

WEDGE BELTS VECO 200® DYNAM® SYSTEM

ST - API - ISO 4184 - DIN 7753 - BS 3790

TECHNICAL DATA SHEET
10001 - 1/2 - 12/97
FICHE TECHNIQUE

Function

Flexible link between the motor and the machine which transmits high power

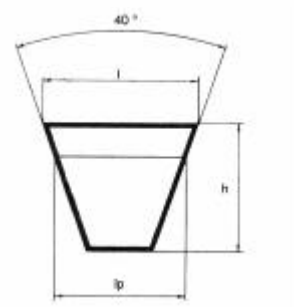
Conception

Endless V belts are made of :

- synthetic rubbers which guarantee a constant hardness
- polyester cord with controlled elasticity and high capacity of traction
- single wrapping (for SPZ sections) and double wrapping (for SPA, SPB and SPC sections) impregnated with polychloroprene compound which resists heat, oil, abrasion and ozone aggressions.

General Specifications

- temperature of use : -20° to + 80°C
- antistatic following standard NF T 47 104
- V belt sections following standard E 24 - 213
- resistant to oil projection, hydrocarbure and diluted acids.
Approved by API (American Petroleum Institute)
- endure centrifugal strength
- good draining of heat at high speed
- reduce bulkiness of transmission :
 - smaller and lighter pulleys
 - smaller protection carter
 - higher speed solutions



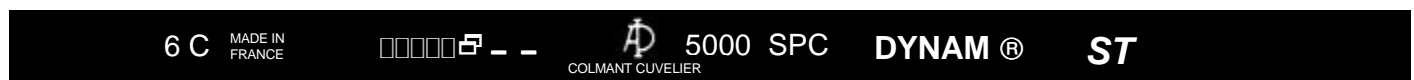
SECTION	l	h	lp
SPZ	10	8	8,5
SPA	13	11	11
SPB	16	14	14
SPC	22	18	19

Stabilisation Process "ST"

The stabilisation process "ST" guarantees a small and continuous margin on the length. The length of V. belts follows the standard NF ISO 4184. It means :

- easy to install
- even distribution of loads on multiple belt drives
- eliminate vibrations

Marking



On our DYNAM belts, you can read :

- the production date (codes for month and year) : 6C
- API and ST marks
- the pitch length measured under strength, as well as the section : 5000 SPC

THE "LABEL DYNAM"

Design

The DYNAM® system allows us to supply a pre-tensioned belt. This system ensures the correct tension by the mere reading of the length between 2 marks. This measure only requires to be done once when tensening the belt. There is no need to check the tension twice. (see data sheet n°10003).

Performance

- The 1 % slip guarantees a performance of 95 %.
- Improved transmitted power by 20 %.
- Optimum performance is obtained when the linear speed is between 30 m/s and 33 m/s.

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TECHNICAL DATA SHEET
10001 - 2/2 - 12/97

FICHE TECHNIQUE

Pitch lengths of our V belts (in mm)

The sections of V belts VECO 200® with "label DYNAM" that we can supply are : SPZ, SPA, SPB, SPC. Only the sizes in yellow are available with the DYNAM System.

SPZ (10 x 8)					SPA (13 x 11)				SPB (16 x 14)			SPC (22 x 18)	
587	937	1312	1800	3250	782	1232	1800	2800	1250	2240	4100	2000	6000
612	950	1320	1850	3350	800	1250	1832	2832	1280	2300	4120	2120	6300
630	962	1332	1900	3450	832	1280	1850	2882	1320	2360	4250	2240	6500
657	975	1337	1950	3550	850	1307	1882	2900	1360	2430	4370	2360	6700
670	987	1360	2000	3650	875	1320	1900	2932	1400	2500	4500	2500	7100
687	1000	1387	2030	3850	900	1332	1950	3000	1450	2530	4560	2650	7500
710	1012	1400	2060		925	1360	1982	3070	1500	2580	4620	2800	8000
722	1020	1420	2120		932	1382	2000	3150	1520	2650	4650	3000	8500
725	1030	1437	2137		950	1400	2032	3250	1550	2720	4750	3080	9000
737	1037	1450	2180		975	1425	2060	3350	1580	2800	4870	3150	9500
750	1060	1462	2240		982	1450	2120	3450	1600	2900	5000	3350	10000
762	1090	1487	2280		1000	1482	2180	3550	1650	3000	5300	3550	10600
772	1112	1500	2300		1030	1500	2240	3650	1700	3070	5600	3650	11200
787	1120	1512	2360		1060	1550	2300	3750	1750	3150	6000	3750	11800
800	1137	1537	2430		1082	1582	2360	3870	1800	3170	6300	3810	12500
812	1150	1550	2500		1090	1600	2430	4000	1850	3250	6700	3912	14000
837	1162	1562	2580		1107	1632	2450	4250	1900	3350	7100	4000	20000
850	1180	1587	2650		1120	1650	2475	4870	1950	3450	7500	4100	
862	1220	1600	2720		1132	1657	2500		2000	3550	8000	4250	
875	1237	1650	2800		1150	1682	2532		2020	3650	10000	4500	
887	1250	1700	2900		1157	1700	2580		2060	3750		4750	
900	1262	1732	3000		1180	1732	2650		2120	3840		5000	
912	1280	1737	3070		1207	1750	2720		2150	3870		5300	
925	1287	1750	3150		1220	1782	2732		2180	4000		5600	
Lp = li + 37 Lp = le - 13					Lp = li + 51 Lp = le - 18				Lp = li + 66 Lp = le - 26			Lp = li + 83 Lp = le - 30	
Weight / metre 0,070 kg					Weight / metre 0,120 kg				Weight / metre 0,194 kg			Weight / metre 0,370kg	

Lp : pitch length; li : internal length ; le : external length

Stocking conditions

Belts must be stocked under the following conditions :

- the room must be dry, without dust and well ventilated.
- temperature must be between +5°C and +25°C.
- no condensation, maximum humidity of air : 65 %.
- avoid direct sun light and high artificial light due to ultraviolet.
- avoid contact with chemical products, solvent, petrol, lubricant, acid, volatile components, greases.
- no material which can produce ozone, like high tension electric material, electric motors or other materials which can produce sparks or electric discharges.
- the stocked belts must not have been stressed, compressed or deformed.
- set them more than 1 meter from radiators or heat source.
- avoid direct contact with some kinds of metal (copper, manganese, ...)
- avoid contact with sharp, abrasive and angular surfaces.
- the material of boxes, packings and the coverings must not contain nocive substances for the belts like copper or creosotes.

Stock turn : The best thing to do is : "first in, first out"

Cleaning : Cleaning with water and soap is harmless. You must never use organic solvents like trichlorethylene, tetrachlorure of carbone or ether of petrol, no abrasive, pointed or sharp tools. The cleaned belts must be dried at ambient temperature.

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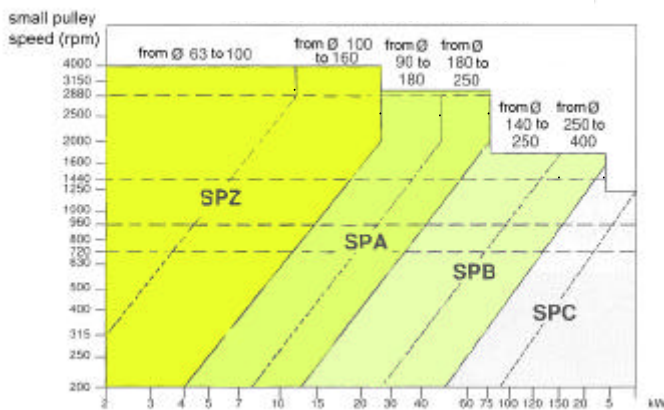
Estimating corrected power :

Use the above correction coefficients on the basis of the operating rating, the type of machine to be driven and the nature of the drive force.
The corrected power is : $P_c = \text{Power} \times \text{Power correction}$.

DRIVE POWER	Rating	Electric motor with Cs / Cn £2 Heat engine with 2 or more cylinders			Electric motor with Cs / Cn >2 Heat engine with 1 cylinder only		
		8 hrs	16 hrs	24 hrs	8 hrs	16 hrs	24 hrs
Power operating machines							
LOW INERTIA : Rotary machine tools, light conveyors, agitators, small fans, centrifugal pumps.		1	1,1	1,2	1,2	1,3	1,4
AVERAGE INERTIA : Alternators, alternate machine tools, large conveyors, fans.		1,1	1,2	1,3	1,3	1,4	1,5
HIGH INERTIA : Hammer mills, mixers, piston pumps, wood cutting machines, paper mill machines.		1,2	1,3	1,4	1,4	1,5	1,6
VERY HIGH INERTIA : Rotary crushers, cylinder crushers, jar mills, roller mills.		1,3	1,4	1,5	1,7	1,8	1,9

Calculation example : electric motor - 50 kW - 2880 rpm - 60 mm \varnothing shaft. Turbo-fan : 2075 rpm - 60 mm \varnothing shaft.
Rating : 24 hrs per day. Infrequent start-ups. Distance between axes : 1100 mm.
Power correction : $P_c = 50 \times 1,3 = 65\text{kW}$.

Choosing the belt cross-section :



Using the belt selection charts, draw a vertical line up from the corrected power value, to the intersection with the horizontal line which gives the highest pulley speed.
The intersection gives the belt cross-section to use together with the diameter of the smallest transmission pulley.

Calculation example : the recommended cross-section is SPA and the small pulley diameter is 180 mm.

