Product Information

***ESC's* standard materials used in Wear Ring manufacturing. These are the most common materials used. Please contact *ESC* for specialty grades to meet your specific needs.**

ESC-Ion™ NYLON Wear Ring Materials

Property			COMPOUND NUMBER				
			PA940-B	**PA940**	**PA940-15**	**PA940-CB**	**PA933-BK**
			40% GF 6 NYLON / PROPRIETARY LUBRICANT	40% GF 6 NYLON	40% GF 6 NYLON / PTFE	40% GF 6 NYLON / PROPRIETARY LUBRICANT	33% GF 6/6 NYLON / PROPRIETARY LUBRICANT
	Test Method	**Units**	**Value**	**Value**	**Value**	**Value**	**Value**
Tensile Strength	ASTM D638	Mpa (psi)	184 (26,700)	169 (24,500)	138 (20,000)	169 (24,500)	186 (27,000)
Tensile Elongation	ASTM D638	%	2.5	2.5	3	2.5	3
Tensile Modulus	ASTM D638	Mpa (psi)	13,000 (1,980,000)	13,10 (1,900,000)	12,756 (1,850,000)	10,135 (1,470,000)	11,032 (1,600,000)
Flexural Strength	ASTM D790	Mpa (psi)	280 (40,600)	262 (38,000)	234 (34,000)	263 (38,142)	276 (40,000)
Flexural Modulus	ASTM D790	Mpa (psi)	11,721 (1,700,000)	11,031 (1,600,000)	12,066 (1,750,000)	10,273 (1,490,000)	810,800 (1,200,000)
Shear Strength	ASTM D2344	Mpa (psi)					
Compressive Strength	ASTM D695	Mpa (psi)	193 (28,000)	165 (24,000)	138 (20,000)	165 (24,000)	227 (33,000)
Parallel to laminate	ASTM D695	Mpa (psi)					
Normall to laminate	ASTM D695	Mpa (psi)					
Hardness, Rockwell	ASTM D785	R	R120	R120	R120	R120	R120
Specific Gravity	ASTM D792		1.49	1.46	1.60	1.44	1.40
Water Absorption 24 hrs. @ 73 F (23 C)	ASTM D570	%	1.0	1.0	1.0	1.0	0.9
Coefficient of Friction (Dynamic)		40 psi, 50 fpm	0.27	0.30	0.25	0.23	0.27
Deflection Temperature C (F)							
@264 psi (1.8 Mpa)	ASTM D648	°C (°F)	204 (400)	204 (400)	204 (400)	204 (400)	260 (500)
@66 psi (0.45Mpa)	ASTM D648	°C (°F)	210 (410)	210 (410)	210 (410)	210 (410)	252 (486)
Coefficient of Linear Thermal Expansion	ASTM D696	m/m/C (in/in/F)	.000027 (.000015)	.000027 (.000015)	.000027 (.000015)	.000027 (.000015)	.000026 (.000012)
Tg-Glass Transition		C° (F°)	60 (140)	60 (140)	60 (140)	60 (140)	60 (140)
Service Range		Degrees F	-65F to +275F	-65F to +275F	-65F to +275F	-65F to +275F	-65F to +275F
Operating Speed- MAX.		m / sec. (feet / sec)	4.6 (15.0)	4.6 (15.0)	4.6 (15.0)	4.6 (15.0)	4.6 (15.0)
Color			Black	Black	Black	"CB" Blue	Black

* Estimated By the Laboratory.

The information provided in this data sheet corresponds to our knowledge on the subject at the date of this publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such materials used in combination with any other material, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specifications limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to do to determine the suitability of a specific compound for your particular purpose. Since Engineered Seals, LLC cannot anticipate all variation in actual end-use conditions ESC makes no warranties and assumes no liability in connection with any use of this information. Caution: Do not use this product in medical application involving permanent implantation in the human body.

We highly recommend testing in your specific application, this is a guide only

Product Information

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ESC-Ion ™ "Zero Swell" / Low Friction Wear Ring Materials

Property			COMPOUND NUMBER				
			HTN-40	HTN-30C	V-100	POM-95	POM-10C
			40% Glass Filled	30% Carbon Filled with PROPRIETARY LUBRICANT	COMPOSITE POLYESTER/ POLYESTER	Acetal	Carbon Filled POM
	Test Method	Units	Value	Value	Value	Value	Value
Tensile Strength	ASTM D638	Mpa (psi)	207 (30,000)	283 (41,000)	76 (11,000)	55 (8,000)	106 (15,500)
Tensile Elongation	ASTM D638	%	2.0	1.4	NA	>10	3-4
Tensile Modulus	ASTM D638	Mpa (psi)	14,135 (2,050,000)	24,821 (3,600,000)	76 (11,000)	241 (35,000)	8,618 (1,250,000)
Flexural Strength	ASTM D790	Mpa (psi)	307 (44,500)	440 (63,870)	NA	90 (13,000)	155 (22,500)
Flexural Modulus	ASTM D790	Mpa (psi)	13,100 (1,900,000)	21,373 (3,100,000)	3,309 (480,000)	2,448 (355,000)	(1,070,000)
Compressive Strength	ASTM D695	Mpa (psi)	207 (30,000*)	241* (35,000*)		36 (5200)	104* (15,000*)
Normal to laminate		Mpa (psi)			345 (50,000)		
Parallel to laminate		Mpa (psi)			100 (14,500)		
Notched 1/8"	ASTM D256	J/m (ft-lb/in)	91 (1.7)	78 (1.60)	NA	80 (1.5)	(1.2)
Unnotched 1/8"	ASTM D256	J/m (ft-lb/in)	641 (12.0)	705 (14.45)	NA	1,495 (28.0)	(10)
Hardness, Rockwell	ASTM D785	R	R125	R125	R135	R80	R110
Specific Gravity	ASTM D792		1.52	1.40	NA	1.41	1.42
Water Absorption 24 hrs. @ 73 F (23 C)	ASTM D570	%	0.23	.20	<0.1	.12	.12
Coefficient of Friction (Dynamic)	40 psi, 50 fpm		0.32	.18	.17-.12	.21	.20
Heat Deflection Temperature							
@264 psi (1.8 Mpa)	ASTM D648	°C (°F)	277 (530)	282 (540)	NA	96 (205)	135 (275)
@66 psi (0.45Mpa)	ASTM D648	°C (°F)			NA	154 (309)	
Coefficient of Linear Thermal Expansion Flow	ASTM D696	m/m/C (in/in/F)	.000022 (.000012)	.000022 (.000012)	NA	(.000060)	(.000051)
Tg-Glass Transition		C° (F°)	123 (253)	123 (253)	121 (250)	-50 (-58)	-50 (-58)
Service Range		Degrees F	-65F to +300F	-65F to +300F	-65F to +200F	-40F to +212F	-40F to +225F
Operating Speed- MAX.		m / sec. (feet / sec)	4.6 (15.0)	4.6 (15.0)	4.69 (16.0)	4.6 (15.0)	4.6 (15.0)
Color			Black	Black	Red or Pearl	Black or White	Royal BLUE

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