

POLY – V TAPER-LOCK®

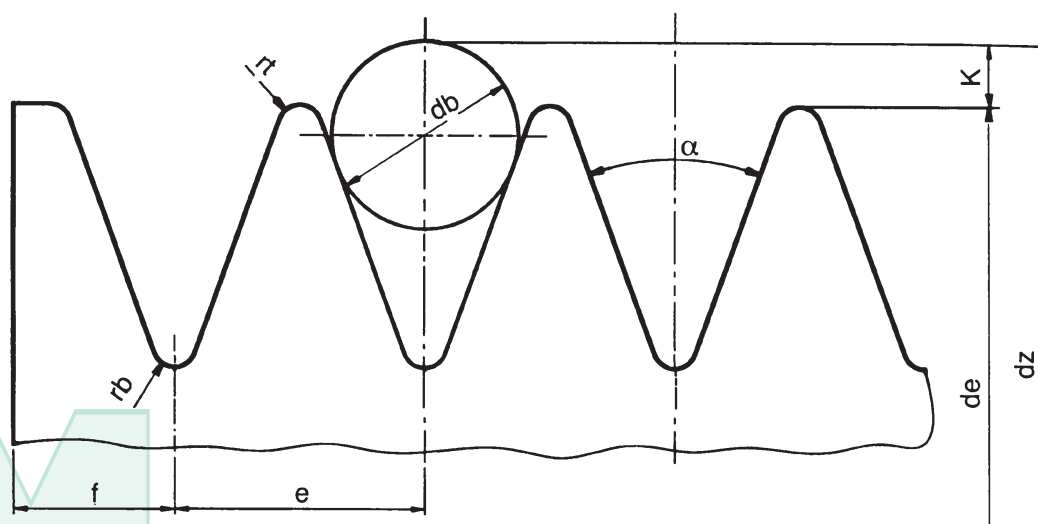
PULLEYS

Types

Grooved pulleys designed for industrial transmissions are identified by reference to the dimensions and the groove pitch in the following types: **PPV-J – PPV-L**

Profile dimensions

The transverse profile dimensions of a grooved pulley are shown in the figure and in the table.



TABLE

Type	PPV-J	PPV-L
Grooves pitch e	2.34	4.70
Tolerance for e^*	± 0.03	± 0.05
Sum of tolerances e^{**}	± 0.30	± 0.30
Race angle $\alpha^{**} \pm 0,5$	40°	40°
rt min.	0.20	0.40
rb max.	0.40	0.40
Diameter of the control sphere or roller $db \pm 0.01$	1.50	3.50
$2K^{**}$ nominal	0.23	2.36
f min.	1.8	3.3

* = this tolerance applies to the distance between the axes of two consecutive grooves

** = the sum of all the tolerances "e" for all the races of each pulley must not exceed the value foreseen in the table

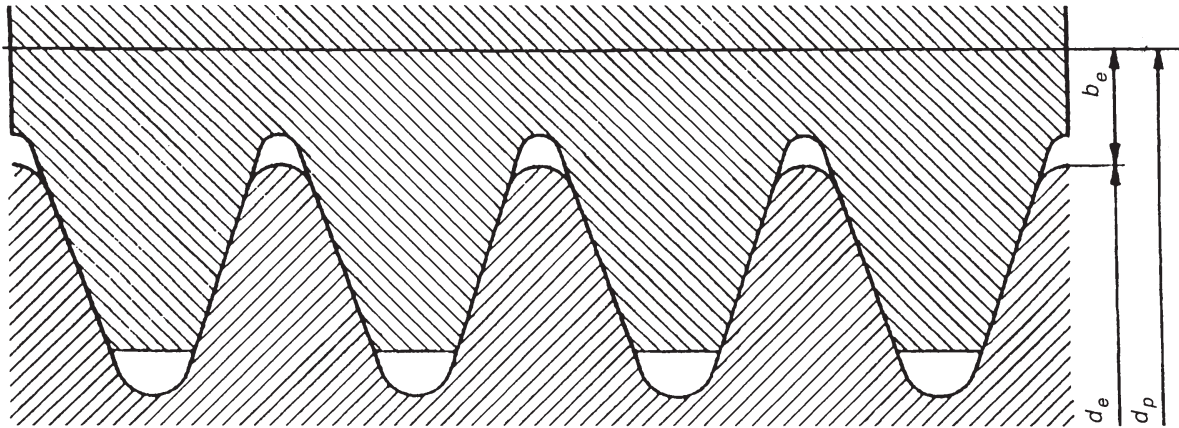
* = the axis of each groove must form a $90^\circ \pm 0.5^\circ$ angle with the pulley axis