Selecting the pulley diameters :

Choose the pulley diameter keeping in mind that the greater the diameter, the greater the transmitted power. Conversely, do not select a diameter lower than those indicated below :

Section	SPZ	SPA	SPB	SPC
mini \varnothing	71	90	140	224

Calculation example : driver pulley = \varnothing 180 - driven pulley = $180 \times 1,39 = \varnothing$ 250

Calculating the transmission ratio :

$$\text{Ratio} = \frac{\text{High shaft speed (rpm)}}{\text{Low shaft ratio (rpm)}} = \frac{N}{n}$$

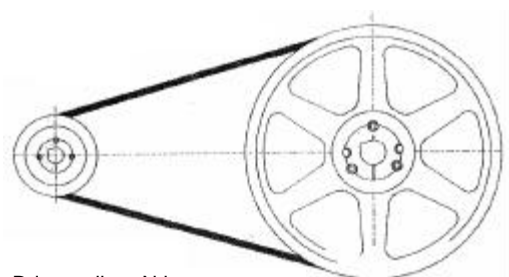
Calculation example : $r = 2880/2075 = 1,39$

Distances between axes :

If the distance between axes E is not given, use as a minimum :

$$\text{for a ratio less than 3 : } \frac{D + d}{2} + d$$

for a ratio greater than 3 : $1,2 D$



Driver pulley : N in rpm,
working diameter d in mm
 $r = N/n = D/d$

Driven pulley : n in rpm,
working diameter D in mm

Determining drive belt length (L) :

The following formula must be used :

$$L_o = 2 E + 3,14 \frac{D + d}{2} + \frac{(D - d)^2}{4 E}$$

Select the standard length L which is the closest to the calculated length L_o. The new distance between axes thus become :

$$E + \frac{L - L_o}{2} \quad \text{si } L > L_o \quad \text{ou} \quad E - \frac{L_o - L}{2} \quad \text{si } L < L_o$$

Calculation example :

$$L_o = 2 \times 1100 + 3,14 \times (250 + 180)/2 + (250 - 180)^2 / (4 \times 1100) = 2876 \text{ mm}$$

Selected length L = 2800 mm

$$E = 1100 - (2876 - 2800) / 2 = 1061 \text{ mm}$$

Determining the actual power belt drive :

Use the belt transmissible power tables (see technical data sheet n°10002 - 3, 4, 5 et 6) to find the gross transmissible power as function of the diameter of the small pulley. Correct this power by multiplying it by the length correction coefficient and the correction factor (see technical data sheet n°10002 - 3, 4, 5 et 6). Irrespective of whether a reduction or multiplication transmission is used, always lower these to the values corresponding to the small diameter pulley.

Calculation example : Using the table on sheet 10002 - 4, gross power per belt is 16,9 kW.

Length coefficient : 1

Arc correction factor : $(D - d) / E = (250 - 180) / 1061 = 0,066$, where the arc correction factor equals : 1

Actual transmissible power : 16,9 kW x 1 x 1 = 16,9 kW.

Number of VECO 200^â DYNAM^â system drive belt :

Divide the corrected power by the actual power transmitted by one belt. The result is rounded up to the next whole number

Calculation example : $N_c = 65/16,9 = 3,85$ belts, rounded up to 4 belts

Static load on the pulleys :

$$\text{- Tension per strand } T : 45 \times \frac{2,5 - G}{G} \times \frac{P_c}{N_c \times V} + MV^2 \text{ (daN)}$$

- Load on bearing R : $2 T \times N_c \times \sin(\beta/2)$ (daN)

G : arc correction factor (see table opposite)

P_c : corrected power, kW

N_c : number of belts

V : belt linear speed in m/s :

M : constant (see table below)

$$\frac{d \times N \times 3,14}{60}$$

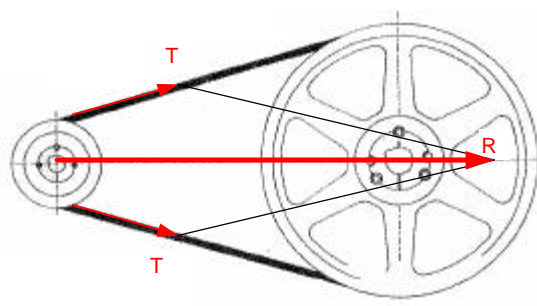
Section	SPZ	SPA	SPB	SPC
M	0,006	0,012	0,017	0,032

(D - d) / E	β °	Factor G
0,00	180	1,00
0,10	174	0,99
0,20	169	0,97
0,30	163	0,96
0,40	157	0,94
0,50	151	0,92
0,60	145	0,90
0,70	139	0,88
0,80	133	0,87
0,90	127	0,85
1,00	120	0,83
1,10	113	0,80
1,20	106	0,77

DYNAM tensioning helps to ensure minimal bearing loads, obtaining effective bearing and roller to race contact, improving the installation overall efficiency.

Calculation example : tension per strand (SPA) = $T = 45 \times (2,5 - 1) / 1 \times 65 / (4 \times 27,13) + (0,012 \times 27,13^2) = 49,3$

Static bearing load : $R = 2 \times 49,3 \times 4 \sin(180^\circ/2) = 394,6 \text{ daN}$



CLASSICAL V-BELTS VECO 100[®] AND WEDGE V-BELTS VECO 200[®] LABEL DYNAM INSTALLATION GUIDE

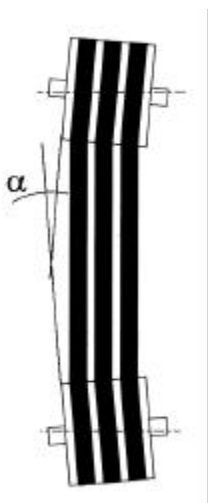
TECHNICAL DATA SHEET
10003 - 1/1 - 09/97
FICHE TECHNIQUE

A proper installation is an important aspect for transmitting power with a transmission with Veco V-belts.

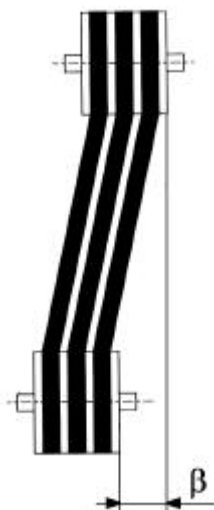
It must respect the parallelism of the shafts, the alignment of the pulleys and the correct setting of the DYNAM[®] tension device. The installation must also respect the following instructions :

- Use identical grooves according to usual norms and tolerances. Make sure that grooves are clean and adequate to the belt's section used.
- Do not force when installing the belt in the grooves of the pulleys. Any kind of excessive effort can damaged the tensile cord. If necessary, reduce distance between shafts.
- If more than one belt are used, it is necessary to change them all in case of problem with one of them.
- Never use greasy or dissolving products which reduces considerably the adhesion factor of the VECO belt.

Shaft's parallelism and alignment of the pulleys :



Non parallel shafts



Parallel shafts, not aligned pulleys



Correct installation

Misalignment maximal

$$\alpha \text{ maxi} = 0,5^\circ \quad \text{OU} \quad \beta \text{ maxi} = 8 \text{ mm per metre of distance between shafts}$$

Installation tension :

The DYNAM label allows the proper tension thanks to a mark printed on the back of the belt.

- Tense the belt progressively controlling the length between the two marks.
- When length between marks is reached, start the transmission for a few revolutions.
- Check the length between the marks again, the tension of the belt is completed.

Attention : Always measure this length between the outside of the marks.

Following this instructions will guaranty the optimum working of your transmission.

I < Tension of the installation / Init tension = 350 mm > I



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Use of tensile rollers

With V-belts, the rollers can be used to set the tenison when none of the shafts can be moved, or to limit the vibrations.

A tensile roller can be flat or with grooves, set on the driven belts (preferably) or on the driving belts, inside (preferably) or outside of the belts. This leads to 6 current positions, shown of the drafts below. The roller's diameter must be the biggest possible, at least the diameter of the small pulley.

Roller on driven belts :

When roller can be blocked, this device is the most secure to avoid belts slipping. A mobile roller with weight or spring can be used if there is not risks that the torque be inverted.

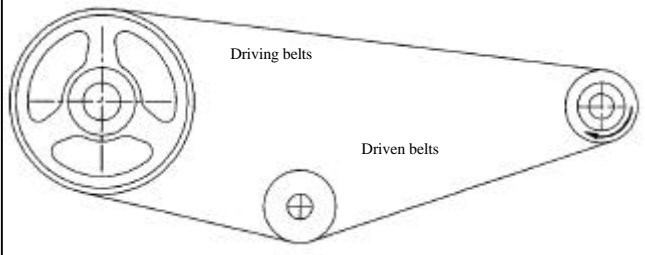


Figure 1 : Roller with inside grooves

Compulsory with wedge belts.

Location and direction : to be determined by design in order to insure that the contact of belt with pulley is almost the same. (afterwards, the roller will be closer to the bigger pulley than the small one).

Rollers on driving belts :

The roller must necessarily be blocked in that position.

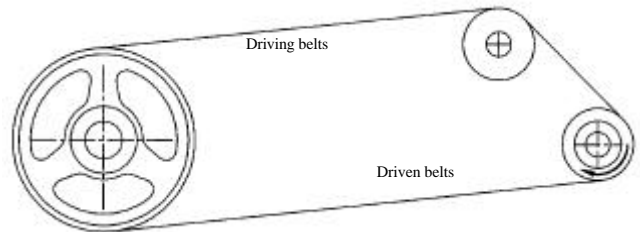


Figure 4 : Roller with grooves

The recommandations sont the mêmes que for the figure 1.

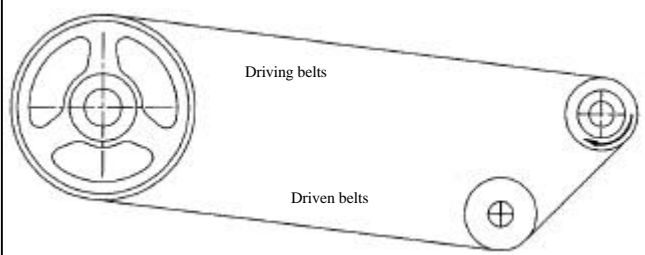


Figure 2 : Flat inside roller

The closest possible to the driving pulley making sure that the contact is sufficient.

