

WP0189

**Dodge® belt drives: characteristics**

Dodge Customer/Order Engineering

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The chart below lists general characteristics of standard Dodge belt drive offerings. These characteristics should be considered when selecting a belt drive for a given application.

Dodge Standard Belt Characteristics							
Belt type		Oil Resistance	Ozone Resistance	Flame Resistance	Static Conductivity	Allowable Temperature Range (°F)	
						Min	Max
All D-V wedged belts including banded (Narrow v belts)	3V,5V,8V	Very good	Very good	Yes	Yes	-30	180
	3VX,5VX,8VX	Good	Excellent	Yes	Yes	-70	250
All wrapped classical belts including banded	A,B,C,D	Good	Good	Yes	Yes	-30	140
All cogged classical belts including banded	AX,BX,CX,DX <=210"	Good	Excellent	Yes	Yes	-70	250
	AX,BX,CX,DX >=210"	Good	Good	Yes	Yes	-30	140
FHP belts	2L,3L,4L,5L	Good	Good	Yes	Yes	-30	140
Double-V (Hex) belts (classical)	AA,BB,CC,DD	Good	Good	Yes	Yes	-30	140
Kevlar belts	3VP,5VP,8VP,AP,BP,CP	Very good	Very good	Yes	No	-30	180
Synchronous HTD (all sizes)	All sizes	Very good	Very good	Yes	No	-30	180
HT250 (all sizes)	5mm,8mm,14mm	Very good	Very good	Yes	No	-30	180
HT500 (all sizes)	8mm,14mm	Excellent	Excellent	Yes	No	-65	185
Dyna Sync	All sizes	Very good	Very good	Yes	No	-30	180

**Oil Resistance:** Occasional exposure to small amounts of grease or oil does not affect standard belts. An oil resistant belt subjected to reasonable amount (occasional splashes or spills) of oil or grease will not deteriorate as quickly as if it is exposed to large amounts (continuous coat of oil or grease on belt). If a belt is exposed to a large amount of oil or grease it can cause a v-belt to slip or synchronous belt to ratchet. If the belts are extensively exposed to petroleum products it will cause the rubber to swell and deteriorate and break the adhesion of the components.

**Ozone Resistance:** This is the ability of a belt to resist chemical breakdown when exposed to ozone. As ozone causes chemical bonds to break, cracking is typically the mode of failure. The amount of degradation depends on the concentration of ozone and the frequency and length of time the belt is exposed. Excessive bending can also aid ozone degradation. Therefore, large cross sections will degrade faster than smaller cross section when wrapped around an equal diameter sheave or sprocket. In the chart above, ozone resistance is rated from Good to Excellent.

**Flame Resistance:** This is defined as the ability of a belt to extinguish or not propagate a flame when subjected to direct flame. There are mining standards as well as underwriter's laboratories procedures for this test. Tests like horizontal burn test are conducted on the belts.

**Static Conductivity:** New belts that meet ARPM standard IP 3-3 test conditions are considered static conductive. All belts generate electrical charge during operation. Belts operating in certain atmospheric levels of temperature and

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ABB Motors and Mechanical Inc.

6040 Ponders Court

Greenville, SC 29615

Phone: +1 864 284 5700

Email: [DodgeEngineering@abb.com](mailto:DodgeEngineering@abb.com)



humidity can produce substantial amount of static electricity. Static conductive belts have the ability to transfer static electricity to connected equipment. While in use over a period of time belts tend to wear and collect dust and dirt resulting in reduced conductivity. Static charge generated by any drive can potentially discharge in the form of a spark if it is unable to conduct through the hardware to ground. In a used belt, reduced conductivity can inhibit conduction through the hardware, creating safety concerns in hazardous environment.

In hazardous environment additional protection should be provided irrespective of the belt being static conductive. Grounding of entire system can help against accidental static spark discharge. In addition, a static conductive brush or something similar can be used which can alleviate static build up around the belt.

**Recommended Temperature Range:** The temperature ranges shown in the chart represent the allowable ambient temperature. Belts subjected to higher than recommended ambient temperatures accelerates deterioration of the belt properties leading to premature failure. Temperatures above 70°F reduce life of the belt.

The minimum recommended temperature is the point at which the drive can start normally after standing idle for extended periods. Rubber belts at lower temperatures become stiffer, therefore start-up torque requirement and potential belt degradation will be more than at normal temperatures. If the belts are pre-heated they can operate at lower temperature without greater cracking. The ability of the belt to operate at lower temperatures during continuous operation results from internal heat generation and belt/sheave wedging action.

For any questions please contact us on phone# 864-284-5700 or e mails us at [DodgeEngineering@abb.com](mailto:DodgeEngineering@abb.com).

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**ABB Motors and Mechanical Inc.**  
6040 Ponders Court  
Greenville, SC 29615  
Phone: +1 864 284 5700  
Email: [DodgeEngineering@abb.com](mailto:DodgeEngineering@abb.com)