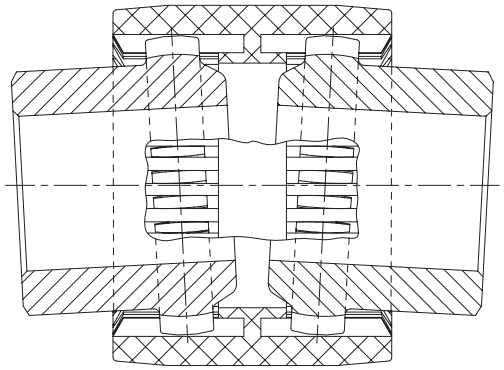
Coupling description

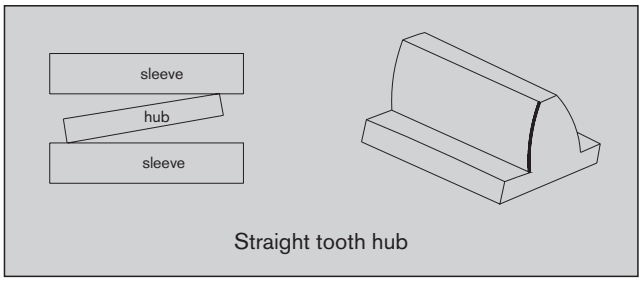


General description:
BoWex® – couplings are designed to transmit torque between drive and driven components via curved tooth hubs and a nylon sleeve. The combination of these components provides a torsionally stiff connection and accommodation for misalignments. This product is available in materials and elements that are optimized for close coupled applications.

Function and Design
BoWex® - couplings, suitable for horizontal or vertical applications, are constructed from a variety of materials providing a torsionally stiff platform optimizing the balance between coupling performance and application requirements. The double-crowned tooth reduces edge loading while accommodating misalignments and transmitting torque. The symmetrical relationship of the hubs and floating nylon sleeve allows for minimal maintenance in a close coupled design.

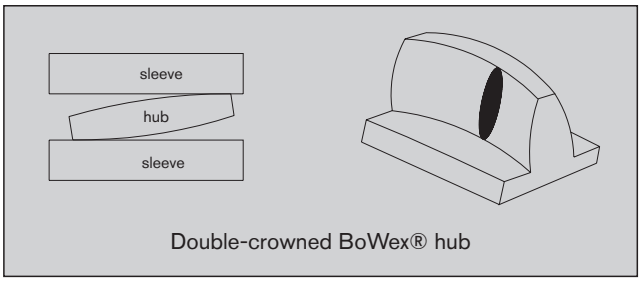
The design of the BoWex® allows the nylon sleeve to float independently of the two hubs thus minimizing restoring forces. The result is a double-cardanic coupling with high torsional stiffness, low inertia and chemical resistance while accommodating large axial movement. Unlike other gear couplings, BoWex® does not require lubrication and can be used for shaft to shaft and engine flywheel drive applications.

BoWex® is available in a variety of standard mounting options to accommodate shafts up to 4.813 inches and a maximum nominal torque of 22,120 lb-in while still accommodating blind assembly. As defined by the sleeve, BoWex® couplings are suitable for moderate industrial temperature ranges. All these design features reduce the maintenance required during the life-cycle of the coupling.



Straight tooth hub

On couplings with straight teeth, high edge pressure contributes to considerable wear at the contact surfaces when misalignment is present.



Double-crowned BoWex® hub

The curved teeth avoid any edge pressure on the coupling when angular and radial misalignments occur.

Explosion-proof use
BoWex® couplings design M up to size 65 including an electrically conductive nylon sleeve (PA-CF) are suitable for power transmission in drives in hazardous areas. The couplings are certified and conform to EC standard 94/9/EC (ATEX 95) as units of category 2G/2D and thus suitable for the use in hazardous areas of zone 1, 2, 21 and 22. Please read through our information included in the Type Examination Certificate and the operating and installation instructions at www.ktr.com

Technical data

Power, Torque and Speed

Design and size		Power $\frac{P\ [HP]}{n\ [rpm]}$		Torque T_K [lb-in]			Max. speed [rpm]
		Rated	Maximum	T_{KN}	$T_{K\ max.}$	T_{KW}	
Type	junior 14 / M-14	0.0007	0.0134	44	89	22	6,000
plug-in coupling /	junior 19 / M-19	0.0011	0.0023	71	140	35	6,000
junior M	junior 24 / M-24	0.0017	0.0034	106	210	53	6,000
Type	14	0.0013	0.0040	89	260	44	14,000
M	19	0.0023	0.0067	140	420	71	11,800
I	24	0.0028	0.0080	170	530	89	10,600
AS	28	0.0063	0.0188	390	1,190	200	8,500
Spec.-I	32	0.0084	0.0255	530	1,590	260	7,500
SG	38	0.0113	0.0335	700	2,120	350	6,700
SSR	42	0.0134	0.0415	880	2,650	440	6,000
	45 / 48	0.0201	0.0590	1,230	3,710	610	5,600
	65	0.0536	0.1595	3,360	10,090	1,680	4,000
	80	0.0978	0.2948	6,190	18,580	3,090	3,150
	100	0.1742	0.5092	10,620	31,860	5,310	3,000
	125	0.3484	1.0452	22,120	66,380	11,060	2,120
Type	14	0.0020	0.0063	130	390	66	14,000
M...C	19	0.0034	0.0101	210	630	100	11,800
	24	0.0040	0.0121	260	790	130	10,600
	28	0.0094	0.0295	610	1,850	300	8,500
	32	0.0121	0.0375	790	2,380	390	7,500
	38	0.0174	0.0509	1,060	3,180	530	6,700
	48	0.0281	0.0844	1,770	5,310	880	5,600
	65	0.0777	0.2412	4,950	14,860	2,470	4,000
Type	48	0.0335	0.0670	2,120	5,310	1,060	5,000
FLE-PA	T 48	0.0402	0.1045	2,650	6,630	1,320	5,000
	T 55	0.0630	0.0161	3,980	9,950	1,990	4,500
	65	0.0911	0.1876	5,750	14,160	2,870	3,600
	T 65	0.1126	0.2814	7,080	17,700	3,540	3,600
	T 70	0.1407	0.3511	8,850	22,120	4,420	3,400
	80	0.1742	0.3350	10,620	26,550	5,310	3,000
	T 80	0.2144	0.0523	13,270	33,190	6,630	3,000
	100	0.2814	0.5762	18,140	45,580	9,070	2,500
	T 100	0.3484	0.8710	22,120	55,310	11,060	2,500
	125	0.5896	1.1926	37,610	94,700	18,800	2,500
Type	40Sh	0.0188	0.0549	1,150	3,450	310	
ELASTIC	42 HE 50Sh	0.0214	0.0630	1,320	3,980	390	6,200
HE	65Sh	0.0255	0.0764	1,590	4,770	470	
HEW	40Sh	0.0281	0.0844	1,770	5,310	530	
HEW-ZS	48 HE 50Sh	0.0322	0.0965	2,030	6,100	610	5,600
HE-ZS	65Sh	0.0389	0.1179	2,470	7,430	740	
HEG	40Sh	0.0496	0.1474	3,090	9,290	920	
	65 HE 50Sh	0.0563	0.1688	3,540	10,620	1,060	4,500
	65Sh	0.0697	0.2104	4,420	13,270	1,320	
	40Sh	0.0603	0.1809	3,800	11,410	1,140	
	G 65 HE 50Sh	0.0697	0.2104	4,420	13,270	1,320	4,300
	65Sh	0.0871	0.2613	5,480	16,460	1,640	
	40Sh	0.1193	0.3578	6,630	19,910	1,990	
	80 HE 50Sh	0.1286	0.3993	8,400	25,220	2,520	3,600
	65Sh	0.1688	0.4985	10,620	31,860	3,180	
	40Sh	0.1742	0.5226	11,060	33,190	3,310	
	G 80 HE 50Sh	0.2144	0.6700	14,160	42,480	4,240	3,000
	65Sh	0.2814	0.8308	17,700	53,100	5,310	
	40Sh	0.2814	0.8308	17,700	53,100	5,310	
	100 HE 50Sh	0.3484	1.0452	22,120	66,380	6,630	2,700
	65Sh	0.4824	1.3400	28,320	84,960	8,490	
	40Sh	0.4154	1.2623	26,550	79,650	7,960	
	125 HE 50Sh	0.5494	1.6830	35,400	106,210	10,620	2,300
	70Sh	0.6968	2.1038	44,250	132,760	13,270	
	40Sh	0.5628	1.6884	35,400	106,210	10,620	
	G 125 HE 50Sh	0.7236	2.1842	46,020	141,610	14,160	2,100
	70Sh	0.9112	2.7336	57,530	177,020	17,700	
	40Sh	0.7772	2.3182	48,680	146,040	14,600	
	150 HE 50Sh	0.9782	2.9480	61,950	185,870	18,580	1,800
	70Sh	1.2596	3.7922	79,650	238,970	23,890	

Coupling selection

The BoWex® coupling is selected in accordance with DIN 740 part 2. The coupling must be selected so that the allowable coupling load is not exceeded in any operating condition. For this reason, the actual loads must be compared to the capacities of the coupling.

1 **Drives without alternating torque**
The coupling is selected by checking the rated torques T_{KN} and maximum torque $T_{K\,max}$.

2 **Load produced by engine rated torque**

$$T_{KN} \geq T_N \cdot S_t$$

$$T_N\,[\text{lb-in}] = 63{,}025 \cdot \frac{P_{AN}[\text{HP}]}{n_{AN}\,[\text{rpm}]}$$

Taking the ambient temperature into consideration, the rated torque T_{KN} of the coupling must be greater than or equal to the rated torque T_N of the application

3 **Load produced by torque shocks**

$$T_{K\,max} \geq T_S \cdot S_Z \cdot S_t + T_N \cdot S_t$$

The maximum torque of the coupling must equal to at least the total of peak torque T_S and the rated torque T_N of the machine, taking into account the shock frequency Z and the ambient temperature.

Drive-sided shock
$T_S = T_{AS} \cdot M_A \cdot S_A$

Load-sided shock
$T_S = T_{LS} \cdot M_L \cdot S_L$

$$M_A = \frac{J_L}{J_A + J_L} \qquad M_L = \frac{J_A}{J_A + J_L}$$

This applies if the rated torque T_N of the machine is also subject to shocks.

The peak torque TS can be calculated if the mass distribution, shock direction and shock mode are known.

For drives with A. C.-motors and high masses on the load side we recommend that you call KTR to assist you in calculating the peak driving torque.

Service factor S_t for temperature

Material of sleeve	-40 °F +140 °F	+158 °F	+176 °F	+194 °F	+212 °F	+230 °F	+248 °F
PA 6.6	1.0	1.2	1.4	1.6	1.8	-	-
PA-CF	1.0	1.1	1.2	1.4	1.6	1.9	2.2

Service factor S_Z for starting frequency

starting frequency/h	100	200	400	800
S_Z	1.0	1.2	1.4	1.6

Service factor S_A / S_L for shocks

	S_A/S_L
gentle shocks	1.5
average shocks	1.8
heavy shocks	2.5

Allowable load on the hub keyway

The shaft hub connection has to be reviewed by the customer.
Allowable surface pressure according to DIN 6892 (method C).

Polyamide	4,300 psi (up to + 104 °F)
Sintered metal	26,000 psi
Material steel	36,000 psi
for other steel materials $p_{perm.}$ =	$0{,}9 \cdot R_e$ ($R_{p0.2}$)

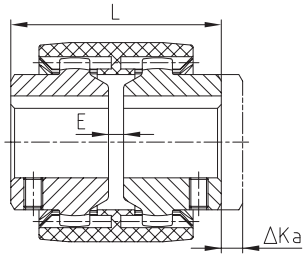
Description	Symbol	Definition or explanation
Rated torque of coupling	T_{KN}	Torque that can continuously be transmitted over the entire permissible speed range.
Maximum torque of coupling	$T_{K\,max.}$	Torque that can be transmitted as dynamic load $\geq 10^5$ times or 5×10^4 as vibratory load, respectively, during the entire operating life of the coupling.
Vibratory torque of coupling	T_{KW}	Torque amplitude of the permissible periodical torque fluctuation with a frequency of 10 Hz and a basic load of T_{KN} or dynamic load up to T_{KN}, respectively.
Damping power of coupling	P_{KW}	Permissible damping power with an ambient temperature of + 86 °F.
Rated torque of machine	T_N	Stationary rated torque on the coupling
Peak torque of machine	T_S	Peak torque on the coupling
Peak torque on the driving side	T_{AS}	Peak torque with torque shock on the driving side, e. g. breakdown torque of the electric motor.

Description	Symbol	Definition or explanation
Peak torque of load side	T_{LS}	Peak torque with torque shock on load side, e. g. braking.
Vibratory torque of machine	T_W	Amplitude of the vibratory torque effective on the coupling.
Damping power of the machine	P_W	Damping power which is effective on the coupling due to the load produced by the vibratory torque.
Moment of inertia of driving side Moment of inertia of load side	J_A J_L	Total of moments of inertia existing on the driving or load side referring to the coupling speed.
Rotational inertia coefficient of driving side Rotational inertia coefficient of load side	M_A M_L	Factor taking into account the mass distribution with shocks and vibrations produced on the driving or load side. $M_A = \frac{J_L}{J_A + J_L}$ $M_L = \frac{J_A}{J_A + J_L}$

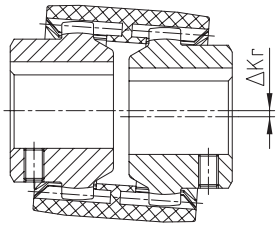
Misalignments and setscrew threads

Misalignments

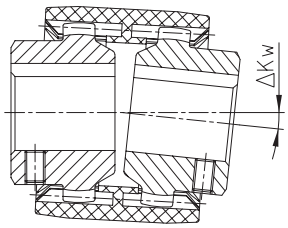
BoWex® couplings are double-cardanic (2 flex-points). In addition to transmitting torque, they compensate for axial, parallel and angular shaft misalignments. This prevents damage from the driving or driven machine.