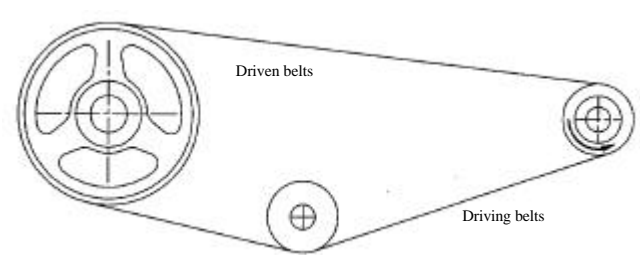


Figure 5 : Flat inside roller

Use of the rollers with double setting; taking into account the efforts on the belts, an roller installed en port-à-faux lacks of stiffness.

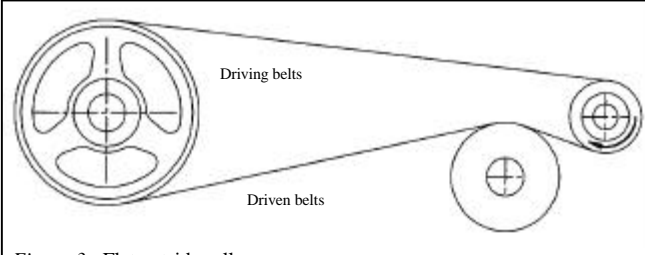


Figure 3 : Flat outside roller

Disposition à éviter, the contre-pilage disloquant the belts (enveloppement, noyau and enfin armature).

Seul the manque of the place peut justifier cette disposition : the plus près possible of the the pulley motrice.

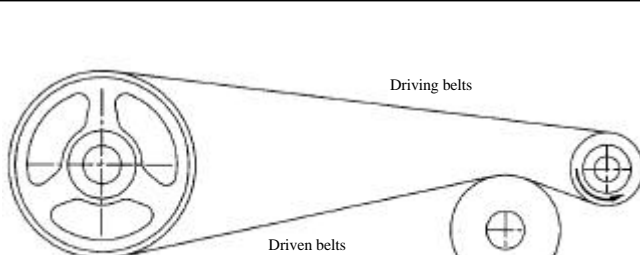


Figure 6 : Flat outside roller

Solution to be avoided if possible, the contre-pilage s'effectuant sous the tension maximum of the the belt au cours of the son cycle.

Diameter : the highest possible.

Location : close to the driven pulley.

Troubles	Causes	Remedies
<u>Belt breaking after fitting</u>	<ul style="list-style-type: none"> - Forcing belt over pulley when fitting, damaging cord and cover - Ingress of a foreign body - Insufficient belts for drive 	<ul style="list-style-type: none"> - Change the belt without forcing - Check drive details
<u>Cuts and splits in the base of the belt</u>	<ul style="list-style-type: none"> - Outside idler pulley in use - Use of the internal face of the belt - Pulley diameter too small 	<ul style="list-style-type: none"> - Replace with inside idler pulley - Using the recommended minimum pulley pitch diameter
<u>Belt cannot be retensioned</u>	<ul style="list-style-type: none"> - Regulation is too small - Excessive stretch - Belts from different manufacturers used on the same drive 	<ul style="list-style-type: none"> - Increase the regulation possibility - Recalculate drive design and modify - Replace with new matched set of belts - Change the complete set
<u>Friction, belt turn over in pulleys</u>	<ul style="list-style-type: none"> - Poor drive alignment - Incorrect pulley groove section - Use of the grooves - Vibrations - Low belt tension - Excessive wear on belts flanks 	<ul style="list-style-type: none"> - Realign or replace the pulleys - Retension belt - Renew the belt - Use banded belt VECOBAND®
<u>Excessive wear on belts flanks</u>	<ul style="list-style-type: none"> - Incorrect pulley groove angle - Incorrect pulley section - Excessive wear in pulley grooves - Poor drive alignment 	<ul style="list-style-type: none"> - Renew pulleys - Realign
<u>Break of belts flanks</u>	<ul style="list-style-type: none"> - Heating of the belt - Too high temperature (> 80 °C) - Slid 	<ul style="list-style-type: none"> - Remove source of heat - Use "LONGUE DUREE®" belts - Retension belt
<u>Excessive noise</u>	<ul style="list-style-type: none"> - Incorrect belt tension - Overload drive 	<ul style="list-style-type: none"> - Retension belt - Check drive details and redesign if necessary
<u>Overload of bearings</u>	<ul style="list-style-type: none"> - Overload or overdimensionned drive - Belt tension too high 	<ul style="list-style-type: none"> - Redesign drive - Control the tension again
<u>Belt swelling or softening</u>	<ul style="list-style-type: none"> - Contamination by oil or other chemicals - Temperature too high > 80 °C 	<ul style="list-style-type: none"> - Protect drive from contamination - Clean pulley's grooves - Use "LONGUE DUREE®" belts
<u>Inegal use of the wrapping</u>	<ul style="list-style-type: none"> - Rough pulleys - Excessive dust 	<ul style="list-style-type: none"> - Change the pulleys - Egalize the surfaces of the pulleys
<u>Separation of the belts</u>	<ul style="list-style-type: none"> - Non standard pulleys - Excessive belt tension 	<ul style="list-style-type: none"> - Redesign drive - Do the installation of belts again
<u>Return of the belts</u>	<ul style="list-style-type: none"> - Disalignment of pulleys - Excessive vibrations - Used pulleys 	<ul style="list-style-type: none"> - Renew pulleys - Control the alignment
<u>To long or to short belts</u>	<ul style="list-style-type: none"> - Wrong belts - Wrong drive installation - Low belt tension 	<ul style="list-style-type: none"> - Renew belts - Check drive installation
<u>Lenght problems</u>	<ul style="list-style-type: none"> - Used pulleys - Mix of new and old belts - Non parallel shafts - Belts provided by several suppliers 	<ul style="list-style-type: none"> - Replace with new matched set of belts - Renew the pulleys - Check alignment - Use only new belts - Use VECOBAND® belts

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10005 - 1/2 - 12/97
FICHE TECHNIQUE

Function

Flexible link between the motor and the machine which allows to transmit installed power in very good conditions. The VECO 100 belts, which are also called "classical belts", are often used on working machines. For a new transmission, think of VECO 200 belt's advantages and performance (see technical data sheet n°10001).

Conception

Endless V. belts are made of :

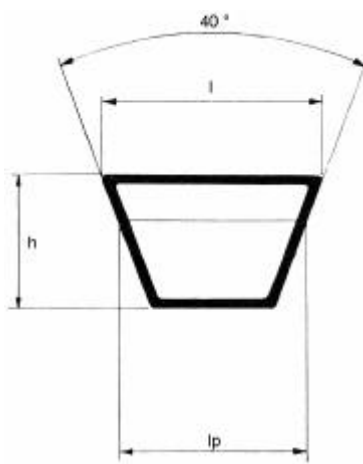
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General Specifications

- working temperature : - 20° to + 80°C
- antistatic following the standard NF T 47 104
- V. belt sections following the standard E 24 - 213
- resistant to oil projection, hydrocarbure and dilute acids.
Approved by API (American Institut of Petroleum)
- endure centrifugal strength

Stocking conditions

see technical data sheet n°10001-2



SECTION	l	h	lp
Z	10	6	8,5
A	13	8	11
B	17	11	14
C	22	14	19
D	32	19	27

Stabilisation Process "ST"

The stabilisation process "ST" guarantees a small and continuous margin on the length. The length of V. belts follows the standard NF ISO 4184.

It means :

- easy to install
- even distribution of loads on multiple belt drives
- eliminate vibrations

Marking

6 C MADE IN FRANCE



1545 A 60
COLMANT CUVELIER

DYNAM® ST

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- API and ST marks
- the pitch length measured under strength, as well as the section : 1545 A60

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- The 1 % slip guarantees a performance of 95 %
- Better transmitted power : this system improves the efficiency of V. belt by 20 %
- Optimum performance is obtained when the linear speed is between 30 m/s and 33 m/s

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Pitch lengths of our V.belts (in mm)

The sections of V.belts VECO 100® with "label DYNAM" that we can supply are : Z, A, B, C, D. Only the sizes in yellow are available with the DYNAM System.

Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.	Code R.M.A	Réf C.C.
Z (10 x 6)		A (13 x 8)				B (17 x 11)				C (22 x 14)				D (32 x 19)	
Z15	400	A17 1/2	441	A59	1525	B28	745	B90	2322	C43	1135	C236	6053	D120	3118
Z16	430	A18 3/4	497	A60	1545	B30	790	B91	2340	C48	1244	C258	6065	D125	3213
Z17 1/4	455	A20	550	A61	1585	B31	825	B92	2380	C50	1315	C240	6101	D128	3321
Z17 3/4	480	A21 3/4	570	A62	1600	B32 1/4	860	B93	2400	C51	1341	C248	6345	D136	3533
Z18	487	A22 1/4	595	A62	1610	B34	900	B94	2423	C55	1441	C265	6790	D140	3636
Z19 1/2	515	A23	608	A63	1625	B35	919	B95	2455	C60	1565	C270	6861	D144	3729
Z20 1/2	530	A23 1/2	625	A64	1650	B35 1/4	930	B96	2477	C61	1608	C283	7145	D158	4063
Z21 3/4	578	A24	642	A64 1/2	1670	B35 1/4	934	B96 1/2	2500	C62 1/4	1630	C285	7295	D162	4181
Z23 3/4	621	A25	663	A65	1680	B36 3/4	970	B98	2535	C63 1/4	1670	C297	7600	D173	4463
Z24	640	A26	684	A66	1700	B38	1000	B100	2575	C65 1/4	1705	C300	7621	D180	4643
Z25 1/2	670	A27	716	A67	1730	B39	1026	B102	2626	C68	1776	C316	8045	D195	5023
Z27	714	A28	748	A68	1756	B40	1060	B102	2640	C70	1850	C330	8381	D198	5076
Z28	735	A29	767	A69	1780	B41	1085	B104	2688	C71 3/4	1881	C336	8592	D212	5420
Z28 1/2	750	A30	794	A70	1800	B42	1100	B105	2706	C73	1890	C345	8821	D220	5663
Z30	787	A30 3/4	810	A71	1830	B43	1125	B108	2790	C75	1951	C360	9146	D240	6103
Z30 3/4	800	A31	815	A72	1854	B44	1150	B110	2828	C79	2058	C394	10045	D250	6363
Z32	838	A32	835	A73	1880	B44 1/4	1165	B112	2884	C79 1/2	2076	C420	10670	D270	6863
Z32 1/2	850	A33	857	A74	1905	B45	1185	B114	2941	C80	2095	C441	11245	D280	7163
Z34 1/4	887	A33 1/2	883	A75	1931	B46	1200	B116	2995	C81	2105			D300	7623
Z34 1/2	900	A34	900	A76	1955	B47 1/4	1236	B118	3034	C83	2145			D316	8063
Z35	914	A35	912	A77	1980	B48	1261	B120	3087	C84	2165			D330	8383
Z36	925	A36	945	A78	2000	B49	1280	B124	3182	C85	2210			D360	9148
Z36 1/2	950	A37	960	A79	2030	B50	1305	B128	3290	C87 1/2	2279			D371	9500
Z36 3/4	970	A37 1/4	971	A80	2060	B51	1328	B128 1/2	3308	C90	2335			D394	10063
Z38	990	A38	993	A81	2085	B52	1365	B131 1/2	3387	C93	2406			D420	10673
Z38 1/4	1000	A38 1/4	1000	A82	2120	B53	1385	B134	3420	C95	2470			D441	11263
Z39	1020	A38 1/2	1010	A84	2150	B54	1407	B135	3465	C96	2490			D480	12193
Z40	1040	A39	1021	A85	2190	B55	1428	B140	3582	C100	2575			D540	13718
Z40 1/2	1060	A40	1045	A87	2235	B56	1465	B144	3698	C103	2675			D600	15243
Z41 1/2	1075	A41	1060	A88	2250	B57	1490	B147	3774	C105	2719			D660	16784
Z42	1082	A41 1/2	1085	A89	2296	B58	1500	B151	3896	C108	2805				
Z42 1/2	1105	A42	1093	A90	2315	B58 1/2	1533	B154	3941	C110	2838				
Z43 1/4	1125	A43	1110	A91	2336	B60	1552	B155 1/4	3990	C112	2897				
Z44	1145	A43 1/2	1127	A92	2387	B61	1580	B158	4052	C116	3000				
Z46	1180	A44	1150	A94	2415	B62	1620	B162	4150	C118	3041				
Z47	1200	A45	1165	A96	2470	B64	1670	B167	4277	C120	3100				
Z48	1250	A46	1193	A97	2489	B66 1/4	1720	B173	4432	C124	3195				
Z51	1340	A47	1220	A98	2525	B67 1/4	1763	B175	4490	C128	3303				
Z52 1/2	1362	A48	1244	A103 3/4	2667	B68	1774	B180	4612	C132	3397				
Z54	1400	A48 1/2	1260	A105	2699	B70	1810	B192	4920	C134	3448				
Z55	1420	A49	1275	A110	2819	B71	1838	B195	4992	C136	3515				
Z56	1450	A49 1/2	1280	A112	2877	B72	1864	B204	5225	C140	3600				
Z59	1525	A50	1300	A120	3080	B73	1885	B210	5370	C141	3655				
Z60	1550	A50 1/4	1310	A124	3175	B74	1925	B224	5698	C144	3711				
Z65	1675	A51	1321	A128	3283	B75	1938	B240	6098	C148	3830				
		A52	1346	A137	3507	B76	1960	B248	6332	C153	3940				
		A52	1355	A139	3574	B78	2010	B270	6858	C158	4045				
		A53 1/4	1380	A141	3614	B80	1070	B274	7000	C162	4163				
		A53 1/4	1385	A144	3691	B81	1092	B281	7132	C165 3/4	4270				
		A54	1400	A162	4143	B82	2120	B282	7155	C173	4445				
		A55	1421	A180	4600	B83	2160	B285	7285	C177	4555				
		A55 3/4	1447	A188	4810	B84	2180	B300	7618	C180	4625				
		A56	1450	A196	5000	B85	2197			C195	5005				
		A57	1475	A203	5130	B86	2210			C204	5226				
		A58	1500	A220	5614	B87	2245			C210	5410				
		A58 1/2	1515			B88	2270			C220	5645				
Lp = li + 25 Lp = le - 13		Lp = li + 32 Lp = le - 18				Lp = li + 47 Lp = le - 22				Lp = li + 58 Lp = le - 30				Lp = li + 79 Lp = le - 40	
Weiath / metre 0,065 kg		Weiath / metre 0,110 kg				Weiath / metre 0,195 kg				Weiath / metre 0,320 kg				Weiath / metre 0,620 kg	

Lp : pitch length ; li : internal length ; le : external length

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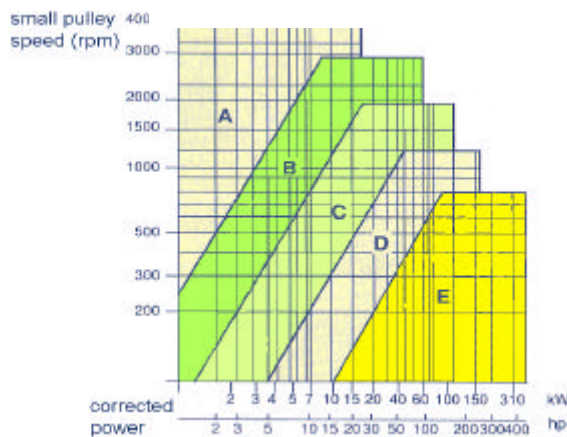
Estimating corrected power :

Use the above correction coefficients on the basis of the operating rating, the type of machine to be driven and the nature of the drive force.
The corrected power is : $P_c = \text{Power} \times \text{Power correction}$.

DRIVE POWER	Rating	Electric motor with Cs / Cn £2 Heat engine with 2 or more cylinders			Electric motor with Cs / Cn >2 Heat engine with 1 cylinder only		
		8 hrs	16 hrs	24 hrs	8 hrs	16 hrs	24 hrs
Power operating machines							
LOW INERTIA : Rotary machine tools, light conveyors, agitators, small fans, centrifugal pumps.		1	1,1	1,2	1,2	1,3	1,4
AVERAGE INERTIA : Alternators, alternate machine tools, large conveyors, fans.		1,1	1,2	1,3	1,3	1,4	1,5
HIGH INERTIA : Hammer mills, mixers, piston pumps, wood cutting machines, paper mill machines.		1,2	1,3	1,4	1,4	1,5	1,6
VERY HIGH INERTIA : Rotary crushers, cylinder crushers, jar mills, roller mills.		1,3	1,4	1,5	1,7	1,8	1,9

Calculation example : electric motor - 30 kW - 1500 rpm - 60 mm Æ shaft. Mixer : 750 rpm - 60 mm Æ shaft.
Rating : 24 hrs per day. Infrequent start-ups. Distance between axes : 1100 mm.
Power correction : $P_c = 30 \times 1,3 = 39 \text{ kW}$.

Choosing the belt cross-section :



Using the belt selection charts, draw a vertical line up from the corrected power value, to the intersection with the horizontal line which gives the highest pulley speed.
The intersection gives the belt cross-section to use together with the diameter of the smallest transmission pulley.

Calculation example : speed : 1500 rpm
corrected power : 39 kW
the recommended cross-section is C

Selecting the pulley diameters :

Choose the pulley diameter keeping in mind that the greater the diameter, the greater the transmitted power. Conversely, do not select a diameter lower than those indicated below :

Section	Z	A	B	C	D
Æ mini	63	75	106	180	315

Calculation example : driver pulley = Æ 250 - driven pulley = $250 \times 2 = \text{Æ}$ 500

Calculating the transmission ratio :

$$\text{Ratio} = \frac{\text{High shaft speed (rpm)}}{\text{Low shaft ratio (rpm)}} = \frac{N}{n}$$

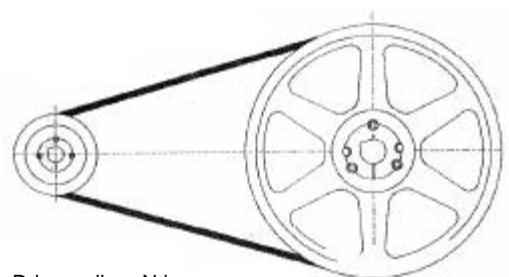
Calculation example : $r = 1500/750 = 2$

Distances between axes :

If the distance between axes E is not given, use as a minimum :

- for a ratio less than 3 : $\frac{D + d}{2} + d$

- for a ratio greater than 3 : 1,2 D



Driver pulley : N in rpm,
working diameter in mm
 $r = N/n = D/d$

Driven pulley : n in rpm,
working diameter D in mm

Determining drive belt length (L) :

The following formula must be used :

$$L_o = 2 E + 3,14 \frac{D + d}{2} + \frac{(D - d)^2}{4 E}$$

Select the standard length L which is the closest to the calculated length L_o . The new distance between axes thus become :

$$E + \frac{L - L_o}{2} \quad \text{si } L > L_o \quad \text{ou} \quad E - \frac{L_o - L}{2} \quad \text{si } L < L_o$$

Calculation example :

$$L_o = 2 \times 1100 + 3,14 \times (500 + 250)/2 + (500 - 250)^2 / (4 \times 1100) = 3392 \text{ mm}$$

Selected length $L = 3397 \text{ mm}$

$$E = 1100 - (3397 - 3392) / 2 = 1103 \text{ mm}$$

Determining the actual power belt drive :

Use the belt transmissible power tables (see technical data sheet n°10006 - 3, 4, 5 et 6) to find the gross transmissible power as function of the diameter of the small pulley. Correct this power by multiplying it by the length correction coefficient and the correction factor (see technical data sheet n°10006 - 3, 4, 5 et 6). Irrespective of whether a reduction or multiplication transmission is used, always lower these to the values corresponding to the small diameter pulley.

