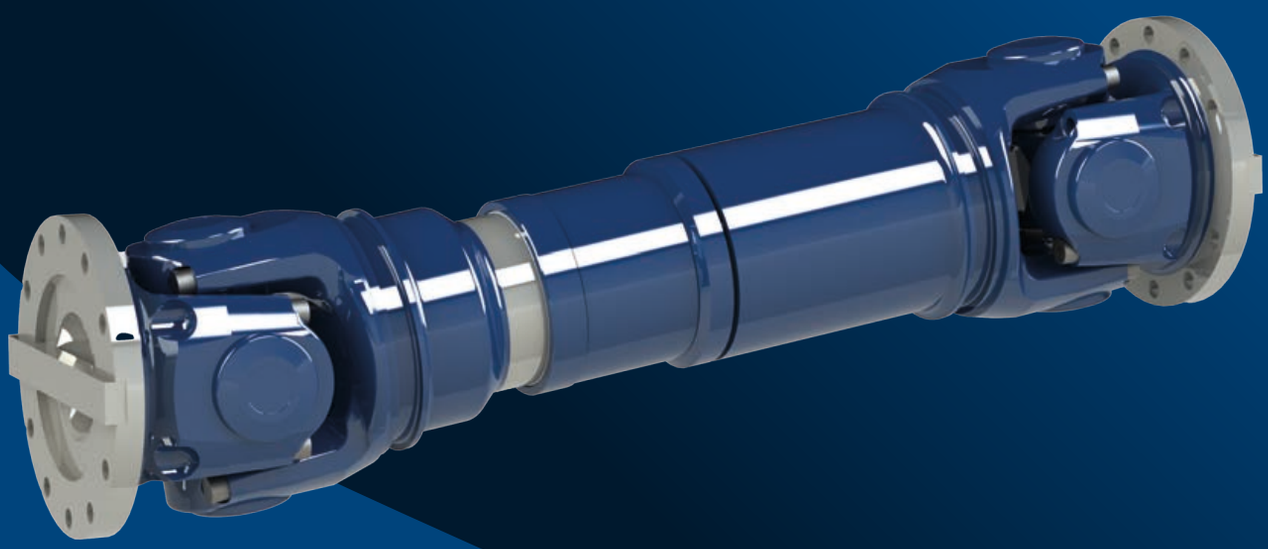
盖威狮万向轴

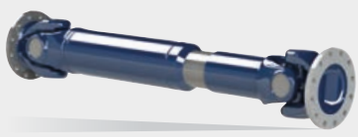
GEWES®
OUR DRIVE IS YOUR DRIVELINE



标准万向传动轴

Standard Cardan Shafts

350 Nm – 600 kNm



地理位置和历史

Location and History

GEWES一直致力于制造质量卓越、纵向紧密排列的滚子轴承万向轴和万向轴组件。

无论是农业机械，汽车应用，商用车还是水上，陆地和铁路的工业应用，国内和国际客户都正确地信任GEWES开发，生产和交付这些产品。

作为世界上最有经验的万向轴制造商之一，我们可以回顾自1947年5月11日成立以来75年的公司历史，我们希望在未来继续成功塑造这家公司。

GEWES位于施塔特伊尔姆市， 是图林根州的一个小镇，与法兰克福 - 巴特赫斯菲尔德 - 德累斯顿(A5, A4) 高速公路和南部的A71 / A73高速公路连接。

Gelenkwellenwerk Stadtilm GmbH has always stood for the manufacture of roller bearing cardan shafts and cardan shaft assemblies of excellent quality and high vertical integration.

National and international customers rightly entrust GEWES with the development, production and delivery of these products - whether for agricultural machinery, automotive applications, commercial vehicles or industrial applications on water, land and rail.

As one of the most experienced cardan shaft manufacturers in the world, we can look back on an eventful 75-year company history since our founding on May 11, 1947, which we want to continue to shape successfully in the future.

GEWES is located in Stadtilm, a town in Thuringia with very good connections to the Frankfurt – Bad Hersfeld – Dresden (A5, A4) motorways and the A71 / A73 motorways to the south.

目录

Content

GEWES 万向传动轴

万向轴在空间偏移的驱动器和输出之间传递扭矩，并能够补偿运转过程中的额外变化。

GEWES 万向轴采用高质量可靠的设计组件和结构组件，以功能安全、耐用的方式提供这些空间角度运动和轴向长度变化 。

它们是车辆、船舶和铁路应用以及各种工业工厂中各种机械驱动解决方案中不可或缺的功能组件。

GEWES 万向轴代表:
» 应用广泛
» 经济效益高
» 可靠性强
» 维护成本低
» 应用简单

以下目录让您深入了解我们的标准产品组合及其尺寸和参数。此外，我们的产品系列可以根据您的要求进行灵活调整。在这种特殊解决方案的情况下，我们当然会支持您，并根据您的要求为您提供特殊的技术解决方案。

我们为您的传动系统提供解决方案!

GEWES Cardan Shafts

Cardan shafts transmit torques between spatially offset drives and outputs and are able to compensate for additional changes during operation.

