

## AR-750™ Abrasion Resistant, Anti-friction Control Cable Liner

**Markel AR-750™ Abrasion Resistant Anti-friction Control Cable Liner** is designed to provide the maximum service lifetime under high loads of any polymeric liner on the market. A proprietary filled PTFE composite, AR-750™ maintains the beneficial anti-slip stick characteristics of PTFE liners while optimizing wear performance. The ever increasing operating temperature requirements in engine compartments require cable liners that maintain high efficiencies under these aggressive conditions.

AR-750™ in conjunction with silicone lubricants yields efficiencies and cycle life not normally attainable with generic liners. Performance characteristics include 90% average efficiency through 1,000,000 cycles.

### APPLICATIONS

- moderate duty cables used in accelerator, clutch and automatic transmission actuator assemblies
- loads up to 25 lbs
- difficult routings
- high service temperatures
- where the longest life cycles are required
- aircraft, heavy duty off-road equipment and industrial controls

### DATA POINTS

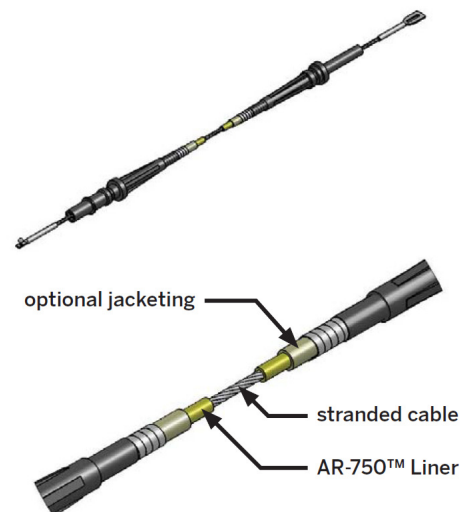
Operating Temperature	200°C
Tensile Strength	31-44 .MPa (4500-6500 psi)
Elongation	200-400%
Dimensional Capability	Cp/Cpk ID 4.30/3.91 OD 1.786/1.675
Specific Gravity	2.1
Filler	Proprietary Organic
Melt Point	PTFE at 327.91°C
Chemical Resistance	Excellent

### KEY FEATURES AND BENEFITS

1. Eliminates “stick-slip.”
2. 90% average efficiency through 1,000,000 cycles with 25 lb. load.
3. Polymeric jacketed liner offers significant weight reduction compared to steel.
4. Specified by major manufacturers of automotive control cables in North America and Europe.

### ADDITIONAL OPTIONS

- Sound transmission via structure-born noise path may be reduced with Markel QUIET LINER® designs employing a TPE jacket.
- Jacket can be stabilized to liner with Markel TEFLOCK™ Splined Liner.
- Wear performance and noise reduction may both be further enhanced by employing Markel Waveliner® designs using AR-750™ formulations.
- Markel can jacket the AR-750™ liner with polypropylene, polyethylene, PBT, TPE or nylon. Nylon resins offer a wide range of mechanical and thermal properties including melt temperatures as high as 150°C.



All materials of construction are warranted to meet specification and certified to be made from top quality resins without PFOA surfactant.



## AR-750™ Abrasion Resistant, Anti-friction Control Cable Liner

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Operating Temperature (°C)	None	-70°C To 260°C
Tensile Strength . MPa (psi)	ASTM D 638	5000
Elongation (%)	ASTM D 638	200
Specific Gravity	ASTM D 792	2.153
Durometer Shore D	ASTM D 2240	55
Color	None	Tan / Lt. Brown
Base Material	None	PTFE
Filler	None	Nitrogen Containing Engineering Resin
Melt Point (°C)	ASTM D 1457	328.29°C
Cold Bend (-65□, 4 hrs)	ASTM D 2671	No Cracking
Maximum Longitudinal Change	UL-224	0.001170
Flammability Rating	UL-94	V-0
Burn Rate	ASTM D 635	< 5 Sec
Heat of Fusion (btu/lb)	ASTM D 3417	29-37
Water Absorption, 24 hrs (%)	ASTM D 570	.01%
Flexural Modulus (PSI)	ASTM D 790	72,000
<b>Refractive Index</b>	ASTM D 542	1.35
Limiting Oxygen Index %	ASTM D 2863	>95
Chemical Resistance	SAE J-1128	Excellent

\*with E-155 Silicone Lubricant (Wacker Silicone, Adrian, MI)

TEST	LUBRICATED*				
		Average Efficiency (%)*	Wear Cycles	Continuous Service Temperature (°C) **	Heat Deflection Temperature Under Load (°C) **
Test Cycles	1,000,000	91%	1MM	250	65
Load, Lbs.	25	86%	1MM	250	65
Average Efficiency	91%	85%	800K	250	65
Change in Linear Weight	+2 mg	83%	500K	250	65
Ultimate Cycle Life	>1,000,000	84%	250K	250	55
		PBT ***	150K	118	54

\* Measured at 20°C under 25 lb. (11 kg) load lubricated with E155 Silicone Fluid, Wacker Chemical Corp.

\*\* Continuous Service Temperature measured without load. Heat Deflection Temperature via ASTM.

\*\*\*PBT Coming soon from Markel

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