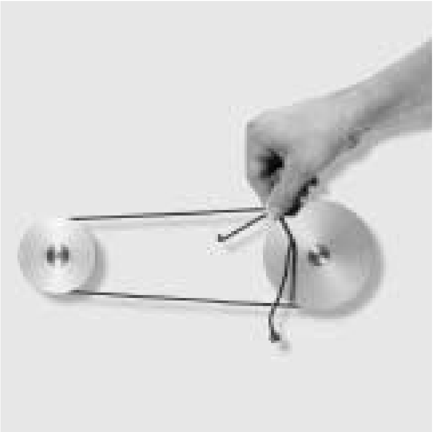
Thanks to handy Habasit joining tools the customer can join Polycord round belts himself. This also avoids time-consuming dismantling jobs. Many leading firms throughout the world are putting the advantages of the service on the premises of good use.

Cutting
▷ If take-up x is available and sufficient for the required take-up x_ε, measure and cut off belt length l_1 of for example 2500 mm, determined by a string in the pulley grooves at the shortest center distance.
▷▷ If no take-up x is available, proceed as above, but deduct initial tension $\varepsilon = 8\%$ (for example 200 mm in case of a belt length of 2500 mm) and measure net belt length l_3 of 2300 mm.

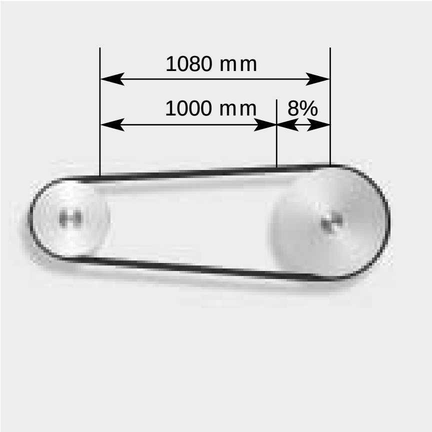


Joining
See operating instruction of the respective joining device for exact procedure.
The joining of Polycord round belts is very simple (illustration: welding device PQ-18):
▷ Clamp belt ends into welding device ...
▷▷ allow them to melt against the heating blade (do not inhale vapors, join only in well ventilated areas), and ...

▷ ... but the belt ends together and let the joint cool off.
▷▷ Trim swelling with pliers, file or grinding wheel.

Possible joining devices:
Welding device PQ-18 → operating instructions 36009
Semi-automatic welding device PQ-16 → operating instructions 3602

Installing
▷ If take-up x is available and sufficient for the required take-up x_ε, trace two measuring marks, distant of 1000 mm (or 500 mm) on belt. Tension it by the generally applicable initial tensioning value $\varepsilon = 8\%$ by increasing the center distance. The distance between the two measuring marks should now be 1080 mm (or 540 mm).
▷▷ If no take-up x is available, install the belt first on the small, then "force" it on the larger pulley by carefully turning the drive by hand.



Antriebs-, Transportelemente
Eléments de transmission, de transport
Power transmission, conveyor belts
Elementos de transmisión, de transporte
Elementi di trasmissione, di trasporto
Elementos de transmissão, de trasporte
Aandrijf-, transportelementen
Transmissions-, transportelement
Voimansiirto-, kuljetuselementit
Kraftoverførings-, transportelementer
動力の伝達及びコンベヤーの原理

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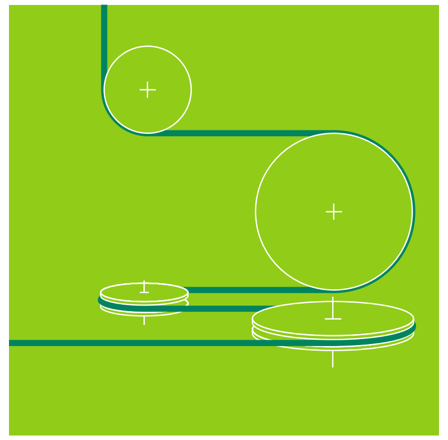
Engineering manual

