

Poly-V belt Tests and Comparisons performed by Dura-Belt

From 2010 to 2014 we analyzed, tested and compared the following stretchy nylon-reinforced, 2-ribbed poly-v belts:

1. ConveyXonic belts made in France.
2. Several brands of rubber belts made in China.
3. Several different durometers of polyurethane belts made in Taiwan.

We preformed three tests:

1. Dissected the belts under a microscope to determine the materials.
2. Dynamically tested them at 120 ft/min over long periods while measuring tension decline with a load cell.
3. Abrasion test under high speed (1300 rpm) and high tension (50 lb. weight) with slightly misaligned 2" diameter poly-v pulleys.
4. Determined static and dynamic COF.

Findings:

1. The ConveyXonic belt is made from three different durometers of rubber and the nylon cord is a special custom made type that stretches slightly and then resist normal nylon creep. All other belts were made with one type of rubber or urethane and standard nylon cord that creeps.
2. In the dynamic tests the initial tension of the ConveyXonic 2-rib poly-v belt was 50 lbs, descended to 35 lbs in the first day and ultimately leveled out after 150 days at 28 to 30 lbs. The polyurethane v-belts belts maintained the same tension for about 120 days but abraded before they could finish the test. All other rubber belts had the same initial tension, most appeared to decay faster, but they failed before we could get a good long term tension graph.
3. All the Chinese rubber belts failed within 9 months on the dynamic tester, either by abrasion or by cracking. The Taiwanese belts abraded in from 1 to 2 years depending upon the durometer, the lower the durometer, the faster they failed.
4. In the high speed test all belts abraded and shredded within 4 months, except the ConveyXonic, which was still unaffected when the test was concluded after running continuously for a year.
5. ConveyXonic belts have a high coefficient of friction (COF), which means they are very resistant to slipping. Unlike all other poly-v belts that we tested, after ConveyXonic belts start to slip, their COF actually increases. This stopped the belts from slipping – an amazing feat.

Conclusion: ConveyXonic poly-v belts are far superior to every poly-v belt we tested.

1. Highest and most consistent dynamic tension. Very creep resistant.
2. Extremely abrasive resistant. Much greater than any other belt.
3. Highly slip resistant. Surprisingly, if it starts slipping, its COF actually increases which can make it stop slipping.
4. By far the longest lasting belt.
5. Initial cost is higher than other poly-v belts, but there longer lifespan makes them by far the least expensive because they rarely need to be replaced. This greatly reduce maintenance costs.