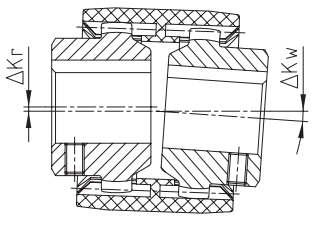
Axial Misalignment



Parallel misalignment



Angular misalignment



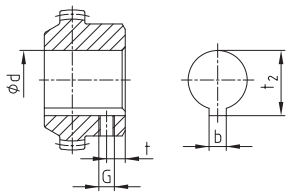
Parallel and angular misalignment

Misalignment						
BoWex® size	Type junior plug-in coupling			Type junior M		
	14	19	24	14	19	24
Maximum axial misalignment ΔKa [in]	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040
1500 rpm						
Maximum parallel misalignment ΔKr [°]	± 0.040	± 0.040	± 0.040	± 0.012	± 0.012	± 0.016
Maximum angular misalignment ΔKw[°]	± 0.040	± 0.040	± 0.035	± 0.040	± 0.040	± 0.035
3000 rpm						
Maximum parallel misalignment ΔKr [°]	± 0.040	± 0.040	± 0.040	± 0.012	± 0.012	± 0.016
Maximum angular misalignment ΔKw[°]	± 0.028	± 0.028	± 0.024	± 0.028	± 0.028	± 0.024

Misalignment												
BoWex® size	14	19	24	28	32	38	42	48	65	80	100	125
Maximum axial misalignment ΔKa [in]	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040	± 0.040
1500 rpm												
Maximum parallel misalignment ΔKr [°]	± 0.012	± 0.012	± 0.014	± 0.014	± 0.014	± 0.016	± 0.016	± 0.016	± 0.018	± 0.018	± 0.018	± 0.018
Maximum angular misalignment ΔKw[°]	± 0.040	± 0.040	± 0.035	± 0.035	± 0.035	± 0.035	± 0.035	± 0.035	± 0.028	± 0.028	± 0.024	± 0.016
3000 rpm												
Maximum parallel misalignment ΔKr [°]	± 0.008	± 0.008	± 0.009	± 0.009	± 0.009	± 0.010	± 0.010	± 0.010	± 0.011	± 0.011	± 0.011	± 0.011
Maximum angular misalignment ΔKw[°]	± 0.028	± 0.028	± 0.024	± 0.024	± 0.024	± 0.024	± 0.024	± 0.024	± 0.020	± 0.016	± 0.016	± 0.012

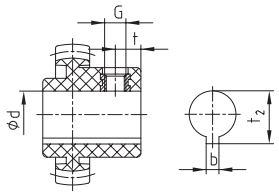
The assembled hubs must always be flush with the shaft ends. If it is difficult to determine the distance dimension "E", reference may be made to the overall assembled length.
The shaft ends to be connected should be supported close to each coupling half.
1) The listed distance dimension "E" must be observed in every case, particularly for parallel and angular misalignments.
2) If the coupling hubs have been shortened or lengthened on the outside, the overall length of the coupling assembled will be reduced by the corresponding figure.
3) The allowable misalignment figures depend on speed and performance.
Prior to operation of the BoWex® coupling please make sure that the coupling sleeves are capable of axial movement.
The customer must provide guards in order to ensure that rotating parts cannot cause injury (Safety of Machines, DIN EN 292 part 2).

Setscrew dimensions (BoWex® coupling hubs with straight bores.)



Position of the thread for setscrews BoWex® M-14 to M-24 opposite the keyway

BoWex® M-28 to I-125 on the keyway



Position of the thread for BoWex®

Junior plug-in coupling and junior M-coupling

BoWex® – coupling hubs							
Size Dimensions	14 19 24	28 32 38	42 45 48	65	80	100	125
Thread G	M5	M8		M10	M10	M12	M16
Distance t	0.24	0.39		0.59 0.79	0.79	1.18	1.57
Tightening torque T_A [lb-in]	18	89		150	150	150	700

BoWex® junior – coupling hubs			
Size Dimensions	14	19	24
Thread G	M5	M5	M5
Hub 1b - Distance t	0.24	0.24	0.24
Plug-in sleeve 2b - Distance t	0.31	0.39	0.39
Tightening torque T_A [lb-in]	12	12	12

1) Hub length 2.16" t = 0.59", 2.75" t =0.79"

BoWex® part numbers

Part Number Pages to follow

Notes:

BoWex® Part Numbers

BoWex Hubs - Part numbers by product size and standard material						
Inch Sizes		14	19	24	28	32
Bore	Keyway	Sintered Steel				
5/16	No Key	BA010142070711				
3/8	No Key	BA010142070911				
3/8	3/32	BA010142070902				
3/8	1/8	BA010142070903				
7/16	No Key	BA010142071111	BA010192071111	BA010242071111		
7/16	3/32	BA010142071101	BA010192071101	BA010242071101		
7/16	1/8	BA010142071102	BA010192071102	BA010242071102		
1/2	No Key	BA010142071211	BA010192071211	BA010242071211		
1/2	1/8	BA010142071200	BA010192071200	BA010242071200	BA010282071200	
9/16	No Key	BA010142071411	BA010192071411	BA010242071411	BA010282071411	
9/16	1/8	BA010142071400	BA010192071400	BA010242071400	BA010282071400	
5/8	No Key		BA010192071511	BA010242071511	BA010282071511	
5/8	3/32		BA010192071501	BA010242071501	BA010282071501	
5/8	5/32		BA010192071503	BA010242071503	BA010282071503	
5/8	3/16		BA010192071500	BA010242071500	BA010282071500	BA010322071500
11/16	3/16		BA010192071700	BA010242071700	BA010282071700	BA010322071700
3/4	No Key		BA010192071911	BA010242071911	BA010282071911	BA010322071911
3/4	1/8		BA010192071901	BA010242071901	BA010282071901	BA010322071901
3/4	3/16		BA010192071900	BA010242071900	BA010282071900	BA010322071900
13/16	3/16			BA010242072000	BA010282072000	BA010322072000
7/8	No Key			BA010242072211	BA010282072211	BA010322072211
7/8	3/16			BA010242072200	BA010282072200	BA010322072200
7/8	1/4			BA010242072202	BA010282072202	BA010322072202
15/16	1/4			BA010242072300	BA010282072300	BA010322072300
1	1/4				BA010282072500	BA010322072500
1	3/16				BA010282072502	BA010322072502
1 1/16	1/4				BA010282072600	BA010322072600
1 1/8	1/4				BA010282072800	BA010322072800
1 3/16	1/4					BA010322073000
1 1/4	1/4					BA010322073100
1 1/4	5/16					BA010322073102

Inch bores machined to AGMA Class 1

All hubs supplied standard with one setscrew
Non standard bores available. Consult KTR Engineering

BoWex Sleeves - Part numbers by product size and material						
Type	Material	14	19	24	28	32
M	PA	010141000000	010191000000	010241000000	010281000000	010321000000
M…C	carbon fiber reinforced PA	010141000005	010191000005	010241000005	010281000005	010321000005
AS	PA			010241000020	010281000020	010321000020
Spec - I	PA			010241000030	010281000030	010321000030

BoWex® Part Numbers

BoWex Hubs - Part numbers by product size and standard material						
Metric Bore	Key	14	19	24	28	32
		Sintered Steel				
8	2	BA010142000800				
9	3	BA010142000900				
10	3	BA010142001000	BA010192001000	BA010242001000		
11	4	BA010142001100	BA010192001100	BA010242001100		
12	4	BA010142001200	BA010192001200	BA010242001200		
14	5	BA010142001400	BA010192001400	BA010242001400	BA010282001400	
15	5	BA010142001500	BA010192001500	BA010242001500	BA010282001500	
16	5		BA010192001600	BA010242001600	BA010282001600	
18	6		BA010192001800	BA010242001800	BA010282001800	BA010322001800
19	6		BA010192001900	BA010242001900	BA010282001900	BA010322001900
20	6		BA010192002000	BA010242002000	BA010282002000	BA010322002000
22	6			BA010242002200	BA010282002200	BA010322002200
24	8			BA010242002400	BA010282002400	BA010322002400
25	8				BA010282002500	BA010322002500
28	8				BA010282002800	BA010322002800
30	8					BA010322003000
32	10					BA010322003200

Metric bores machined to H7

BoWex® Part Numbers

BoWex Hubs - Part numbers by product size and standard material						
Inch Sizes Bore	Keyway	38	42	48	65	80
		Sintered Steel				Steel
3/4	No Key	BA010382071911				
3/4	1/8	BA010382071901				
3/4	3/16	BA010382071900	BA010422061903			
13/16	3/16	BA010382072000	BA010422062004			
7/8	No Key	BA010382072211	BA010422062210			
7/8	3/16	BA010382072200	BA010422062202	BA010482072200		
7/8	1/4	BA010382072202	BA010422062203	BA010482072202		
15/16	1/4	BA010382072300	BA010422062301	BA010482072300		
1	1/4	BA010382072500	BA010422062502	BA010482072500	BA010652072500	
1 1/16	1/4	BA010382072600	BA010422062602	BA010482072600	BA010652072600	
1 1/8	1/4	BA010382072800	BA010422062802	BA010482072800	BA010652072800	
1 3/16	1/4	BA010382073000	BA010422063002	BA010482073000	BA010652073000	
1 1/4	1/4	BA010382073100	BA010422063102	BA010482073100	BA010652073100	
1 1/4	5/16	BA010382073102	BA010422063103	BA010482073102	BA010652073102	
1 5/16	5/16	BA010382073300	BA010422063302	BA010482073300	BA010652073300	
1 3/8	5/16	BA010382073400	BA010422063402	BA010482073400	BA010652073400	
1 3/8	3/8	BA010382073401	BA010422063403	BA010482073401	BA010652073401	
1 7/16	3/8	BA010382073600	BA010422063602	BA010482073600	BA010652073600	
1 1/2	5/16		BA010422063803	BA010482073802	BA010652073802	
1 1/2	3/8		BA010422063802	BA010482073800	BA010652073800	
1 9/16	3/8		BA010422063902	BA010482073900	BA010652073900	
1 5/8	3/8		BA010422064102	BA010482074100	BA010652074100	
1 11/16	3/8			BA010482074200	BA010652074200	
1 3/4	3/8			BA010482074400	BA010652074400	
1 3/4	7/16			BA010482074402	BA010652074402	
1 13/16	1/2			BA010482074600	BA010652074600	
1 7/8	1/2			BA010482074700	BA010652074700	
1 15/16	1/2				BA010652074900	
2	1/2				BA010652075000	BA010805075000
2 1/16	1/2				BA010652075200	BA010805075200
2 1/8	1/2				BA010652075300	BA010805075300
2 3/16	1/2				BA010652075500	BA010805075500
2 1/4	1/2				BA010652075700	BA010805075700
2 3/8	5/8				BA010652076000	BA010805076000
2 5/8	5/8					BA010805076600
2 7/8	3/4					BA010805077300
2 15/16	3/4					BA010805077400
3	3/4					BA010805077600
3 1/16	3/4					BA010805077700
3 1/8	3/4					BA010805077900

Inch bores machined to AGMA Class 1
All hubs supplied standard with one setscrew
Non standard bores available. Consult KTR Engineering

BoWex Sleeves - Part numbers by product size and material							
Type	Material	38	42	45	48	65	80
M / I	PA	010381000000	010421000000		010481000000	010651000000	010801000015
M…C	carbon fiber reinforced PA	010381000005	010421000005		010481000005	010651000005	
AS	PA			010451000020		010651000020	010801000020
Spec - I	PA			010451000030		010651000030	010801000030

BoWex® Part Numbers

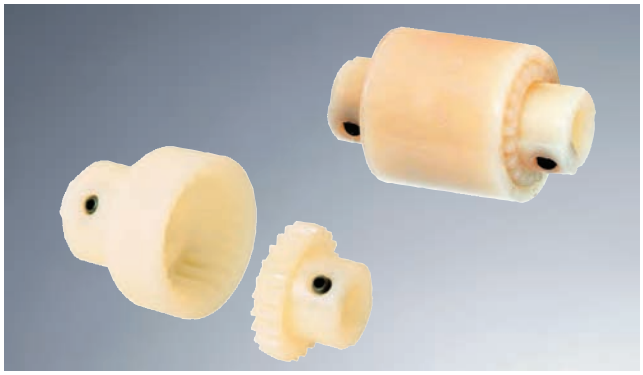
BoWex Hubs - Part numbers by product size and standard material						
Metric Bore	Key	38	42	48	65	80
		Sintered Steel				Steel
18	6	BA010382001800				
19	6	BA010382001900				
20	6	BA010382002000	BA010422062001			
22	6	BA010382002200	BA010422062201			
24	8	BA010382002400	BA010422062401			
25	8	BA010382002500	BA010422062501	BA010482002500		
28	8	BA010382002800	BA010422062801	BA010482002800		
30	8	BA010382003000	BA010422063001	BA010482003000	BA010652003000	
32	10	BA010382003200	BA010422063201	BA010482003200	BA010652003200	
35	10	BA010382003500	BA010422063501	BA010482003500	BA010652003500	
38	10	BA010382003800	BA010422063801	BA010482003800	BA010652003800	
40	12		BA010422064001	BA010482004000	BA010652004000	
42	12		BA010422064201	BA010482004200	BA010652004200	
45	14			BA010482004500	BA010652004500	
48	14			BA010482004800	BA010652004800	
50	14				BA010652005000	
55	16				BA010652005500	BA010805005500
60	18				BA010652006000	BA010805006000
65	18				BA010652006500	BA010805006500
70	20					BA010805007000
75	20					BA010805007500

Metric bores machined to H7

All hubs supplied standard with one setscrew

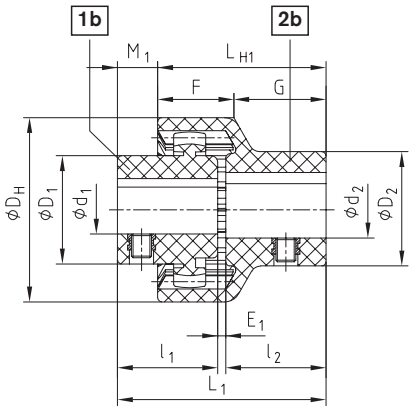
Non standard bores available. Consult KTR Engineering

All nylon junior plug-in coupling and junior M design

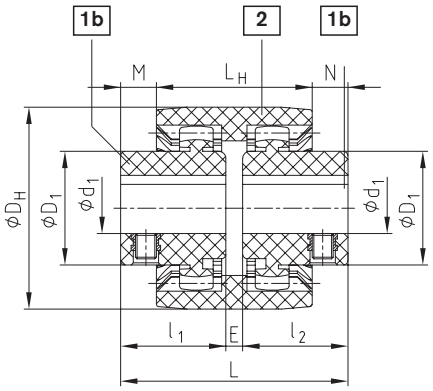


- Non-failsafe, reduced maintenance, blind assembly
- Corrosion resistant all polyamide construction
- Torsionally stiff
- Low inertia
- Compact design for short shaft gaps
- Installation instructions available at www.ktr.com

Components



Design junior plug-in coupling (2 piece)



Design junior M coupling (3 piece)

BoWex® junior plug-in coupling (2 parts) and BoWex® junior M (3 parts)

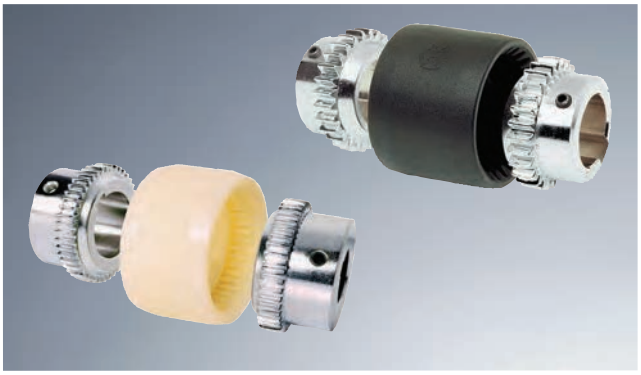
Size	Torque T_K [lb-in]		Available bore				Dimensions [in]												Max. speed [rpm]
			Hub part 1b d_1	D_1	Plug-in-sleeve part 2b d_2	D_2	D_H	l_1, l_2	E_1	L_1	L_{H1}	M_1	F	G	E	L	L_H	M, N	
	T_{KN}	$T_{Kmax.}$																	
14 M-14	44	89	0.236, 0.276, 0.315, 0.354	0.87	0.315	0.87	1.57	0.91	0.08	1.89	1.57	0.31	0.73	0.85	0.16	1.97	1.46	0.26	6,000
			0.394, 0.433	0.98	0.394, 0.433	0.98													
			0.472, 0.551	1.02	0.472, 0.551	1.02													
19 M-19	71	142	0.472, 0.551	1.06	0.551, 0.591	1.14	1.85	0.98	0.08	2.05	1.65	0.39	0.75	0.91	0.16	2.13	1.46	0.33	6,000
			0.630	1.18															
			0.748	1.26	0.748	1.38													
24 M-24	106	212	0.394, 0.433, 0.472	1.02	0.551, 0.630	1.26	2.09	1.02	0.08	2.13	1.77	0.35	0.85	0.93	0.16	2.20	1.61	0.30	6,000
			0.551, 0.591, 0.630	1.26															
			0.709, 0.748, 0.787	1.42	0.748, 0.787	1.42													
			0.945	1.50	0.945	1.57													