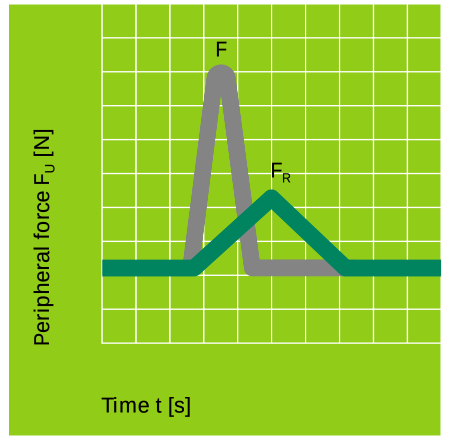
Polycord round belts

1260

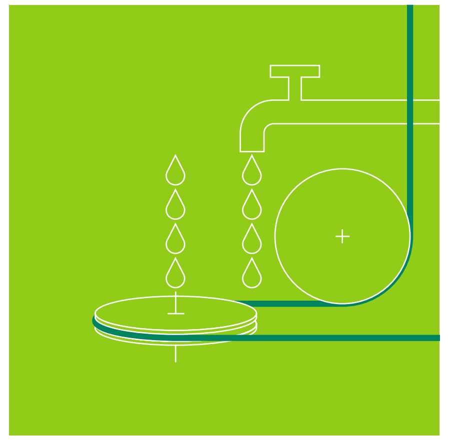
Ideal properties, universal application of Polycord round belts

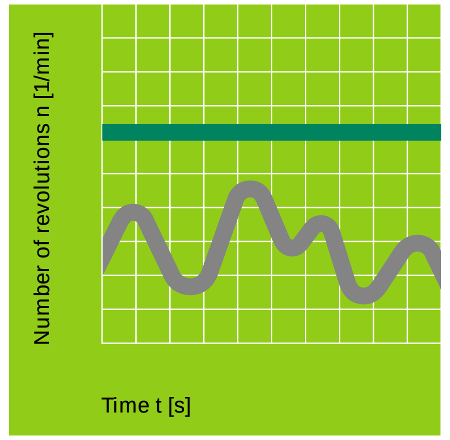
▷ Thanks to their high flexibility, Polycord round belts are directionally adjustable at will.
▷▷ As a result of their high elasticity, Polycord round belts act as security elements by reducing shocks and overloads F to F_R through an extension of the shock and overload time t. Expensive intermediary elements are superfluous.



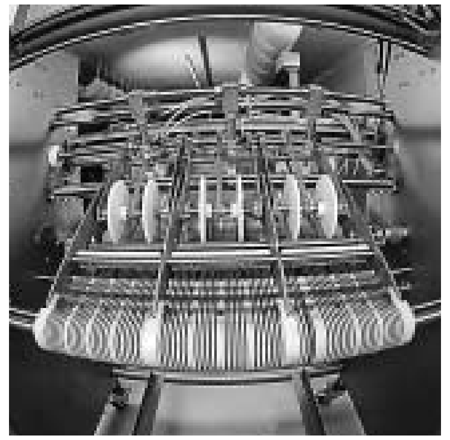


▷ The physical and chemical characteristics are exceptional in many areas: the resistance to hydrolysis is significantly superior to the one found in most of the existing polyurethane-elastomers. So, Polycord round belts are resistant to water, oils, grease and benzine. They have a limited resistance to acids and alkaline solutions (chemical resistance class ⑥ → product range 0105).
Not antistatic.
▷▷ Thanks to their close cross section tolerances, Polycord round belts guarantee uniform transmission of the number of revolutions.





▷ Mechanical/apparatus engineering, metal working industry, precision machinery, watch-making industry: drills, oil pumps, pantographs, ancillary units for automatic lathes, etc.
▷▷ Textile and clothing industry: bale openers, cards, automatic bobbin winders, sewing machines, spinning frames, cotton wool manufacturing machines, etc.



▷ Chemical and food industry: laboratory equipment, weighing installations, packaging lines, sorting installations, etc.
▷▷ Various industries, public services, service sector: business and copying machines, transport of cardboard, veneers, tiles, drying installations, weighing installations, packaging lines, printing machines, automatic bowling alleys, etc.

Product range, technical data, determination of the ideal Polycord round belt

All indications are approximate values under standard climatical conditions 23 °C 50% relative humidity (DIN 50005/ISO 554).

