
		НВ							

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan 500 grades
Thermoplastic Polyester Polyurethane Elastomers with excellent mechanical properties and a high abrasion resistance.

Physical properties	Unit	DIN	ISO	Elastollan 590 A	598 A	560 D	564 D
Suitable for: Injection moulding				A	A	A	A
Hardness	Shore A	53505	868	94			
Hardness	Shore D	53505	868	41	53	61	64
Density	g/cm³	DIN EN ISO 1	183-1-A	1,25	1,26	1,28	1,28
Tensile strength	MPa	53504	37	50	50	45	45
Elongation at break	%	53504	37	600	500	450	350
Tear strength	kN/m	DIN ISO 34-1	1/B/b	100	150	180	200
Abrasion loss	mm³	53516	4649	35	30	30	30
					l		

Typical application

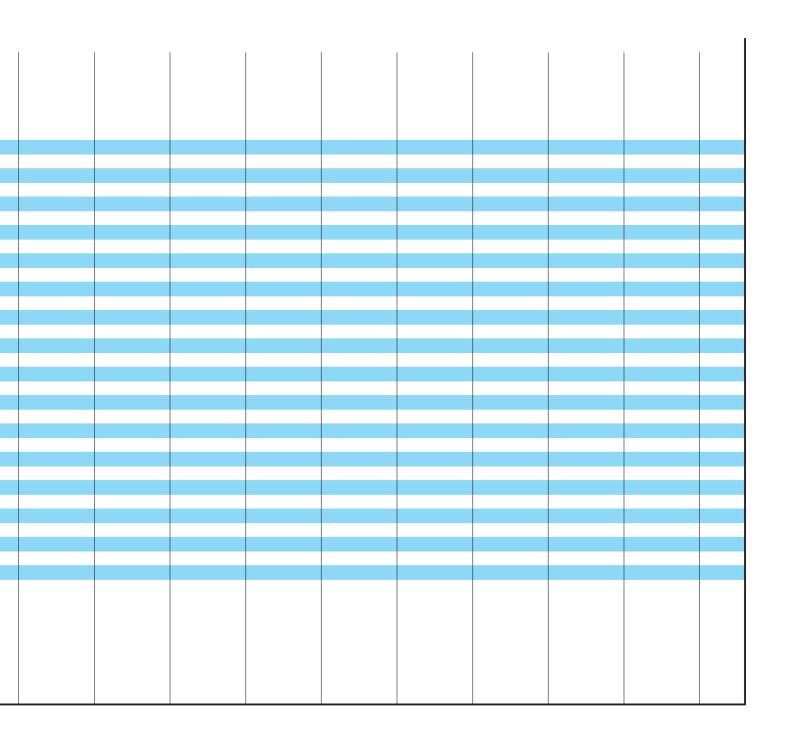
Heel top-pieces, castor tyres and parts requiring a high durability.

Processing

Processable by injection moulding

Process temperature: 175 to 230°C

Mould temperature: 20 to 70°C.



The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan R gradesGlass Fibre Reinforced Thermoplastic Polyester Polyurethane Elastomers with exceptional properties, very high impact resistance, high modulus with at the same time elasticity, low coefficent of thermal expansion comparable with steel and aluminium, low mould shrinkage and ease of painting.