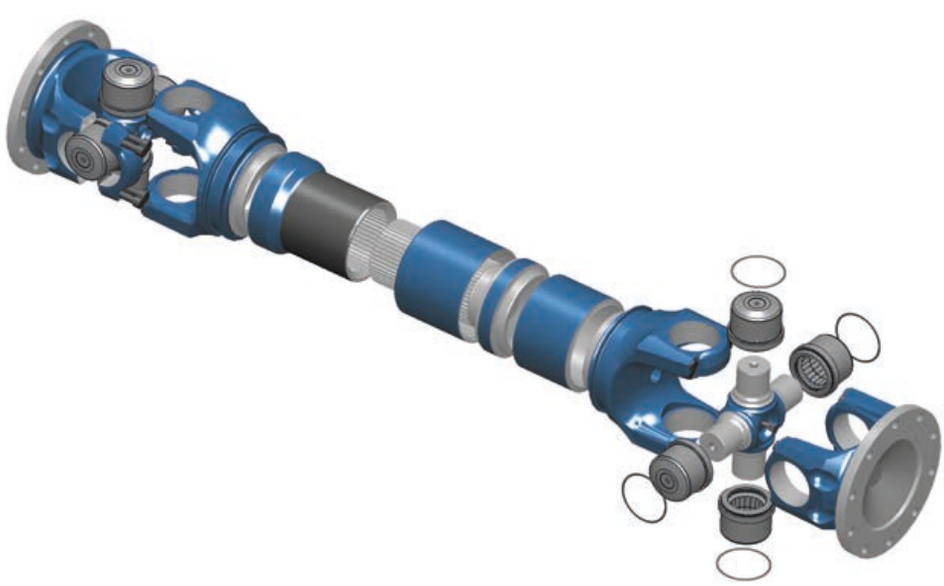
GEWES cardan shafts provide these spatial angular movements and axial length changes in a functionally safe and durable manner thanks to high-quality and reliable design elements. construction elements.

They are an indispensable functional element in a wide range of mechanical drive solutions in vehicles, marine and railway applications as well as in various industrial plants.

GEWES cardan shafts stand for:
» versatile usability
» high economic efficiency
» high reliability
» low maintenance
» simple application

The following catalogue gives you an insight into our standard portfolio with its dimensions and parameters. In addition, our product range can be flexibly adapted to your requirements. In cases of such special solutions, we will of course support you and offer you the special technical solution based on your request.

We have the solution for your driveline!



OUR DRIVE IS YOUR DRIVELINE

缩写语义

Abbreviations

M_{dG}	极限扭矩	Limiting torque
M_{dW}	疲劳扭矩	Reversing fatigue torqe
M_{dSch}	脉动疲劳扭矩	Pulsating fatigue torqe
M_A	法兰螺栓的拧紧扭矩	Tightening torque of flange fastening bolts
KZ	设计代码	Code number (design)
L	万向传动轴长度	Length of cardan shaft
L_{min}	无长度补偿功能的万向传动轴最小长度	Shortest length of cardan shaft without length compensation
L_Z	压缩后的长度	Compressed length
$L_{Z\ min}$	压缩后长度的最小值	Shortest compressed length
$L_{Z\ max}$	压缩后长度的最大值	Longest compressed length
L_A	长度伸缩量	Length compensation
$L_{A\ min}$	最小长度时的伸缩量	Length compensation for $L_{Z\ min}$
$L_{A\ max}$	最大长度时的伸缩量	Length compensation for $L_{Z\ max}$
L_B	安装长度	Operating length
z	法兰连接孔数	Number of flange holes
β_{max}	最大摆角	Maximum joint deflection angle
m_{min}	长度为 L_{min} 或 LZ_{min} 时万向传动轴的重量	Mass of cardan shaft for L_{min} resp. LZ_{min}
m_{max}	长度为LZ_{max}时万向传动轴的重量	Mass of cardan shaft for LZ_{max}
m_R	每米管身长度的重量	Mass per 1 m tube length

详细信息请参见技术附录。

For detailed information, please see technical appendix.

扭矩定义

Torque definitions

M_{dG}	在限定的频率范围内，在不损失万向传动轴功能的情况下所能传递的扭矩	Capable of transmitting torque at a limited frequency without damage to the function of the cardan shaft
M_{dW}	疲劳扭矩，万向传动轴在正反交变载荷下稳固 使用的扭矩。	At this torque the cardan shaft is permanently solid at alternating loads.
M_{dSch}	万向传动轴在单向脉动载荷下稳固使用的扭矩。 脉动疲劳扭矩 ($M_{d\ Sch}$)可计算如下： $M_{dSch} = M_{dW} \times 1{,}45$	At this torque the cardan shaft is permanently solid at pulsating loads. The pulsating fatique torqe (M_{dSch}) can be calculated as follows: $M_{dSch} = M_{dW} \times 1.45$

要了解更多信息，请参见3.5中的技术附录。

For further information, see the technical appendix under 3.5.

