1. Determine the Service Factor C1

By reading the Service Factor C1 Table of the application concern. Choose drive conditions nearest to that of the driving and driven unit based on the actual number of hours of operation per day.

2. Determine the V-Belt Cross Section to be used

By referring to the Cross Section Selection Chart based on the Design Power (Pd) and rpm of the smaller pulley. Design Power Pd = PX C1 (Kw) Where P = Power required by driven machine.

In borderline case, the smaller belt section should be selected to give best result, both economically and operationally.

As a principle rule, narrow V-Belt drives should be chosen for New Installations, as they save space and reduce cost. For higher speed drives and smaller pulley drives, Cogged raw edge belt are recommended they would generally give optimum performance. However cogged raw belting is not recommended for high moisture environment. Maximum permissible linear belt speed should be taken into considerations:

Classical V-Belt	<30m/s
Narrow V-Belt	<40m/s
Cogged Raw Edge V-Belt	<50m/s

3. Determine the Speed Ratio

By dividing the Bigger Pulley with the smaller Pulley or by dividing the Higher (Drive or driven) speed with the (Drive or driven) Lower speed.

4. Select the smaller Pulley

Selection the smaller Pulley is done from the relevant Power-rating table depending on the Belt type and Cross Section selected from the step 2. Number of grooves is determine at this point with the Kw rating per belt is computed by dividing the Pd (Power) by the number of grooves.

s. Determine the size of the Bigger Pulley

The bigger Pulley is selected from the closest standard size Pulley after multiplying the smaller pulley with Speed Ratio.

6. Calculate the Belt Length Ld in mm (Pitch Length)

$$L_d = 2C + 1.57(D_d + d_d) + (D_d - d_d)^2 / 4C$$

Where
C = Desired centre Distance in mm
Dd = Pitch diameter of bigger Pulley
dd = Pitch Diameter of smaller Pulley

After calculation, chose the nearest standard belt length has the selected Belt length size.

7. Calculate the actual Centre Distance based on the selected standard length belt.

To determine the actual centre distance based on the actual standard belt length, use following formula;

$$Ca = A + (A^2 - B)^{1/2}$$

Where

Ca = Actual Centre Distance

A = $L/4 - 0.3925(D_d + d_d)$

B = $(D_d - d_d)^2 / 8$

8. Determine Belt Length Correction Factor

By reading the C_2 from the belt length correction factor table.

9. Determine the Arc of contact correction Factor C_3

Calculate $(D_d - d_d) / C$ and refer to Table for C_3 correction factor

10. Confirm rating of drive selected

$$Z = (P \times C_1) / (P_S \times C_2 \times C_3)$$

Where

Z = Number Of Belts

P = Required Power of the driven Machine

P_S = Kw Rating per Belt

C_1 = Service Factor

C_2 = Belt Length Correction Factor

C_3 = Arc of Contact Correction Factor.