Product group	Belt type/diameter [mm]	Material	Color	Hardness	Mass per meter of length of Polycord round belt (weight of round belt) m'_P [g/m]	Pulley diameter, minimum d_{min} [mm]	Pull for 8% elongation $k_{8\%}$ [N]	Nominal peripheral force F_{UN} [N]	Tensile strength [N]	Cross section A [mm²]	Admissible tensile force per unit of cross section k_{adm} [N/mm²]	Operating temperature, admissible, continuous [°C]	Operating temperature, admissible intermittent [°C]	Coefficient of friction μ on steel (roughness max. CLA = max. 1.6 μm)	Legend, remarks
Polycord round belts for power transmission, for transmission of motion, partly as substitute for V-belts, as conveyor belts	**R-2**	PUR	green	90 Shore A	5	20	6	3.8	125	3.14	3 N/mm²	– 20/50	– 40/80	0.3	Chemical resistance ⑥ → product range 0105
	R-3				9	30	13	8.5	280	7.07		– 20/50	– 40/80	0.3	
	R-4				17	40	22	15	500	12.57		– 20/50	– 40/80	0.3	
	R-5				25	50	35	24	800	19.63		– 20/50	– 40/80	0.3	
	R-6				35	60	50	34	1100	28.27		– 20/50	– 40/80	0.3	
	R-7				48	70	70	46	1500	38.48		– 20/50	– 40/80	0.3	
	R-8				60	80	90	60	2000	50.27		– 20/50	– 40/80	0.3	
	R-10				97	100	140	94	3100	78.54		– 20/50	– 40/80	0.3	
	R-12				138	120	200	136	4500	113.1		– 20/50	– 40/80	0.3	
	R-15				210	150	315	212	7000	176.7		– 20/50	– 40/80	0.3	

Table 1 Arc of contact factor c_1

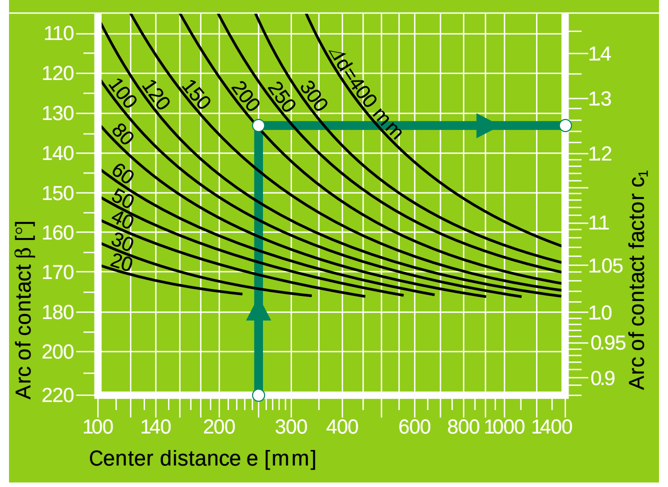


Table 2 Nominal belt power P_N and shaft load F_W with an initial tension ε of 8%

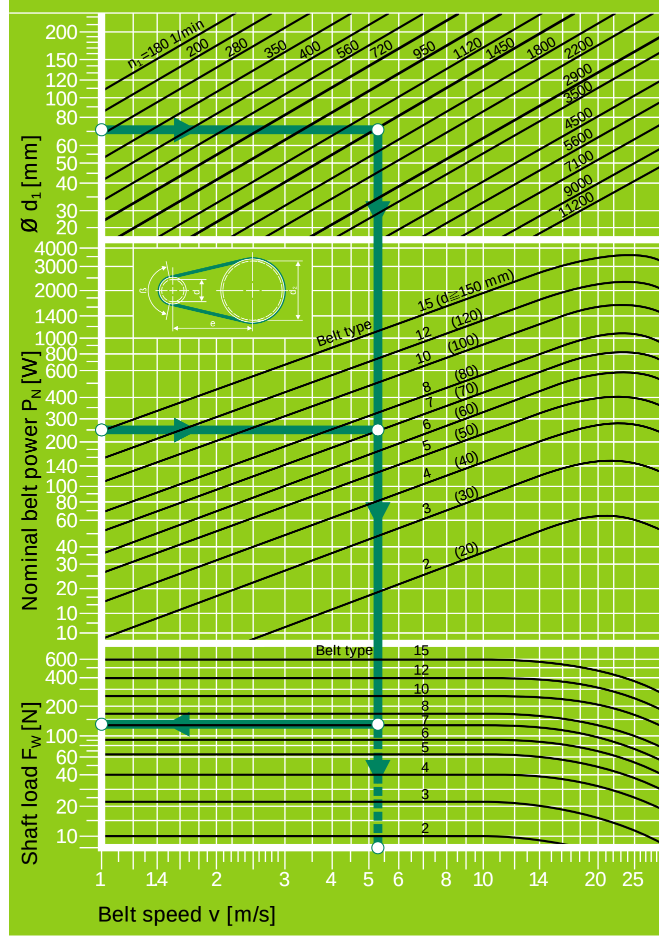
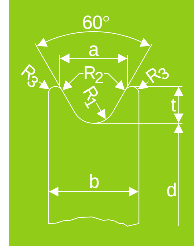


Table 3 Recommended pulley dimensions [mm]
(Other pulley forms also adequate. For conveying installations reduce groove depth t appropriately.)