万向传动轴-设计

代码

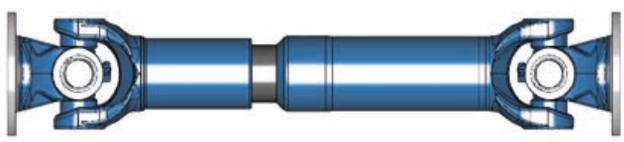
Cardan shaft-design

Code Number

具有长度补偿功能的万向传动轴

Cardan shafts with length compensation

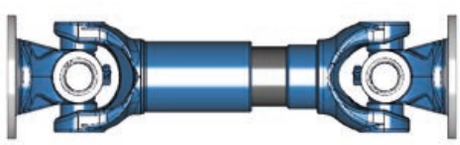
代码 / code no. = 41 和 51
代码 / code no. = 45 和 55
代码 / code no. = 46



具有长度补偿功能的短型万向传动轴

Short cardan shafts with length compensation

代码 / code no. = 43 和 53
代码 / code no. = 44



无长度补偿功能的万向传动轴

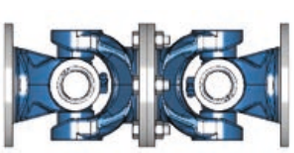
Cardan shafts without length compensation

代码 / code no. = 47 和 57
代码 / code no. = 48

双万向联轴节

Double joints

代码 / code no. = 7670
代码 / code no. = 7675



单万向联轴节

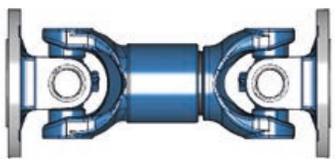
Flange joints

代码 / code no. = 310
代码 / code no. = 314

具有长度补偿功能的超短型万向轴

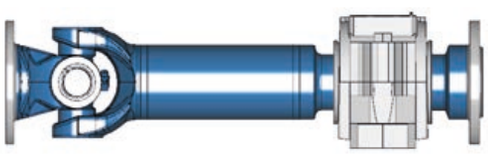
Super short cardan shafts with length compensation

代码 / code no. = 4496

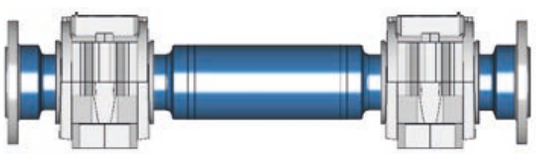


中间轴(定制款)

Intermediate shafts (version on request)



代码 / code no. = 3798



代码 / code no. = 9558

Gewes – 图号
Gewes – part number

动平衡速度系数=
max.每分钟运行速度 / 1.000
balancing speed factor =
max. operating speed
per minute / 1,000

万向轴型号**(请见第 34页)**
Cardan shaft size (please see p. 34)

46XX-63-XX/XX x 0565 - 1,5

万向轴设计代码
cardan shaft
design

公司内部规格
internal specification

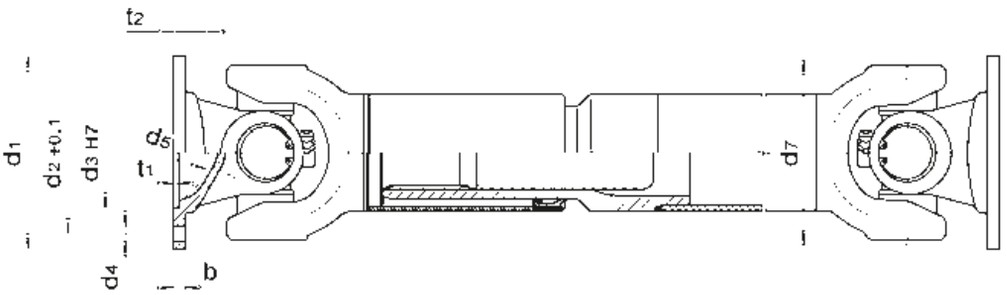
公司内部顺序号
internal running
number

L_z in mm – 压缩长度
L_z in mm – Compressed Length

万向轴压缩长度的信息见技术附录第34页

Information to Cardan shaft compressed length see technical appendix p. 34

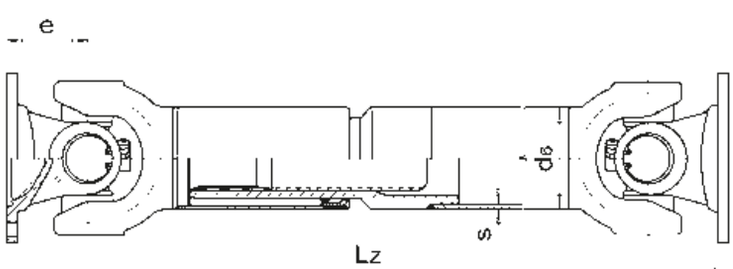
极限扭矩至 6,2 kNm 的万向传动轴 — Cardan shafts up to 6.2 kNm



型号/Size	15	30	43	53	63
M_{dG} [kNm]	0,35	1,1	2,4	4,2	6,2
M_{dW} [kNm]	0,10	0,32	1,0	1,3	1,7
d_1 [mm]	65	90	100	120	150
d_2 [mm]	52,0	74,5	84,0	101,5	130,0
d_3 [mm]	35	47	57	75	90
z x d_4 [mm]	4 x 6	4 x 8	6 x 8	8 x 10	8 x 12
d_5 [mm]	42	62	50	70	95
b [mm]	4,5	6,0	6,5	8,0	10,0
t_1 [mm]	2	3	3	3	3
t_2 [mm]	8	12	20	22	24
d_7 [mm]	60	90	98	115	125

具有长度补偿功能的万向传动轴 — Cardan shafts with length compensation

标准摆角设计 – 代码 41 和 45
大摆角设计 – 代码 46
Normal angle design – Code No. 41 and 45
Wide angle design – Code No. 46