Inch bores machined to AGMA Class 1, Metric bores machined to H7

Order form:

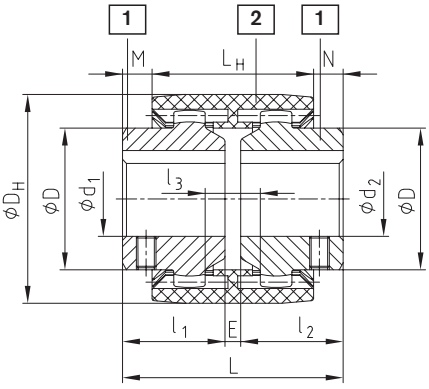
BoWex® junior 19	d_1 Ø 19	d_2 Ø 14
Coupling size 2-parted design or BoWex® junior M-19 3-parted type	Bore	Bore

Design M, design I and design M...C

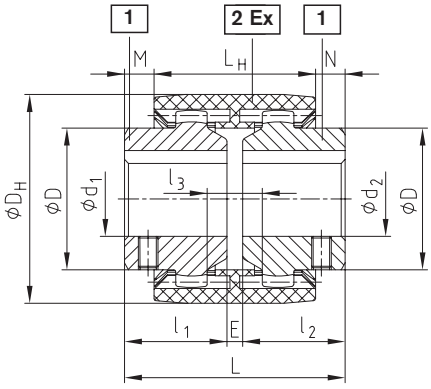


- Non-failsafe, reduced maintenance, blind assembly
- Torsionally stiff
- Suitable for general drive applications
- Compact design for short shaft gaps
- Design MC with carbon fiber reinforced PA sleeve, low backlash, and higher torques. ATEX approved according to EC Standard 94/9/EC (Explosion Certificate ATEX 95)
- Installation instructions available at www.ktr.com

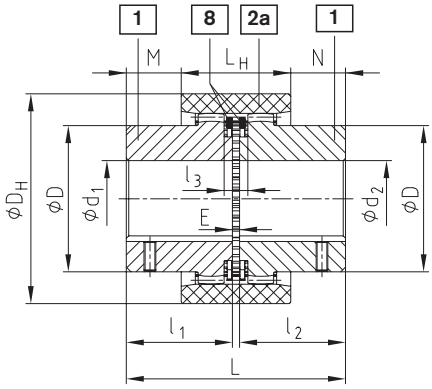
Components



Design M



Design M...C



Design I

BoWex® design M, design I and design M...C

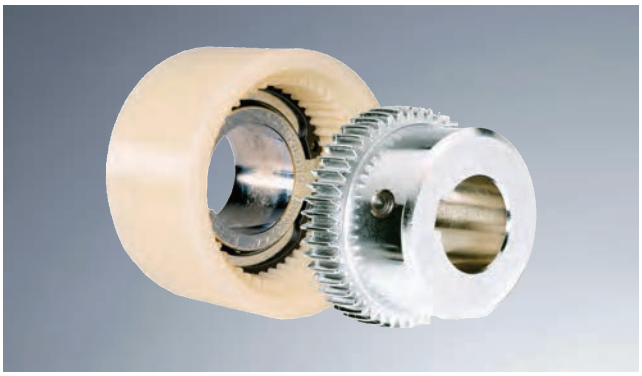
Size		Bore d_1, d_2		Dimensions [in]										Weight with max. bore-Ø			Massmoment of inertia J with max. bore-Ø		
		Pilot bored	max.	l_1, l_2	E	L	L_H	M, N	l_3	D	D_H	Tip circle $ØD_Z$ of hub	Lengthened l_1, l_2 max.	Sleeve [lb]	Hub [lb]	Total [lb]	Sleeve [lb-in-sec²]	Hub [lb-in-sec²]	Total [lb-in-sec²]
M-14	M-14C	-	0.563	0.91	0.16	1.97	1.46	0.26	0.39	0.98	1.57	1.30	1.57	0.07	0.15	0.22	0.0001	0.0001	0.0002
M-19	M-19C	-	0.813	0.98	0.16	2.13	1.46	0.33	0.39	1.26	1.85	1.54	1.57	0.07	0.22	0.51	0.0001	0.0001	0.0004
M-24	M-24C	-	0.938	1.02	0.16	2.20	1.61	0.30	0.55	1.42	2.09	1.77	1.97	0.09	0.31	0.71	0.0002	0.0003	0.0008
M-28	M-28C	-	1.125	1.57	0.16	3.31	1.81	0.75	0.51	1.73	2.56	2.13	2.17	0.18	0.73	1.63	0.0006	0.0011	0.0027
M-32	M-32C	-	1.250	1.57	0.16	3.31	1.89	0.71	0.51	1.97	2.95	2.48	2.17	0.20	0.95	2.09	0.0010	0.0019	0.0049
M-38	M-38C	-	1.438	1.57	0.16	3.31	1.89	0.71	0.51	2.28	3.27	2.72	2.36	0.29	1.21	2.71	0.0014	0.0031	0.0077
M-42		-	1.563	1.65	0.16	3.46	1.97	0.75	0.51	2.56	3.62	3.07	2.36	0.31	1.50	3.31	0.0021	0.0053	0.0126
M-48	M-48C	-	1.813	1.97	0.16	4.09	1.97	1.06	0.51	2.68	3.74	3.07	2.36	0.51	1.74	3.99	0.0035	0.0064	0.0162
M-65	M-65C	1.024	2.500	2.17	0.16	4.49	2.68	0.91	0.63	3.78	5.20	4.33	2.76	1.21	4.19	9.59	0.0188	0.0281	0.0751
I-80		1.220	3.000	3.54	0.24	7.32	3.66	1.83	0.79	4.88	6.89	5.71	-	2.49	11.47	25.42	0.0610	0.1335	0.3279
I-100		1.496	3.875	4.33	0.31	8.98	4.02	2.48	0.87	5.98	8.27	6.93	-	3.92	20.66	45.25	0.1404	0.3552	0.8508
I-125		1.772	4.813	5.51	0.39	11.42	5.28	3.07	1.18	7.56	10.63	8.86	-	8.56	42.87	94.29	0.4982	1.2058	2.9098

Inch bores machined to AGMA Class 1, Metric bores machined to H7

Order form:

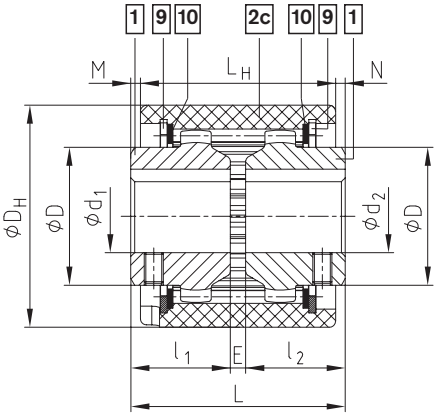
BoWex® M-28	d_1 Ø 20	d_2 Ø 28
Size and design of coupling	Bore	Bore

Design AS and design Spec.-I

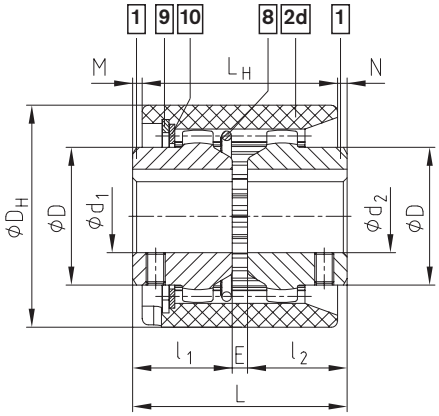


- Non-failsafe, reduced maintenance, blind assembly
- Torsionally stiff
- Compact design for short shaft gaps
- Design AS – Axially movable sleeve when assembled
- Design Spec-I – Sleeve retained for vertical applications
- Installation instructions available at www.ktr.com

Components



Design AS



Design Spec. - I

BoWex® design AS and design Spez.-I

Size	Bore		Bore d_1, d_2	Dimensions [in]								Weight with max. bore-Ø			Massmoment of inertia J with max. bore-Ø		
	Un-bored	Pilot bored	max.	l_1, l_2	E	L	L_H	M, N	D	D_H	Leng-thened l_1, l_2 max.	Sleeve [lb]	Hub [lb]	Total [lb]	Sleeve [lb-in-sec²]	Hub [lb-in-sec²]	Total [lb-in-sec²]
24	x	-	0.938	1.02	0.16	2.20	2.01	0.10	1.42	2.28	1.97	0.24	0.31	0.86	0.00034	0.00032	0.00097
28	x	-	1.125	1.57	0.16	3.31	2.20	0.55	1.73	2.76	2.17	0.35	0.73	1.81	0.00136	0.00108	0.00352
32	x	-	1.250	1.57	0.16	3.31	2.28	0.51	1.97	3.31	2.17	0.46	0.95	2.36	0.00243	0.00192	0.00628
45	x	-	1.688	1.65	0.16	3.46	2.36	0.55	2.56	3.94	2.36	0.60	1.39	3.37	0.00486	0.00501	0.01488
65	x	1.024	2.500	2.17	0.16	4.49	3.31	0.59	3.78	5.51	2.76	1.85	4.63	11.03	0.02640	0.03891	0.10426
80	-	1.220	3.000	3.54	0.24	7.32	3.66	1.83	4.88	6.89	-	2.87	11.47	25.80	0.07364	0.13347	0.34059
100	-	1.496	3.875	4.33	0.31	8.98	4.02	2.48	5.98	8.27	-	4.52	20.73	45.86	0.16321	0.35519	0.87359
125	-	1.772	4.813	5.51	0.39	11.42	5.28	3.07	7.56	10.63	-	9.53	42.87	95.04	0.54876	1.20577	2.96031

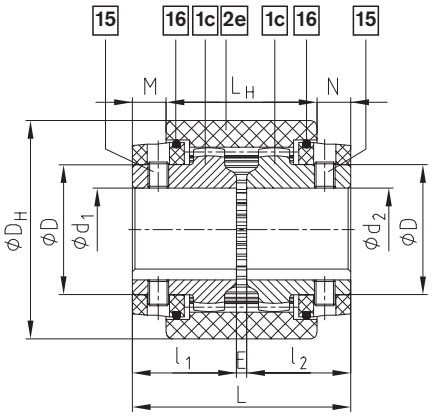
Inch bores machined to AGMA Class 1, Metric bores machined to H7

Order form:

BoWex® 32 AS	d_1 Ø 32	d_2 Ø 32
Size and design of coupling AS or Spec.-I	Bore	Bore

Design SG, design SSR and design Spec.-I/CD

Design SG with dust protection retaining rings

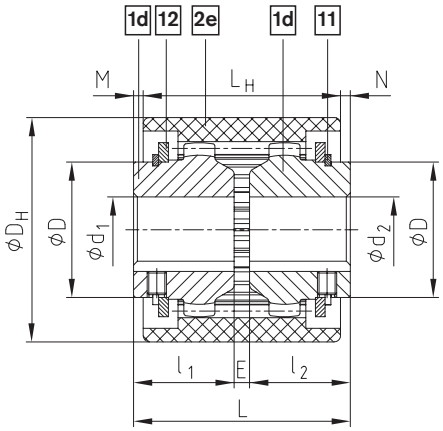


BoWex® design SG

Size	Pilot bore		Bore		Dimensions [in]							
	Un-bored	Pilot bored	min.	max.	l_1, l_2	E	L	L_H	M, N	D	D_H	Leng-thened l_1, l_2 max.
24 SG	x	-	0.438	0.938	1.42	0.16	2.99	2.01	0.49	1.42	2.28	1.97
28 SG	x	-	0.438	1.125	1.57	0.16	3.31	2.20	0.55	1.73	2.76	2.17
32 SG	x	-	0.500	1.250	1.57	0.16	3.31	2.28	0.51	1.97	3.31	2.17
45 SG	x	-	0.813	1.688	1.65	0.16	3.46	2.36	0.55	2.56	3.94	2.36
65 SG	x	1.024	1.188	2.500	2.76	0.16	5.67	3.31	1.18	3.78	5.51	-
80 SG	-	1.220	1.438	3.000	3.54	0.24	7.32	3.66	1.83	4.80	6.89	-
100 SG	-	1.496	1.625	3.875	4.33	0.31	8.98	4.02	2.48	5.91	8.27	-
125 SG	-	1.772	2.000	4.813	5.51	0.39	11.42	5.28	3.07	7.48	10.63	-

Thread for setscrews only for finish bored hubs.

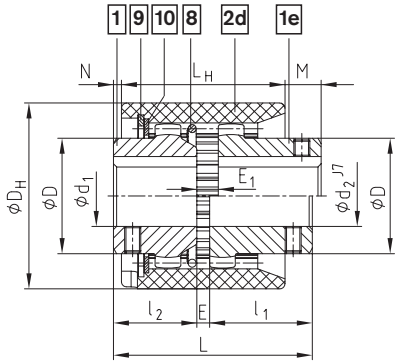
Design SSR with supporting retaining rings



BoWex® design SSR

Size	Pilot bore		Bore		Dimensions [in]							
	Un-bored	Pilot bored	min.	max.	l_1, l_2	E	L	L_H	M, N	D	D_H	Leng-thened l_1, l_2 max.
24 SSR	x	-	0.438	0.875	1.02	0.16	2.20	2.01	0.10	1.38	2.28	1.97
28 SSR	x	-	0.438	1.000	1.57	0.16	3.31	2.20	0.55	1.65	2.76	2.17
32 SSR	x	-	0.500	1.188	1.57	0.16	3.31	2.28	0.51	1.89	3.31	2.17
45 SSR	x	-	0.813	1.563	1.65	0.16	3.46	2.36	0.55	2.48	3.94	2.36
65 SSR	x	1.024	1.188	2.500	2.17	0.16	4.49	3.31	0.59	3.74	5.51	2.76
80 SSR	-	1.220	1.438	3.000	3.54	0.24	7.32	3.66	1.83	4.72	6.89	-
100 SSR	-	1.496	1.625	3.875	4.33	0.31	8.98	4.02	2.48	5.91	8.27	-
125 SSR	-	1.772	2.000	4.813	5.51	0.39	11.42	5.28	3.07	7.48	10.63	-

Design Spec.-I/CD



driven side drive side

BoWex® design Spec.-I/CD

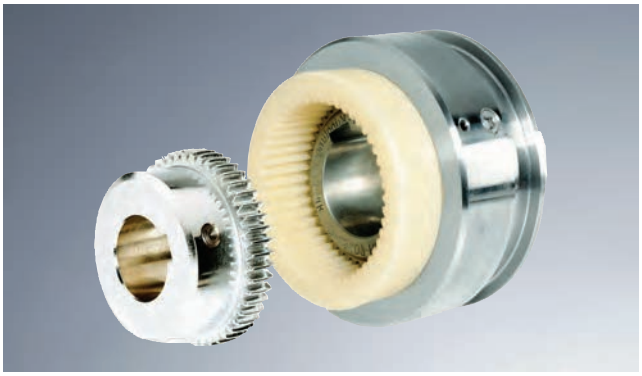
Size	Pilot bore		Bore		Dimensions [in]										
	Un-bored	Pilot bored	min.	max.	L	L_1	L_H	E	E_1	l_2	l_1	D_H	D	M	N
24 CD	x	-	0.438	0.938	2.76	2.89	2.01	0.16	0.30	1.02	1.57	2.28	1.42	0.79	0.10
28 CD	x	-	0.438	1.125	3.72	3.86	2.20	0.16	0.33	1.57	1.99	2.76	1.73	1.10	0.55
32 CD	x	-	0.500	1.250	3.72	-	2.28	0.16	0.33	1.57	1.99	3.31	1.97	1.06	0.51
45 CD	x	-	0.813	1.688	4.00	-	2.36	0.16	0.33	1.65	2.19	3.94	2.56	1.26	0.55
65 CD	-	1.024	1.188	2.500	4.84	-	3.31	0.16	0.39	2.17	2.52	5.51	3.78	1.12	0.59
80 CD	-	1.220	1.438	3.000	7.05	-	3.66	0.24	0.51	3.54	3.27	6.89	4.88	1.73	1.83

Please order dimension sheet of type Spec.-I/CDB with shear pins.

