

PRODUCT DESCRIPTION

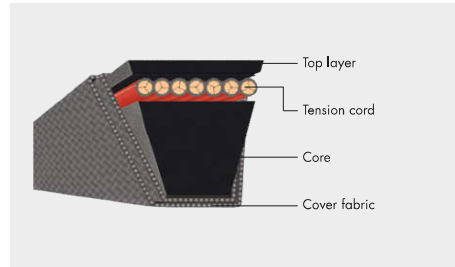
optibelt SK HIGH PERFORMANCE WEDGE BELTS

DIN 7753 PART 1/ ISO 4184



Structure

optibelt SK high performance wedge belts consist of:



The polyester tension cord is standard for all profiles and cross sections, with cord constructions matching the requirements of each profile. The cord is specially impregnated and then embedded in a special rubber compound homogeneously bonding with the top layer and the core.

Due to special processing, the optibelt SK wedge belt is extremely low-stretch. Thus we were able to reduce our recommendation values for minimum axial distance significantly – even dropping below the DIN/ISO requirements. The fabric cover is treated with a wear-resistant rubber compound. This makes the belt resistant to oil, hot and cold temperatures and to the effects of dust.

Properties

The use of the best materials and the most advanced production methods result in this high performance drive element, the optibelt SK wedge belt. The production processes are continuously monitored using state-of-the-art static and dynamic testing devices.

optibelt SK high power wedge belts exceed classic V-belts according to DIN 2215 thanks to the following characteristics:

- Substantially lower width compared to classic V-belt drives that have the same power rating (height to width ratio of approximately 1 : 1.2). Due to the available space gained by this, the costs for a complete drive with optibelt SK high performance wedge belts are lower than a design with DIN 2215 V-belts.
- Bigger friction surface lowers the centrifugal force and permits belt speeds of up to 42 m/sec.
- Much more elastic, therefore bigger flex rate allowed.
- Little deformation of the belt cross-section when running in grooves, therefore balanced pressure on the belt edges.

These characteristics allow for a significantly better performance than V-belts DIN 2212 with approximately the same top widths. Therefore, we recommend equipping all new drives with optibelt SK wedge belts.

Application areas

optibelt SK wedge belts in the profiles SPZ, SPA, SPB and SPC were specially developed for all industrial applications from lightly loaded drives, such as those for pumps, up to heavily loaded mills and even stone crusher drives.

Standardisation/Dimensions

optibelt SK wedge belts SPZ, SPA, SPB and SPC comply with the standards of DIN 7753 and ISO 4184. The ISO standards specify the datum width as a basis for the standardisation of V-belts and grooves. The staggering of the datum lengths is implemented according to DIN 7753 Part 1 corresponding to the standard number sequence R 40. In exceptional cases also corresponding to standard number sequence R 20. For many years, our product range has comprised serial production datum lengths of standard number sequence R 40 and beyond.

Note: Electrically conductive according to ISO 1813.

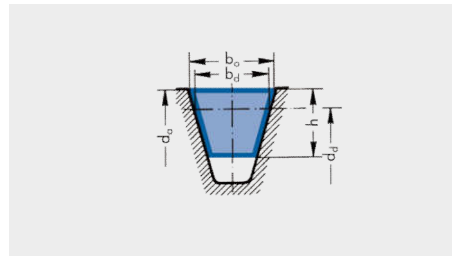


Table 5

Profile	SPZ	SPA	SPB	SPC
Belt top width	$b_o \approx 9.7$	12.7	16.3	22
Datum width	$b_d \approx 8.5$	11	14	19
Belt height	$h \approx 8$	10	13	18
Recommended minimum datum pulley diameter	$d_{d,min} \approx 63$	90	140	224
Weight per meter (kg/m)	≈ 0.074	0.123	0.195	0.377
Flex rate (s^{-1})	$f_{B,max} \approx 100$			
Belt speed (m/s)	$v_{max} \approx 42^*$			

* $v > 42$ m/s. Please consult our Application Engineering Department.