Calculation example : Using the table on sheet 10006 - 3, gross power per belt is 16,2 kW.

Length coefficient : 0,90

Arc correction factor : $(D - d) / E = (500 - 250) / 1103 = 0,23$, where the arc correction factor equals : 0,97

Actual transmissible power : $16,2 \text{ kW} \times 0,90 \times 0,97 = 14,1 \text{ kW}$.

Number of VECO 200^â DYNAM^â system drive belt :

Divide the corrected power by the actual power transmitted by one belt. The result is rounded up to the next whole number

Calculation example : $N_c = 39 / 14,1 = 2,77$ belts, rounded up to 3 belts

Static load on the pulleys :

- Tension per strand $T : 45 \times \frac{2,5 - G}{G} \times \frac{P_c}{N_c \times V} + MV^2 \text{ (daN)}$

- Load on bearing $R : 2 T \times N_c \times \sin(\beta/2) \text{ (daN)}$

G : arc correction factor (see table opposite)

P_c : corrected power, kW

N_c : number of belts

V : belt linear speed in m/s :

M : constant (see table below)

$$\frac{d \times N \times 3,14}{60}$$

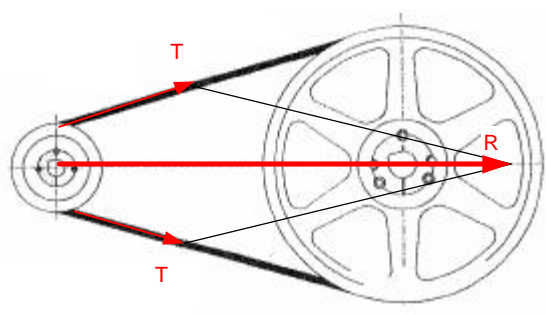
(D - d) / E	β°	Factor G
0,00	180	1,00
0,10	174	0,99
0,20	169	0,97
0,30	163	0,96
0,40	157	0,94
0,50	151	0,92
0,60	145	0,90
0,70	139	0,88
0,80	133	0,87
0,90	127	0,85
1,00	120	0,83
1,10	113	0,80
1,20	106	0,77

Section	A	B	C	D
M	0,011	0,018	0,031	0,06

DYNAM tensioning helps to ensure minimal bearing loads, obtaining effective bearing and roller to race contact, improving the installation overall efficiency.

Calculation example : tension per strand $(C) = T = 45 \times (2,5 - 0,97) / 0,97 \times 39 / (3 \times 19,63) + (0,031 \times 19,63^2) = 58,95$

Static bearing load : $R = 2 \times 58,95 \times 3 \sin(169^\circ / 2) = 352,1 \text{ daN}$



WEDGE BELTS VECO 100^â DYNAM^â SYSTEM

DETERMINING THE TRANSMISSION - ST - API - ISO 4184 - DIN 7753 - BS 3790

FICHE TECHNIQUE
10006 - 3/4 - 12/97
TECHNICAL DATA SHEET

Power rating for a V-belt (A section) :

Æ small pulley	500		720		950		1200		1450		2000		2500		2850		3500		4000	
	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV
75	0,51	0,70	0,69	0,94	0,80	1,09	0,92	1,25	1,04	1,41	1,15	1,56	1,26	1,72	1,32	1,80	1,30	1,77	1,23	1,67
80	0,67	0,91	0,92	1,25	1,10	1,49	1,26	1,72	1,44	1,96	1,73	2,35	1,96	2,66	2,07	2,82	2,12	2,89	2,15	2,92
85	0,75	1,02	0,99	1,35	1,26	1,72	1,44	1,96	1,61	2,19	2,01	2,74	2,18	2,97	2,36	3,21	2,46	3,35	2,59	3,52
90	0,87	1,19	1,15	1,56	1,44	1,96	1,70	2,31	1,96	2,66	2,41	3,28	2,76	3,75	2,97	4,04	3,20	4,35	3,28	4,46
95	0,96	1,31	1,26	1,72	1,61	2,19	1,90	2,58	2,15	2,92	2,65	3,60	3,04	4,14	3,22	4,38	3,56	4,85	3,76	5,11
100	1,08	1,47	1,46	1,99	1,82	2,47	2,16	2,94	2,41	3,28	3,10	4,22	3,56	4,85	3,81	5,19	4,17	5,68	4,31	5,87
106	1,15	1,56	1,61	2,19	2,01	2,74	2,36	3,21	2,73	3,71	3,34	4,54	3,91	5,32	4,26	5,79	4,60	6,26	4,81	6,54
112	1,32	1,80	1,78	2,42	2,21	3,00	2,70	3,68	3,10	4,22	3,91	5,32	4,51	6,13	4,83	6,57	5,28	7,19	5,47	7,44
125	1,55	2,11	2,18	2,97	2,70	3,68	3,22	4,38	3,73	5,08	4,71	6,41	5,50	7,48	5,89	8,01	6,36	8,65	6,60	8,98
140	1,87	2,55	2,53	3,44	3,22	4,38	3,85	5,24	4,42	6,02	5,63	7,66	6,52	8,87	7,07	9,62	7,56	10,3	7,74	10,5
160	2,28	3,10	3,10	4,22	3,91	5,32	4,71	6,41	5,33	7,25	6,78	9,23	7,82	10,6	8,39	11,4	8,87	12,1	8,74	11,9
180	2,65	3,60	3,62	4,93	4,60	6,26	5,48	7,46	6,32	8,60	7,93	10,8	8,97	12,2	9,60	13,1	9,9	13,5	9,54	13,0
200	3,04	4,14	4,20	5,71	5,23	7,12	6,26	8,52	7,30	9,93	8,97	12,2	10,1	13,8	10,5	14,3	10,8	14,7	10,0	13,6

Power rating for a V-belt (B section) :

Æ small pulley	400		500		720		950		1200		1450		2000		2500		2850		3500		4000	
	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV
106	1,10	1,50	1,26	1,72	1,69	2,30	2,04	2,78	2,34	3,19	2,61	3,55	3,04	4,14	3,26	4,44	3,29	4,47	3,10	4,22	2,65	3,60
112	1,18	1,60	1,35	1,83	1,78	2,42	2,16	2,94	2,47	3,36	2,76	3,75	3,22	4,38	3,45	4,69	3,47	4,72	3,28	4,46	2,82	3,83
118	1,30	1,77	1,49	2,03	2,01	2,74	2,41	3,28	2,76	3,75	3,10	4,22	3,68	5,00	3,91	5,32	4,02	5,47	3,91	5,32	2,99	4,07
125	1,49	2,03	1,78	2,42	2,36	3,21	2,87	3,91	3,36	4,57	3,85	5,24	4,54	6,18	5,00	6,80	5,12	6,96	5,03	6,85	4,54	6,18
132	1,67	2,27	1,96	2,66	2,59	3,52	3,16	4,30	3,79	5,16	4,20	5,71	5,06	6,88	5,69	7,74	5,87	7,98	5,75	7,82	4,95	6,73
140	1,90	2,58	2,24	3,05	2,99	4,07	3,68	5,00	4,37	5,94	5,00	6,80	6,09	8,29	6,67	9,07	6,89	9,38	6,81	9,27	6,32	8,60
150	2,09	2,85	2,47	3,36	3,39	4,61	4,14	5,63	4,95	6,73	5,58	7,59	6,89	9,38	7,59	10,3	7,82	10,6	7,93	10,8	6,89	9,38
160	2,41	3,28	2,87	3,91	3,90	5,30	4,77	6,49	5,69	7,74	6,55	8,91	7,93	10,8	8,74	11,9	9,08	12,4	8,93	12,2	8,05	11,0
180	2,92	3,97	3,51	4,77	4,71	6,41	5,85	7,96	6,95	9,46	7,93	10,8	9,77	13,3	10,7	14,6	11,1	15,1	10,4	14,2		
200	3,42	4,65	4,09	5,57	5,52	7,51	6,89	9,38	8,22	11,2	9,42	12,8	11,4	15,5	12,4	16,9	12,6	17,1	11,5	15,6		
224	4,02	5,47	4,83	6,57	6,50	8,84	8,05	11,0	9,60	13,1	11,0	15,0	13,2	18,0	14,2	19,3	13,9	19,0				
250	4,60	6,26	5,54	7,54	7,59	10,3	9,48	12,9	11,1	15,2	12,6	17,2	14,9	20,3	15,7	21,3	15,1	20,5				
280	5,38	7,32	6,44	8,76	8,79	12,0	10,8	14,7	12,8	17,4	14,5	19,7	16,7	22,7	16,9	23,0						
315	6,21	8,45	7,38	10,0	10,1	13,7	12,4	16,9	14,6	19,9	16,3	22,2	18,3	24,9								

Power rating for a V-belt (C section) :