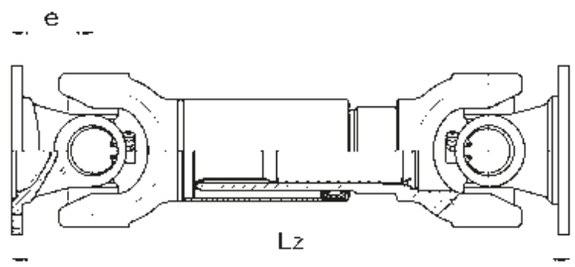
型号/Size	15	30		43		53		63	
代码/Code No.	41	45	46	45	46	45	46	45	46
$ß_{max}$ [°]	25	20	30	25	35	25	35	20	35
e [mm]	32	40	47	48	58	56	70	62	80
$L_{z\,min}$ [mm]	275	365	380	440	460	490	520	530	565
L_A [mm]	25	50		110		110		110	
m_{min} [kg]	1,9	4,6	4,8	8,4	8,8	12,7	13,6	19,5	20,6
m_R [kg/m]	1,7	2,37		4,22		4,96		6,6	
d_6 x s [mm]	30 x 2,5	50 x 2,0		60 x 3,		70 x 3,0		80 x 3,5	

缩写语义:请参见第5页
Abbreviations: please see p.5

具有长度补偿功能的短型万向传动轴

Short cardan shafts with length compensation

标准摆角设计 – 代码43
大摆角设计 – 代码44
Normal angle design – Code No. 43
Wide angle design – Code No. 44

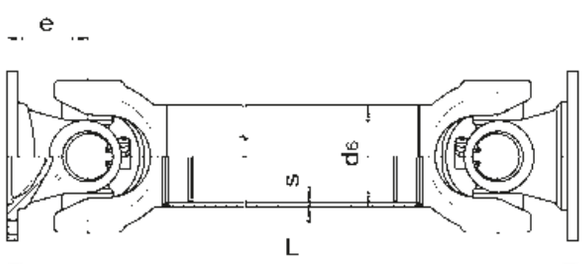


型号/Size	15	30		43		53		63	
代码/Code No.	43	43	44	43	44	43	44	43	44
$ß_{max}$ [°]	25	20	30	20	30	20	35	20	35
e [mm]	32	40	47	48	58	56	70	62	80
$L_{Z\,min}$ [mm]	225	230	245	280	300	285	365	365	400
$L_{A\,min}$ [mm]	20	15		25		30	45	35	
m_{min} [kg]	1,6	3,3	3,5	5,5	5,9	7,8	9,3	13,5	14,6
$L_{Z\,max}$ [mm]	250	315	330	400	420	450	500	505	540
$L_{A\,max}$ [mm]	25	60		60		80	85	110	
m_{max} [kg]	1,8	4,1	4,3	7,4	7,8	11,3	12,2	17,5	18,6

无长度补偿功能的万向传动轴

Cardan shafts without length compensation

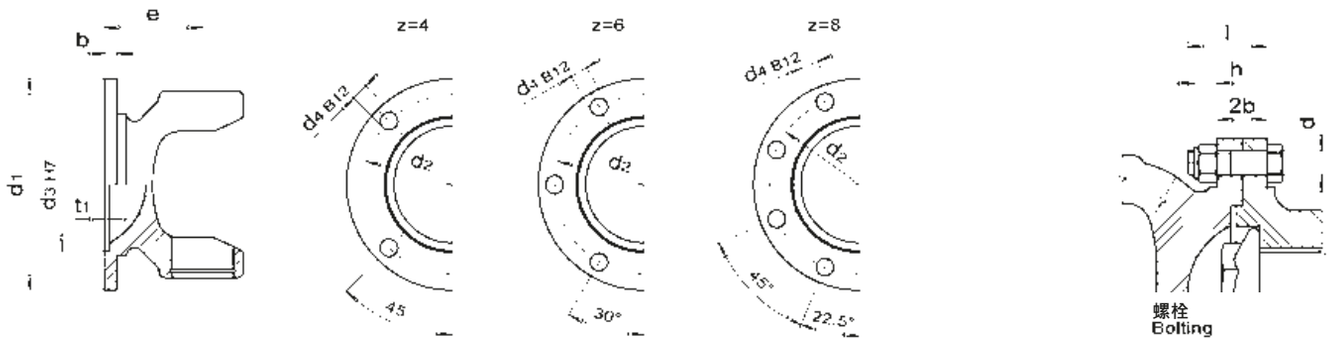
标准摆角设计 – 代码 47
大摆角设计– 代码48
Normal angle design – Code No. 47
Wide angle design – Code No. 48



型号/Size	15	30		43		53		63	
代码/Code No.	47	47	48	47	48	47	48	47	48
$ß_{max}$ [°]	25	20	30	25	35	25	35	20	35
e [mm]	32	40	47	48	58	56	70	62	80
L_{min} [mm]	165	215	230	250	270	285	315	320	355
m_{min} [kg]	1,2	3,3	3,5	4,8	5,7	7,2	8,6	11,7	13,0
m_R [kg/m]	1,7	2,37		4,22		4,96		6,6	
d_6 x s [mm]	30 x 2,5	50 x 2,0		60 x 3,0		70 x 3,0		80 x 3,5	