Physical properties	Unit	DIN ISO	Elastollan R 1001	R 1000	R 2000	R 3000
Suitable for: Injection moulding ▲			A	A	A	•
Modul of elasticity – tensile test	MPa	DIN EN ISO 527	350	1000	2000	2800
Density	g/cm³	DIN EN ISO 1183-1-A	1,27	1,36	1,37	1,38
Hardness	Shore D	53505 868	50	60	67	73
Glass-fibre content	%		10	20	20	20
Tensile strength (test specimen type 1A) strain rate 50 mm/min	MPa	DIN EN ISO 527	30	50	65	80
Elongation at break (test specimen type 1A) strain rate 50 mm/min	%	DIN EN ISO 527	65	40	25	10
Impact strength (Charpy) +23°C Impact strength (Charpy) - 30°C	kJ/m² kJ/m²	DIN EN ISO 179 DIN EN ISO 179	kB* 160	kB* 130	140 110	120 70
Notched impact strength (Charpy) +23°C Notched impact strength (Charpy) - 30°C	kJ/m² kJ/m²	DIN EN ISO 179 DIN EN ISO 179	70 30	70 20	50 10	30 10
Deflection temperature Deflection temperature	°C °C	DIN EN ISO 75-2/Ae DIN EN ISO 75-2/Be	65 125	90 120	115 138	120 155
Coefficient of linear expansion between 23°C and 80°C	10 ⁻⁶ ⋅ K ⁻¹	53752-A	28	20	20	20
Colour			natural	natural	natural	natural
Flammability rating		UL 94				HB
	Suitable for: Injection moulding Modul of elasticity – tensile test Density Hardness Glass-fibre content Tensile strength (test specimen type 1A) strain rate 50 mm/min Elongation at break (test specimen type 1A) strain rate 50 mm/min Impact strength (Charpy) +23°C Impact strength (Charpy) - 30°C Notched impact strength (Charpy) +23°C Notched impact strength (Charpy) - 30°C Deflection temperature Deflection temperature Coefficient of linear expansion between 23°C and 80°C Colour	Suitable for: Injection moulding ▲ Modul of elasticity – tensile test Density Glass-fibre content Tensile strength (test specimen type 1A) strain rate 50 mm/min Elongation at break (test specimen type 1A) strain rate 50 mm/min Impact strength (Charpy) Impact strength (Charpy) Notched impact strength (Charpy) Notched impact strength (Charpy) Peffection temperature Deflection temperature Deflection temperature Coefficient of linear expansion between 23°C and 80°C MPa MPa MPa * MPa * * MPa * * * * * * * * * * * * *	Suitable for: Injection moulding ▲ Modul of elasticity – tensile test MPa DIN EN ISO 527 Density g/cm³ DIN EN ISO 1183-1-A Hardness Shore D 53505 868 Glass-fibre content ** Tensile strength (test specimen type 1A) strain rate 50 mm/min Elongation at break (test specimen type 1A) strain rate 50 mm/min Impact strength (Charpy) +23°C kJ/m² DIN EN ISO 527 Impact strength (Charpy) +23°C kJ/m² DIN EN ISO 179 Impact strength (Charpy) +23°C kJ/m² DIN EN ISO 179 Notched impact strength (Charpy) +23°C kJ/m² DIN EN ISO 179 Deflection temperature Deflection temperature □ C □ DIN EN ISO 75-2/Ae □ DIN EN ISO 75-2/Ae □ DIN EN ISO 75-2/Be Coefficient of linear expansion □ between 23°C and 80°C Colour	Physical properties Unit DIN ISO R 1001 Suitable for: Injection moulding ▲ Mea DIN EN ISO 527 350 Modul of elasticity – tensile test MPa DIN EN ISO 527 350 Density g/cm³ DIN EN ISO 1183-1-A 1,27 Hardness Shore D 53505 868 50 Glass-fibre content % 10 Tensile strength (test specimen type 1A) strain rate 50 mm/min MPa DIN EN ISO 527 30 Elongation at break (test specimen type 1A) strain rate 50 mm/min % DIN EN ISO 527 65 Impact strength (Charpy) +23°C kJ/m² DIN EN ISO 179 DIN EN ISO 175-2/Ae Deflection temperature °C DIN EN ISO 75-2/Ae DIN EN ISO 75-2/Ae DIN EN ISO 75-2/Be DIN EN	Physical properties Unit DIN ISO R 1001 R 1000 Suitable for: Injection moulding ▲ ■ <	Physical properties Unit DIN ISO R 1001 R 2000 Suitable for: Injection moulding ▲ Image: Injection moulding ★ Image: Injection moulding health moulding

¹⁾ Paintable with water-based lacquers

Typical applications

Automotive body and rocker panels, underbody sealants, technical mouldings e.g. plugs, ski tips.