Order form:

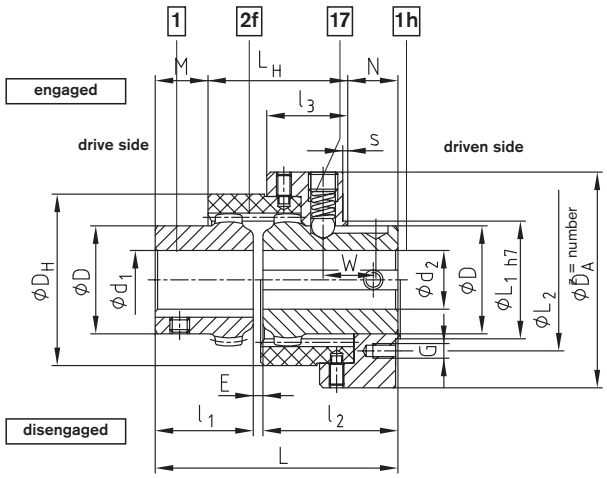
BoWex® 45 SG	d_1 Ø 22	d_2 Ø 40
Size and design of coupling SG, SSR or Spec.-I/CD	Bore	Bore

Design SD



- Non-failsafe, reduced maintenance, blind assembly
- Torsionally stiff
- Shiftable coupling for all applications in general industry
- Easy to engage and disengage drive and driven at standstill
- Spring and ball detent locking mechanism
- Installation instructions available at www.ktr.com

Components



BoWex® design SD

Size	Pilot bore		Bore d_1, d_2		Dimensions [in]												Weight with max. bore-Ø		Mass moment of inertia J with max. bore-Ø		Shifting force [lbf]
	Un-bored	Pilot bored	d_1 max.	d_2 max.	E	l_1	l_2	L	L_H	l_3	M	W	N	D	D_H	D_A	Shifting hub with sleeve [lb]	Driving hub [lb]	Shifting hub with sleeve [lb-in-sec²]	Driving hub [lb-in-sec²]	
24 SD	x	-	0.938	0.938	0.16	1.02	1.97	3.15	2.05	1.22	0.39	0.75	0.71	1.42	2.28	3.07	2.38	0.31	0.0073	0.0003	32
28 SD	x	-	1.125	1.125	0.16	1.57	2.17	3.90	2.24	1.30	0.85	0.85	0.81	1.73	2.76	3.46	3.31	0.73	0.0138	0.0011	41
32 SD	x	-	1.250	1.250	0.16	1.57	2.17	3.90	2.28	1.30	0.81	0.85	0.81	1.97	3.31	3.94	4.08	0.95	0.0202	0.0019	41
45 SD	x	-	1.688	1.688	0.16	1.65	2.36	4.17	2.48	1.46	0.85	0.89	0.85	2.56	3.94	4.92	5.64	1.50	0.0408	0.0050	56
			1.813			1.97		4.49			1.16							1.74			
65 SD	x	1.024	2.500	2.500	0.16	2.17	2.76	5.08	3.03	1.46	1.10	0.98	0.94	3.74	5.51	6.14	11.18	5.07	0.1407	0.0389	79
80 SD	-	1.220	3.000	3.000	0.24	3.54	3.54	7.32	3.78	1.85	2.20	1.38	1.34	4.88	6.89	7.68	23.37	11.47	0.4635	0.1335	79
100 SD	-	1.496	3.875	3.875	0.31	4.33	4.33	8.98	4.45	2.17	2.83	1.69	1.69	5.98	8.27	9.25	41.61	20.66	1.1949	0.3552	90
125 SD	-	1.772	4.813	4.813	0.39	5.51	5.51	11.42	5.87	2.76	3.50	2.05	2.05	7.56	10.63	11.73	89.08	20.82	4.3538	1.2058	101

Inch bores machined to AGMA Class 1, Metric bores machined to H7

Connection dimensions of BoWex® SD shifting ring (part 17) for mounting of: slip ring SD1 (s catalog page 85), shifting disc etc.

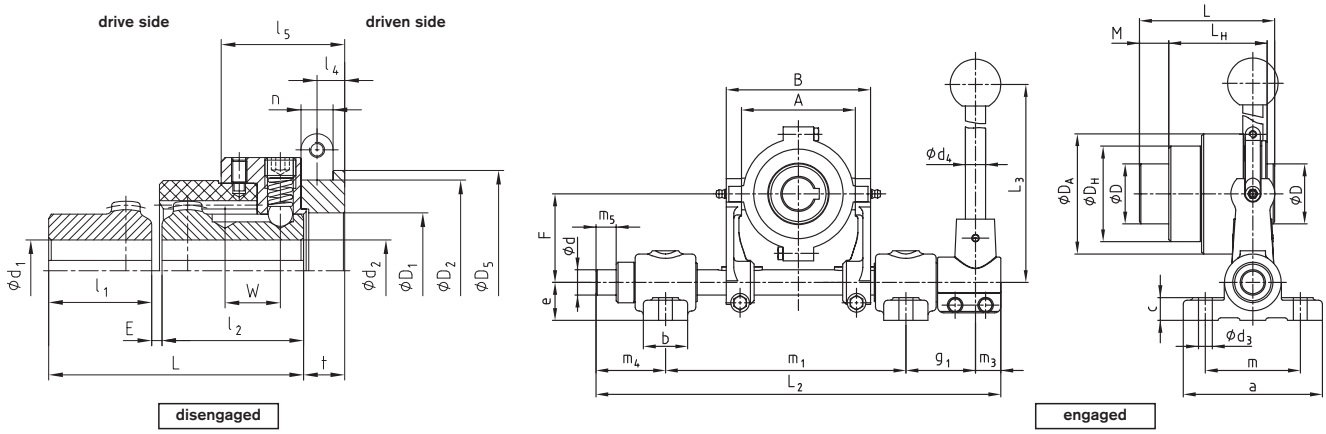
Size	Dimensions [in]			
	L_1	L_2	z x G	s
24 SD	1.89	2.28	4xM6	0.08
28 SD	1.89	2.28	4xM6	0.08
32 SD	2.52	2.95	4xM6	0.08
45 SD	2.95	3.54	4xM8	0.08
65 SD	3.94	4.49	4xM8	0.08
80 SD	5.12	5.71	4xM8	0.12
100 SD	7.09	7.72	6xM10	0.16
125 SD	8.66	9.29	6xM10	0.16

Order form:

BoWex® 32 SD	d_1 Ø 32	d_2 Ø 32
Size and design of coupling	Bore	Bore

Design SD1

- Non-failsafe, reduced maintenance, blind assembly
- Torsionally stiff
- Shiftable coupling for all applications in general industry
- Easy to engage and disengage drive and driven at standstill
- Optional shiftable linkage kit available to ease installation
- Spring and ball detent locking mechanism
- Installation instructions available at www.ktr.com



BoWex® design SD1 and slip ring

Size	Bore		Dimensions [in]																		Shifting force [lbf]
	d_1 max.	d_2 max.	E	l_1	l_2	L	L_G	l_4	l_5	M	W	t	D	D_H	D_A	D_1	$D_2^{\pm 0,004}$ (keyway)	D_5	$n^{\pm 0,004}$ (keyway)	
24 SD1	0.938	0.938	0.16	1.02	1.97	3.15	2.64	0.43	1.81	0.39	0.75	0.63	1.42	2.28	3.07	1.77	2.78	3.07	0.49		32
28 SD1	1.125	1.125	0.16	1.57	2.17	3.90	2.83	0.43	1.89	0.85	0.85	0.63	1.73	2.76	3.46	1.77	2.78	3.07	0.49		41
32 SD1	1.250	1.250	0.16	1.57	2.17	3.90	3.07	0.53	2.09	0.81	0.85	0.83	1.97	3.31	3.94	2.36	3.52	3.94	0.69		41
45 SD1	1.688	1.688	0.16	1.65	2.36	4.17	3.31	0.55	2.28	0.85	0.89	0.87	2.56	3.94	4.92	2.76	4.43	4.92	0.71		56
	1.813			1.97		4.49				1.16											
65 SD1	2.500	2.500	0.16	2.17	2.76	5.08	4.06	0.63	2.40	1.02	0.98	0.98	3.78	5.51	6.14	3.78	5.14	5.71	0.81		79
80 SD1	3.000	3.000	0.24	3.54	3.54	7.32	4.88	0.73	2.95	2.20	1.38	1.14	4.88	6.89	7.68	4.92	6.48	7.17	1.00		79
100 SD1	3.875	3.875	0.31	4.33	4.33	8.98	5.98	1.10	3.70	2.83	1.69	1.54	5.98	8.27	9.25	6.85	8.29	9.06	1.20		90
125 SD1	4.813	4.813	0.39	5.51	5.51	11.42	7.60	1.20	4.49	3.50	2.05	1.73	7.56	10.63	11.73	8.43	9.86	10.83	1.40		101

Inch bores machined to AGMA Class 1, Metric bores machined to H7

BoWex® SD1 – shiftable linkage

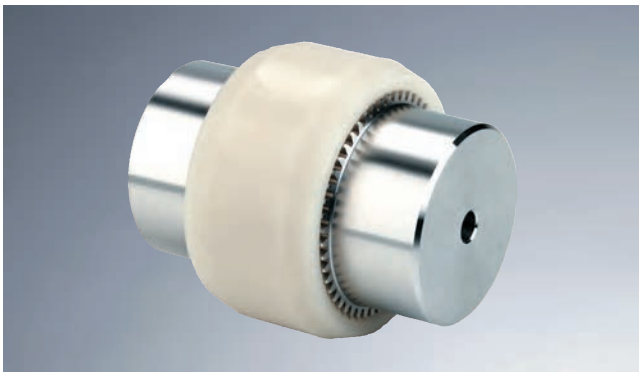
Size	Shiftable linkage size	Slip ring size	Dimensions [in]															Dimensions with m_1 max.		
			a	b	c	d	d_3	d_4	e	F	g_1	L_2	L_3	m	m_1 min.	m_1 max.	A	B	m_3	m_4	m_5
24 SD1	1	1.1	4.33	1.38	0.71	0.79	0.43	0.63	1.18	2.76	2.17	12.60	15.75	2.95	7.09	7.48	3.54	4.49		2.17	0.63
28 SD1	1																				
32 SD1	2	2.2				0.98				3.84	2.36	16.93	17.72		9.45	10.63	4.37	5.94	0.79	3.15	1.34
45 SD1	3	3.3	5.51	2.36		1.18		0.79	1.57	4.72		19.29	23.62	3.94	11.02	12.20	5.51	7.09		3.54	1.73
65 SD1	3	4.4			0.98		0.53				2.76						6.69	8.27			
80 SD1	4	5.5				1.38			1.97	5.81		22.24	29.53		12.64	14.37	7.87	9.61		3.94	2.13
100 SD1	5	6.6	6.30	2.36		1.57		1.18	1.97	7.48	3.15	24.80	42.05	4.72	14.37	16.14	9.84	11.81	1.18	4.33	2.44
125 SD1	5	7.7													-		11.81	13.78			

1) = For a one-piece base plates dimension "e" has to be increased by at least 0.40 in by shims or other suitable means.

Order form:

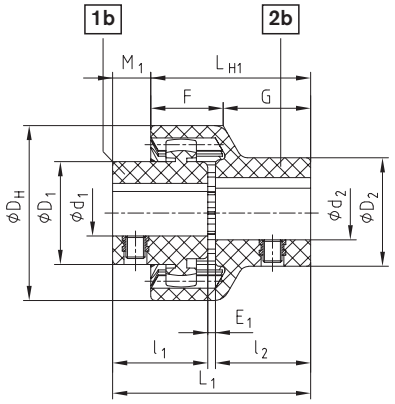
BoWex® 65 SD1	d_1 Ø 32	d_2 Ø 32	4.4	3
Size and design of coupling	Bore		Slip ring size	Shiftable linkage size

Made from corrosion-proof material

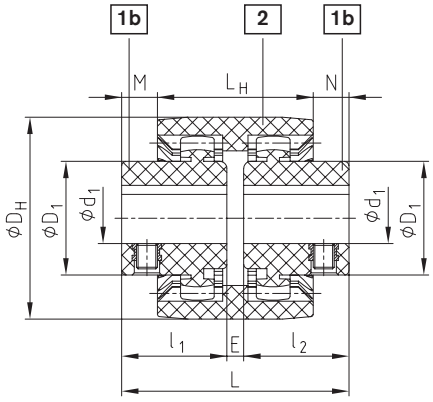


- Non-failsafe, reduced maintenance, blind assembly
- Torsionally stiff
- Corrosion resistant all polyamide or stainless steel construction
- Suitable for general drive applications
- Compact design for short shaft gaps
- Installation instructions available at www.ktr.com

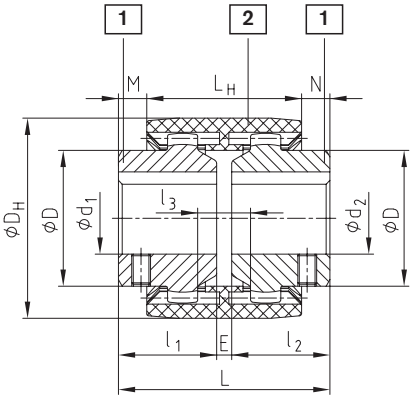
Components



Design junior plug-in coupling



Design junior M coupling



Design M

BoWex® junior plug-in coupling (2 parts) and BoWex® junior M (3 parts)

Size	Available bore				Dimensions [in]									
	Hub part 1b d_1	D_1	Plug-in-sleeve part 2b d_2	D_1	D_H	l_1, l_2	E_1	E	L_{H1}	L_H	L_1	L	M_1	M, N
14	0.236, 0.276, 0.315, 0.354	0.87	0.315	0.87										
M-14	0.394, 0.433	0.98	0.394, 0.433	0.98	1.57	0.91	0.08	0.16	1.57	1.46	1.89	1.97	0.31	0.26
	0.472, 0.551	1.02	0.472, 0.551	1.02										
19	0.472, 0.551	1.06	0.551, 0.591	1.14										
M-19	0.630	1.18			1.89	0.98	0.08	0.16	1.65	1.46	2.05	2.13	0.39	0.33
	0.748	1.26	0.748	1.38										
	0.394, 0.433, 0.472	1.02	0.551, 0.630	1.26										
24	0.551, 0.591, 0.630	1.26			2.09	1.02	0.08	0.16	1.77	1.61	2.13	2.20	0.35	0.30
M-24	0.709, 0.748, 0.787	1.42	0.748, 0.787	1.42										
	0.945	1.50	0.945	1.57										

Inch bores machined to AGMA Class 1, Metric bores machined to H7

BoWex® design M

Size	Bore $d_{1max.}$, $d_{2max.}$	Dimensions [in]						
		D_H	D	l_1, l_2	E	L_H	L	M, N
M-24	0.938	2.09	1.42	1.02	0.16	1.61	2.20	0.30
M-38	1.438	3.27	2.28	1.57	0.16	1.89	3.31	0.71
M-48	1.813	3.74	2.68	1.97	0.16	1.97	4.09	1.06

Additional sizes on request.