** = K is not in relation to the pulley's nominal diameter but is measured from the position of the measurement sphere or roller.

Pitch line diameter

The position of a grooved belt in contact with the corresponding pulley is shown in cross-section in the figure.

The real pitch line diameter **dp** of a grooved pulley measured along the belt is slightly greater than the actual diameter **de** and the exact value depends on the type of belt used. For the purposes of illustration, the table shows the value **be** normally adopted to calculate the transmission ratio. In practice it is sufficient to use the actual diameter **de** to calculate the transmission ratio.



$$dp \cong de + 2be$$

Type	PPV-J	PPV-L
2 be	2	5

Designation

The designation includes the following details, in the order given: the "pulley" domination, the reference of the current standard, the number of grooves, the type and the actual diameter expressed in millimetres.

An example of the designation for a PPV-J type grooved pulley designed for industrial transmissions with 8 grooves and an actual diameter of 200mm.: **8 PPV-J 200**.

Degree of finish of the grooves

The surface roughness of the grooves shall be **Ra 3.2** in compliance with ISO 254.

MATERIALS

C45 UNI 7845

Pulleys are manufactured in steel.

Balancing

UNI 4218 – ISO 1940

Pulleys prepared for a tapered bush are statically balanced within grade G.6.3.

It is possible to perform dynamic balancing, on request.

Dynamic balancing is essential for speeds exceeding 30 m/s.

Design power calculation

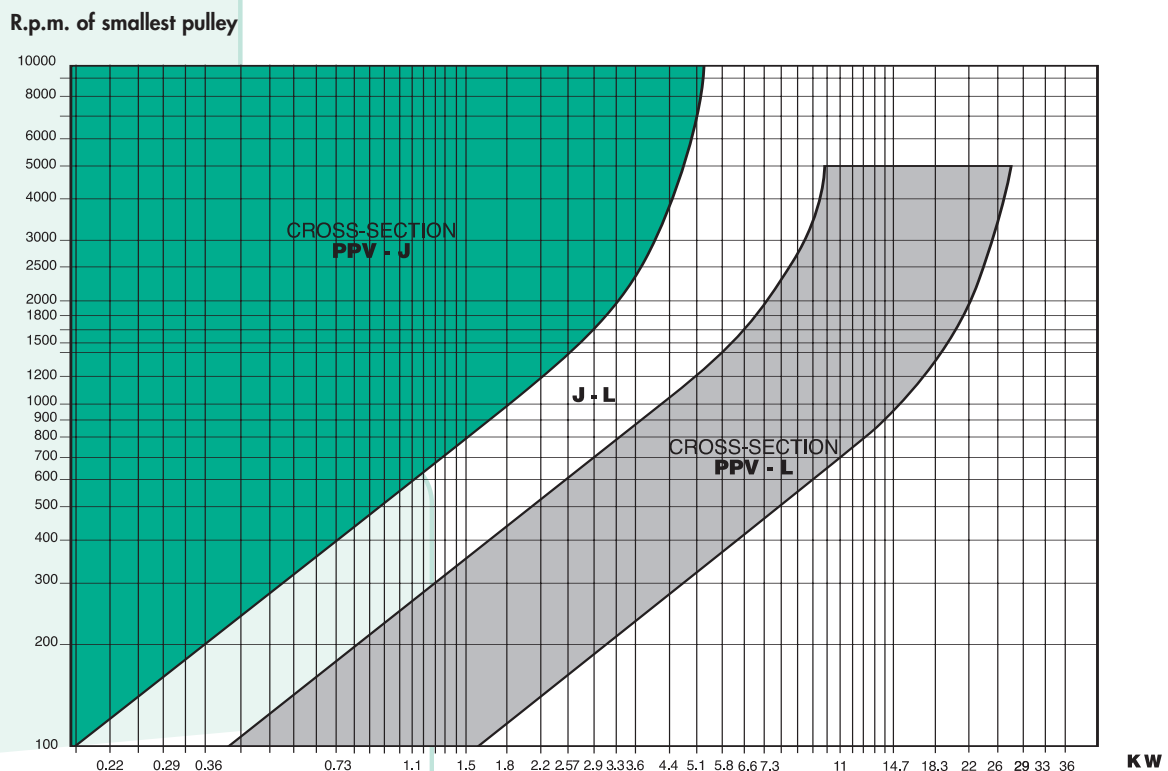
Make a note of the nominal power to be transmitted **P** (kw) (normally the nominal power of the electric motor), select the service factor **Co** based on the table and calculate the design power output **Pc** (kw) as follows: **Pc = Co x P**