Processing

Processable by injection moulding

Process temperature: 225 to 245°C

Mould temperature: 50 to 70°C.

R 2001	R 2005/1	R 2006 ¹⁾	R 2002	R 3001
A	A	A	A	•
1800	1900	2000	2300	3000
1,37	1,35	1,35	1,38	1,32
67	64	64	70	75
20	20	20	25	15
60	65	65	70	65
20	20	20	15	25
30	20	20	15	25
180 110	140 100	130 80	130	100 70
50	50	40	40	30
10	10	10	10	6
120 150	120 150	120 150	130 170	110 155
22	20	20	15	30
22	20	20	15	30
black	black	black	black	black

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastollan/Elastoblend

Thermoplastic Polyurethane Elastomer Special Products with excellent mechanical properties, outstanding wear resistance, high tear and tensile strength, good damping characteristics and a high resiliance performance.

Physical properties Suitable for: injection moulding ▲ extrusion ■	Unit	DIN	ISO	Elastoblend LP 9192 Polyether based for matt surfaces	Elastollan 1085 A Alternative Polyether basis	SP 806 Polyether based for opaque films	SP 883 Polyester based for opaque films
Hardness	Shore A	53505	868	75	89	87	85
Hardness	Shore D	53505	868				
Density	g/cm³	DIN EN ISO	1183-1-A	1,11	1,15	1,12	1.19
Tensile strength	MPa	53504	37	20	35	45	40
Elongation at break	%	53504	37	750	700	550	550
Stress at 20% elongation	MPa	53504	37	0,8	4,8	2,5	2
Stress at 100% elongation	MPa	53504	37	2,7	7,3	6	5
Stress at 300% elongation	MPa	53504	37	7,7	16,5	11,5	10,5
Tear strength	kN/mm	DIN ISO 34-	1/B/b	35	60	60	60
Abrasion loss	mm³	53516	4649	100	70	30	40
Compression set at room temperature	%	DIN EN ISO	815	27	22	26	22
Compression set at 70°C	%	DIN EN ISO	815	53	34	43	37
Notched impact strength (Charpy) +23°C Notched impact strength (Charpy) -30°C	kJ/m² kJ/m²	DIN EN ISO DIN EN ISO	179 179	kB kB	kB kB	kB kB	kB kB

kB = no break

Typical application

Application specific formulations.

Processing

Processable by injection moulding and extrusion

Process temperature (injection moulding): 175 to 240°C

Mould temperature: 20 to 70°C

Process temperature (extrusion): 175 to 220°C.

880 AN Polyester based for transparent films	890 AN Polyester based for transparent films	2180 A Polyester/ Polyether based for fibres/films	SP 9213 Polyether based easy flow	SP 852 Polyester based easy flow	Polyether based for flexible flat cables		
78	94	77	80	81			
					62		
1,21	1,22	1,13	1,11	1,23	1,23		
40	50	45	26	50	40		
650	550	450	700	680	400		
2,8	5,7	1	2,5	2,3	16,5		
5,5	10	4,5	5,5	5	22		
9,5	22,5	10	9	8,5	31,5		
60	120	40	40	70	150		
45	45	45	70	30	30		
23	32	14	22	23	30		
58	43	23	45	42	45		
kB kB	kB 200	kB kB	kB kB	kB kB	90		

The stated values for individual grades are typical <u>test results</u> and <u>not limiting specification values</u>.

Quoted results are from measurements on injection moulded test platens, post tempered for 20 hours at 100°C.

Specialist application areas

Elastogran is Polyurethane

With top quality products, a reputation for good customer service and continnous progress and development, Elastollan has secured a firm position in numerous markets.

We want to share our know-how and experience to contribute to your own success: The versatile Elastollan is the ideal material to fulfill your requirements

For further information, the following detailed brochures are available upon request:

- Thermoplastic Polyurethane Elastomers: Elastollan
- Elastollan Material Properties
- Elastollan Processing Recommendations
- Elastollan Electrical Properties
- Elastollan Chemical Resistance

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