Applications:
Food processing industry, print and paper, textile industry, sewage technology, mobile washers, chemical, pharmaceutical industry and aggressive environments (air, water, chemicals etc.).

Order form:

BoWex® M-24 V4A	d_1 Ø 20	d_2 Ø 24
Size and design of coupling	Bore	Bore

Operating description

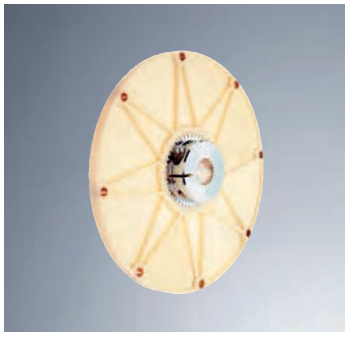
MONOLASTIC®

General description:
MONOLASTIC® – couplings are designed to transmit torque on flywheel driven applications via a one-piece design. This design features a plug-in assembly that provides considerable system dampening for low driven inertias. This product is available in SAE and Metric flywheel configurations.

Function and Design
MONOLASTIC® - couplings are constructed from materials designed to provide a torsionally flexible solution in an easy to assemble one-piece design. The rubber element allows for misalignment and some dampening while reducing restoring forces on driven components. The flexible one-piece design enables a compact assembly while reducing the likelihood of fretting and premature wear of the spline connection.

MONOLASTIC® is available in a variety of standard mounting options to accommodate flywheels up to SAE 11.5" and a maximum of 185 HP nominal in a plug-in design. They are also available in metric, and engine specific configurations. They are suitable for low inertia drives typically found in hydrostatic applications.

BoWex® FLE-PA



General description:
BoWex® FLE-PA – couplings are designed to transmit torque on flywheel driven applications via a curved tooth hub and nylon engine flange. The combination of these components provides a torsionally stiff connection for low driven inertias. This product is available in materials and elements that are optimized for close coupled applications.

Function and Design
BoWex® FLE-PA - couplings, intended for flywheel driven applications, are constructed from materials designed to provide a torsionally stiff solution while optimizing the balance between coupling performance and ease of assembly. The double-crowned tooth reduces edge loading while accommodating misalignments and transmitting torque. The compact two-piece coupling design enables the hub to be securely fastened to the driven shaft eliminating the need for lubrication, reducing fretting and corrosion, while allowing for minimal maintenance in an engine drive coupling.

The two-piece design of the BoWex® FLE-PA allows the nylon flange to provide high stiffness, low inertia, corrosion resistance, and allows for blind assembly. Nylon flanges are available from stock in standard SAE, metric and engine specific configurations.

BoWex® FLE-PA is available in a variety of standard mounting options to accommodate flywheels up to SAE 18" and a maximum of 1,075 HP nominal, while still accommodating blind assembly. They are suitable for low inertia drives typically found in hydrostatic applications.

BoWex-ELASTIC®

General description:
BoWex-ELASTIC® – couplings are designed to transmit torque on flywheel driven applications via a curved tooth hub and elastomeric engine flange. The combination of these components provides a highly flexible connection for large driven inertias. The torsionally flexible connection modifies the torsional profile of the system, moving critical resonance out of the operating range.

Function and Design
BoWex-ELASTIC® - couplings are intended for engine driven high inertia applications. Constructed from natural rubber, the coupling design provides a highly flexible solution while optimizing the balance between coupling performance and ease of assembly. The two-piece coupling design enables the hub to be securely fastened to the driven shaft, eliminating the need for lubrication, reducing fretting and corrosion, while allowing for minimal maintenance in an engine drive coupling.

BoWex-ELASTIC® elements are available in several hardnesses. When the proper hardness is selected, maximum benefit can be achieved between dampening and torque transmission, insuring proper torsional profile for your application. Elastic elements are available in standard SAE and metric sizes.

BoWex-ELASTIC® is available in a variety of standard mounting options to accommodate flywheels up to SAE 18" and a maximum of 1,500 HP nominal. They are suitable for high inertia drives typically found in compressors, pumps and generators.

Coupling selection

1. BoWex-ELASTIC® couplings should be selected in accordance with DIN 740 part 2. The coupling must be sized to ensure that the maximum allowable coupling torque is not exceeded during operation. It is therefore necessary to compare the actual loads with the rated parameters of the coupling according to tables 1.1 - 1.4 listed below.

   For drives subject to torsional resonance it is necessary to review the drive by means of a torsional vibration calculation to ensure proper operation.

1.1 Load by rated torque

$$T_{KN} \geq T_N \cdot S_t$$

The allowable rated torque T_{KN} of the coupling must, at operating temperature, be at least as high as the rated torque T_N of the machine.

$$T_N\,[\text{lb-in}] = 63{,}025 \cdot \frac{P_{AN/HP}}{n\,[\text{rpm}]}$$

1.2 Load by torque shocks

$$T_{K\,max} \geq T_S \cdot S_Z \cdot S_t$$

The maximum permissible torque of the coupling must, at operating temperature, be as high as the operational peak torque T_S, taking into account the shock factor S_Z.

Driving side shock
$T_S = T_{AS} \cdot M_A \cdot S_A$

Load side shock
$T_S = T_{LS} \cdot M_L \cdot S_L$

$$M_A = \frac{J_L}{J_A + J_L} \qquad M_L = \frac{J_A}{J_A + J_L}$$

With values of mass distribution, direction and amplitude of shock, it is possible to calculate the peak torque T_S. If the moments of inertia are unknown, M_A or $M_L = 1$.

1.3 Passing through critical resonance

$$T_{K\,max} \geq T_S \cdot S_Z \cdot S_t$$

The peak torque T_S arising when the resonance range is encountered must not exceed the maximum torque T_{Kmax} of the coupling while taking temperature into account.

1.4 Load by vibratory torque shocks

$$T_{KW} \geq T_W \cdot S_t$$

The allowable vibratory torque TKW of the coupling, at the operating speed and ambient temperature, must not be exceeded by the largest periodical vibratory torque TW.

$$P_{KW} \geq P_W$$

With operating frequencies f > 10 Hz, the heat produced by damping in the elastomer is considered as damping power P_W.

The permissible damping power P_{KW} of the coupling depends on the ambient temperature and must not be exceeded by the actual damping power produced.

Temperature factor S_t

	- 40 °F + 140 °F	+ 158 °F	+ 176 °F
S_t	1.0	1.2	1.6

Table No. 1

Starting factor S_Z

Starting frequency/h	< 10	> 10 < 60	> 60 < 120	> 120
S_Z	1.0	1.5	2.0	on request

Table No. 2

Shock factor S_A / S_L

Moderate shocks		1.5
Average shocks	S_A/S_L	1.8
Heavy shocks		2.5

Table No. 3

Description	Symbol	Definition or explanation
Rated torque of coupling	T_{KN}	Torque that can continuously be transmitted over the entire permissible speed range.
Maximum torque of coupling	$T_{K\,max.}$	Torque that can be transmitted as dynamic load $\geq 10^5$ times or 5 x 10^4 as vibratory load, respectively, during the entire operating life of the coupling.
Vibratory torque of coupling	T_{KW}	Torque amplitude of the permissible periodical torque fluctuation with a frequency of 10 Hz and a basic load of T_{KN} or dynamic load up to T_{KN}, respectively.
Damping power of coupling	P_{KW}	Permissible damping power with an ambient temperature of + 86 °F.
Rated torque of machine	T_N	Stationary rated torque on the coupling
Peak torque of machine	T_S	Peak torque on the coupling
Peak torque on the driving side	T_{AS}	Peak torque with torque shock on the driving side, e. g. breakdown torque of the electric motor.

Description	Symbol	Definition or explanation
Peak torque of load side	T_{LS}	Peak torque with torque shock on load side, e. g. braking.
Vibratory torque of machine	T_W	Amplitude of the vibratory torque effective on the coupling.
Damping power of the machine	P_W	Damping power which is effective on the coupling due to the load produced by the vibratory torque.
Moment of inertia of driving side	J_A	Total of moments of inertia existing on the driving or load side referring to the coupling speed.
Moment of inertia of load side	J_L	
Rotational inertia coefficient of driving side	M_A	Factor taking into account the mass distribution with shocks and vibrations produced on the driving or load side.
Rotational inertia coefficient of load side	M_L	$M_A = \frac{J_L}{J_A + J_L}$ $\quad M_L = \frac{J_A}{J_A + J_L}$

Applications - BoWex® FLE-PA, BoWex-ELASTIC® and MONOLASTIC®

Applications for BoWex® FLE-PA couplings and MONOLASIC®

wheel loaders	K 1.6
compact loaders	K 1.6
hydraulic excavators	K 1.4
mobile cranes	K 1.6
graders	K 1.5
vibratory rollers	K 1.4
fork lift trucks	K 1.6
concrete mixer trucks	K 1.3
concrete pumps	K 1.4
asphalt finishers	K 1.4
concrete cutters	K 1.4

For a selection according to the engine driving torque T_{AN}, a service factor K = 1.3 – 1.6 should be used, depending on the application.

$$T_{KN} \geq T_{AN} \cdot K$$

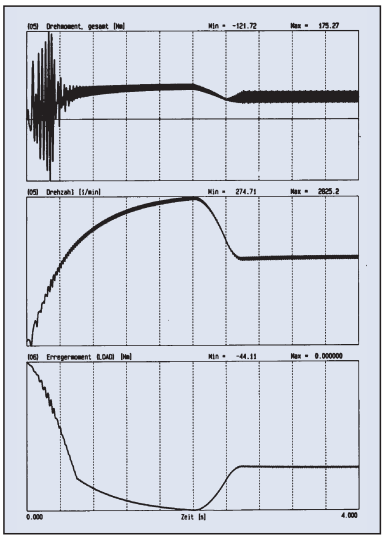
Applications for BoWex-ELASTIC® couplings

- screw compressors
- generators
- piston compressors
- splitter box
- suction pumps
- high-pressure pumps
- reversing gears
- sifting gears
- hydrodynamic converters

Coupling selection by means of torsional vibration calculation.

Additional Information

Use of special software for coupling selection



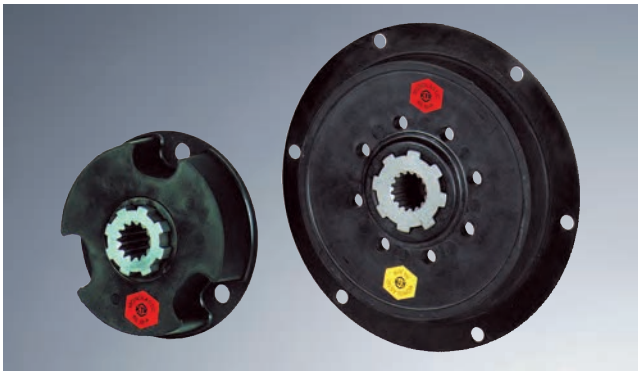
Application:
3-cylinder diesel engine - screw compressor

Use:
BoWex-ELASTIC®
42 HE - 50 Shore A

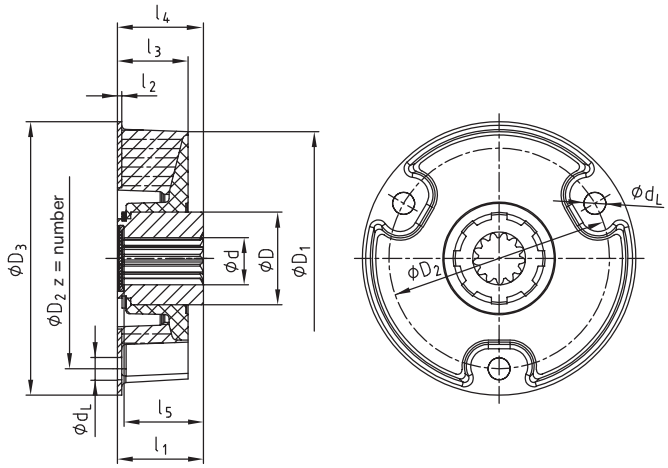
Calculation:
Acceleration
from 300 rpm
to 2,700 rpm

KTR has 50 years of application experience and uses computer programs for coupling solutions on torsionally sensitive drive systems.