Æ small pulley	200		400		500		600		720		950		1200		1450		2000		2500		2850	
	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV
180	1,96	2,66	3,43	4,66	4,08	5,55	4,71	6,41	5,40	7,35	6,55	8,91	7,59	10,3	8,50	11,6	9,66	13,1	9,66	13,1	9,19	12,5
190	2,12	2,89	3,79	5,16	4,48	6,10	5,34	7,27	6,03	8,21	7,36	10,0	8,62	11,7	9,66	13,1	11,1	15,1	11,0	15,0	10,5	14,3
200	2,39	3,25	4,26	5,79	5,06	6,88	5,87	7,98	6,78	9,23	8,28	11,3	9,60	13,1	10,8	14,7	12,4	16,8	12,3	16,7	11,8	16,0
212	2,59	3,52	4,71	6,41	5,63	7,66	6,55	8,91	7,53	10,2	9,25	12,6	10,8	14,7	12,1	16,5	13,8	18,8	13,8	18,8	13,2	18,0
224	2,90	3,94	5,17	7,04	6,21	8,45	7,24	9,85	8,39	11,4	10,2	13,9	12,0	16,3	13,5	18,3	15,4	21,0	15,4	21,0	14,1	19,2
236	3,10	4,22	5,58	7,59	6,73	9,15	7,87	10,7	9,08	12,4	11,1	15,2	13,2	17,9	14,7	19,9	16,8	22,8	16,7	22,7	15,1	20,5
250	3,46	4,71	6,21	8,45	7,47	10,2	8,7	11,8	10,1	13,7	12,3	16,8	14,4	19,6	16,2	22,1	18,3	24,9	17,8	24,2	16,1	21,9
280	4,09	5,57	7,38	10,0	8,87	12,1	10,3	14,1	12,0	16,3	14,7	20,0	17,2	23,4	19,1	26,0	21,2	28,8	19,8	27,0		
300	4,42	6,02	8,14	11,1	9,77	13,3	11,4	15,5	13,2	18,0	16,1	21,9	18,9	25,7	20,9	28,5	22,6	30,8	20,1	27,4		
315	4,83	6,57	8,74	11,9	10,5	14,3	12,2	16,6	14,1	19,2	17,2	23,5	20,1	27,4	22,2	30,3	23,7	32,2				
355	5,64	7,68	10,2	13,9	12,3	16,8	14,3	19,5	16,6	22,5	20,2	27,5	23,3	31,7	25,4	34,6	25,6	34,9				
400	6,55	8,91	11,9	16,2	14,3	19,5	16,6	22,5	19,2	26,1	23,2	31,5	26,4	36,0	28,3	38,5						
450	7,56	10,3	13,7	18,6	16,5	22,4	19,0	25,9	22,0	29,9	26,2	35,7	29,4	40,0	30,7	41,8						

COLMANT CUVELIER S.A.

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WEDGE BELTS VECO 100^â DYNAM^â SYSTEM

DETERMINING THE TRANSMISSION - ST - API - ISO 4184 - DIN 7753 - BS 3790

TECHNICAL DATA SHEET
10006 - 4/4 - 12/97

FICHE TECHNIQUE

Power rating for a V-belt (D section) :

Æ small pulley	100		200		300		400		500		600		720		800		950		1200		1450	
	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV	kW	CV
315	3,68	5,00	6,67	9,07	9,31	12,7	11,7	15,9	13,9	18,9	15,9	21,6	18,1	24,6	19,3	26,2	21,3	29,0	23,7	32,3	24,7	33,6
335	4,14	5,63	7,45	10,1	10,4	14,2	13,0	17,8	15,5	21,1	17,8	24,2	20,4	27,8	21,7	29,6	24,1	32,8	26,8	36,4	27,6	37,5
355	4,54	6,18	8,28	11,3	11,5	15,6	14,5	19,8	17,2	23,5	19,8	27,0	22,8	31,0	24,1	32,8	26,8	36,4	29,7	40,4	30,6	41,6
375	4,95	6,73	9,03	12,3	12,6	17,2	16,0	21,7	19,0	25,9	21,8	29,7	24,8	33,8	26,6	36,1	29,4	40,0	32,4	44,1	34,5	46,9
400	5,46	7,43	9,94	13,5	14,0	19,0	17,7	24,1	21,1	28,7	24,1	32,8	27,8	37,8	29,4	40,0	32,5	44,3	35,8	48,6	36,1	49,1
450	6,50	8,84	11,8	16,1	16,7	22,8	21,2	28,8	25,2	34,3	28,9	39,3	32,8	44,6	35,0	47,6	38,5	52,3	41,4	56,3	40,7	55,3
500	7,53	10,2	13,7	18,7	19,3	26,3	24,5	33,3	29,2	39,7	33,3	45,4	38,1	51,8	40,2	54,7	43,7	59,4	46,1	62,7	43,5	59,1
560	8,68	11,8	15,9	21,7	22,5	30,7	28,5	38,7	33,9	46,1	38,6	52,6	43,7	59,4	45,9	62,4	49,3	67,1	50,2	68,3		
630	10,1	13,8	18,5	25,2	26,0	35,4	33,0	44,9	38,9	52,9	44,3	60,2	49,7	67,6	51,7	70,4	54,6	74,3	52,4	71,3		
710	11,6	15,8	21,3	29,0	30,1	41,0	37,8	51,5	44,6	60,7	50,1	68,2	55,6	75,7	57,5	78,2	58,7	79,9				

Speed 30 to 33 : dynamic balancing necessary

Beyond 33 m/s : accurate dynamic balancing necessary

Belt length correction factor :

A Section		B Section		C/D Section	
Pitch length	Coeff.	Pitch length	Coeff.	Pitch length	Coeff.
0,800 à 0,950	0,80	1,250 à 1,400	0,80	2,240 à 2,360	0,80
1,000 à 1,250	0,85	1,500 à 1,900	0,85	2,500 à 3,000	0,85
1,320 à 1,700	0,90	2,000 à 2,500	0,90	3,150 à 4,000	0,90
1,800 à 2,360	0,95	2,650 à 3,350	0,95	4,250 à 5,300	0,95
2,500 à 3,150	1,00	3,550 à 4,500	1,00	5,600 à 7,100	1,00
3,350 à 4,000	1,05	4,750 à 5,300	1,05	7,500 à 9,500	1,05
				10,000 à 12,500	1,10

Arc of contact factor:

(D - d) E	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
2 grooved pulleys	1,00	0,99	0,97	0,96	0,94	0,92	0,90	0,88	0,87	0,85	0,83	0,80	0,78	0,75	0,72	0,69

Keep if possible in the non coloured area

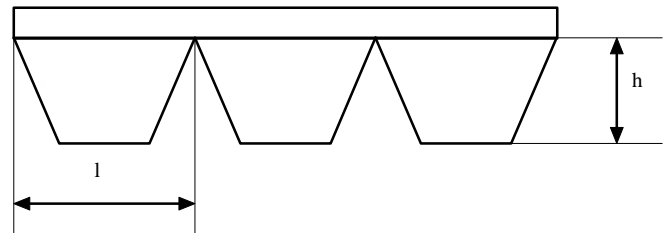
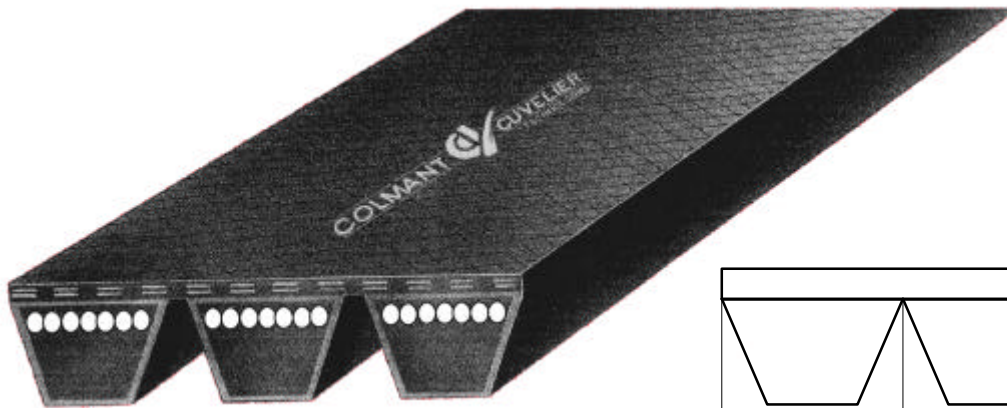
COLMANT CUVELIER S.A.

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General characteristics



Section	l	h
3VJ	10	8
5VJ	16	14
SPCJ	22	18
AJ	13	8
BJ	17	11

Function

Flexible link between the motor and the machine which allows to transmit high power.

Each time you have beatings or horizontal movements of the belts, the banded belts VECOBAND cancel the twisting and avoid the shocks between the belts which results in a lost of power and reduction of the life time (cruder, agitator, compressors,...)

In some of transmissions, the banded belts are also used for agricultural machines mainly to realize the clutch.

Conception

The banded belts VECOBAND are made of endless V.belts joined on their high base with a reinforced band. They are made of :

- synthetic rubbers which guarantee a constant hardness
- polyester cord with controlled elasticity and high capacity of traction
- single wrapping (for A and B sections) and double wrapping (for 3V, 5V and SPC sections) impregnated with polychloropren compound which resists heat, oil, abrasion and ozone.

Production range

- Narrow section belts :
 - 3 V J (=9 J) : from 1 to 20 meters, 40 belts per band
 - 5 V J (=15 J) : from 2,1 to 20 meters, 23 belts per band
 - SPCJ : from 2,3 to 20 meters, 16 belts per band
- Classic sections belts :
 - A J : from 1,3 to 20 meters, 26 belts per band
 - B J : from 2,1 to 20 meters, 22 belts per band

The minimal quantity are following the sections and the lengths.