Service factor (Co)

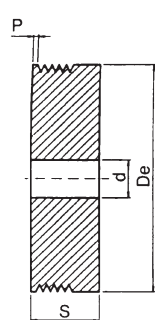
MOTOR TYPE						
Class A	Class B					
• Synchronous and asynchronous, squirrel cage, normal torque, alternating current motor. • Shunt winding direct current motor • Internal combustion engine (steady-state condition ≥ 700 r.p.m.) • Turbines	• Asynchronous, squirrel cage, high torque alternating current motor • Compound winding direct current motor • Internal combustion engine (steady-state condition ≥ 700 r.p.m.) • Clutches					
	Class A Motor			Class B Motor		
Type of machine driven	Number of daily operating hours					
	< 10	10 ÷ 16	> 16	< 10	< 10÷ 16	> 16
• Liquid mixers • Blowers • Extractors • Centrifuge fans • Lightweight conveyors	1	1.1	1.2	1.1	1.2	1.3
• Mixers designed for pasty products • Blenders • Generators • Laundry machines • Machine tools	1.1	1.2	1.3	1.2	1.3	1.4
• Rotary compressors • Rotary pumps • Sieves • Heavyweight conveyors • Spraying systems • Dynamo • Bakery machines • Printing machines • Wood working machines • Axial fans • Brick making machines	1.2	1.3	1.4	1.3	1.4	1.5
• Piston compressors • Piston pumps • Crushers • Bucket elevators • Elevators • Paper making machines • Mills • Hoists	1.4	1.5	1.6	1.5	1.6	1.8
• Grinding machines • Crushing machines • Drainage systems • Calenders and extruders for rubber and plastics	1.6	1.7	1.8	1.7	1.8	2

CROSS - SECTION SELECTION

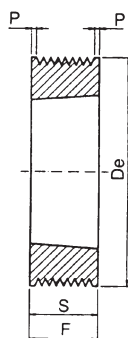
The type of cross-section is selected by using the diagram shown below



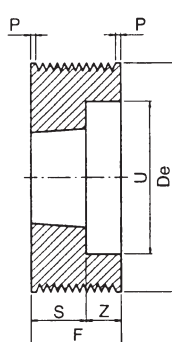
DIMENSIONS OF POLY-V TAPER-LOCK® PULLEYS