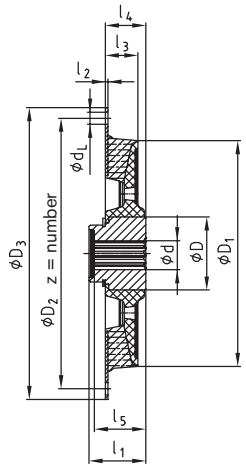
for I. C.-engines (EP 0853203/U.S. Patent 6,117,017)



- One-piece flywheel flange coupling for low inertia applications
- Ideal for hydrostatic drives
- Provides dampening
- Reduced maintenance, blind assembly
- Accommodates for parallel and angular misalignments



Size 22, 28, 32, 50-140, 50-165, 50-170

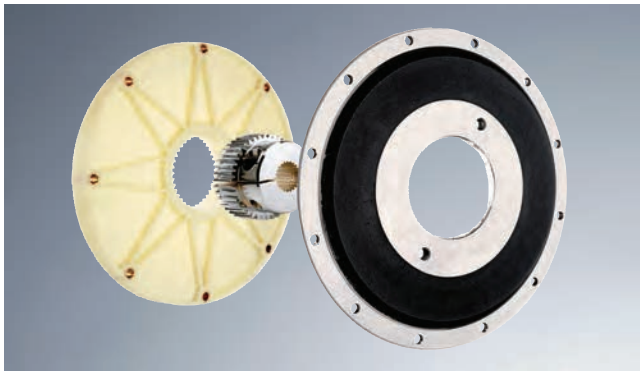


Size 30, 50, 65

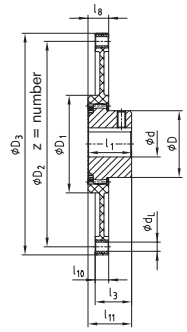
MONOLASTIC®																
Size	Elastomer hardness [Shore A]	Torque [lb-in]			Dimension [in]											
		T_{KN}	$T_{K\,max.}$	T_{KW}	d	D	D_1	D_2	z	d_L	D_3	l_1	l_2	l_3	l_4	l_5
22	65	354	885	177	0.79	1.34	3.66	3.15	0.12	0.32	3.94	1.30	0.06	1.26	1.34	1.18
28	65	620	1,549	310	0.98	1.65	4.53	3.94	0.12	0.40	4.88	1.57	0.08	1.26	1.57	1.50
	70	885	2,655	443												
32	65	1,416	3,540	708	1.26	1.97	5.51	4.92	0.12	0.48	5.91	1.65	0.08	1.65	1.69	1.50
	70	1,991	5,974	991												
50-140	70	2,301	5,753	1,151	1.26	1.97	6.57	5.51	0.12	0.56	6.89	1.81	0.12	1.38	1.81	1.69
50-165	70	2,655	6,638	1,328	1.26	1.97	6.89	6.50	0.12	0.64	7.87	1.81	0.12	1.38	1.81	1.69
50-170	70	2,655	6,638	1,328	1.26	1.97	6.89	6.69	0.12	0.64	7.87	1.81	0.12	1.38	1.81	1.69
30	65	1,416	3,540	708	0.98	1.65	4.72	SAE-connection 6 ½", 7 ½"				1.54	0.08	0.83	1.18	1.42
50	65	2,655	6,638	1,328	1.26	1.97	6.57	SAE-connection 6 ½", 7 ½", 8", 10"				1.65	0.08	0.94	1.18	1.50
65	65	5,311	14,162	1,593	1.89	2.68	7.87	SAE-connection 10", 11 ½"				1.77	0.12	1.26	1.77	1.65

Technical data										
Size	Elastomer hardness [Shore A]	$C_{dyn.}$ 140°F [lb-in/rad]	Perm. damping power with 140°F P_{KW} [Btu/hr]	Allowable radial misalignment with 2,200 rpm ΔK_r [in]	Allowable angular misalignment with 2,200 rpm ΔK_w [°]	Radial spring stiffness C_r [lbf/in]	Mass moment of inertia [lb-in-sec²]			Max. allowable operating speed n_{max} [rpm]
							J_A		J_L	
22	65	5,310	34.1	0.024		1,142	0.0015		0.0009	6000
28	65	7,960	51.2			1,713	0.0048		0.0029	6000
	70	11,500		0.020		2,284				
32	65	15,930	85.3	0.024			0.0106		0.0072	6000
	70	21,240		0.020		2,855				
50-140	70	37,170	119	0.020		7,795	0.0186		0.0115	6000
50-165	70	49,560	136	0.020	1	8,852	0.0221		0.0115	6000
50-170	70	49,560	136	0.020		8,852			0.0115	6000
30	65	33,190	85.3	0.024		6,567	6.5"	0.0336	0.0027	6000
							7.5"	0.0505		
50	65	79,650	119	0.024		7,424	8"	0.0690	0.0106	6000
							10"	0.1354		
65	65	123,910	154	0.024		10,850	10"	0.2107	0.0336	6000
							11.5"	0.3257		

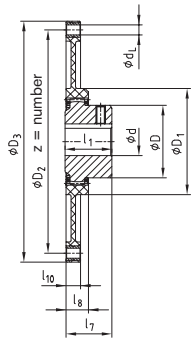
Design FLE-PA



- Flywheel flange couplings for low inertia applications
- Ideal for hydrostatic drives
- High torsional stiffness
- Reduced maintenance, blind assembly
- For applications up to + 266 °F



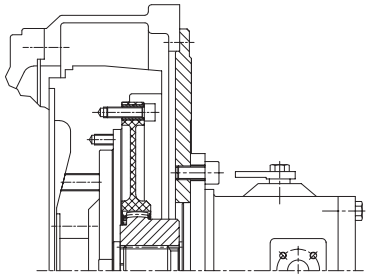
mounting short



mounting long

Flange dimensions according to SAE J 620 [in]				
Size	D_3	D_2	z	d_L
6 ½"	8.500	7.875	6	0.35
7 ½"	9.500	8.750	8	0.35
8"	10.375	9.625	6	0.43
10"	12.375	11.625	8	0.43
11 ½"	13.875	13.125	8	0.43
14"	18.375	17.250	8	0.55

Example of an installation



BoWex® FLE-PA
for diesel engines with SAE connection; mounting hub with end plate and bolt.

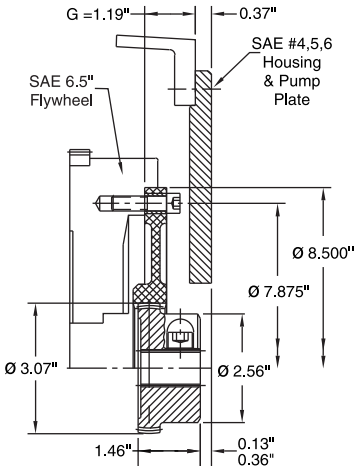
BoWex®-FLE-PA – Dimensions/Dimension to SAE

Size	Bore	Finish bore d		Dimensions [in]								Special length	Dimension to SAE (D_3)						Max. axial misalignment
		min.	max.	D	D_1	l_1	l_3	l_7	l_8	l_{10}	l_{11}	l_1 max.	6 ½"	7 ½"	8"	10"	11 ½"	14"	[in]
42 / 48	-	0.813	1.813	2.68	3.94	1.97	1.61	1.97	0.79	0.51	1.89	3.15	●	●	●	●			± .078
T 48	0.512	0.813	1.813	2.68	3.94	1.97	1.50	1.77	0.79	0.51	1.81	-	●	●	●	●			± .039
T 55	0.669	0.813	2.125	3.35	4.53	1.97	1.46	1.89	0.94	0.51	1.89	-	●	●	●	●			± .078
65 / T 65	1.102	1.188	2.500	3.78	5.20	2.17	1.77	2.13	1.06	0.83	2.01	2.76			●	●	●		± .078
T 70	1.102	1.188	2.625	3.94	6.02	2.36	1.89	2.20	1.18	0.83	2.24	-				●			± .078
80 / T 80	1.220	1.438	3.000	4.88	6.69	3.54	3.07	3.43	1.18	0.83	3.43	-					●		± .078
100 / T 100	1.496	1.625	3.875	5.98	10.43	4.33	3.07	4.25	1.38	0.83	4.33	-					●	●	± .078
125	1.772	2.000	4.813	7.56	9.84	5.51	1.46	5.24	1.97	1.10	3.82	-					●	●	± .078

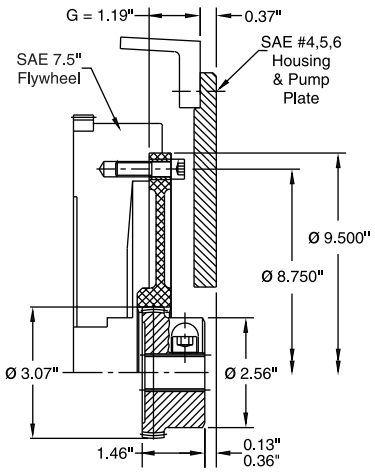
Technical data of BoWex® FLE-PA – Torques/Weight/Mass moments of inertia/Torsion spring stiffness

Size	Torque T_K [lb-ft]			Weight / Mass moment of inertia J	Hub with max. bore Ø	FLE-PA flanges according to SAE						Dynamic torsion spring stiffness with + 140 °F / = 0.29 [lb-ft/rad]			
	T_{KN}	$T_{K\ max.}$	T_{KW}			6 ½"	7 ½"	8"	10"	11 ½"	14"	0.30 T_{KN}	0.50 T_{KN}	0.75 T_{KN}	1.00 T_{KN}
42 / 48	177	443	89	[lb]	1.74	0.71	0.95	1.12	1.41	-	-	25,830	55,350	77,490	92,250
				[lb-in-sec²]	0.0062	0.0186	0.0310	0.0434	0.0752						
T 48	221	554	111	[lb]	1.74	0.71	0.95	1.12	1.41	-	-	29,520	63,468	88,560	105,534
				[lb-in-sec²]	0.0062	0.0186	0.0310	0.0434	0.0752						
T 55	332	830	166	[lb]	2.47	0.75	1.37	0.99	1.42	-	-	66,420	103,320	125,460	143,910
				[lb-in-sec²]	0.0142	0.0195	0.0469	0.0389	0.0761						
65	480	1,181	240	[lb]	5.07	-	-	1.39	1.41	1.96	-	81,180	118,080	147,600	169,740
				[lb-in-sec²]	0.0389			0.0566	0.0575	0.1062					
T 65	590	1,476	295	[lb]	5.29	-	-	1.39	1.41	1.96	-	95,940	140,220	177,120	206,640
				[lb-in-sec²]	0.0389			0.0566	0.0575	0.1062					
T 70	738	1,845	369	[lb]	5.73	-	-	-	2.07	-	-	169,740	254,610	324,720	381,546
				[lb-in-sec²]	0.0522				0.1168						
80	886	2,214	443	[lb]	11.5	-	-	-	-	2.47	-	147,600	302,580	428,040	516,600
				[lb-in-sec²]	0.1337					0.1947					
T 80	1,107	2,768	554	[lb]	11.5	-	-	-	-	2.47	-	177,120	332,100	470,844	568,260
				[lb-in-sec²]	0.1337					0.1947					
100	1,513	3,801	756	[lb]	20.7	-	-	-	-	2.56	18.6	369,000	516,600	631,728	701,100
				[lb-in-sec²]	0.3549					0.1859	2.0711				
T 100	1,845	4,613	923	[lb]	20.7	-	-	-	-	2.56	18.6	442,800	612,540	708,480	789,660
				[lb-in-sec²]	0.3549					0.1859	2.0711				
125	3,137	7,897	1,568	[lb]	43.5	-	-	-	-	4.61	21.7	3,099,600	3,690,000	4,132,800	4,575,600
				[lb-in-sec²]	1.2029					0.3806	2.7084				

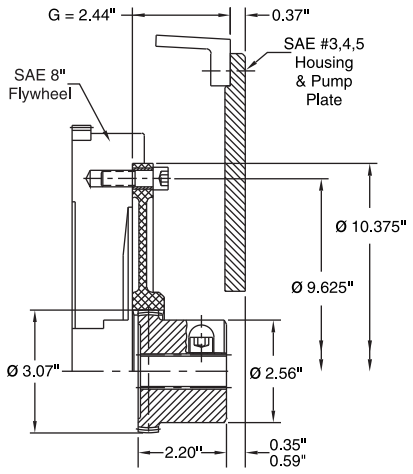
Design FLE-PA - standard SAE Layouts



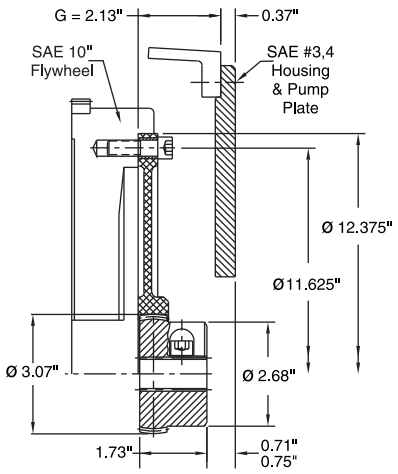
BoWex® FLE 42 - 6.5" Assembly
473415 Drawing



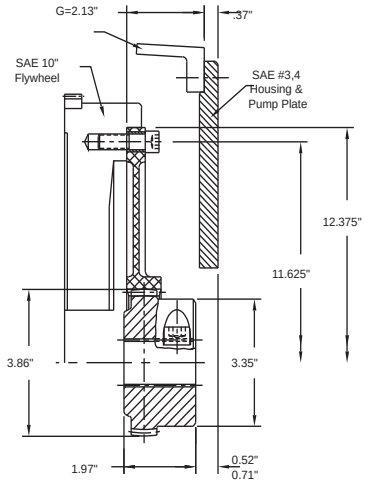
BoWex® FLE 42 - 7.5" Assembly
473482 Drawing



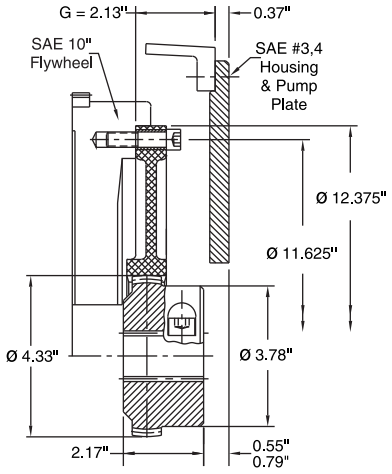
BoWex® FLE 42 - 8" Assembly
473487 Drawing



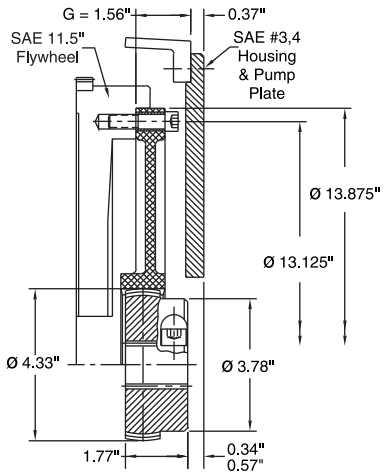
BoWex® FLE 48T - 10" Assembly
474360 Drawing



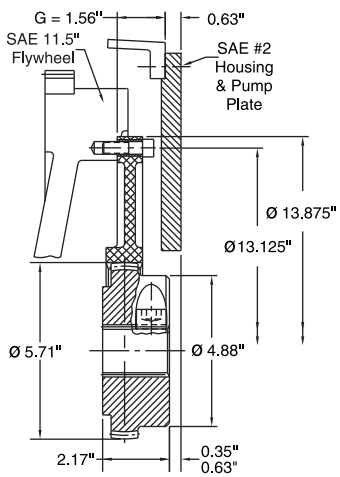
BoWex® FLE 55T - 10" Assembly
474365 Drawing



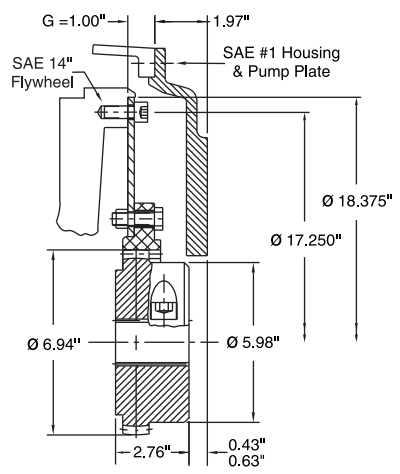
BoWex® FLE 65 - 10" Assembly
474367 Drawing



BoWex® FLE 65T - 11.5" Assembly
474472 Drawing



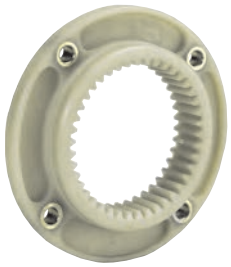
BoWex® FLE 80 - 11.5" Assembly
474473 Drawing

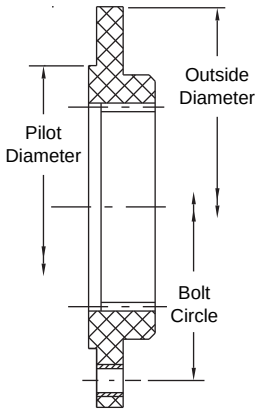


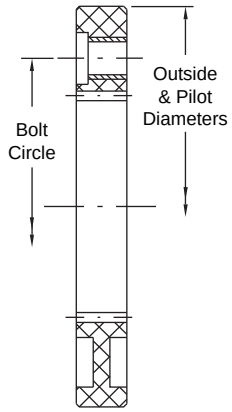
BoWex® FLE 100 - 14" Assembly
474536 Drawing

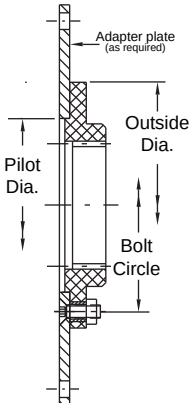
The above drawings are to be used for general sizing and to provide installation dimensions. Please contact KTR Corporation for addtional details.

