



**POWER TRANSMISSION
FLEXIBLE COUPLINGS**

PEX



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The flexible Pex couplings are claw couplings with flexible elements to provide a torsionally flexible connection of shafts. The flexible elements excel in their wear resistance, ageing resistance and their temperature resistance from -30°C to $+80^{\circ}\text{C}$. Thanks to their flexibility, impacts, rotary vibrations and noises are effectively absorbed. The flexible elements are dimensioned such that radial, axial and angular movements between the two halves of the coupling are cancelled out. The flexible Pex couplings are of the plug-in type for installation and do not involve any particularly rigorous requirements with respect to alignment accuracy. Pex couplings can be used in the whole of machine construction wherever a reliable shaft connection is needed between motor and working machine.

TYPE A

The Pex type A coupling is manufactured in three-piece design. With this design it is possible to install packages without axial displacement of the drive engine or working machine.

TYPE B

The Pex type B coupling is fail-safe up to the fracture moment of the cast iron transmission cam and this provides maximum operational safety. The flexible elements can be supplied with hardness 80° Shore A. With the fixed position of the flexible elements its deformability in axial direction is free, and so no damaging axial forces can act on the machine bearing even with alternating torque.

WEAR INDICATOR

The wear indicator for Pex couplings enables the condition of the flexible elements to be easily assessed. The wear condition can also be ascertained with the aid of a stroboscope while the coupling is rotating. The production process can thus continue undisturbed. The wear indicator must be attached to the outside diameter of the coupling after the coupling has been fitted.



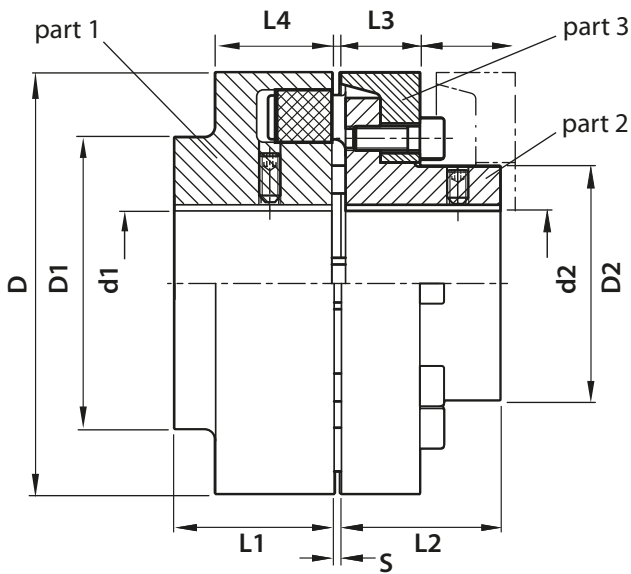
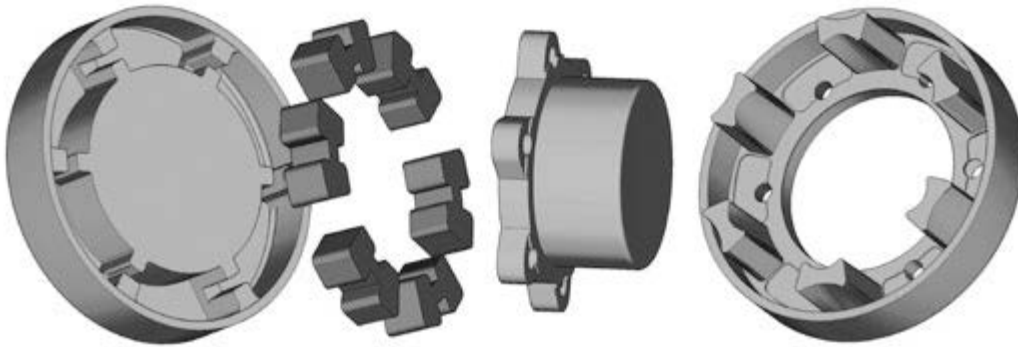
SELECTION

The torque of the machine T_{AN} is determined by: $T_{AN} [\text{Nm}] = 9550 \times \frac{P_{\text{Motor}} [\text{kW}]}{n [\text{rpm}]}$

This torque T_{AN} multiplied by a safety factor S depending on the application and the temperature factor S_T (see table page 5) gives the required nominal coupling torque T_{KN} .