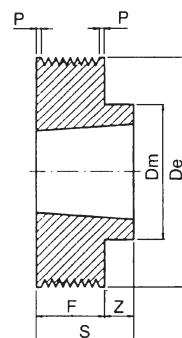
EXECUTION 1



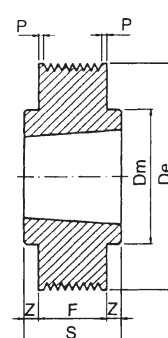
EXECUTION 2



EXECUTION 3



EXECUTION 4



EXECUTION 5

PPV - L CROSS-SECTION

De	Exec.	No. of Grooves	Bush	S	Z	Dm	U		De	Exec.	No. of Grooves	Bush	S	Z	Dm	U
40	1	8	-	32	-	-	-	12	106	4	8	1610	26	3	82	-
	1	12	-	41.5	-	-	-	12		3	12	1610	26	6.5	-	88
	1	16	-	51	-	-	-	12		3	16	1610	26	16	-	88
45	1	8	-	32	-	-	-	12	112	4	8	1610	26	3	90	-
	1	12	-	41.5	-	-	-	12		3	12	1610	26	6.5	-	88
	1	16	-	51	-	-	-	12		3	16	1610	26	16	-	88
50	1	8	-	32	-	-	-	12	118	4	8	1610	26	3	90	-
	1	12	-	41.5	-	-	-	12		3	12	2012	32	0.5	-	98
	1	16	-	51	-	-	-	12		3	16	2012	32	10	-	98
56	2	8	1108	23	-	-	-	-	125	4	8	1610	26	3	90	-
	1	12	-	41.5	-	-	-	12		3	12	2012	32	0.5	-	98
	1	16	-	51	-	-	-	12		3	16	2012	32	10	-	98
63	2	8	1108	23	-	-	-	-	132	4	8	1610	26	3	90	-
	3	12	1108	23	9.5	-	46	-		3	12	2012	32	0.5	-	98
	1	16	-	51	-	-	-	12		3	16	2012	32	10	-	98
71	2	8	1108	23	-	-	-	-	140	4	8	1610	26	3	90	-
	3	12	1108	23	9.5	-	46	-		4	12	2517	45	12.5	120	-
	2	16	1215	42	-	-	55	-		4	16	2517	45	3	120	-
75	2	8	1108	23	-	-	-	-	160	5	8	2012	32	4.5	110	-
	3	12	1610	26	6.5	-	60	-		4	12	2517	45	12.5	120	-
	3	16	1610	26	16	-	60	-		4	16	2517	45	3	120	-
80	4	8	1610	26	3	70	-	-	180	5	8	2012	32	4.5	110	-
	3	12	1610	26	6.5	-	60	-		5	12	2517	45	6.25	120	-
	3	16	1610	26	16	-	60	-		5	16	2517	45	1.5	120	-
85	4	8	1610	26	3	70	-	-	200	5	8	2012	32	4.5	110	-
	3	12	1610	26	6.5	-	60	-		5	12	2517	45	6.25	120	-
	3	16	1610	26	16	-	60	-		5	16	2517	45	1.5	120	-
90	4	8	1610	26	3	70	-	-	224	5	8	2012	32	4.5	110	-
	3	12	1610	26	6.5	-	74	-		5	12	2517	45	6.25	120	-
	3	16	1610	26	16	-	74	-		5	16	2517	45	1.5	120	-
95	4	8	1610	26	3	82	-	-	250	5	8	2012	32	4.5	110	-
	3	12	1610	26	6.5	-	74	-		5	12	2517	45	6.25	120	-
	3	16	1610	26	16	-	74	-		5	16	2517	45	1.5	120	-
100	4	8	1610	26	3	82	-	-								
	3	12	1610	26	6.5	-	74	-								
	3	16	1610	26	16	-	74	-								