PRODUCT DESCRIPTION

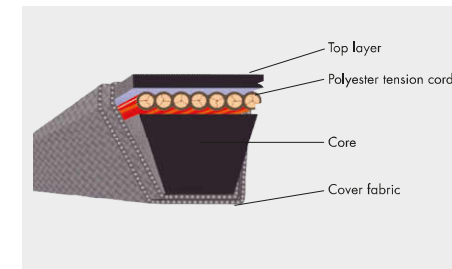
optibelt SK HIGH PERFORMANCE WEDGE BELTS

ARPM/MPTA



Structure/Properties

optibelt SK high performance wedge belts according to ARPM/MPTA have the same structure and properties as wedge belts according to DIN 7753 Part 1.



Standardisation/Dimensions

The three wedge belt profiles standardised in the USA are 3V/9N, 5V/15N and 8V/25N. The cross section dimensions of these belts and the according length only partially conform to the profiles and lengths of the wedge belts DIN 7753 Part 1.

The profile 3V/9N roughly corresponds to SPZ; and 5V/15N to profile SPB. There is no comparable DIN/ISO wedge belt profile for 8V/25N. It is possible to use belts in profile 3V/9N and 5V/15N in SPZ-Z/10 or SPB-B/17 pulleys, respectively; but the use of SPZ or SPB belts in ARPM/MPTA standard pulleys is not generally recommended. The top width of the American pulley grooves is smaller than that of the corresponding DIN/ISO pulleys. This can cause wear on the upper edges of SPZ and SPB belts and can lead to premature failure.

Due to its cross section, the optibelt SK wedge belt in SPB profile is also suitable for 5V/15N pulleys.

Note: Electrically conductive according to ISO 1813.

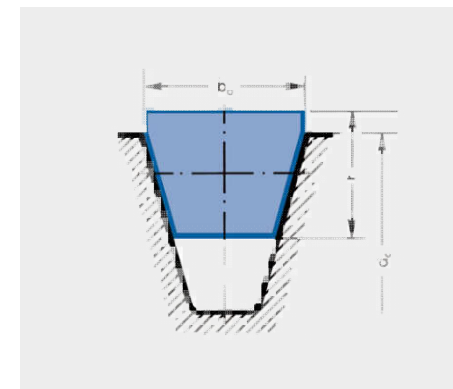


Table 6

Profile	3V/9N	5V/15N	8V/25N
Belt top width	$b_o \approx 9$	15	25
Belt height	$h \approx 8$	13	23
Recommended minimum pulley outside diameter	$d_{d,min} \approx 67$	151	315
Belt weight (kg/m)	≈ 0.074	0.195	0.575
Flex rate (s^{-1})	$f_{B,max} \approx 100$		
Belt speed (m/s)	$v_{max} \approx 55^*$		

* $v > 55$ m/s. Please contact our Application Engineering Department. The belt length designation refers to the effective outside length.

Example:

Inch designation	Metric designation
3V 750	9N 1905
3V = profile 3/8" top width	9 ≈ 9 mm top width
750 = outside length in inches: 10 (1 inch = 25.4 mm)	N = designation for single V-belt
Outside length in mm:	1905 = effective outside length
$L_o = \frac{750 \cdot 25.4}{10}$	
$L_o = 1905$ mm	

Application examples

The use of optibelt SK wedge belt drives in profiles 3V/9N and 5V/15N is recommended for machines exported to countries such as the USA and Canada where these belt profiles are standardised and predominantly used.

Profile 8V/25N is primarily employed in very heavy duty drives such as mills or stone crushers. As these wedge belts transmit very high levels of power, they can sometimes form a more compact drive than the SPC profile.

