

Universal Joints

Selection and assembly

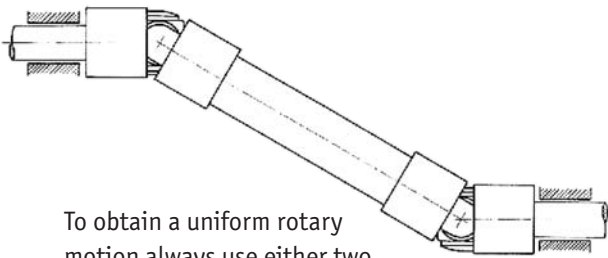
When one single joint is coupled with two shafts (of which the driving one is rotating at a constant speed) forming an angle, a periodic variation of the driven shaft is caused, exactly four fluctuations per revolution.

The difference between the maximum and the minimum speed of the driven shaft depends on the angle formed by the two shafts. The difference grows with the increasing of the angle α° . To have a homokinetic transmission, either two opposite single joints (paying attention that the two central yokes lie on the same plane and the angles are equal) or a double joint need to be fitted. The irregularity caused by the former articulation is cancelled by the latter.

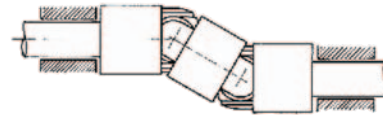
The overall length resulting from the coupling of the two single joints is even more reduced using a double joint. In other words, the double joint is to be considered as the shortest homokinetic transmission.

For low speed applications (Max 1000 R.P.M.), joints with plain bearings (rubbing bearings) are suggested. They are able to support shock loads, motion reversals, irregular runnings and relatively high torques. The working angles must be kept between 500 and 1000 R.P.M.

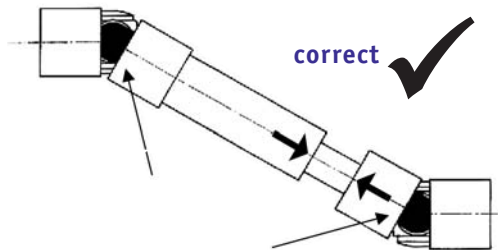
For high rotation speeds, relatively low torques or wide angles, joints with needle roller bearings are preferred. They can reach 4000 R.P.M. dependent on the angle.



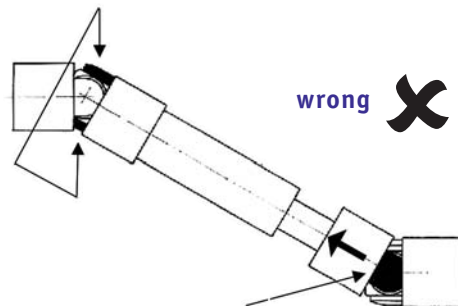
To obtain a uniform rotary motion always use either two opposite single joints or one double joint.



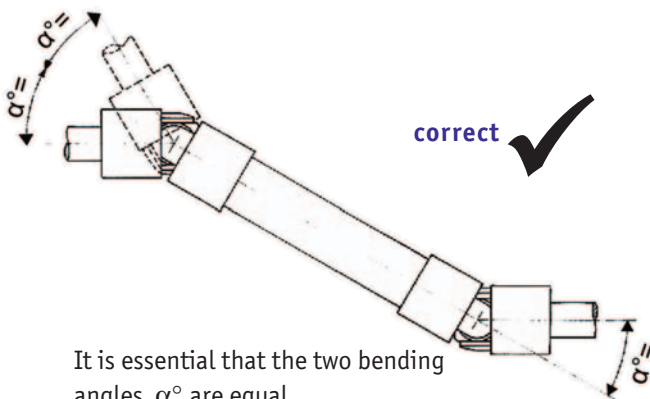
The pillow blocks are to be positioned as close as possible to the joints



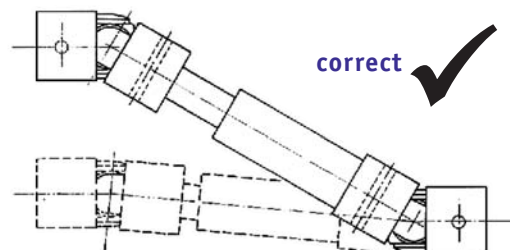
When using two opposite single joints respect the alignment of the inside yokes.



In extensible transmissions make sure that the arrows are perfectly aligned.



It is essential that the two bending angles α° are equal.



R3691



Material

Rubber.

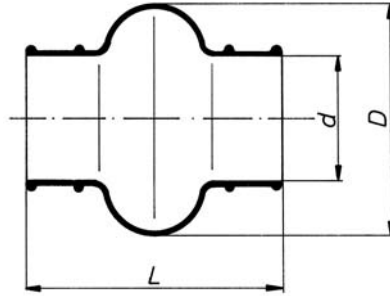
Tips

Bellows help to protect joints while in operation, and thus help to extend their life.