»DIN«-法兰
根据 DIN 15451/ ISO 7646

»DIN«-flanges
acc. DIN 15451/ ISO 7646



型号/Size	15		30					43					
d_1 [mm]	58	65	75	90			100	90	100			120	
d_2 [mm]	47	52	62	74,5			84	74,5	84			101,5	
d_3 [mm]	30	35	42	47			57	47	57			75	
e [mm]	32		47	40	47		40	48	58			48	
$ß_{max}$ [°]	25		30	20	30		20	25	35			25	
d [mm]	M5	M6	M6	M8				M8					M10
z x d_4 [mm]	4 x 5	4 x 6	6 x 6	4 x 8		6 x 8		4 x 8	6 x 8		8 x 8		8 x 10
螺栓/bolting													
l [mm]	16		20	22				22				25	
h [mm]	5	6	6	8				8					10
2b [mm]	9		10	12			13	13				14	
¹) Schr./Bolts	—	X	X	X	X	—	—	X	—	X	—	—	—

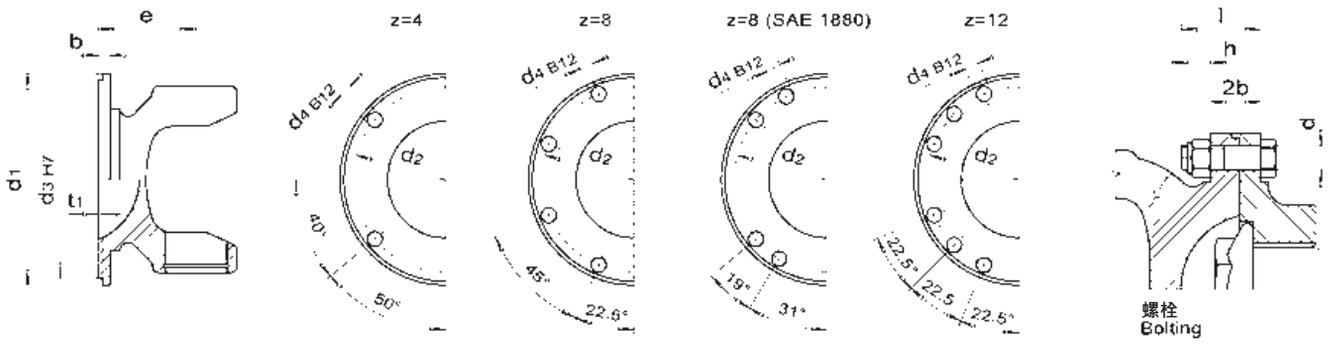
型号/Size	53									63						
d_1 [mm]	100			120			150			120	150			165	180	
d_2 [mm]	84			101,5			130			101,5	130			140	155,5	
d_3 [mm]	57	84		75			90			75	90			95	110	
e [mm]	65			56	70	56	70	56		75	62	80	62	80	80	
$ß_{max}$ [°]	25			25	35	25	35	25		35	20	35	20	35	30	
z x d_4 [mm]	6 x 8	6 x 10	8 x 10	8 x 8		8 x 10		4 x 10	8 x 10	8 x 12	8 x 10		8 x 12		8 x 14	
螺栓/bolting																
d [mm]	M8	M10		M8		M10				M12	M10		M12		M14	
l [mm]	25	30		25		30		35			30	35			40	
h [mm]	8	10		8		10				12	10		12		14	
2b [mm]	16							20			16	20			24	
¹) Schr./Bolts	—	—	—	—	X	—	X²)	—	X	—	X²)	—	X	—	X	X	X

螺栓可以从万向轴侧插入 (—否) (X 是)
²) 仅可使用螺栓头16号！

¹) Bolts insertable from joint side (— no) (X yes)
²) Only Bolt head size 16

»SAE«-法兰和螺栓
根据 ISO 7647

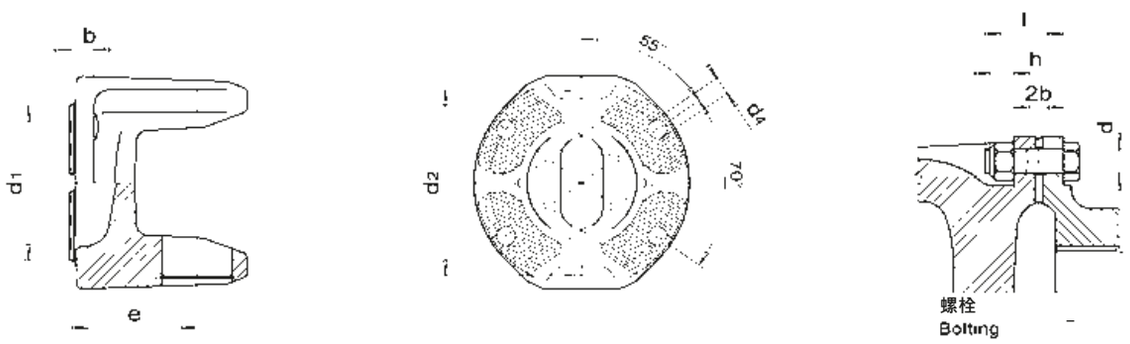
»SAE« flanges and boltings
acc. ISO 7647