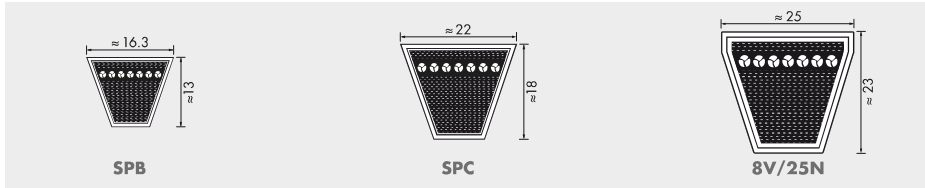
For this reason, the 8V/25N profile has continued to be used in Europe for such applications. A further advantage is the fact that single wedge belts can be replaced by kraftbands, without changing the pulley geometry, in case unexpected belt vibration problems develop.

Drive calculation

Drive calculations follow the procedures described in this manual. The power value of the SPZ applies for drives with the 3V/9N profile. The value of the SPB profile applies for 5V/15N. The datum diameters of the SPZ and SPB wedge belts have to be the same as the external diameters of the 3V/9N and 5V/15N. Slight mathematical differences in the rotational frequency and transmission have no practical influence. Slight differences in the theoretical drive speed and the speed ratio are not significant in practice.

STANDARD RANGE

optibelt **BLUE POWER** HIGH PERFORMANCE WEDGE BELTS



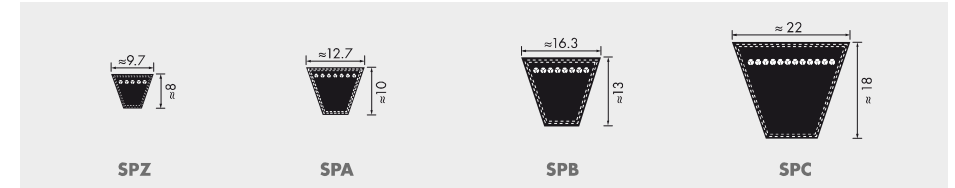
DIN 7753 Part 1 / ISO 4184 / BS 3790

ARPM/MPTA

Profile SPB		Profile SPC		Profile 8V/25N	
Datum length ISO L _d [mm]		Datum length ISO L _d [mm]		Belt designation	
				Profile, length code	Profile, outside length, L _o [mm]
1500	4750	2000	6300	8V 1600	25N 4064
1600	5000	2120	6700	8V 1700	25N 4318
1700	5300	2240	7100	8V 1800	25N 4572
1800	5600	2360	7500	8V 1900	25N 4826
1900	6000	2500	8000	8V 2000	25N 5080
2000	6300	2650	8500	8V 2120	25N 5385
2120	6700	2800	9000	8V 2240	25N 5690
2240	7100	3000		8V 2360	25N 5994
2360	7500	3150		8V 2500	25N 6350
2500	8000	3350		8V 2650	25N 6731
2650		3550		8V 2800	25N 7112
2800		3750		8V 3000	25N 7620
3000		4000		8V 3150	25N 8001
3150		4250		8V 3350	25N 8509
3350		4500		8V 3550	25N 9017
3550	4750				
3750	5000				
4000	5300				
4250	5600				
4500	6000				
Maximum production length: 18 000 mm Minimum order quantity: 1500 mm – 1800 mm = 25 pieces Over 1800 mm = 23 pieces Weight: ≈ 0.206 kg/m		Maximum production length: 18 000 mm Minimum order quantity: from 2000 mm = 16 pieces Weight: ≈ 0.389 kg/m		Maximum production length: 18 000 mm L _d Minimum order quantity: from 4064 mm L _o = 14 pieces Weight: ≈ 0.603 kg/m	

