Belt Characteristics
PA NOTE

Characteristics of power transmission products vary. The chart below characterizes to standard off-the-shelf products. A Made-to-Order (MTO) synchronous belt chart and supplementary notes are attached are noted in Table 2.. The general data presented in the charts to be used as guidelines only. A user may need to evaluate the belt characteristics for specific requirements.

Table 1

Belt	Oil Resistance	Heat Resistance	Ozone Weather Resistance	Flame Resistance	Pass RMA Static Conductivity	Minimum RecommendedTemp. (°F)
Super HC® Super HC PowerBand®	Yes	Excellent	Excellent	Yes	Yes	-30
Hi-Power® II Hi-Power II PowerBand	Yes	Good	Good	Yes	Yes	-40
Tri-Power®	Yes	Excellent	Excellent	Yes	Yes	-30
Hi-Power Dubl V	Yes	Good	Good	Yes	Yes	-40
Truflex®	Yes	Good	Good	Yes	Yes	-40
PoweRated®	Yes	Excellent	Excellent	Yes	No	-30
Power Cable®	Yes	Excellent	Excellent	Yes	No	-30
Multi-Speed Banded	Yes	Excellent	Excellent	Yes	Yes	-31
Multi-Speed Raw Edge	Yes	Excellent	Excellent	Yes	No**	-30
Ind. Micro-V®	Yes	Excellent	Excellent	Yes	Yes	-30
Polyflex®/Polyflex® JB®	Yes	Excellent	Excellent	Yes	No	-65
PolyChain® GT®	Yes	Excellent	Excellent	Yes	No	-65
PowerGrip® HTD® 3, 5, 20mm	Yes	Excellent	Good	Yes	No*	-30
PowerGrip® Timing	Yes	Excellent	Good	Yes	No*	-30
PowerGrip®GT® 2, 3, 5mm	Yes	Excellent	Good	Yes	No*	-30
PowerGrip®GT 8, 14mm	Yes	Excellent	Good	Yes	No*	-30

* Static conductive MTO belts are available
** Except in full banded construction; i.e., 9800-type
\# MTO belts

Oil & Heat Resistance

The type of belt recommended for the more severe oil or heat application is traditionally described as O&HR (Oil and Heat Resistant). The meaning of this term is somewhat obscure, although it is defined by RMA (Rubber Manufacturers Association) bulletins. It combines two belt characteristics into one term when they should be described separately. Therefore, the chart shows two separate columns for the two characteristics.

Oil Resistance

Occasional splattering by oil or grease usually does not adversely affect standard belts. However, belts which are oil resistant will not deteriorate as quickly when subjected to reasonable amounts of oil A large amount of oil or grease on any V-ribbed or V-belt will cause it to slip and can cause synchronous belts to ratchet. Extensive exposure to petroleum products causes rubber to swell and the adhesion between belt components to break down. See RMA Bulletin IP 3-2.

Heat Resistance

There is no well defined temperature limit that ensures satisfactory performance. However, a properly applied belt generally yields acceptable service within an ambient temperature range of -30° to +140°F. Belt material and construction determine the relative range of resistance to heat exposure over long periods. The belts in the chart are rated as "Good" or "Excellent" to indicate this range of heat resistance. See RMA Bulletin IP 3-1.

Ozone Resistance is defined as the rubber properties' ability to resist chemical breakdown due to ozone. Because ozone causes chemical bonds to breakdown, cracking will be the mode of failure. Amount of degradation depends on concentration of ozone and frequency of exposure. Degradation due to ozone increases when a belt is stressed. Therefore, theoretically a larger cross section would suffer more degradation than a smaller cross section when rounding a pulley. The belts in the chart are rated as "Good" and "Excellent' to indicate the range of ozone resistance. The MTO synchronous belt chart below presents quantitative data.

Flame Resistance is a measure of the belt's ability to extinguish or not propagate a flame when it is subjected to direct flame. There are numerous Mining Standards as well as Underwriters Laboratories, Inc. procedure for a horizontal and vertical burning test. Contact Product Application, Denver, for further information.

Static Conductive Belts are those belts which pass the Static Conductivity Test explained in RMA Bulletin IP 3-3. The RMA bulletin applies to new, clean belts. However, older belts can collect debris or become worn and damaged. This condition may enable a static charge to build up. In a hazardous environment, additional protection is recommended, such as grounding the entire system to ensure against accidental static spark discharges. Also, a static conductive brush or similar device will bleed off static buildup on the belt.

Minimum Recommended Temperatures are the temperatures at which the drive can be started normally after standing idle. V-belt drives at lower temperatures are stiffer; therefore start-up torque requirements and potential belt degradation will be greater than at normal temperatures. If the belts are prewarmed, they can be operated at lower temperatures without cracking. Ability of the belt to operate at lower temperatures during continuous operation results from internal heat generation and belt-sheave interface. See RMA Bulletin IP 3-1.

Table 2 presents data for made-to-order (MTO) synchronous rubber belt products that are the result of special compounds. The left column lists the different MTO rubber belt types, with the properties listed across the top of the chart. Note that we have quantified the static conductive and ozone properties. Oil resistance is listed as fair, good, very good, and excellent.

Table 2

Synchronous MTO Belt Types	Cross Section	Temp (°F) Min	Temp (°F) Max	Conductive Max. Magaohm	Oil Resistance	Ozone Max. (pphm)
Standard	ALL	-30	+180	N/A	Excellent	100
High Temp*	ALL	-40	+225	N/A	Excellent	100
Oil Resistant*	ALL	-20	+210	N/A	Special Compound	30
Nonmarking	ALL	-20	+180	N/A	Good	20
Conductive	XH, XXH 8, 14, 20mm	-30	+180	6.0	Very Good	100
Conductive	3, 5mm MXL, XL, L, H	-20	+170	0.3	Very Good	75
Low Temp.	ALL	-65	+175	N/A	Fair	20
Reduced Noise	20mm	-30	+180	6.0	Very Good	100
Ozex Rubber Back	ALL	-20	+210	N/A	Excellent	30

* Reduced horsepower ratings at higher temperature limits

NOTE: Standard construction 8 & 14mm PowerGrip HTD® are MTO

Standard construction 2, 3, 5mm PowerGrip® GT® are MTO