

# POWER TRANSMISSION V-Belt Guide

## FHP (Fractional Horsepower) V-Belts

- For single-groove low HP applications (under 3 HP)
- Ideal for fan applications

Belt Type	Pitch Dia. †	1.25‡	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50	5.00	—	—
<b>3L</b>	<b>HP Rating*</b>	0.09	0.15	0.23	0.29	0.43	0.55	0.61	0.67	0.73	0.78	—	—
<b>4L</b>	<b>HP Rating*</b>	0.09	0.14	0.29	0.60	0.88	1.17	1.37	1.49	1.61	1.70	1.78	—
<b>5L</b>	<b>HP Rating*</b>	0.36	0.45	0.71	1.07	1.52	1.95	2.26	2.39	2.50	2.59	2.68	2.71

\* HP ratings are of a single belt and are not corrected for ratio, arc of contact, or belt length. They are based on a 1.0 service factor. ARPM service factor requirements vary from 1.0 to 2.0 depending on application. † Pitch diameter of smaller sheave operating at 1750 RPM. Dimensions in inches. ‡ Below ARPM minimum recommended pitch diameters.

## A-, B-, and C-Type V-Belts

- Medium HP applications
- For industrial applications requiring single or multiple V-belt drives
- Transmit more HP and have longer life expectancy than FHP V-belts
- Suited for "clutching" applications

Belt Type	Pitch Dia. †	2.00‡	2.20‡	2.60‡	3.00	3.40	3.70	4.00	4.40	4.70	5.00	5.40	5.70	6.00	6.40	7.00	8.00
<b>A</b>	<b>HP Rating*</b>	0.90	1.17	1.69	2.23	2.95	3.40	4.00	4.69	5.20	5.96	6.35	6.83	7.30	7.91	8.81	10.22
<b>B</b>	<b>HP Rating*</b>	1.58	2.47	3.34	4.19	5.10	6.16	7.21	8.22	9.22	10.19	11.13	12.06	13.39	14.66	15.48	16.27
<b>C</b>	<b>HP Rating*</b>	6.94	12.09	13.62	15.11	16.56	17.96	19.32	20.62	21.88	23.09	25.35	27.86	31.76	—	—	—

\* HP ratings are of a single belt and are not corrected for ratio, arc of contact, or belt length. They are based on a 1.0 service factor. ARPM service factor requirements vary from 1.0 to 2.0 depending on application. † Pitch diameter of smaller sheave operating at 1750 rpm. Dimensions in inches. ‡ Below ARPM minimum recommended pitch diameters.

## AX-, BX-, and CX-Type V-Belts

- Medium/high HP applications
- For industrial applications requiring single or multiple V-belt drives
- Transmit more HP than comparable A, B, and C belts
- Raw edge design provides more aggressive gripping with less belt slippage
- Cogged construction allows belt to flex easier around drive sheave and run cooler than noncogged belts
- Not for use on "clutching" applications because of aggressive grip

Belt Type	Pitch Dia. †	2.20‡	2.20‡	2.60	3.00	3.40	3.70	4.00	4.40	4.70	5.00	5.40	5.70	6.00	6.40	7.00	8.00
<b>AX</b>	<b>HP Rating*</b>	1.24	1.58	2.25	2.90	3.53	3.99	4.46	5.15	5.67	6.18	6.84	7.34	7.82	8.45	9.39	10.88
<b>BX</b>	<b>HP Rating*</b>	3.72	4.62	5.50	6.36	7.19	8.08	9.19	10.27	11.34	12.39	13.41	14.42	15.89	17.32	18.23	19.13
<b>CX</b>	<b>HP Rating*</b>	14.10	18.35	19.49	20.60	21.66	23.14	24.61	26.05	27.44	28.79	31.37	34.32	39.31	—	—	—

\* HP ratings are of a single belt and are not corrected for ratio, arc of contact, or belt length. They are based on a 1.0 service factor. ARPM service factor requirements vary from 1.0 to 2.0 depending on application. † Pitch diameter of smaller sheave operating at 1750 rpm. Dimensions in inches. ‡ Below ARPM minimum recommended pitch diameters.

## 3VX- and 5VX-Type V-Belts

- High HP applications
- For industrial applications requiring single or multiple V-belt drives
- Transmit substantially more HP than A, AX, B, BX, C, and CX, which allows for more compact drive systems (smaller sheave OD and/or fewer grooves)
- Raw edge, cogged

Belt Type	Pitch Dia. †	2.20	2.30	2.45	2.60	2.95	3.10	3.30	3.60	4.45	4.70	4.95	5.25	5.95	6.85	7.95	10.55
<b>3VX</b>	<b>HP Rating*</b>	1.37	1.63	1.89	2.15	2.75	3.01	3.34	3.85	5.25	5.65	6.05	6.53	7.63	9.01	10.64	14.22
<b>5VX</b>	<b>HP Rating*</b>	8.23	9.40	10.55	11.93	30	14.66	15.56	16.89	18.22	19.10	20.41	22.13	24.26	26.35	29.23	30.84

\* HP ratings are of a single belt and are not corrected for ratio, arc of contact, or belt length. They are based on a 1.0 service factor. ARPM service factor requirements vary from 1.0 to 2.0 depending on application. † Pitch diameter of smaller sheave operating at 1750 rpm. Dimensions in inches.

## Selection Guidelines

### FOR DIRECT REPLACEMENT WHEN ORIGINAL BELT PART NUMBER IS AVAILABLE

Match ARPM (Association of Rubber Products Manufacturers) number/manufacturer's part number (from your existing V-belt), then make selection from the following pages. Dayton V-belts conform to ARPM standards.

### FOR NEW APPLICATIONS OR WHEN ORIGINAL BELT PART NUMBER IS NOT AVAILABLE

When replacing V-belts with worn markings, use the belt cross-sections at the top of each page to identify the belt type. Belt length can be determined by using a V-belt rule (Grainger item no. 6AGK6), or by using the belt-length formula calculation on this page. Based on ARPM standards, HP tables are provided to the left, for assistance when designing new applications.

#### BELT INTERCHANGE\*

ARPM Belt Size	BROWNING	CONTITECH/GOODYEAR	GATES	DAYCO
<b>3L, 4L, 5L</b>	FHP	Fractional HP	TRUFLEX	Durapower FHP
<b>A, B, C</b>	Super Gripbelts	HY-T	HI-POWER	Super Blue Ribbon
<b>AX, BX, CX</b>	Gripnotch	Torque-Flex	TRI-POWER	Gold Label Cog-Belt
<b>3VX, 5VX</b>	358	HY-T Wedge	HY-T Wedge	Power Wedge Vee Cog-Belt

\* Contact local Grainger branch for assistance with cross-referencing specific part numbers.

## Sheave Pitch Diameters

### TO CALCULATE MOTOR SHEAVE PITCH DIAMETER

Multiply driven sheave rpm by driven sheave pitch diameter and divide by motor sheave rpm.

### TO CALCULATE DRIVEN SHEAVE PITCH DIAMETER

Multiply motor sheave rpm by motor sheave pitch diameter and divide by driven sheave rpm.

#### FORMULA

(Motor sheave PD x Motor sheave RPM) / Driven sheave RPM = Driven sheave PD

## V-Belt Length Calculation

Dayton V-belts interchange with major brands like Browning, Goodyear, Gates, Dayco, and others.

#### V-BELT LENGTH CALCULATION

$$L = 2C + 1.57(D+d) + \frac{(D-d)^2}{4C}$$

L = Pitch Length of Belt  
C = Center Distance  
D = Pitch Diameter of Large Sheave  
d = Pitch Diameter of Small Sheave