型号/Size	15	30				43			53			63		
SAE	—	1120		1300		1120	1300	1400	1400		1500	1500		1600
d_1 [mm]	—	90		97		90	97	116	116		150	150		174,6
d_2 [mm]	—	69,9		79,4		69,9	79,4	95,25	95,25		120,65	120,65		155,5
d_3 [mm]	—	57,15		60,32		57,15	60,32	69,85	69,85		95,25	95,25		168,23
e [mm]	—	40	47	40	47	48	58	48	56	70	56	62	80	
$ß_{max}$ [°]	—	20	30	20	30	20	35	20	20	35	20	20	35	30
z x d_4 [mm]	—	4 x 8		4 x 10		4 x 8	4 x 10	4 x 11	4 x 12		4 x 14	4 x 14		8 x 10
螺栓/bolting														
d [mm]	—	M8		M10		M8	M10		M12		M14	M14		M10
l [mm]	—	22		25		22	25		30		35	35		
h [mm]	—	8		10		8	10		12		14	14		10
2b [mm]	—	12				12	13	14	16		20	20		

»XS«-法兰和螺栓
70° X型锯齿式 ISO 12667/ISO 8667

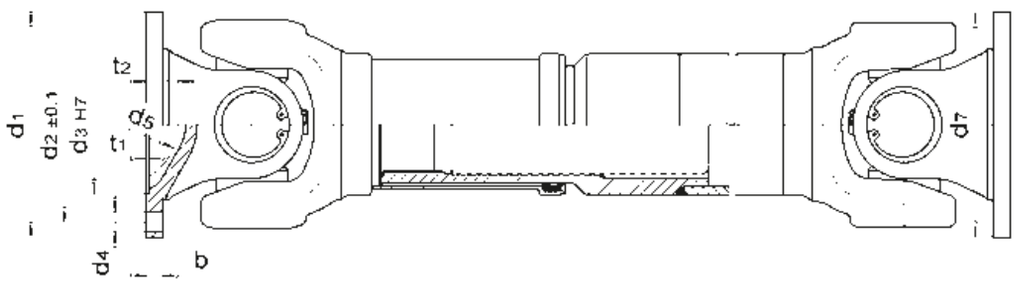
»XS«-flanges and boltings
70° X-serrrated ISO 12667/ISO 8667



型号/Size	43	53	63
d_1 [mm]	100	120	120
d_2 [mm]	84	100	100
b [mm]	10	14	14
e [mm]	58	68	75
$ß_{max}$ [°]	35	35	35
z x d_4 [mm]	4 x 8	4 x 11	4 x 11

型号/Size	43	53	63
螺栓/bolting			
d [mm]	M8	M10	M10
l [mm]	30	40	40
h [mm]	8	10	10
2b [mm]	20	28	28

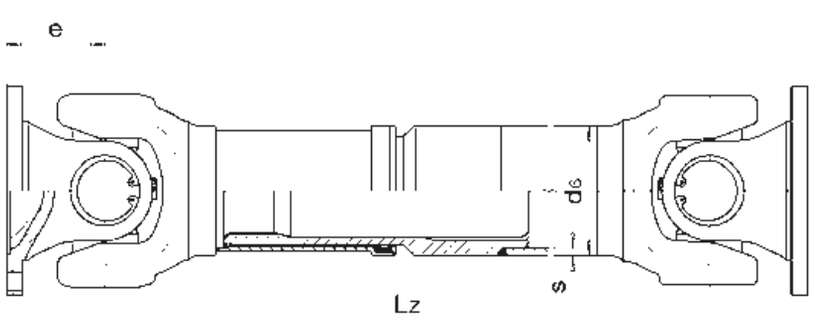
万向传动轴8,8 ... 25 kNm　　Cardan shafts 8.8 ... 25 kNm



型号/Size	58	68	70	72	73
M_{dG} [kNm]	8,8	11,5	17,0	21,0	25,0
M_{dW} [kNm]	2,5	4,0	5,1	5,1	7,3
d_1 [mm]	150	180	180	180	180
d_2 [mm]	130,0	155,5	155,5	155,5	155,5
d_3 [mm]	90	110	110	110	110
z x d_4 [mm]	8 x 12	8 x 14	8 x 14	10 x 16	10 x 16
d_5 [mm]	92	120	100	95	95
b [mm]	10	12	12	12	14
t_1 [mm]	3	3	3	3	3
t_2 [mm]	26	24	28	26	26
d_7 [mm]	155	160	174	170	178

具有长度补偿功能的万向传动轴　　Cardan shafts with length compensation

标准摆角设计 – 代码 41 和 45
大摆角设计 – 代码 46
Normal angle design – Code No. 41 and 45
Wide angle design – Code No. 46