Result: $T_{KN} \geq S \times S_T \times T_{AN}$

PEX – TYPE A



> Materials: Coupling half EN-GJL-250
Flexible elements NBR 80° Shore A

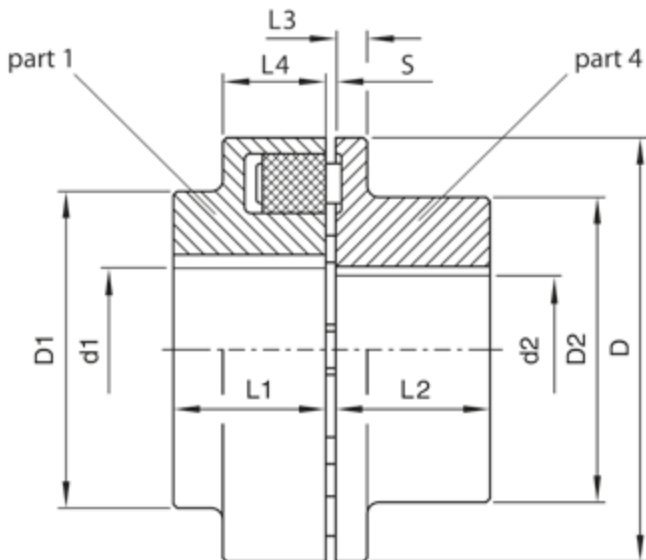
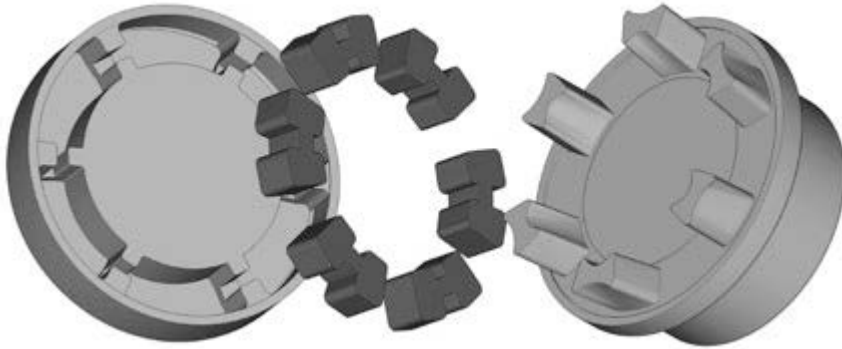
TYPE A

Size	Nominal torque Nm	Max. rotation speed rpm	Pre. bore		Max. bore		D	L1	L2	D1	D2	L3	L4	S	Weight ¹⁾ kg			Moments of inertia ¹⁾ kgm ²	Max. shaft misalignment at rotational speed n = 1500 rpm ²⁾		
			d1	d2	d1	d2									part 1	part 2	part 3		axial ΔK_x mm	radial ΔK_r mm	angular ΔK_w °
110	160	5300	17	12	48	38	110	40	40	86	62	20	34	3	1.95	1.38	1.97	0.003	0.2	0.2	0.1
125	240	5100	18	15	55	45	125	50	50	100	75	23	36	3	3.05	2.42	1.97	0.005	0.25	0.25	0.1
140	360	4900	20	17	60	50	140	55	55	100	82	28	34	3	3.65	3.04	2.5	0.008	0.25	0.25	0.1
160	560	4250	25	20	65	58	160	60	60	108	95	28	39	4	5.05	4.19	3.49	0.014	0.3	0.3	0.1
180	880	3800	25	20	75	65	180	70	70	125	108	30	42	4	7.8	5.94	4.41	0.025	0.3	0.3	0.1
200	1340	3400	30	25	85	75	200	80	80	140	122	32	47	4	11	8.61	6.02	0.04	0.3	0.3	0.09
225	2000	3000	35	30	90	85	225	90	90	150	136	38	52	4	15	12.06	8.93	0.08	0.35	0.35	0.09
250	2800	2750	45	45	100	95	250	100	100	165	155	42	60	6	19.5	17.41	11.7	0.13	0.35	0.35	0.08

1) The information concerning weights and moments of inertia apply for medium holes.