Lengths

- The belts are always specified by their effective length (ISO 8419 for 5V and 3V sections). This length corresponds to the external diameter of the mesural pulleys.
- By construction this length is the same as the length of the cord.
- This length like the external diameter of pulleys can be used to do the calculation of your transmission (speed ratio,...). It is the same as the pitch length used usually.
- So, it is not use to calculate the pitch length, neither internal and external lengths : the effective length is enough to specify the belts.

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COLMANT CUVELIER
TRANSMISSION

General Specifications

- usefull temperature : - 20° to + 80°C
- antistatic following the standard NF T 47 104
- V. belt sections following the standard E 24 - 213
- resistant to oil projection, hydrocarbure and dilute acids. Approved by API (American Institut of Petroleum)
- endure centrifugal strength
- good draining of heat at high speed
- working with pulleys following the standards :
 - 3 VJ and 5 VJ sections following the standard ISO 5290
 - AJ and BJ sections following the standard NF ISO 5291
 - SPCJ sections following the standard ISO 4183 (standard pulleys)

Marking

COLMANT CUVELIER VECOBAND SPCJ X 4 3080 2 C MADE IN FRANCE

On our DYNAM belts, you can read :

- the trade mark : COLMANT CUVELIER VECOBAND
- the section : SPCJ (J for banded)
- the number of cords : X 4
- the effective length : 3080 mm
- the production date (code month and year) : 2 C

Stocking conditions

Belts must be stocked under the following conditions :

- the room must be dry, without dust and well ventilated
- temperature must be between +5°C and +25°C
- no condensation, maximum humidity of air : 65 %
- avoid direct sun light and high artificial light due to ultraviolet
- avoid contact with chemical products, solvent, petrol, lubricant, acid, volatile components, greases
- no material which can produce ozone, like high tension electric material, electric motors or other materials which can produce sparks or electric discharge
- the stocked belts must not have been stressed, compressed, or deformed
- set them more than 1 meter from radiators or heat source
- avoid direct contact with some kinds of metal (copper, manganese, ...)
- avoid contact with sharp, abrasive and angular surfaces
- the material of boxes, packings and the coverings must not contain noxious substances for the belts like copper, creosotes ...

Stock turn : The best thing to do is : "first in, first out"

Cleaning : The cleaning with water and soap is the most harmless. You must never use organic solvents like trichlorethylene, tetrachlorure of carbone or ether of petrol, no abressive, pointed or sharp tools. The cleaned belts must be dried at ambient temperature.

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COLMANT CUVELIER
TRANSMISSION

FEATURES

Function

Flexible link between the motor and the machine which allows high power transmission.

Conception

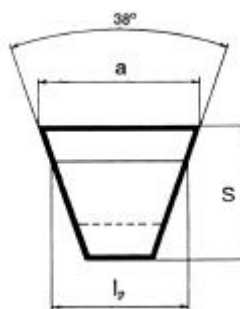
Endless V belts are made of :

- synthetic rubbers which guarantee a constant hardness
- polyester cord with controlled elasticity and high capacity of traction
- fibre mix with polychloroprene which resists oil spray, abrasion and oldness
- cogged belts which increase the longitudinal flexibility
- raw edges allow a better adherence.



General specifications

- working temperature : - 20° to + 80°C
- antistatic following the standard NF T 47 104
- V. belt sections following the standard E 24 - 213
- resistant to oil projection, hydrocarbure and dilute acids.
Approved by API (American Institute of Petroleum)
- endure centrifugal forces
- good conductivity of heat at high speed
- more compact drive :
 - smaller and lighter pulleys
 - smaller protection carter
 - higher speed permitted



SECTION	a mm	S mm	lp mm
SPZ	9,7	8	8,5
SPA	12,7	9	11
SPB	16,3	13	14
SPC	22	18	19

Stocking conditions

Idem data-sheet 10001-2

Marking the section (SPZ), the length (600) and the code and date (5414)

VECO SPZ 600 GT.X 5414
COLMANT CUVELIER

Pitch lengths of our raw edgebelts (in mm)

VECO GTX belts are supplied in 4 sections : SPZ, SPA, SPB, SPC.

Pitch length	GTX SPZ		GTX SPA		GTX SPB	GTX SPC
	Pitch length	Pitch length	Pitch length	Pitch length	Pitch length	Pitch length
0.560	1.000	1.500	0.732	1.357	1.250	2.000
0.600	1.012	1.520	0.757	1.400	1.270	2.120
0.630	1.037	1.560	0.800	1.432	1.320	2.240
0.662	1.060	1.600	0.832	1.450	1.340	2.360
0.670	1.080	1.700	0.850	1.500	1.400	2.500
0.687	1.112	1.800	0.900	1.507	1.450	2.650
0.710	1.120	1.900	0.925	1.532	1.500	2.800
0.737	1.137	2.000	0.932	1.550	1.510	3.000
0.750	1.150	2.035	0.950	1.600	1.590	
0.762	1.162	2.120	0.957	1.650	1.600	
0.787	1.180	2.160	0.982	1.700	1.700	
0.800	1.187	2.240	1.000	1.750	1.800	
0.812	1.202	2.285	1.032	1.800	1.900	
0.825	1.212	2.360	1.060	1.850	2.000	
0.837	1.237	2.410	1.082	1.900	2.020	
0.850	1.250	2.500	1.107	2.000	2.120	
0.862	1.270	2.540	1.120	2.120	2.150	
0.875	1.287	2.650	1.150	2.180	2.240	
0.887	1.320	2.690	1.180	2.240	2.280	
0.900	1.337	2.800	1.207	2.300	2.360	
0.912	1.362	2.840	1.232	2.360	2.410	
0.925	1.400	3.000	1.250	2.430	2.500	
0.937	1.437		1.282	2.500	2.530	
0.950	1.470		1.300	2.650	2.650	
0.962	1.487		1.307	2.800	2.680	
0.987			1.320	3.000	2.800	
			1.332		2.840	
					3.000	

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COLMANT CUVELIER
TRANSMISSION

Technical Characteristics

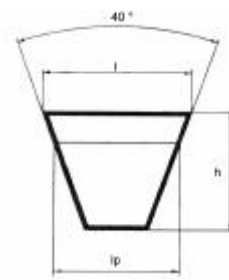
Function

Flexible link between the motor and the machine which transmits high power.
High quality belts which can be used in hard conditions atmosphere and each time the security factor is important (mines, petroleum industries...)

Conception

Endless V belts are made of :

- polychloroprene rubbers which guarantee a constant hardness
- polyester cord with controlled elasticity and high capacity of traction
- single wrapping (for SPZ sections) and double wrapping (for SPA, SPB and SPC sections) impregnated with polychloroprene compound which resists heat, oil, abrasion and ozone aggressions.



General Specifications

- working temperature : -40° to + 100°C ; + 120°C in peak
- antistatic following standard NF T 47 104
- V belt sections following standard E 24 - 213
- resistant to oil projection, hydrocarbure and diluted acids.
Approved by API (American Petroleum Institute)
- quality "ignifuge" : fire resistance according to standard S4 (sept. 86) French mines
- endure centrifugal strength
- good draining of heat at high speed
- reduce bulkiness of transmission :
 - smaller and lighter pulleys
 - smaller protection carter
 - higher speed solutions

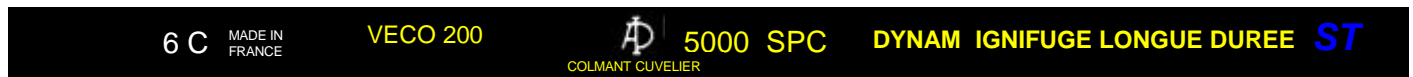
SECTION	l	h	lp
SPZ	10	8	8,5
SPA	13	11	11
SPB	16	14	14
SPC	22	18	19

Stabilisation Process "ST"

The stabilisation process "ST" guarantees a small and continuous margin on the length. The length of V. belts follows the standard NF ISO 4184. It means :

- easy to install
- even distribution of loads on multiple belt drives
- eliminate vibrations

Marking



On our DYNAM belts, you can read :

- the production date (codes for month and year) : 6C
- API and ST marks
- the pitch length measured under strength, as well as the section : 5000 SPC
- quality "IGNIFUGE LONGUE DUREE" in red

THE "LABEL DYNAM"

Design

The DYNAM² system allows us to supply a pre-tensionned belt. This system ensures the correct tension by the mere reading of the length between 2 marks. This measure only requires to be done once when tensening the belt. There is no need to check the tension twice. (see data sheet n°10003).

Performance

- The 1 % slip guarantees a performance of 95 %.
- Improved transmitted power by 20 %.
- Optimum performance is obtained when the linear speed is between 30 m/s and 33 m/s.
- The power transmitted is the same as the Veco 200 Label Dynam range

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Technical Characteristics

Pitch lengths of our V belts (in mm)

The sections of V belts VECO 200² with "label DYNAM" that we can supply are : SPZ, SPA, SPB, SPC. Only the sizes in yellow are available with the DYNAM System.