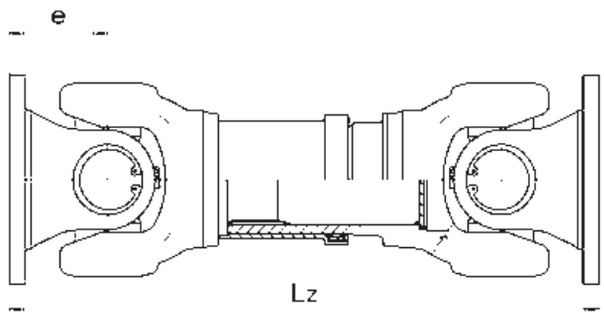
型号/Size	58	68		70	72		73	
代码/Code No.	46	45	46	45	45	46	45	46
$ß_{max}$ [°]	35	24	35	25	20	33	20	24
e [mm]	90	78	95	95	85	100	85	100
$L_{Z\,min}$ [mm]	640	640	670	600	670	700	670	700
L_A [mm]	110	110		110	110		110	
m_{min} [kg]	26,9	31,4	36,1	35,6	51,8	53,0	51,4	52,6
m_R [kg/m]	7,18	13,7		11,4	18,9		17,4	
d_6 x s [mm]	100 x 3,0	92 x 6,5		120 x 4,0	104 x 8,0		111,5 x 6,75	

缩写语义:请参见第5页　　*Abbreviations: please see p.5*

具有长度补偿功能的短型万向传动轴

Short cardan shafts with length compensation

标准摆角设计 – 代码43
大摆角设计 – 代码44
Normal angle design – Code No. 43
Wide angle design – Code No. 44

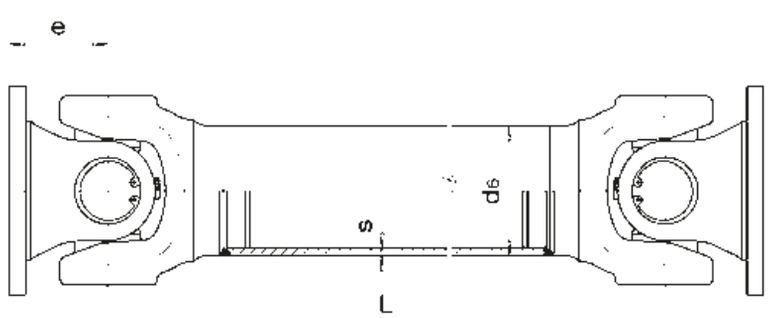


型号/ Size	58	68		70	72		73	
代码/Code No.	44	43	44	43	43	44	43	44
$ß_{max}$ [°]	30	24	35	25	20	24	20	24
e [mm]	90	78	95	95	85	100	85	100
$L_{z\,min}$ [mm]	460	410	445	445	510	540	510	540
$L_{A\,min}$ [mm]	20	30		50	40		40	
m_{min} [kg]	21,6	24,8	26,8	31,1	38,8	40,0	40,5	41,7
$L_{z\,max}$ [mm]	585	565	650	570	650	680	650	680
$L_{A\,max}$ [mm]	110	110		110	110		110	
m_{max} [kg]	25,4	31,3	35,4	34,2	45,3	46,5	47,0	48,2

无长度补偿功能的万向传动轴

Cardan shafts without length compensation

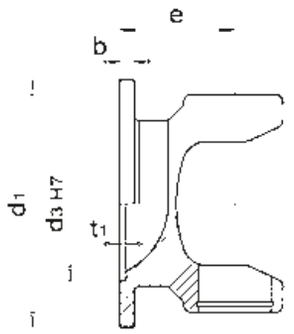
标准摆角设计 – 代码 47
大摆角设计– 代码48
Normal angle design – Code No. 47
Wide angle design – Code No. 48

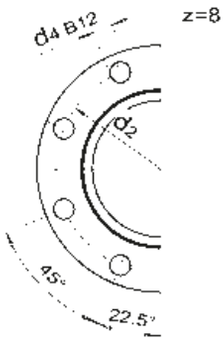


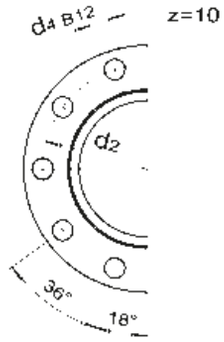
型号/Size	58	68		70	72		73	
代码/Code No.	48	47	48	47	47	48	47	48
$ß_{max}$ [°]	35	24	35	25	20	33	20	24
e [mm]	90	78	95	95	85	100	85	100
L_{min} [mm]	420	430	460	430	430	460	430	460
m_{min} [kg]	18,7	24,8	27,0	27,8	31,1	32,2	32,1	33,3
m_R [kg/m]	7,18	13,7		11,4	18,9		17,4	
d_6 x s [mm]	100 x 3,0	92 x 6,5		120 x 4,0	104 x 8,0		111,5 x 6,75	

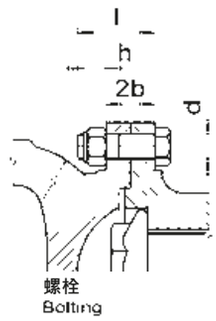
»DIN«-法兰
根据 DIN 15451/ ISO 7646

»DIN«-flanges
acc. DIN 15451/ ISO 7646









型号/Size	58						68								70	
d_1 [mm]	150		165		180		150	165	180						180	225
d_2 [mm]	130		140		155,5		130	140	155,5						155,5	196
d_3 [mm]	90		95		110		90	95	110						110	140
e [mm]	90						95		78	95	78	95	78	95	95	
$ß_{max}$ [°]	35						35		24	35	24	35	24	35	25	
z x d_4 [mm]	8 x 10	8 x 12	8 x 14	8 x 16	8 x 12	8 x 14	8 x 12	8 x 14	8 x 16	8 x 12	8 x 14	8 x 16	10 x 16		8 x 14	8 x 16
螺栓/bolting																
d [mm]	M10	M12	M14	M16	M12	M14	M12	M14	M16	M12	M14	M16			M14	M16
l [mm]	35		40	42	35	40	40		42	40		42			40	50
h [mm]	10	12	14	16	12	14	12	14	16	12	14	16			14	16
2b [mm]	20		24		20		24								24	30
¹) Schr./Bolts	X	X	X	X	—	X	X	—	X	—	—	X	—	X	—	X	—	—	X	X