ARC OF CONTACT CORRECTION FACTOR

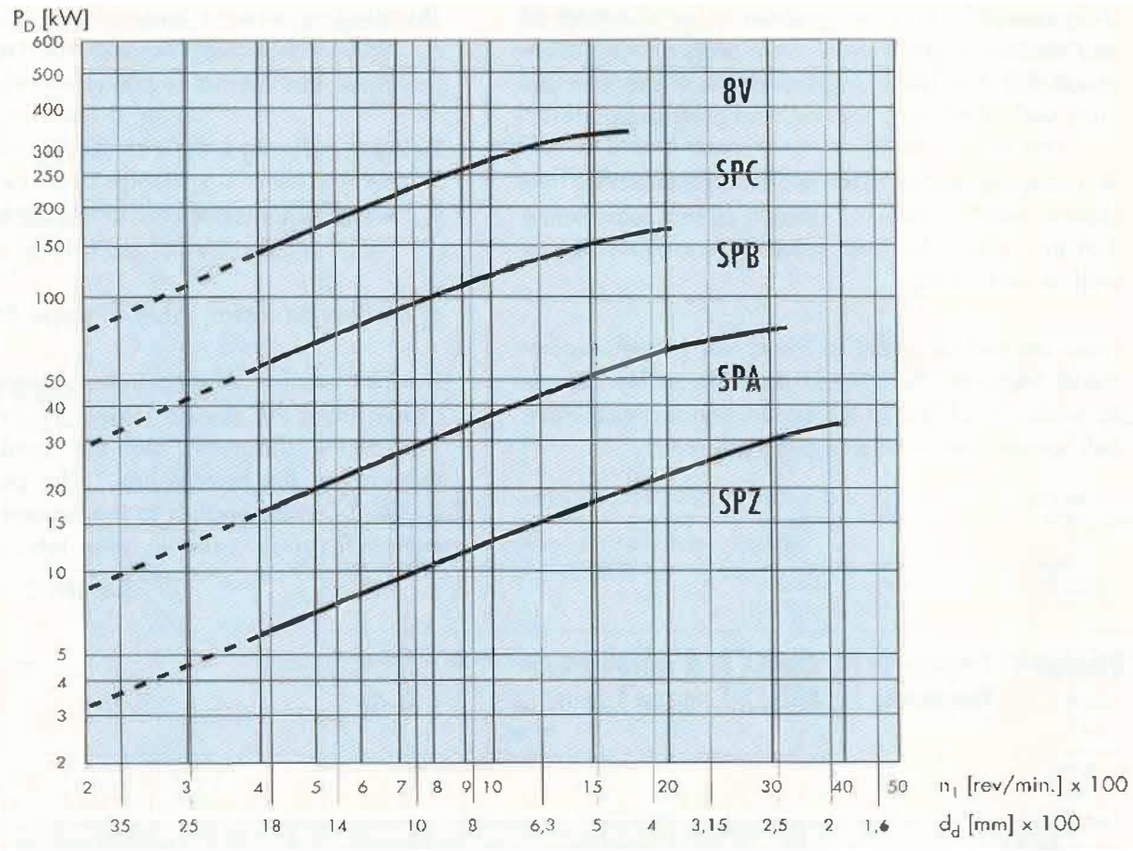
$(D_d - d_d) / C$	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50
Angle of Arc of contact	180	174	169	163	157	151	145	139	133	127	120	113	106	99	91	83
C_3 , Narrow V-Belt	1.00	0.99	0.99	0.98	0.98	0.97	0.96	0.95	0.94	0.92	0.91	0.89	0.87	0.85	0.82	0.78
C_3 , Cogged Raw Edge Belt	1.00	1.00	0.99	0.99	0.99	0.98	0.98	0.97	0.97	0.96	0.95	0.94	0.92	0.90	0.88	0.85

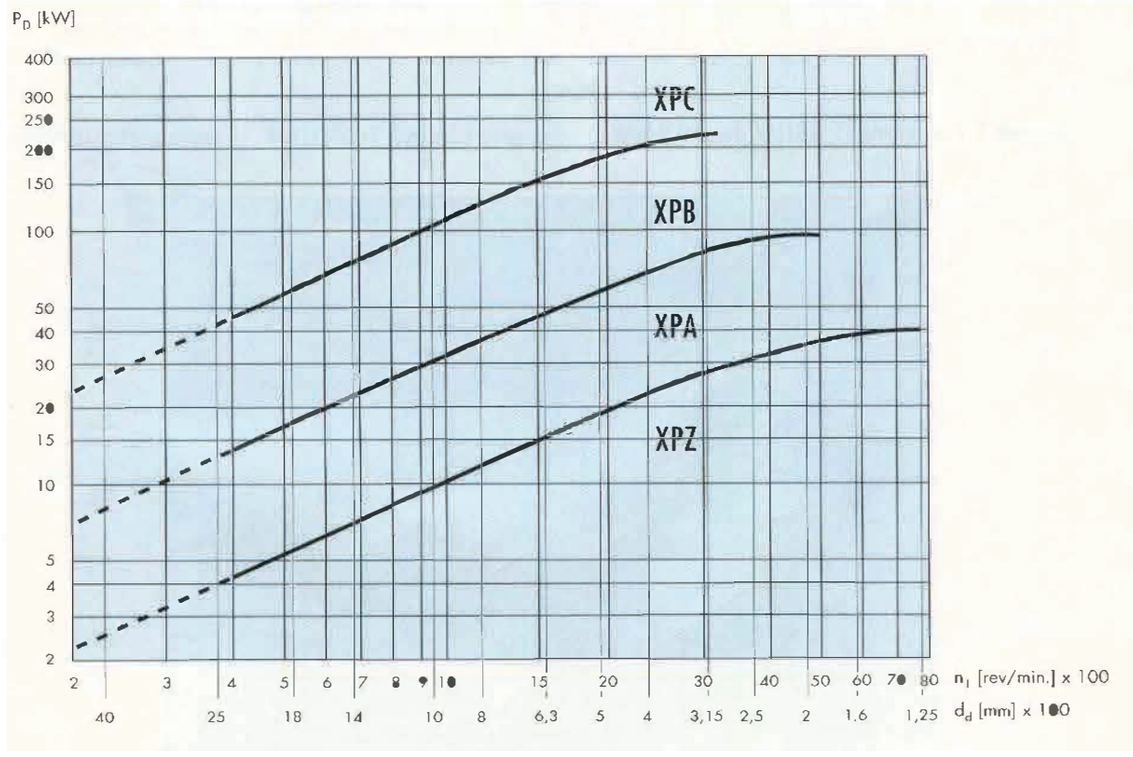
With the addition of the C1 Service Factor, allowance is made for the load conditions which are characteristic of the listed driving and driven unit types and as well as number of operating hours.