SPZ (10 x 8)				SPA (13 x 11)				SPB (16 x 14)			SPC (22 x 18)		
630	1000	1600	2800	800	1250	1600	2800	1250	2240	4500	2000	4000	8000
710	1120	1800	3150	900	1400	1800	3150	1400	2500	5000	2240	4500	9000
800	1250	2000	3550	1000		2000	3550	1600	2800	6300	2500	5000	10000
900	1400	2240		1120		2240	4000	1800	3150	7100	2800	5600	11200
		2500				2500	4500	2000	3550	8000	3150	6300	12500
									4000		3550	7100	
Lp = li + 37 Lp = le - 13				Lp = li + 51 Lp = le - 18				Lp = li + 66 Lp = le - 26			Lp = li + 83 Lp = le - 30		
Weight / metre 0,070 kg				Weight / metre 0,120 kg				Weight / metre 0,194 kg			Weight / metre 0,370kg		

Lp : pitch length; li : internal length ; le : external length

Stocking conditions

Belts must be stocked under the following conditions :

- the room must be dry, without dust and well ventilated.
- temperature must be between +5°C and +25°C.
- no condensation, maximum humidity of air : 65 %.
- avoid direct sun light and high artificial light due to ultraviolet.
- avoid contact with chemical products, solvent, petrol, lubricant, acid, volatile components, greases.
- no material which can produce ozone, like high tension electric material, electric motors or other materials which can produce sparks or electric discharges.
- the stocked belts must not have been stressed, compressed or deformed.
- set them more than 1 meter from radiators or heat source.
- avoid direct contact with some kinds of metal (copper, manganese, ...)
- avoid contact with sharp, abrasive and angular surfaces.
- the material of boxes, packings and the coverings must not contain nocive substances for the belts like copper or creosotes.

Stock turn : The best thing to do is : "first in, first out"

Cleaning : Cleaning with water and soap is harmless. You must never use organic solvents like trichlorethylene, tetrachlorure of carbone or ether of petrol, no abrasive, pointed or sharp tools. The cleaned belts must be dried at ambient temperature.

Raw molded – cogged belts Range standard						Raw molded – Cogged belts Norm ISO - Norm R 1604				
SECTION & ANGLE	INSIDE LENGTH (mm)	SECTION & ANGLE	INSIDE LENGTH (mm)	SECTION & ANGLE	INSIDE LENGTH (mm)	SECTION & ANGLE	INSIDE LENGTH (mm)	SECTION & ANGLE	INSIDE LENGTH (mm)	
13 x 6 26°	450	28 x 8 26°	900	46 x 12 28°	1320	W16 - 17x6 20°	500	W50 - 52x16 28°	1325	
	475		950		1500		560		1400	
	750		1000		2240		630		1600	
	1000		1060		2800		710		1800	
17 x 6 26°	550	30 x 10 26°	1120	47 x 12 28°	905	W20 - 21x7 20°	1180	W63 - 65x20 30°	2000	
	570		1185		1125		560		2500	
	650		1255		1505		630		2800	
	1050		1305		1605		710		3150	
22 x 8 26°	550		32 x 10 26°	1320	50 x 13 28°	1453	W25 - 26x8 26°	800	W80 - 83x26 32°	1800
	575			1400		2250		900		2000
	600			1500		1745		1000		2500
	610			1705		1453		665		2800
	650		37 x 10 28°	755	50 x 14 28°	1350	W31.5 - 33x10 26°	710	W100 104?32 32°	2240
	675			800		1500		785		2680
	700			875		1180		800		2800
	750			900		1180		835		2800
	800	925	1150	900						
	850	950	1180	1000						
	900	1000	1250	1120						
	950	1120	1320	1250						
	1000	1180	1400	1400						
	1060	40 x 10 28°	790	55 x 16 28°	1500	W40 - 42x13 26°	1600			
1120	1000		1620		795					
1180	795		1900		835					
1250	845		2000		865					
1400	40 x 12 28°	895	70 x 18 28°	1605		900				
26 x 9 26°		630		945		1700		945		
		25 x 8 26°		630		995		1445	1000	
				655		1055		3150	1120	
	800		1115	1755	1250					
26 x 8 26°	655		1180	83 x 23 28°	1600					
	680	1245		2000						
	750	1315		980						
	800	1375		1055						
850	1395	1100								
26 x 12 26°	830	1495		1120						
	28 x 8 26°	530		1795	1400					
		605		1800	1600					
		630		1895	1800					
650		1995	2000							
	700	1000		2240						
	750	1000		2500						
	765	1040								
	805									
850										

Correspondence between Le, Lp et Li

Thickness (mm)	6	7	8	9	10	12	13	14	16	18	20	22	23	26	32
Le/Li	38	44	50	56	63	75	82	88	101	113	126	138	145	163	201
Lp/Li	29	33	37	42	47	56	62	66	75	85	94	103	109	122	150
Le/Lp	9	11	13	14	16	19	20	22	26	28	32	35	36	41	50

Le : outside length
Lp : primitive length
Li : inside length

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A good installation of the V.belts and banded belts guarantees a good drive and a better lifespan.

For a new drive

- Before the V.belt installation, check the good alignment of shafts and pulleys as well as the parallelism (see technical data n°10003 - 1).
- The pulleys profile must be the same as the belt profile. Grooves must be cleaned.
- Install the belts inside the grooves without any strain. Any high strain can damage the cord. If needed close the pulleys to each other.
- Stretch the belt until the length increase by 0.5 To 0.6%

Before any tension you can do as follow:

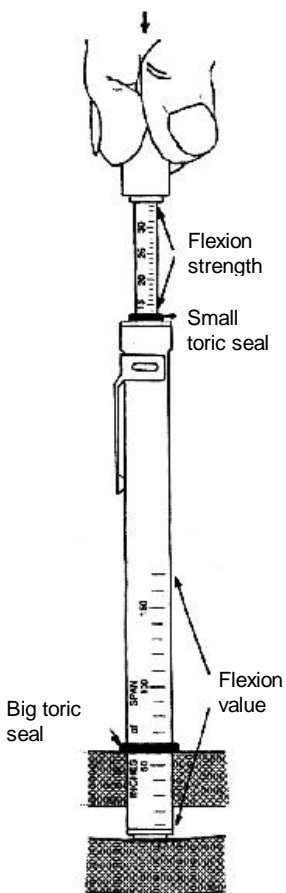
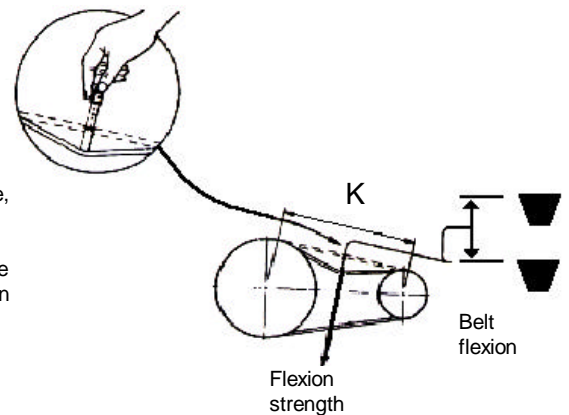
- Print 2 lines as far as you can on the belt (distance must be lower than the centre distance) Note the distance in mm. If there are more than belts, use the belts on each extremity.
- Stretch the belt until the distance between the 2 marks are 0.5 to 0.6% higher than the initial distance. Turn the belt manually when you proceed to the stretch.
- Let the belts driving during 30 mm to 1 hour. Then let cooling.
- Check the tension. Restrect the belt to the correct tension (0.5 to 06% elongation)

In using

Heating, high vibrations or noises of the belts mean a low tension. So, the belts can slip. An over tension creates an overload on bearings and damage the belt. To have a correct tension, use the stylotester (Flexion/Deflexion stress) for banded belts Vecoband, multiply the deflexion stress by the number of belts. Place a small board on the Vecoband to have the same flexion on each belt, then use the stylotester on it. In case of deflexion stress more than 15.9 daN, use the dynamometer with higher capacity.

How to use the STYLOTESTER

1. Measure the centre distance K.
2. Calculate the flexion value $f = 0.0156 \cdot K$ (mm).
3. Place the arrow cursor on the calculated value (big toric seal).
4. Place the strength cursor on zero position (small toric seal).
5. Place the STYLOTESTER on half way of the centre distance, push to obtain the flexion value required then leave it.
- 6 Read the flexion strength value in using the strength cursor.
7. Compare this value with the mini and maxi values, which are on the following table. The strength required must be between these values.



Belt profile	Pitch? Small pulley	Flexion strength (daN)		Belt profile	Pitch? Small pulley	Flexion strength (daN)	
		mini	maxi			mini	maxi
A	75 à 90	1.6	2.4	SPZ 3 V	63 à 90	1.7	2.5
	95 à 118	2.0	2.8		95 à 150	2.3	3.4
	125 à 180	2.3	3.3		160 à 250	2.5	3.8
B	? 106	2.2	3.1	SPA	80 à 125	2.2	3.2
	112 à 140	2.9	4.2		132 à 200	3.0	4.4
	150 à 212	3.7	5.4		224 à 250	3.8	5.5
C	180 à 224	7.0	10.0	SPB 5 V	106 à 212	5.0	7.6
	236 à 400	7.7	11.0		224 à 300	6.0	9.0
					315 à 400	6.5	9.8
D	280 à 375	12.7	18.6	SPC 8 V	180 à 335	9.0	13.3
	400 à 560	15.7	22.9		355 à 530	10.0	14.7
					315 à 355	12.6	19.0
				375 à 530	15.0	22.5	
				560 à 630	15.9		



Поставки промышленного оборудования

Системы линейного перемещения:

- линейные подшипники
- линейные направляющие
- прецизионные валы
- линейные модули
- координатные столы
- системы позиционирования
- шариковинтовые передачи (ШВП),
и роликвинтовые передачи (РВП),
стандартизованные и по чертежам
заказчика, опоры к ШВП и РВП
- линейные приводы и актуаторы
- электромеханические приводы

Сборочные технологии:

- модульные системы профилей

Прецизионное оборудование:

- шпиндели

Промышленные вентиляторы:

- центробежные вентиляторы низкого,
среднего и высокого давления
- осевые вентиляторы
- калориферы
- канальные вентиляторы
- вентиляторы отводного канала
- крышные вентиляторы
- бытовые вентиляторы

Другая продукция:

- опорно-поворотные устройства
- шариковые опоры
- уплотнения, муфты, ремни, шкивы
- другая продукция промышленного
назначения

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