Metric drive flanges



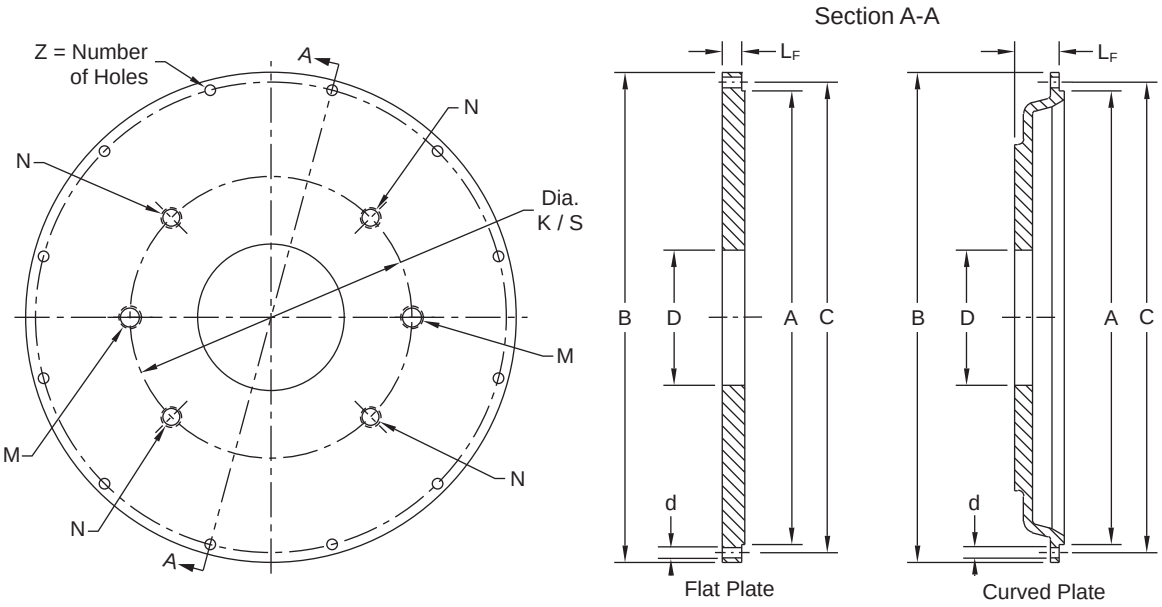






Metric Drive Flange 42/48 Series				
Outside Diameter	Bolt Circle	Bolt Qty. & Size	Pilot Diameter	Engine Brands and Models
96 mm 3.78”	50 mm 1.97”	4 x 10 mm	70 mm 2.76”	HATZ - Z788, 789, 790
125 mm 4.92”	100 mm 3.94”	3 x 10 mm	80 / 125 mm 3.15 / 4.92”	Lister Petter LP60, LP460
128 mm 5.04”	96 mm 3.78”	3 x 10 mm	114 mm 4.49”	Lombardini FOCS Series
130 mm 5.12”	105 mm 4.13”	4 x 10 mm	130 mm 5.12”	Mitsubishi K2BC, KK38DE, K4CDE, KE75
135 mm 5.30”	100 mm 3.94”	3 x 10 mm	135 mm 5.30”	Kubota Super 5 Series, Perkins 103-10
140 mm 5.51”	105 mm 4.13”	4 x 10 mm	140 mm 5.51”	Lombardini LDW 903, 1303, 1503, 2004
150 mm 5.91”	130 mm 5.12”	5 x 8 mm	106 mm 4.17”	Kubota Mini Z400, D600, D722, V800, WG600, WG750
152 mm 5.98”	125 mm 4.92”	3 x 12 mm	105 mm 4.13”	Perkins 4.108, HATZ E573, 673, 780, 786
152 mm 5.98”	125 mm 4.92”	3 x 12 mm	100 / 152 mm 3.94 / 5.98”	Perkins 504-2T/2LR
155 mm 6.10”	125 mm 4.92”	3 x 12 mm	155 mm 6.10”	Perkins 103-12/13/15, 104-19/22
165 mm 6.50”	142 mm 5.59”	6 x 12 mm	125 mm 4.92”	HATZ L & M Series, E786
188 mm 7.40”	165 mm 6.50”	6 x 12 mm	136 mm 5.35”	Kubota Super 3 D1403, D1703, V1903, V2203
220 mm 8.66”	200 mm 7.87”	6 x 8 mm	185 mm 7.28”	VW 036.1, 122/126 A
252 mm 9.92”	234 mm 9.21”	6 x 8 mm	252 mm 9.92”	VW 068, 126, 127 - Kubota 950
265 mm 10.43”	250 mm 9.84”	6 x 8 mm	265 mm 10.43”	Daimler DM601, 602, 616
279 mm 10.98”	256 mm 10.08”	6 x 8 mm	Loc. Pins 3 x 120°	VW 028. B-M 344
334 mm 13.15”	315 mm 12.40”	9 x 8 mm	Loc. Pins 2 x 180°	Toyota A2 / 4Y
338 mm 13.31”	320 mm 12.60”	4 x 8 mm	20/32/40 mm 0.79/1.26/1.57	Mitsubishi S4E / 4G / 4D

SAE pump mounting data



SAE Pump Mount Dimensions											
SAE Pump	Pump Mounting Data [in]					SAE Pump Shaft Data [in]					
	Dia.	2 Bolt Pattern		4 Bolt Pattern		Straight Shaft		Splined Shaft [1]			
	D	K	M	S	N	Diameter	Keyway	Major Dia.	Teeth	Dia. Pitch	Pres. Angle
A	3.25	4.188	3/8-16	--	--	0.625	0.156	0.625	9	16/32	30°
						--		0.750	11	16/32	30°
B	4.00	5.750	1/2-13	5.000	1/2-13	0.875	0.250	0.875	13	16/32	30°
B-B	4.00	5.750	1/2-13	5.000	1/2-13	1.000	0.250	1.000	15	16/32	30°
						--	--	1.250	19	16/32	30°
C	5.00	7.125	5/8-11	6.375	1/2-13	1.250	0.313	1.250	14	12/24	30°
						--	--	1.375	21	16/32	30°
C-C	5.00	7.125	5/8-11	6.375	1/2-13	1.500	0.375	1.500	17	12/24	30°
D	6.00	9	3/4-10	9	3/4-10	1.750	0.438	1.750	13	8/16	30°
E	6.50	12.5	1-8	12.5	3/4-10	1.750	0.438	1.750	13	8/16	30°
F	7.00	13.781	1-8	13.781	1-8	--	--	2.000	15	8/16	30°

1) **BoWex®** hubs are broached to fit ANSI B92 .1 class 5 splined shafts.

SAE Pump Mount Plate Dimensions [in]									
SAE Housing Size	Housing Pilot A	Outside Diameter B	Bolt Circle C	Number of Holes Z	Hole Diameter d	Flat Plate		Curved Plate	
						LF	Available Pump Pilots	LF	Available Pump Pilots
1[1]	20.125	21.750	20.875	12	0.47	0.75	D-E-F	1.97	D-E
2	17.625	19.250	18.375	12	0.43	0.62	C-D-E	1.97	D-E
3	16.125	17.750	16.875	12	0.43	0.37	B-C-D	—	—
4[2]	14.250	15.875	15.000	12	0.43	0.37	A-B-C	1.38	A-B
5	12.375	14.000	13.125	8	0.43	0.37	A-B-C	1.42	A-B
6	10.500	12.125	11.250	8	0.43	0.37	A-B	—	—

1) SAE #1 flat plates are available with SAE "F" pump pilot. Please consult KTR Corporation for details.
2) SAE #4 curved plates are available in cast iron and aluminum.
• SAE Flat Plates come with zinc dichromate plating standard. (Special bracket mount machining available.)

Engine Bell Housing Kits

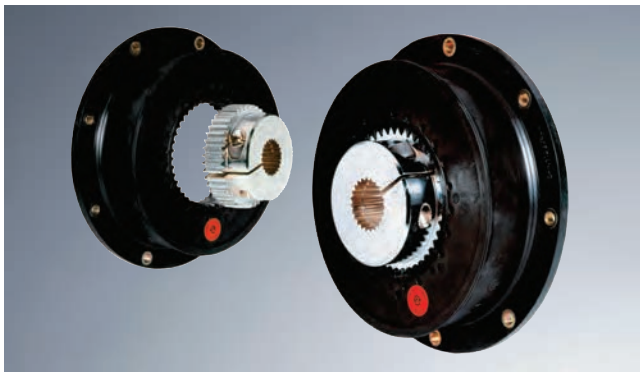
- **BoWex®** bell housing kits are available from stock for many engine brands and models
- Reinforced aluminum and cast iron design with A, B and C pump pilots to reduce overall length of the assembly.
- Cast aluminum construction supports hydrostatic pumps reducing the overall weight of the assembly
- All bell housing kits come standard with our original **BoWex® FLE** coupling
- Some models are available with foot mount or sidepads

Engine Bell Housing and Coupling Kits

Engine Brand	Engine Model(s)	BoWex® Coupling Size	Aluminum		Cast Iron		SAE Pump Pilots
			KTR Dwg.	Mount Sytle 1)	KTR Dwg.	Mount Sytle 1)	
B.S.& D.	DM700 / 950	42 FLE	CUST0037	Engine (only)	-	-	A / B
Caterpillar	3003	42 FLE	CUST0373	Engine (only)	-	-	A / B
	3003	42 FLE	CUST0707	Side Mount	-	-	A / B
	3013	42 FLE	CUST0372	Engine (only)	CUST0708	Side Mount	A / B
	3014 & 3024	42 FLE	CUST0371	Engine (only)	CUST0709	Side Mount	A / B / C
	3034 (LH Starter)	T48 FLE	CUST0365	Engine (only)	-	-	B / C
	3034 (RH Starter)	T48 FLE	-	-	CUST0364	Engine (only)	B / C
Cummins	A-Series	42 FLE	491610	Engine (only)	435433	Side Mount	A / B
General Motors	3.0L	T48 FLE	CUST0030	Side Mount	-	-	A / B
	4.3L & 5.7L	T65 FLE	CUST0031	Side Mount	-	-	A / B / C
John Deere	30ll/15 & 4020	42 FLE	CUST0034	Engine (only)	-	-	A / B
	3015 & 4020 (Short SAE #5)	42 FLE	CUST0033	Engine (only)	-	-	A / B
Kubota	Super Mini	42 FLE	489434	Engine (only)	CUST0710	Side Mount	A / B
	Super Three	42 FLE	489733	Engine (only)	CUST0711	Engine (only)	A / B / C
	Super Five	42 FLE	489665	Foot Mount	CUST0712	Engine (only)	A / B
Mitsubishi	4G	T48 FLE	CUST0399	Engine (only)	-	-	A / B
Perkins	103-10 & 403C-10/11	42 FLE	CUST0009	Side Mount	-	-	A / B
	103-10 & 403C-10/11	42 FLE	CUST0005	Engine (only)	-	-	A / B
	103-13/15 & 403C-13/15	42 FLE	CUST0004	Engine (only)	CUST0714	Side Mount	A / B
	104-19/22 & 404C-20/22T	42 FLE	CUST0006	Engine (only)	CUST0715	Side Mount	A / B / C
	704-30 (LH Starter)	T48 FLE	CUST0008	Engine (only)	-	-	B / C
	704-30 (RH Starter)	T48 FLE	-	-	CUST0007	Engine (only)	B / C
Yanmar	3TNE (78-84) & 4TNE (84-88)	42 FLE	CUST0034	Engine (only)	-	-	A / B
	3 & 4 TNE (Short SAE #5)	42 FLE	CUST0033	Engine (only)	-	-	A / B

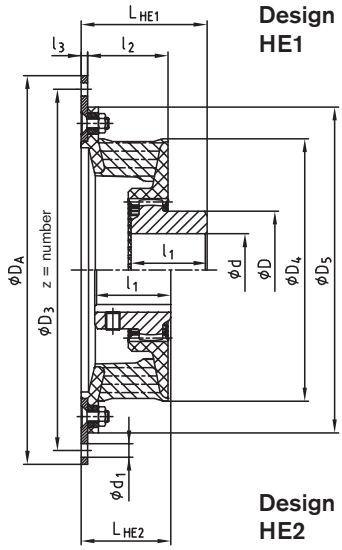
1) ALL KTR HOUSINGS COME WITH ENGINE MOUNT STANDARD - For specific technical data please call to request drawings or see available information at our website: www.ktr.com

Design HE



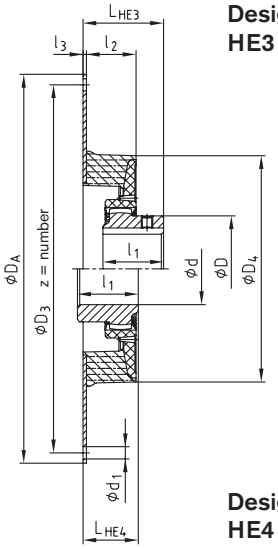
- Flywheel flange couplings for high inertia applications
- Ideal for compressors, pumps and generators
- Torsionally soft
- Reduced maintenance, blind assembly
- Multiple hardnesses available
- Installation instructions available at www.ktr.com

Design HE1



Design HE2

Design HE3



Design HE4

Flange dimensions according to SAE J 620 [in]				
Size	D_A	D_3	z	d_1
6 ½"	8.500	7.875	6	0.35
7 ½"	9.500	8.750	8	0.35
8"	10.375	9.625	6	0.43
10"	12.375	11.625	8	0.43
11 ½"	13.875	13.125	8	0.43
14"	18.375	17.250	8	0.55
16"	20.375	19.250	8	0.55
18"	22.500	21.375	6	0.71