STANDARD RANGE

optibelt **SK** HIGH PERFORMANCE WEDGE BELTS
DIN 7753 PART 1 / ISO 4184

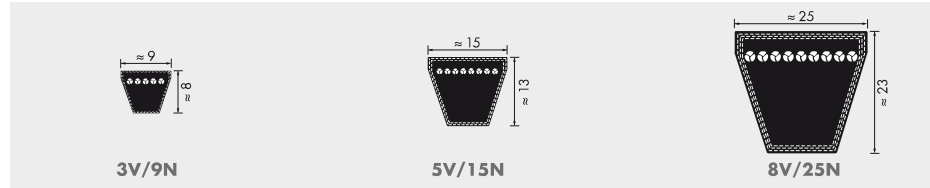


Profile SPZ			Profile SPA			Profile SPB		Profile SPC	
Datum length ISO L _d [mm]			Datum length ISO L _d [mm]			Datum length ISO L _d [mm]		Datum length ISO L _d [mm]	
487	1047	1662	732	1382	2120	3350	1250	3650	2000
512	1060	1687	757	1400	2132	3382	1320	3750	2120
562	1077	1700	782	1407	2182	3550	1400	3800	2240
587	1087	1737	800	1432	2207	3750	1450	4000	2360
612	1112	1762	807	1457	2232	4000	1500	4050	2500
630	1120	1787	832	1482	2240	4250	1600	4250	2650
637	1137	1800	850	1500	2282	4500	1700	4300	2800
662	1162	1812	857	1507	2300		1750	4500	3000
670	1180	1837	882	1532	2307		1800	4560	3150
687	1187	1850	900	1557	2332		1850	4750	3350
710	1202	1862	907	1582	2360		1900	4820	3550
722	1212	1887	932	1600	2382		2000	5000	3750
737	1237	1900	950	1607	2432		2020	5070	4000
750	1250	1937	957	1632	2482		2060	5300	4250
762	1262	1987	982	1657	2500		2120	5600	4500
772	1287	2000	1000	1682	2532		2150	6000	4750
787	1312	2037	1007	1700	2582		2180	6300	5000
800	1320	2120	1032	1707	2607		2240	6700	5300
812	1337	2137	1060	1732	2632		2280	7100	5600
825	1347	2150	1082	1757	2650		2360	7500	6000
837	1362	2187	1107	1782	2682		2391	8000	6300
850	1387	2240	1120	1800	2732		2400		6700
862	1400	2287	1132	1807	2782		2500		7100
875	1412	2360	1157	1832	2800		2650		7500
887	1437	2500	1180	1857	2832		2680		8000
900	1462	2540	1207	1882	2847		2800		8500
912	1487	2650	1232	1900	2882		2840		9000
925	1500	2690	1250	1907	2932		2850		9500
937	1512	2800	1257	1932	2982		2900		10000
950	1537	2840	1272	1957	3000		3000		10600
962	1562	3000	1282	1982	3032		3150		11200
987	1587	3150	1307	2000	3082		3250		12500
1000	1600	3350	1320	2032	3150		3350		
1012	1612	3550	1332	2057	3182		3450		
1024	1637		1357	2082	3282		3550		
1037	1650								
Maximum production length: 4500 mm L _d Minimum order quantity: Over 1800 mm = 20 pieces for non-standard length ranges 60 pieces for special constructions Weight: ≈ 0.074 kg/m			Maximum production length: 4500 mm L _d Minimum order quantity: Over 1800 mm = 31 pieces for non-standard length ranges 93 pieces for special constructions Weight: ≈ 0.123 kg/m			Maximum production length: 18 000 mm L _d Minimum order quantity: Over 1800 mm = 25 pieces for non-standard length ranges 75 pieces for special constructions Weight: ≈ 0.195 kg/m		Maximum production length: 21 000 mm L _d Minimum order quantity: Over 2000 mm = 16 pieces for non-standard length ranges 48 pieces for special constructions Weight: ≈ 0.377 kg/m	
Datum length L _d ± Pitch length L _w /L _p			• Non stock items						

Lengths in **bold** type are in S=C Plus (Sel/Constant).