Belt type	2	3	4	5	6	7	8	10	12	15
a	4.5	5.5	7	8	10	11	12	15	18	23
b	6.5	8	10	12	14	15	16	19	22	27
t	2.5	3	3.5	4	5	5.5	6	7.5	9	12
R_1	1.3	1.8	2.5	3	3.5	4	4.5	5.5	6.5	8
R_2	1	1.2	1.5	2	2	2	2	2	2	2
R_3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Legend, examples

Legend

- A = Cross section of Polycord round belt [mm²]
- F_{UN} = Nominal (admissible continuous) peripheral force [N]
- F_W = shaft load [N] (1 kp = 9.81 N ≈ 10 N)
- P = power to be transmitted (motor power) [W] (1 HP = 736 W)
- P_B = design power for the belt [W]
- P_N = nominal belt power [W]
- c_1 = arc of contact factor
- d_1 = diameter of driving pulley [mm]
- d_2 = diameter of driving pulley [mm]
- Δd = large minus small pulley diameter [mm]
- e = center distance (in shaft center) [mm]
- k_{adm} = admissible tensile force per unit of cross section [N/mm²]
- l_1 = order length, delivery length, if take-up x is available and sufficient for the required take-up $x_ε$ ($l_1 = l_g$) [mm]
- l_2 = order length, delivery length, if take-up x is available but not sufficient for the required take-up $x_ε$ [mm]
- l_3 = order length, delivery length, if no take-up x is available [mm]
- l_g = geometrical belt length at shortest center distance [mm]
- m'_P = mass per m of length of Polycord round belt (weight of round belt) [g/m]
- n_1 = number of revolutions of driving pulley [1/min]
- n_2 = number of revolutions of driven pulley [1/min]
- v = belt speed [m/s]
- x = available take-up (of tensioning device) [m/m]
- $x_ε$ = required take-up (of tensioning device) [mm]
- β = arc of contact at small pulley [°]
- ε = initial tension (elongation) [%]

Example	**Given data**		
Drive of a laboratory pump	Power to be transmitted (motor power)	P =	200 W
	Number of revolutions of driving pulley (motor speed)	n_1 =	1450 1/min
	Number of revolutions of driven pulley (on laboratory pump)	n_2 =	375 1/min
	Diameter of driving pulley (motor pulley)	d_1 =	70 mm
	Diameter of driven pulley (on laboratory pump)	d_2 =	270 mm
	Center distance	e =	250 mm
Determination	**Procedure**		
1. Arc of contact factor	→ table 1: intersecting point of e = 250 mm with Δd = d_2 – d_1 = 270 – 70 = 200 mm yields in direction of arrow	c_1 =	1.25
2. Design power for the belt	$P_B = P \cdot c_1 = 200 \cdot 1.25$	P_B =	250 W
3. Belt speed	→ table 2: intersecting point of d_1 = 70 mm with n_1 = 1450 1/min yields in direction of arrow	v ≈	5.3 m/s
4. Belt type	→ table 2: intersecting point of v = 5.3 m/s with $P_B = P_N$ = 250 W yields If the smallest pulley diameter is smaller than the minimum pulley diameter (→ technical data, page 3), it has to be increased accordingly and, if necessary, the calculation must be repeated, or 2 or several round belts corresponding to the design power P_B and the smallest pulley diameter can be provided.	belt type	7
5. Shaft load	→ table 2: intersecting point of v = 5.3 m/s with belt type 7 yields (with an initial tension ε of 8%) in direction of arrow	F_W =	140 N
6. Belt length, if take-up x is available and sufficient for the required take-up $x_ε$ (l_1)	Measure l_1 with string in the pulley grooves at the shortest center distance ($l_1 = l_g$)	l_1 ≈	1075 mm
6.1. Order specifications	Polycord belt type, order length (l_1), endless or cut to length		Polycord 7, 1075 mm (l_1), endless
7. Belt length, if no take-up x is available (l_3)	Measure l_g with string in the pulley grooves and deduct initial tension ε = 8%, i.e. $l_3 = l_g - \frac{l_g \cdot ε}{100}$	l_3 ≈	990 mm
7.1. Order specifications	Polycord belt type, order length (l_3/8%), endless or prepared		Polycord 7, 990 mm (l_3/8%), endless