2) The values mentioned are valid for n = 1500 rpm and may occur only separately. At multiple misalignments or higher speeds the values must be reduced.

PEX – TYPE B



► Materials: Coupling half EN-GJL-250
Flexible elements NBR 80° Shore A

TYPE B

Size	Nominal torque Nm	Max. rotation speed rpm	Pre. bore		Max. bore		D	L1	L2	D1	D2	L3	L4	S	Weight ¹⁾ kg		Moments of inertia ¹⁾ kgm ²	Max. shaft misalignment at rotational speed n = 1500 rpm ²⁾		
			d1	d2	d1	d2									part 1	part 4		axial ΔK_a mm	radial ΔK_r mm	angular ΔK_w °
58	19	7500	–	–	19	24	58	20	20	–	40	8	20	3	0.24	0.28	0.0001	0.2	0.2	0.15
68	34	7000	–	–	24	28	68	20	20	–	50	8	20	3	0.32	0.45	0.0002	0.2	0.2	0.15
80	60	6000	12	12	30	38	80	30	30	–	68	10	30	3	0.75	0.94	0.0006	0.2	0.2	0.12
95	100	5500	12	12	42	42	95	35	35	76	76	12	30	3	1.3	1.55	0.0013	0.2	0.2	0.12
110	160	5300	17	17	48	48	110	40	40	86	86	14	34	3	1.95	2.25	0.003	0.2	0.2	0.1
125	240	5100	18	18	55	55	125	50	50	100	100	18	36	3	3.05	3.6	0.006	0.25	0.25	0.1
140	360	4900	20	20	60	60	140	55	55	100	100	20	34	3	3.65	4.5	0.007	0.25	0.25	0.1
160	560	4250	25	25	65	65	160	60	60	108	108	20	39	4	5.05	5.95	0.01	0.3	0.3	0.1
180	880	3800	25	25	75	75	180	70	70	125	125	20	42	4	7.8	8.5	0.02	0.3	0.3	0.1
200	1340	3400	30	30	85	85	200	80	80	140	140	24	47	4	11	12.4	0.04	0.3	0.3	0.09
225	2000	3000	35	35	90	90	225	90	90	150	150	18	52	4	15	15.5	0.07	0.35	0.35	0.09
250	2800	2750	45	45	100	100	250	100	100	165	165	18	60	6	19.5	19.5	0.12	0.35	0.35	0.08

1) The information concerning weights and moments of inertia apply for medium holes.

2) The values mentioned are valid for n = 1500 rpm and may occur only separately. At multiple misalignments or higher speeds the values must be reduced.