STANDARD RANGE

optibelt **SK** HIGH PERFORMANCE WEDGE BELTS
ARPM/MPA



Profile 3V/9N		Profile 5V/15N		Profile 8V/25N	
Belt designation		Belt designation		Belt designation	
Profile, length code	Profile, outside length, L _d [mm]	Profile, length code	Profile, outside length, L _d [mm]	Profile, length code	Profile, outside length, L _d [mm]
3V 250	9N 635	5V 530	15N 1346	8V 1000	25N 2540
3V 265	9N 673	5V 560	15N 1422	8V 1120	25N 2845
3V 280	9N 711	5V 600	15N 1524	8V 1180	25N 2997
3V 300	9N 762	5V 630	15N 1600	8V 1250	25N 3175
3V 315	9N 800	5V 670	15N 1702	8V 1320	25N 3353
3V 335	9N 851	5V 710	15N 1803	8V 1400	25N 3556
3V 355	9N 902	5V 750	15N 1905	8V 1500	25N 3810
3V 375	9N 952	5V 800	15N 2032	8V 1600	25N 4064
3V 400	9N 1016	5V 850	15N 2159	8V 1700	25N 4318
3V 425	9N 1079	5V 900	15N 2286	8V 1800	25N 4572
3V 450	9N 1143	5V 950	15N 2413	8V 1900	25N 4826
3V 475	9N 1206	5V 1000	15N 2540	8V 2000	25N 5080
3V 500	9N 1270	5V 1060	15N 2692	8V 2120	25N 5385
3V 530	9N 1346	5V 1120	15N 2845	8V 2240	25N 5690
3V 560	9N 1422	5V 1180	15N 2997	8V 2360	25N 5994
3V 600	9N 1524	5V 1250	15N 3175	8V 2500	25N 6350
3V 630	9N 1600	5V 1320	15N 3353	8V 2650	25N 6731
3V 670	9N 1702	5V 1400	15N 3556	8V 2800	25N 7112
3V 710	9N 1803	5V 1500	15N 3810	8V 3000	25N 7620
3V 750	9N 1905	5V 1600	15N 4064	8V 3150	25N 8001
3V 800	9N 2032	5V 1700	15N 4318	8V 3350	25N 8509
3V 850	9N 2159	5V 1800	15N 4572	8V 3550	25N 9017
3V 900	9N 2286	5V 1900	15N 4826	8V 3750	25N 9525
3V 950	9N 2413	5V 2000	15N 5080	8V 4000	25N 10160
3V 1000	9N 2540	5V 2120	15N 5385	8V 4250	25N 10795
3V 1060	9N 2692	5V 2240	15N 5690	8V 4500	25N 11430
3V 1120	9N 2845	5V 2360	15N 5994	8V 4750	25N 12065
3V 1180	9N 2997	5V 2500	15N 6350	8V 5000	25N 12700
3V 1250	9N 3175	5V 2650	15N 6731		
3V 1320	9N 3353	5V 2800	15N 7112		
3V 1400	9N 3556	5V 3000	15N 7620		
		5V 3150	15N 8001		
		5V 3350	15N 8509		
		5V 3550	15N 9017		

Maximum production length: 4500 mm L_d
Minimum order quantity:
Over 1800 mm L_d =
20 pieces for non-standard length ranges
60 pieces for special constructions

Weight: ≈ 0.074 kg/m

Maximum production length: 18000 mm L_d
Minimum order quantity:
Over 1800 mm L_d =
25 pieces for non-standard length ranges
75 pieces for special constructions

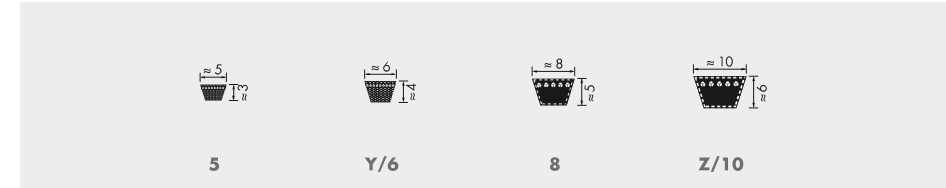
Weight: ≈ 0.195 kg/m

Maximum standard production length:
21000 mm L_d
Over 18000 to 21000 mm on request
Minimum order quantity:
Over 2540 mm L_d =
11 pieces for non-standard length ranges
33 pieces for special constructions