Resistant to: Acids, Oils, Greases, Dust and Moisture.

Filled with grease to ensure constant lubrication.

Bellows for universal joints



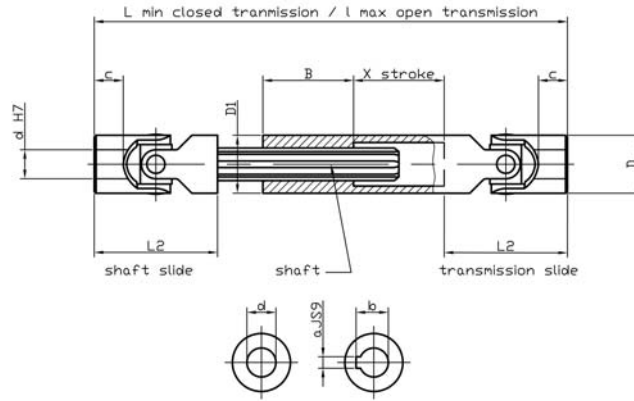
Order No.	To suit joint of o.d	L	D	d
R3691.016	16	34	28	15
R3691.018	18	40	32	16,5
R3691.022	22	45	40	20,5
R3691.025	25/26	50	48	24,5
R3691.028	28/29	56	52	27,5
R3691.032	32	65	56	30,5
R3691.036	36/37	72	66	35,5
R3691.042	42	82	75	40
R3691.045	45/47	95	84	45
R3691.050	50/52	108	92	50
R3691.058	58	122	100	56



R3680



Universal Shaft with length compensation



Material

Free cutting steel 9 SMn Pb 28 k, no. 10718, greased.
Zinc plated (silver).
Bearing type: journal bearing.

Technical Notes

Maximum bending angle 45° per joint.

The drive speed of universal joints with journal bearings must not exceed 1000 rpm.

DIN 808

Tips

Double universal joints where large bending angles are required and where two shafts offset in relation to each other.

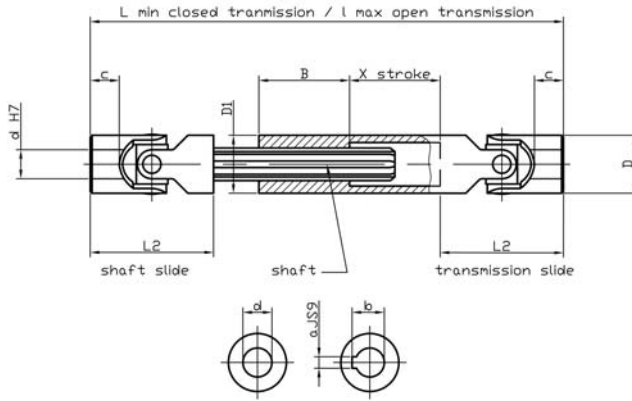
Order No.	d H7	D	L2	C	L min	L max	x stroke	a	b	shaft	D1	g
R3680.010	10	22	48	12	140	170	30	3	11,4	11x14 (Z6)	22	310
R3680.110	10	22	48	12	160	200	40	3	11,4	11x14 (Z6)	22	360
R3680.210	10	22	48	12	180	240	60	3	11,4	11x14 (Z6)	22	380
R3680.310	10	22	48	12	230	330	100	3	11,4	11x14 (Z6)	22	500
R3680.012	12	25	56	13	160	190	30	4	13,8	13x16 (Z6)	26	500
R3680.112	12	25	56	13	180	225	45	4	13,8	13x16 (Z6)	26	560
R3680.212	12	25	56	13	200	270	70	4	13,8	13x16 (Z6)	26	620
R3680.312	12	25	56	13	220	300	80	4	13,8	13x16 (Z6)	26	670
R3680.412	12	25	56	13	250	355	105	4	13,8	13x16 (Z6)	26	760
R3680.512	12	25	56	13	280	420	140	4	13,8	13x16 (Z6)	26	840
R3680.612	12	25	56	13	300	450	150	4	13,8	13x16 (Z6)	26	900
R3680.014	14	28	60	14	170	200	30	5	16,3	13x16 (Z6)	29	620
R3680.114	14	28	60	14	180	220	40	5	16,3	13x16 (Z6)	29	640
R3680.214	14	28	60	14	200	260	60	5	16,3	13x16 (Z6)	29	720
R3680.314	14	28	60	14	220	300	80	5	16,3	13x16 (Z6)	29	780
R3680.414	14	28	60	14	250	350	100	5	16,3	13x16 (Z6)	29	870
R3680.514	14	28	60	14	280	420	140	5	16,3	13x16 (Z6)	29	960
R3680.614	14	28	60	14	300	450	150	5	16,3	13x16 (Z6)	29	1030
R3680.714	14	28	60	14	350	550	200	5	16,3	13x16 (Z6)	29	1170
R3680.814	14	28	60	14	400	650	250	5	16,3	13x16 (Z6)	29	1330
R3680.016	16	32	68	16	190	220	30	5	18,3	16x20 (Z6)	32	900
R3680.116	16	32	68	16	210	250	40	5	18,3	16x20 (Z6)	32	980
R3680.216	16	32	68	16	240	320	80	5	18,3	16x20 (Z6)	32	1100
R3680.316	16	32	68	16	250	350	100	5	18,3	16x20 (Z6)	32	1140
R3680.416	16	32	68	16	275	390	115	5	18,3	16x20 (Z6)	32	1240
R3680.516	16	32	68	16	300	430	130	5	18,3	16x20 (Z6)	32	1330
R3680.616	16	32	68	16	380	590	210	5	18,3	16x20 (Z6)	32	1600
R3680.716	16	32	68	16	400	630	230	5	18,3	16x20 (Z6)	32	1730
R3680.018	18	36	74	17	230	280	50	6	20,8	18x22 (Z6)	37	1350
R3680.118	18	36	74	17	250	320	70	6	20,8	18x22 (Z6)	37	1460
R3680.218	18	36	74	17	270	370	100	6	20,8	18x22 (Z6)	37	1550
R3680.318	18	36	74	17	290	400	110	6	20,8	18x22 (Z6)	37	1660
R3680.418	18	36	74	17	300	415	115	6	20,8	18x22 (Z6)	37	1710
R3680.518	18	36	74	17	400	620	220	6	20,8	18x22 (Z6)	37	2230
R3680.618	18	36	74	17	500	820	320	6	20,8	18x22 (Z6)	37	2750