If the driving unit is not listed in the table, we recommend selecting a listed unit which is as close to the applicable load conditions as possible.

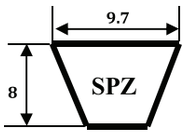
Under extreme operating conditions with e.g. sharp dust, high temperatures, high starting torque and heavy shock loads, the C1 factor should be increased.

DRIVEN UNIT	DRIVING UNIT ENGINE / MOTOR					
	Ac motors, single and three phase with star-delta start. DC Shunt-wound motors, Multiple cylinder internal combustion engines.			AC motors, single and three phase, series wound, slip-ring motors with direct start. DC motors, series and compound wound, Single cylinder internal combustion engines		
	Number of operating hours per 24 Hours			Number of operating hours per 24 Hours		
	Up to 10	Over 10 to 16	Over 16	Up to 10	Over 10 to 16	Over 16
Agitators for liquids. Small centrifugal blowers. Fans up to 7.5 KW. Light-duty conveyors	1.0	1.1	1.2	1.1	1.2	1.3
Belt Conveyors for sand, grain, etc. Dough mixers. Fans over 7.5 KW. Generators. Washing machines. Machine tools. Punching, pressing and shearing machines. Printing machines. Positive displacement rotary pumps. Vibrating and rotary screens.	1.1	1.2	1.3	1.2	1.3	1.4
Brick-making machinery. Bucket elevator. Piston compressors. Screws Conveyors. Hammer mills. Hollanders. Piston Pumps. Positive displacement blowers. Crushers. Woodworking machinery. Textile machinery	1.2	1.3	1.4	1.4	1.5	1.6
Gyratory and jaw-roll crushers. Mills (ball/rod). Hoist (heavy Loads). Rolling mills, calenders etc. for the rubber and plasters industries	1.3	1.4	1.5	1.5	1.6	1.8


P_D [kW]
600
500
400
300
250
200
150
100
50
40
30
20
15
10
5
4
3
2
8V
SPC
SPB
SPA
SPZ
2 3 4 5 6 7 8 9 10 15 20 30 40 50
n_1 [rev/min.] x 100
35 25 18 14 10 8 6,3 5 4 3,15 2,5 2 1,6
d_d [mm] x 100

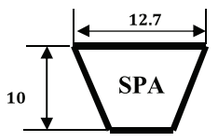

P_D [kW]
400
300
250
200
150
100
50
40
30
20
15
10
5
4
3
2
XPC
XPB
XPA
XPZ
2 3 4 5 6 7 8 9 10 15 20 30 40 50 60 70 80
n_1 [rev/min.] x 100
40 25 18 14 10 8 6,3 5 4 3,15 2,5 2 1.6 1,25
d_d [mm] x 100

tmx Narrow (Wedge) V-Belt, Oil and Heat Resistant with Antistatic characteristic



SPZ	Pitch Length mm
612	612
630	630
650	650
662	662
670	670
687	687
700	700
722	722
737	737
750	750
772	772
787	787
800	800
825	825
850	850
875	875
887	887
900	900
937	937
950	950
962	962
987	987
1000	1000
1024	1024
1037	1037
1060	1060
1080	1080
1100	1100
1125	1125
1150	1150
1180	1180
1187	1187
1200	1200
1215	1215
1222	1222
1250	1250
1282	1282

SPZ	Pitch Length mm
1300	1300
1320	1320
1350	1350
1400	1400
1420	1420
1450	1450
1500	1500
1550	1550
1600	1600
1650	1650
1700	1700
1762	1762
1800	1800
1832	1832
1850	1850
1862	1862
1900	1900
1932	1932
1950	1950
2000	2000
2020	2020
2050	2050
2082	2082
2100	2100
2137	2137
2150	2150
2180	2180
2200	2200
2220	2220
2262	2262
2300	2300
2360	2360
2400	2400
2410	2410
2450	2450
2500	2500

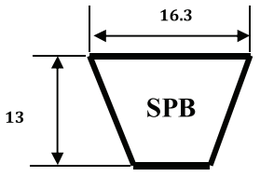


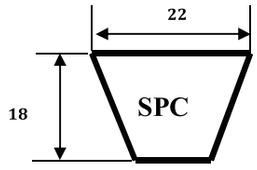
SPA	Pitch Length mm
782	782
800	800
832	832
850	850
882	882
900	900
950	950
982	982
1000	1000
1032	1032
1060	1060
1080	1080
1082	1082
1090	1090
1107	1107
1120	1120
1150	1150
1160	1160
1180	1180
1207	1207
1210	1210
1220	1220
1232	1232
1250	1250
1272	1272
1282	1282
1300	1300
1320	1320
1332	1332
1350	1350
1367	1367
1382	1382
1400	1400
1425	1425
1450	1450
1482	1482
1500	1500
1532	1532
1550	1550
1582	1582
1600	1600
1632	1632
1650	1650
1682	1682
1700	1700