Weight: ≈ 0.575 kg/m

STANDARD RANGE

optibelt **VB** CLASSIC V-BELTS
DIN 2215 / ISO 4184



Profile 5*		Profile Y/6*		Profile 8		Profile Z/10								
Datum length ISO L _d [mm]	Inside length L _i [mm]	Datum length ISO L _d [mm]	Inside length L _i [mm]	Datum length ISO L _d [mm]	Inside length L _i [mm]	Belt no.	Datum length ISO L _d [mm]	Inside length L _i [mm]	Belt no.	Datum length ISO L _d [mm]	Inside length L _i [mm]	Belt no.	Datum length ISO L _d [mm]	Inside length L _i [mm]
200	190	295	280	335*	315*	Z 11	312*	290*	Z 38 1/2	997	975	Z 68	1747	1725
239	229	315	300	375*	355*	Z 12 1/2	337*	315*	Z 39	1022	1000	Z 69	1772	1750
270	260	350	335	420*	400*	Z 14	397*	375*	Z 40	1038	1016	Z 70	1797	1775
290	280	415	400	445*	425*	Z 15	422*	400*	Z 40 1/2	1052	1030	Z 71	1822	1800
310	300	440	425	470*	450*	Z 16	447*	425*	Z 41	1063	1041	Z 73	1872	1850
325	315	465	450	495*	475*	Z 17	472*	450*	Z 41 1/2	1072	1050	Z 75	1922	1900
332	322	515	500	510*	490*	Z 18	497*	475*	Z 42	1082	1060	Z 78	1997	1975
345	335	555	540	550*	530*	Z 19	502*	480*	Z 43	1102	1080	Z 79	2022	2000
385	375	615	600	580*	560*	Z 19 1/4	522*	500*	Z 43 1/2	1122	1100	Z 83 1/2	2142	2120
435	425	865	850	595*	575*	Z 20	537*	515*	Z 44	1142	1120	Z 88	2262	2240
485	475			620*	600*	Z 20 1/2	547*	525*	Z 45	1172	1150	Z 93	2382	2360
510	500			650*	630*	Z 21	552*	530*	Z 46	1187	1165	Z 98	2522	2500
540	530			690*	670*	Z 21 1/4	562*	540*	Z 46 1/2	1202	1180			
564	554			720*	700*	Z 22	582*	560*	Z 47	1216	1194			
610	600			730*	710*	Z 23	597	575	Z 48	1237	1215			
				770*	750*	Z 24	622	600	Z 48 1/2	1247	1225			
				795*	775*	Z 25	652	630	Z 49	1272	1250			
				820*	800*	Z 26	672	650	Z 50	1292	1270			
				845	825	Z 27	692	670	Z 51	1317	1295			
				870	850	Z 27 1/2	722	700	Z 52	1342	1320			
				895	875	Z 28	732	710	Z 53	1368	1346			
				920	900	Z 28 1/2	747	725	Z 54	1393	1371			
				970	950	Z 29	752	730	Z 55	1422	1400			
				1020	1000	Z 29 1/2	772	750	Z 56	1444	1422			
				1040	1020	Z 30	787	765	Z 57	1472	1450			
				1070	1050	Z 31	797	775	Z 58	1497	1475			
				1095	1075	Z 31 1/2	822	800	Z 59	1522	1500			
				1140	1120	Z 32	842	820	Z 60	1546	1524			
				1220	1200	Z 33	847	825	Z 61	1572	1550			
				1270	1250	Z 33 1/2	872	850	Z 62	1597	1575			
						Z 34	887	865	Z 63	1622	1600			
						Z 35	897	875	Z 64	1648	1626			
						Z 36	922	900	Z 65	1673	1651			
						Z 37	947	925	Z 66	1697	1675			
						Z 38	972	950	Z 67	1722	1700			

Further sizes on request
Weight:
≈ 0.018 kg/m

Further sizes on request
Weight:
≈ 0.026 kg/m

Maximum production length: 4500 mm
Minimum order quantity:
Over 1800 mm =
20 pieces for non-standard length ranges
60 pieces for special constructions
Weight: ≈ 0.064 kg/m

Datum length L_d ± Pitch length L_w/L_p * Raw edge, cogged V-belts Further sizes on request