No. of Grooves

F±0.1

P

8

23

3.31

12

32.5

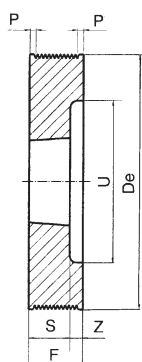
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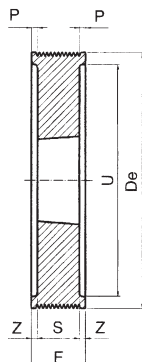
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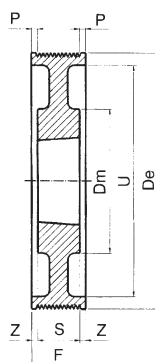
DIMENSIONS OF POLY-V TAPER-LOCK® PULLEYS



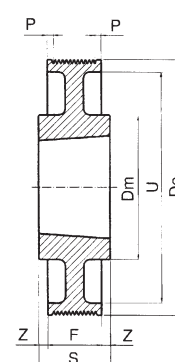
EXECUTION 3



EXECUTION 6



EXECUTION 7



EXECUTION 8

PPV - L CROSS-SECTION

De	Exec.	No. of Grooves	Bush	S	Z	Dm	U		De	Exec.	No. of Grooves	Bush	S	Z	Dm	U
75	3	8	1210	26	22	-	56		140	3	8	2517	45	3	82	116
	3	12	1215	42	25	-	56			6	12	2517	45	11	-	116
80	3	8	1210	26	22	-	56			6	16	2517	45	20.5	-	116
	3	12	1215	42	25	-	56		150	3	8	2517	45	3	-	126
85	3	8	1210	26	22	-	61			6	12	2517	45	11	-	126
	3	12	1215	42	25	-	61			6	16	2517	45	20.5	-	126
	6	16	1215	42	22	-	61		160	3	8	2517	45	3	-	136
90	3	8	1610	26	22	-	66			6	12	2517	45	11	-	136
	3	12	1615	42	25	-	66			6	16	3020	52	17	-	136
	6	16	1615	42	22	-	66		170	3	8	2517	45	3	-	146
95	3	8	1610	26	22	-	71			6	12	2517	45	11	-	146
	3	12	1615	42	25	-	71			6	16	3020	52	17	-	146
	6	16	1615	42	22	-	71		180	7	8	2517	45	1.5	120	156
100	3	8	1610	26	22	-	76			7	12	2517	45	11	120	156
	3	12	2012	32	35	-	79			6	16	3020	52	17	-	156
	6	16	2012	32	27	-	79		200	7	8	2517	45	1.5	120	176
106	3	8	1610	26	22	-	82			7	12	3020	52	7.5	146	176
	3	12	2012	32	35	-	82			7	16	3020	52	17	146	176
	6	16	2012	32	27	-	82		224	7	8	2517	45	1.5	120	202
112	3	8	1610	26	22	-	88			7	12	3020	52	7.5	146	202
	3	12	2012	32	35	-	88			7	16	3020	52	17	146	202
	6	16	2012	32	27	-	88		250	8	8	3020	52	2	146	228
118	3	8	2012	32	16	-	94			7	12	3020	52	7.5	146	228
	6	12	2517	45	11	-	97			8	16	3535	89	1.5	178	228
	6	16	2517	45	20.5	-	97		280	8	8	3020	52	2	146	256
125	3	8	2012	32	16	-	101			12	12	3020	52	7.5	146	256
	6	12	2517	45	11	-	101			8	16	3535	89	1.5	178	256
	6	16	2517	45	20.5	-	101		315	8	8	3020	52	2	146	285
132	3	8	2012	32	16	-	108			8	12	3535	89	11	178	285
	6	12	2517	45	11	-	108			8	16	3535	89	1.5	178	285
	6	16	2517	45	20.5	-	108									

No. of Grooves

F±0.1

P

8

48

7,55

12

67

7,65

16

86

7,75

POLY – V GROOVED BELTS

Definition

A grooved belt refers to a flat belt made up to form a ring with internal length-wise grooves.

The flat section represents the reinforcing component and the length-wise ribs ensure adequate grip by fitting in the grooves of the corresponding pulleys.