BoWex-ELASTIC® Type HE

Size	Design		Bore d [in]		Flange connection according to SAE - J 620								Dimensions [in]								Weight with pilot bored coupling	Mass moment of inertia with pilot bored coupling	
	HE1 HE2	HE3 HE4	Pilot bored	max.	6 ½"	7 ½"	8"	10"	11 ½"	14"	16"	18"	l_3	l_2	D_4	D_5	D	l_1	L_{HE1} L_{HE3}	L_{HE2} L_{HE4}	[lb]	J_A [lb in sec²]	J_L [lb in sec²]
42 HE	●		-	1.563	●	●							0.16	1.77	5.75	7.09	2.56	1.65	2.76	1.97	6.0	0.0540	0.0124
	●						●														6.4	0.0735	0.0124
	●				●	●															6.4	0.0938	0.0168
48 HE	●		-	1.813			●						0.16	1.77	6.46	7.80	2.68	1.97	3.07	1.97	6.8	0.1310	0.0168
	●							●													8.6	0.2638	0.0168
65 HE	●		-	2.500				●					0.20	2.17	8.07	9.61	3.78	2.17	3.35	2.44	14.1	0.3337	0.0566
	●								●												15.9	0.5257	0.0566
G 65 HE		●	-	2.500				●					0.12	1.77	8.07	-	3.78	2.17	2.87	1.97	11.7	0.2142	0.0673
		●							●												12.6	0.3293	0.0673
80 HE	●		1.220	3.000				●					-	2.76	10.47	-	4.88	3.54	4.96	2.91	24.0	0.1868	0.2505
	●								●				0.24			12.44			5.20	3.15	28.7	0.6426	0.2505
G 80 HE	●		1.220	3.000					●				-	3.15	11.89	-	4.88	3.54	5.35	3.31	27.6	0.3558	0.3788
	●									●			0.24			14.02			5.59	3.54	38.1	1.9924	0.3788
100 HE		●	1.496	3.875						●			0.16	3.15	13.78	-	5.98	4.33	5.91	3.23	53.1	1.7268	0.9019
125 HE		●	1.772	4.813						●			-	3.86	16.38	-	7.56	5.51	7.32	4.06	101.0	2.6668	2.5323
		●									●		0.24						7.56	4.29	105.2	3.6493	2.5323
G 125 HE		●	1.772	4.813							●		0.24	3.50	17.32	-	7.56	5.51	7.05	3.58	106.7	4.2317	2.5810
		●										●				-					111.4	5.6469	2.5810
150 HE		●	1.969	5.750								●	0.24	5.28	18.50	-	8.86	5.91	8.07	6.18	147.1	6.1231	4.5954

Order form:

BoWex-ELASTIC® 42	HE 1	40	8	70	U
Coupling size	Design	Elastomer hardness	Flange diameter D_A acc. to SAE or special	Mounting length L_{HE}	Unbored or with bore

Technical data

Coupling Sizes	Elastomer hardness [Shore A]	Rated torque	Maximum torque	Vibratory torque with 10 Hz	Permissible damping power		Max. perm. operating speed	Twisting angle with rated torque	Dynamic torsion spring stiffness	Relative damping	Resonance $\frac{2 \cdot \pi}{\psi}$ factor $V_R \approx$	Radial spring stiffnesss
	Shore A	T_{KN} [lb-ft]	$T_{K\ max.}$ [lb-ft]	T_{KW} [lb-ft]	140 °F [HP]	167 °F [HP]	$n_{max.}$ [rpm	ϕTKN [°]	C_{dyn} [lb-in/rad]	ψ	V_R	C_r [lbf/in]
42 HE	40 sh	96	288	27	26.8	8.7	6200	16	4,868	0.6	10.5	811
	50 sh	111	332	33	26.8	8.7	6200	13	7,523	0.8	7.9	1,251
	65 sh	133	399	40	26.8	8.7	6200	8	23,898	1.2	5.2	3,980
48 HE	40 sh	148	443	44	36.2	12.1	5600	16	7,523	0.6	10.5	1,005
	50 sh	170	509	51	36.2	12.1	5600	13	11,506	0.8	7.9	1,536
	65 sh	207	620	62	36.2	12.1	5600	8	30,979	1.2	5.2	4,135
65 HE	40 sh	258	775	77	60.3	20.1	4500	16	14,162	0.6	10.5	1,194
	50 sh	295	886	89	60.3	20.1	4500	13	19,472	0.8	7.9	1,645
	65 sh	369	1,107	111	60.3	20.1	4500	8	53,106	1.2	5.2	4,477
G 65 HE	40 sh	317	952	95	68.3	22.8	16	12	20,800	0.6	10.5	1,479
	50 sh	369	1107	111	68.3	22.8	4300	10	26,553	0.8	7.9	1,976
	65 sh	458	1,373	137	68.3	22.8	4300	6	75,234	1.2	5.2	5,568
80 HE	40 sh	554	1,661	166	120.6	40.2	3600	14	39,830	0.6	10.5	2,004
	50 sh	701	2,103	210	120.6	40.2	3600	13	57,532	0.8	7.9	2,895
	65 sh	886	2,657	266	120.6	40.2	3600	6	159,318	1.2	5.2	8,018
G 80 HE	40 sh	923	2,768	277	180.9	60.3	3000	12	66,383	0.6	10.5	2,718
	50 sh	1,181	3,542	354	180.9	60.3	3000	10	106,212	0.8	7.9	4,352
	65 sh	1,476	4,428	443	180.9	60.3	3000	6	283,232	1.2	5.2	11,598
100 HE	40 sh	1,476	4,428	443	214.4	71.0	2700	12	106,212	0.6	10.5	2,090
	50 sh	1,845	5,535	554	214.4	71.0	2700	10	168,169	0.8	7.9	3,255
	65 sh	2,362	7,085	708	214.4	71.0	2700	6	424,848	1.2	5.2	6,853
125 HE	40 sh	2,214	6,642	664	241.2	80.4	2300	12	168,169	0.6	10.5	3,523
	50 sh	2,952	8,856	886	241.2	80.4	2300	10	265,530	0.8	7.9	5,562
	70 sh	3,690	11,070	1,107	241.2	80.4	2300	6	663,825	1.2	5.2	13,900
G 125 HE	40 sh	2,952	8,856	886	268	89.8	2100	11	265,530	0.6	10.5	3,198
	50 sh	3,838	11,808	1,181	268	89.8	2100	9	389,444	0.8	7.9	5,254
	70 sh	4,797	14,760	1,476	268	89.8	2100	5	973,610	1.2	5.2	10,936
150 HE	40 sh	4,059	12,177	1,218	301.5	100.5	1800	10	371,742	0.6	10.5	4,077
	50 sh	5,166	15,498	1,550	301.5	100.5	1800	8	593,017	0.8	7.9	6,853
	70 sh	6,642	19,926	1,993	301.5	100.5	1800	5	1,469,266	1.2	5.2	14,277

Misalignments

Speed/ Condition	Misalignment (maximum)		Coupling sizes & Hardness (Shore A)																				
			42HE			48HE			65 and G 65 HE			80 and G 80 HE			100 HE			125 or G 125 HE			150 HE		
			40 sh	50 sh	65 sh	40 sh	50 sh	65 sh	40 sh	50 sh	65 sh	40 sh	50 sh	65 sh	40 sh	50 sh	65 sh	40 sh	50 sh	65 sh	40 sh	50 sh	65 sh
All	Axial coupling	ΔKa [in]	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.08	±0.12	±0.12	±0.12	±0.12	±0.12	±0.12	±0.20	±0.20	±0.20
At start-up	Radial misalignment	ΔKr max. [mm]	0.06	0.13	0.06	0.15	0.14	0.07	0.20	0.19	0.09	0.22	0.21	0.09	0.26	0.24	0.12	0.30	0.27	0.13	0.31	0.30	0.16
	Angular misalignment	ΔKw max.	0.05	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
1,500 rpm	Cont. radial misalignment	ΔKr [in]	1.0	0.04	0.02	0.05	0.04	0.02	0.06	0.06	0.03	0.07	0.07	0.03	0.09	0.08	0.04	0.10	0.09	0.04	0.11	0.10	0.05
	Cont. angular misalignment	ΔKw [°]	0.5	0.8	0.5	1.0	0.8	0.5	1.0	0.8	0.5	1.0	0.8	0.5	1.0	0.8	0.5	1.0	0.8	0.5	1.0	0.8	0.5
3,000 rpm	Cont. angular misalignment	ΔKw [°]	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25	0.5	0.4	0.25

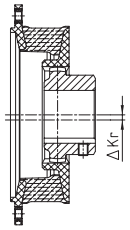
The technical data at an ambient temperature of T = 140 °F.

Misalignments

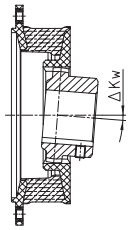
For other operating speeds or higher operating temperatures, the allowable parallel misalignment is calculated as follows:

$$\Delta Kr_{\ perm.} = \Delta Kr \cdot S_t \cdot \sqrt{\frac{1500}{n_x}}$$

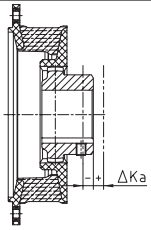
Process of assembly, screw type with quality, tightening torques according to KTR assembly instructions (see www.ktr.com).



Parallel misalignment ΔKr

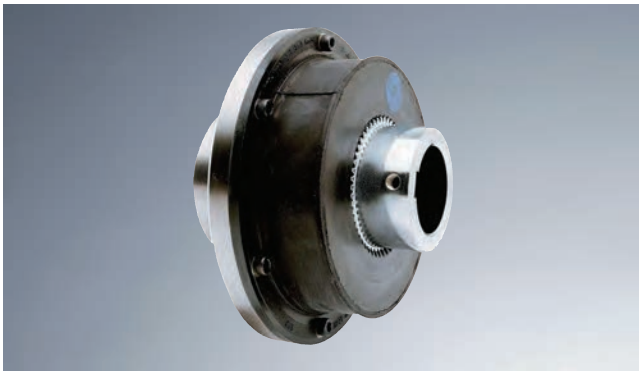


Angular misalignment ΔKw



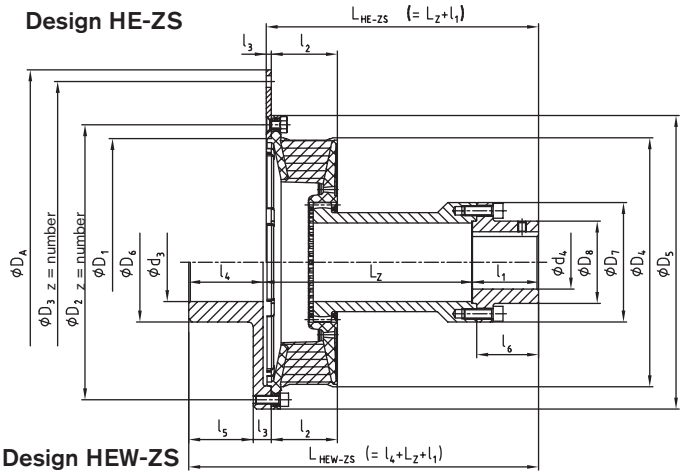
Axial misalignment ΔKa

Design HE-ZS, Design HEW-ZS and Design HEW



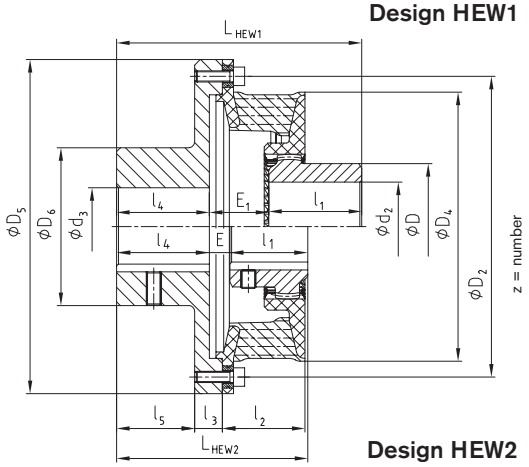
- Flywheel flange and shaft to shaft couplings for high inertia applications
- Ideal for compressors, pumps and generators
- Torsionally soft
- Reduced maintenance, blind assembly
- Multiple hardnesses available
- Accommodates for significant misalignments
- Design HE-ZS and HEW-ZS – Drop-out spacer design

Design HE-ZS



Design HEW-ZS

Design HEW1



Design HEW2

BoWex-ELASTIC® Design HE-ZS

Size	max. bore d_4	Flange connection to SAE-J 620 D_A for HE-ZS						Dimensions [in]									Removable part HE-ZS L_Z [in]					Weight with max. bore [lb]	Mass moment of inertia [lb-in-sec²]	
		6 ½"	7 ½"	8"	10"	11 ½"	14"	D_1	D_4	D_5	D_7	D_8	l_1	l_2	l_3	l_6	3.94	4.72	5.51	7.09	9.84		J_A	J_L
		●												1.89	0.39		●	●				6.4	0.0248	0.0443
48	1.125		●					6.30	6.46	7.87	3.07	1.77	1.57			1.77	●	●				7.9	0.0938	0.0443
				●										1.46	0.16		●	●				8.6	0.1310	0.0443
					●												●	●				10.1	0.2638	0.0443
G 65	1.688				●			7.80	8.07	9.65	4.33	2.83	2.36	1.77	0.12	2.20		●	●			17.0	0.2142	0.1974
						●												●	●			18.1	0.3293	0.1974
80	2.500				●			10.43	10.47	12.52	5.71	3.94	3.15	2.76	0.43	2.95			●	●		30.2	0.1868	0.6205
						●									0.24				●	●		35.1	0.6426	0.6205
G 80	2.500					●		11.81	11.89	14.09	5.71	3.94	3.15	3.15	0.43	2.95				●	●	38.4	0.3558	1.2498
							●								0.24					●	●	49.2	1.9924	1.2498

BoWex-ELASTIC® Design HEW-ZS

Size	max. bore		Dimensions [in]											Removable part HEW-ZS L_Z [in]					Weight with max. bore [lb]	Mass moment of inertia [lb-in-sec²]	
	d_3	d_4	D_2	z_1 x M		D_4	D_5	D_6	l_1	l_2	l_3	l_4	l_5	3.94	4.72	5.51	7.09	9.84		J_A	J_L
48	2.125	1.125	7.09	8	M6	6.46	7.87	3.62	1.97	1.77	0.67	2.17	1.77	●	●				15.2	0.1797	0.0443
65	2.813	1.688	8.82	8	M8	8.07	9.65	4.92	2.17	2.17	1.10	2.95	2.48		●	●			35.3	0.6612	0.1416
80	3.000	2.500	11.63	8	M10	10.47	12.52	5.12	3.54	2.76	0.67	3.15	2.76			●	●		56.2	1.2807	0.6187
G 80	3.625	2.500	13.13	8	M10	11.89	14.09	5.71	3.54	3.15	0.87	3.54	3.07				●	●	75.4	2.4358	1.2498

BoWex-ELASTIC® Design HEW

Size	max. bore		Dimensions [in]																Weight with max. bore [lb]	Mass moment of inertia [lb-in-sec²]	
	d_2	d_3	D	D_2	z x M		D_4	D_5	D_6	l_1	l_2	l_3	l_4	l_5	E	E_1	L_{HEW1}	L_{HEW2}		J_A	J_L
42	1.813	1.875	2.68	6.38	6	M6	5.75	7.09	3.35	1.97	1.77	0.59	1.97	1.65	0.16	1.26	5.20	4.09	9.5	0.1071	0.0133
48	1.813	2.125	2.68	7.09	8	M6	6.46	7.87	3.62	1.97	1.77	0.67	2.17	1.77	0.16	1.26	5.39	4.29	12.1	0.1806	0.0168
65	2.500	2.813	3.78	8.82	8	M8	8.07	9.65	4.92	2.76	2.17	1.10	2.95	2.48	0.20	1.65	7.36	5.91	29.1	0.6656	0.0628
80	3.000	3.000	4.88	11.62	8	M10	10.47	12.52	5.12	3.54	2.76	0.67	3.15	2.76	0.20	1.77	8.46	6.30	43.4	1.2825	0.2523
G 80	3.250	3.625	4.88	13.13	8	M10	11.89	14.09	5.71	3.54	3.15	0.87	3.54	3.07	0.20	2.17	9.25	7.28	57.1	2.4323	0.3735