Universal Shaft

with length compensation

R3680



Order No.	d H7	D	L2	C	L min	L max	stroke	a	b	shaft	D1	g
R3680.020	20	42	82	18	250	300	50	6	22,8	21x25 (Z6)	42	1990
R3680.120	20	42	82	18	270	340	70	6	22,8	21x25 (Z6)	42	2120
R3680.220	20	42	82	18	290	380	90	6	22,8	21x25 (Z6)	42	2250
R3680.320	20	42	82	18	320	440	120	6	22,8	21x25 (Z6)	42	2460
R3680.420	20	42	82	18	380	560	180	6	22,8	21x25 (Z6)	42	2860
R3680.520	20	42	82	18	420	640	220	6	22,8	21x25 (Z6)	42	3130
R3680.620	20	42	82	18	500	800	300	6	22,8	21x25 (Z6)	42	3660
R3680.022	22	45	95	22	250	280	30	6	24,8	23x28 (Z6)	47	2350
R3680.122	22	45	95	22	270	320	50	6	24,8	23x28 (Z6)	47	2510
R3680.222	22	45	95	22	290	350	60	6	24,8	23x28 (Z6)	47	2670
R3680.322	22	45	95	22	330	430	100	6	24,8	23x28 (Z6)	47	3000
R3680.422	22	45	95	22	350	470	120	6	24,8	23x28 (Z6)	47	3160
R3680.522	22	45	95	22	470	710	240	6	24,8	23x28 (Z6)	47	4130
R3680.025	25	50	108	26	295	345	50	8	28,3	26x32 (Z6)	52	3390
R3680.125	25	50	108	26	310	375	65	8	28,3	26x32 (Z6)	52	3520
R3680.225	25	50	108	26	350	450	100	8	28,3	26x32 (Z6)	52	3920
R3680.325	25	50	108	26	380	500	120	8	28,3	26x32 (Z6)	52	4200
R3680.425	25	50	108	26	420	590	170	8	28,3	26x32 (Z6)	52	4590
R3680.525	25	50	108	26	460	660	200	8	28,3	26x32 (Z6)	52	4980
R3680.625	25	50	108	26	500	745	245	8	28,3	26x32 (Z6)	52	5370
R3680.030	30	58	122	29	330	380	50	8	33,3	32x38 (Z8)	58	4900
R3680.130	30	58	122	29	350	420	70	8	33,3	32x38 (Z8)	58	5170
R3680.230	30	58	122	29	370	455	85	8	33,3	32x38 (Z8)	58	5420
R3680.330	30	58	122	29	400	510	110	8	33,3	32x38 (Z8)	58	5850
R3680.430	30	58	122	29	450	620	170	8	33,3	32x38 (Z8)	58	6480
R3680.530	30	58	122	29	500	720	220	8	33,3	32x38 (Z8)	58	7140
R3680.630	30	58	122	29	540	795	255	8	33,3	32x38 (Z8)	58	7690

Material

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Zinc plated (silver).
Bearing type: journal bearing.

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