SPA	Pitch Length mm
1732	1732
1750	1750
1782	1782
1800	1800
1832	1832
1850	1850
1882	1882
1900	1900
1920	1920
1932	1932
1950	1950
1982	1982
2000	2000
2020	2020
2037	2037
2050	2050
2060	2060
2070	2070
2082	2082
2100	2100
2120	2120
2130	2130
2150	2150
2160	2160
2180	2180
2182	2182
2190	2190
2200	2200
2220	2220
2232	2232
2240	2240
2260	2260
2282	2282
2300	2300
2320	2320
2332	2332
2340	2340
2360	2360
2382	2382
2400	2400
2410	2410
2432	2432
2440	2440
2450	2450
2460	2460

SPA	Pitch Length mm
2482	2482
2500	2500
2520	2520
2530	2530
2550	2550
2600	2600
2610	2610
2620	2620
2632	2632
2650	2650
2682	2682
2700	2700
2750	2750
2782	2782
2800	2800
2820	2820
2832	2832
2857	2857
2882	2882
2900	2900
2957	2957
2970	2970
3000	3000
3082	3082
3120	3120
3180	3180
3280	3280
3325	3325
3425	3425
3475	3475
3650	3650
3700	3700
3750	3750
3800	3800
3850	3850
3875	3875
3900	3900
4000	4000
4120	4120
4150	4150
4250	4250
4400	4400
4500	4500

tmx Narrow (Wedge) V-Belt, Oil and Heat Resistant with Antistatic characteristic





SPB	Pitch Length mm
1150	1150
1200	1200
1300	1300
1320	1320
1340	1340
1350	1350
1400	1400
1450	1450
1500	1500
1550	1550
1560	1560
1600	1600
1625	1625
1650	1650
1700	1700
1750	1750
1800	1800
1825	1825
1850	1850
1875	1875
1900	1900
1920	1920
1950	1950
1980	1980
2000	2000
2020	2020
2032	2032
2050	2050
2060	2060
2082	2082
2100	2100
2120	2120
2150	2150
2180	2180
2200	2200
2230	2230
2240	2240
2250	2250

SPB	Pitch Length mm
2280	2280
2300	2300
2310	2310
2325	2325
2330	2330
2350	2350
2385	2385
2410	2410
2432	2432
2440	2440
2450	2450
2475	2475
2500	2500
2520	2520
2540	2540
2550	2550
2575	2575
2580	2580
2600	2600
2620	2620
2650	2650
2680	2680
2690	2690
2700	2700
2730	2730
2750	2750
2780	2780
2800	2800
2840	2840
2850	2850
2880	2880
2900	2900
2925	2925
2950	2950
2975	2975
3000	3000
3032	3032
3050	3050

SPB	Pitch Length mm
3080	3080
3100	3100
3150	3150
3175	3175
3200	3200
3240	3240
3250	3250
3275	3275
3300	3300
3325	3325
3350	3350
3380	3380
3400	3400
3450	3450
3475	3475
3500	3500
3550	3550
3575	3575
3600	3600
3650	3650
3700	3700
3725	3725
3750	3750
3800	3800
3825	3825
3850	3850
3900	3900
3950	3950
3960	3960
4000	4000
4050	4050
4060	4060
4100	4100
4120	4120
4150	4150
4250	4250
4350	4350

SPC	Pitch Length mm
2000	2000
2080	2080
2120	2120
2150	2150
2180	2180
2240	2240
2280	2280
2300	2300
2350	2350
2400	2400
2410	2410
2450	2450
2480	2480
2500	2500
2550	2550
2580	2580
2600	2600
2650	2650
2700	2700
2750	2750
2800	2800
2850	2850
2900	2900
2925	2925
3000	3000
3050	3050
3080	3080
3100	3100
3150	3150
3170	3170
3250	3250
3300	3300
3350	3350
3400	3400
3425	3425

SPC	Pitch Length mm
3500	3500
3550	3550
3600	3600
3650	3650
3700	3700
3750	3750
3800	3800
3850	3850
3900	3900
3970	3970
4000	4000
4050	4050
4100	4100
4150	4150
4200	4200
4250	4250
4350	4350
4400	4400
4500	4500
4530	4530
4650	4650
4700	4700
4750	4750
4800	4800
4830	4830
4850	4850
5000	5000
5300	5300