CROSS-SECTION J			
Belt type	Extension mm.	Belt type	Extension mm.
180 J	457	400 J	1016
190 J	483	410 J	1040
200 J	508	420 J	1065
220 J	559	430 J	1092
240 J	610	460 J	1168
260 J	660	470 J	1200
280 J	711	490 J	1244
285 J	723	500 J	1270
300 J	762	507 J	1287
310 J	790	520 J	1318
320 J	813	522 J	1326
340 J	864	550 J	1397
350 J	895	560 J	1428
360 J	914	580 J	1473
376 J	955	610 J	1549
380 J	965		

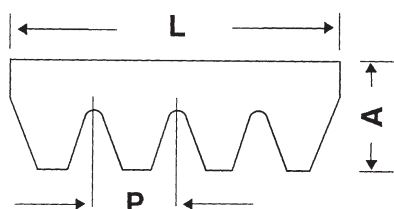
CROSS-SECTION L			
Belt type	Extension mm.	Belt type	Extension mm.
500 L	1270	930 L	2362
525 L	1333	975 L	2476
540 L	1371	990 L	2515
550 L	1397	1065 L	2705
560 L	1422	1080 L	2743
595 L	1511	1120 L	2845
615 L	1562	1150 L	2921
635 L	1613	1215 L	3086
655 L	1664	1230 L	3124
675 L	1715	1295 L	3289
695 L	1764	1310 L	3327
725 L	1841	1375 L	3492
765 L	1943	1455 L	3696
780 L	1981	1595 L	4051
795 L	2020	1650 L	4191
815 L	2070	1760 L	4470
825 L	2096	1820 L	4622
840 L	2134	1980 L	5029
865 L	2197	2120 L	5385
880 L	2235	2400 L	6096
915 L	2324		

Nominal cross-sections and dimensions

Nominal width: $L = P \times N$

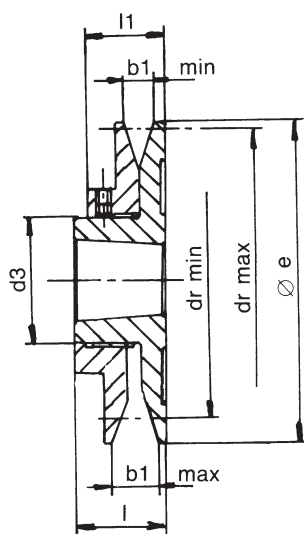
$P = P$ (Distance between pulley races)