SAFETY FACTOR S

Assignment of load characteristics according to type of working machine			
S	DREDGERS	S	RUBBER MACHINERY
S	Bucket conveyor	S	Extruders
M	Landing gear (caterpillar)	M	Calenders
M	Landing gear (rail)	S	Kneading mills
M	Manoeuvring winches	M	Mixers
M	Pumps	S	Rolling mills
S	Impellers		WOOD WORKING MACHINES
S	Cutter heads	S	Barkers
M	Slewing gear	M	Planing machines
	GENERATORS, TRANSFORMERS	G	Wood working machines
M	Frequency transformers	S	Saw frames
M	Generators		CRANES
M	Welding generators	G	Luffing gear block
	CHEMICAL INDUSTRY	S	Travelling gear
M	Cooling drums	G	Hoist gear
M	Mixers	M	Slewing gear
G	Agitators (liquid material)	M	Derricking jib gear
M	Agitators (semi-liquid material)		PLASTIC INDUSTRY MACHINES
M	Drying drums	M	Extruders
G	Centrifuges (light)	M	Calenders
M	Centrifuges (heavy)	M	Mixers
	OIL INDUSTRY	M	Crushers
M	Pipeline pumps		METAL WORKING MACHINES
S	Rotary drilling equipment	M	Plate bending machines
	CONVEYORS	S	Plate straightening machines
M	Pit-head winches	S	Hammers
S	Winding engines	S	Metal planning machines
M	Jointed-band conveyors	S	Presses
G	Belt conveyors (bulk material)	M	Shears
M	Belt conveyors (piece goods)	S	Forging presses
M	Band pocket conveyors	S	Punch presses
M	Chain conveyors	G	Countershafts, line shafts
M	Circular conveyors	M	Machine tools (main drives)
M	Load elevators	G	Machine tools (auxiliary drives)
G	Bucket conveyors for flour		FOOD INDUSTRY MACHINERY
M	Passenger lifts	G	Bottling and container filling machines
M	Plate conveyors	M	Kneading machines
M	Screw conveyors	M	Mash tubs
M	Ballast elevators	G	Packaging machines
S	Inclined hoists	M	Cane crushers
M	Steel belt conveyors	M	Cane cutters
M	Drag chain conveyors	S	Cane mills
	BLOWERS, VENTILATORS	M	Sugar beet cutters
M	Rotary piston blowers	M	Sugar beet washing machines
G	Blowers (axial/radial)		PAPER MACHINES
M	Cooling tower fans	S	Couches
M	Induced draught fans	S	Glazing cylinders
G	Turbo blowers	M	Pulper
	BUILDING MACHINERY	S	Pulp grinders
S	Hoists	M	Calenders
G	Concrete mixers	S	Wet presses
S	Road construction machinery	S	Willows
		S	Suction presses
		S	Suction rolls
		S	Drying cylinders
			PUMPS
		S	Piston pumps
		G	Centrifugal pumps (light liquids)
		M	Centrifugal pumps (viscous liquids)
		S	Plunger pumps
		S	Press pumps
			STONE AND CLAY WORKING MACHINES
		S	Crusher
		S	Rotary ovens
		S	Hammer mills
		S	Ball mills
		S	Tube mills
		S	Beater mills
		S	Brick presses
			TEXTILE MACHINES
		M	Batchers
		M	Printing and dyeing machines
		M	Tanning vats
		M	Willows
		M	Looms
			COMPRESSORS
		S	Piston compressors
		M	Turbo compressors
			METAL ROLLING MILLS
		S	Plate shears
		M	Manipulator for turning sheets
		S	Ingot pushers
		S	Ingot and slabbing-mill train
		S	Ingot handling machinery
		M	Wire drawing benches
		S	Descaling machines
		S	Thin plate mills
		S	Heavy and medium plate mills
		M	Winding machines (strip and wire)
		S	Cold rolling mills
		M	Chain tractor
		S	Billet shears
		M	Cooling beds
		M	Cross tractor
		M	Roller tables (light)
		S	Roller tables (heavy)
		M	Roller straighteners
		S	Tube welding machines
		M	Trimming shears
		S	Cropping shears
		S	Continuous casting plant
		M	Rollers adjustment drive
		S	Manipulators
			LAUNDRIES
		M	Tumblers
		M	Washing machines
			WATER TREATMENT
		M	Aerators
		M	Screw pumps

Driving machines	Operating factor S		
	Load characteristics of the working machine		
	G	M	S
Electric motors, turbines, hydraulic motors	1	1.25	1.75
Piston machines 4–6 cylinders	1.25	1.5	2
Piston machines 1–3 cylinders	1.5	2	2.5

Temperature factor S _T	
θ [°C]	S _T
-20 < θ < +30	1.0
+30 < θ < +40	1.2
+40 < θ < +60	1.5
+60 < θ < +80	1.8