$N =$ Number of grooves

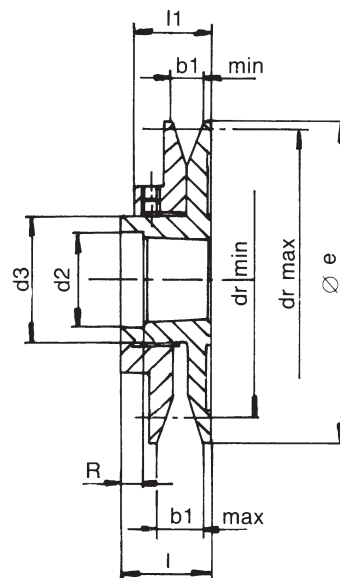


Cross-sections	Pitch P = mm	Height A = mm
P J	2.34	3.60
P L	4.70	6.40

ADJUSTABLE PHOSPHATED TAPER-LOCK® PULLEYS FOR V-BELTS



EXECUTION 1

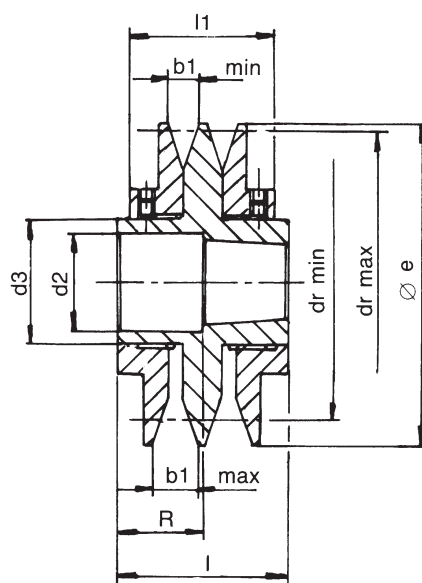


EXECUTION 2

MATERIAL: C 40 STEEL – UNI 7845

PULLEY TYPE	Exec.	No. of Races	Bush	Ø e	l	l ₁	b ₁		d _r		d ₂	d ₃	R	Cup dowels UNI 5929	Belt cross-section	Weight Kg.
							min.	max.	min.	max.						
PRB - 93	2	1	1108	93	36.5	29	13	20.5	57 59	78 85	39	50	13.5	No. 4 M6x6	Z 10x6 A 13x8	0.86
PRB - 108	1	1	1215	108	38	30.5	13	20.5	68 70	92 100	-	60	-	No. 4 M6x6	Z 10x6 A 13x8 SPZ SPA	1.18
									75 76	93 102						
									80 82 87 88	104 112 105 114						
PRB - 120	1	1	1215	120	38	30.5	13	20.5	80 82 87 88	104 112 105 114	-	60	-	No. 4 M6x6	Z 10x6 A 13x8 SPZ SPA	1.46
PRB - 138	1	1	1615	138	38	30.5	13	20.5	98 100 105 106	122 130 123 132	-	74	-	No. 4 M6x6	Z 10x6 A 13x8 SPZ SPA	2.00
PRB - 160	2	1	1615	160	45	35.5	17	26.5	108 112 114 117	138 150 140 153	58	74	6.5	No. 4 M8x8	A 13x8 B 17x11 SPA SPB	3.04
PRB - 180	2	1	2012	180	45	35.5	17	26.5	128 132 134 137	158 170 160 173	71	90	12.5	No. 4 M8x8	A 13x8 B 17x11 SPA SPB	3.80
PRB - 200	2	1	2012	200	45	35.5	17	26.5	149 152 155 159	177 190 179 193	71	90	12.5	No. 4 M8x8	A 13x8 B 17x11 SPA SPB	4.75

ADJUSTABLE PHOSPHATED TAPER-LOCK® PULLEYS FOR V-BELTS



EXECUTION 3

MATERIAL: C 40 STEEL – UNI 7845

PULLEY TYPE	Exec.	No. of Races	Bush	$\varnothing e$	l	l_1	b_1		d_r		d_2	d_3	R	Cup dowels UNI 5929	Belt cross-section	Weight Kg.
							min.	max.	min.	max.						
PRB2 - 108	3	2	1215	108	73	58	13	20.5	68 70 75 76	92 100 93 102	48.5	60	34.5	No. 8 M6x6	Z 10x6 A 13x8 SPZ SPA	2.14
PRB2 - 120	3	2	1215	120	73	58	13	20.5	80 82 87 88	104 112 105 114	48.5	60	34.5	No. 8 M6x6	Z 10x6 A 13x8 SPZ SPA	2.65
PRB2 - 138	3	2	1615	138	73	58	13	20.5	98 100 105 106	122 130 123 132	58.5	74	34.5	No. 8 M6x6	Z 10x6 A 13x8 SPZ SPA	3.60
PRB2 - 160	3	2	1615	160	87	68	17	26.5	108 112 114 117	138 150 140 153	58.5	74	48.5	No. 8 M8x8	A 13x8 B 17x11 SPA SPB	5.60
PRB2- 180	3	2	2012	180	87	68	17	26.5	128 132 134 137	158 170 160 173	71	90	54	No. 8 M8x8	A 13x8 B 17x11 SPA SPB	7.15
PRB2 - 200	3	2	2012	200	87	68	17	26.5	149 152 155 159	177 190 179 193	71	90	54	No. 8 M8x8	A 13x8 B 17x11 SPA SPB	8.92