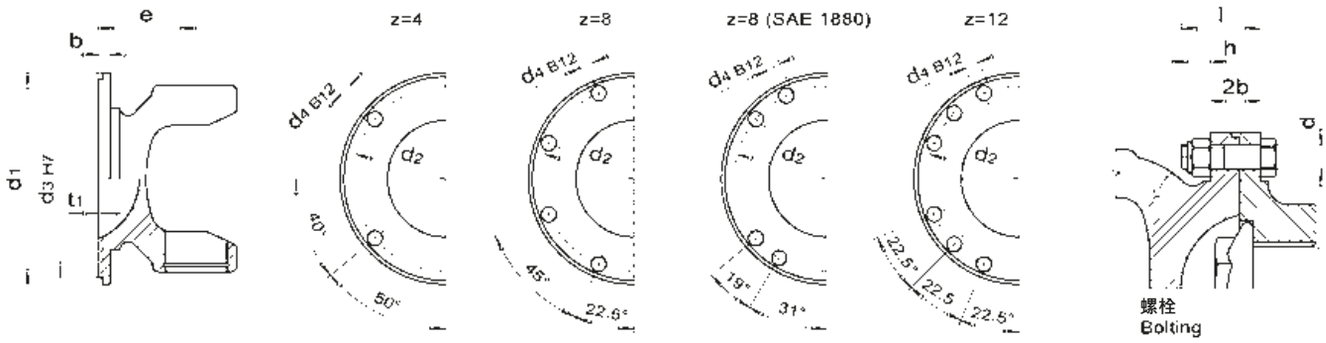
型号/Size	72								73								
d_1 [mm]	180					225			180			220	225			250	
d_2 [mm]	155,5					196			155,5			196				218	
d_3 [mm]	110					140			110			150	140				
e [mm]	85	100	85	100	85	100			85	100	85	100		85	100		
$ß_{max}$ [°]	20	33	20	33	20	33			20	33	20	33		20	33		
z x d_4 [mm]	8 x 14		8 x 16		10 x 16	8 x 16	10 x 16		8 x 16		10 x 16	8 x 14	8 x 16		10 x 16	8 x 18	
螺栓/bolting																	
d [mm]	M14		M16						M16			M14	M16			M18	
l [mm]	40		42			50			50								
h [mm]	14		16						16			14	16			18	
2b [mm]	24					30			28				30				
¹) Schr./Bolts	—	X	—	X	—	X	X	X	—	—	—	X	X	X	X	X	X

螺栓可以从万向轴侧插入 (—否) (X 是)

¹) Bolts insertable from joint side (— no) (X yes)

»SAE«-法兰
根据 ISO 7647

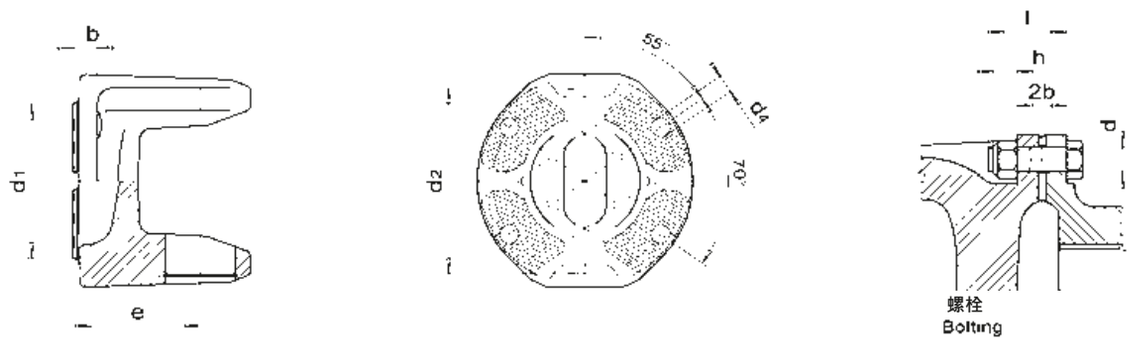
»SAE« flanges
acc. ISO 7647



型号/Size	58			68			70	72	73		
SAE	1600	1700	1800	1600	1700	1800	1800	1800	1800	1800	1880
d_1 [mm]	174,6	203,2		174,6	203,2		203,2	203,2	203,2		244,5
d_2 [mm]	155,5	184,15		155,5	184,15		184,15	184,15	184,15		209,55
d_3 [mm]	168,23	196,82		168,23	196,82		196,82	196,82	196,82		177,8
e [mm]	90	95		95			95	100	100		
ß$_{max}$ [°]	35			35			25	33	33		
z x d_4 [mm]	8 x 10		12 x 10	8 x 10		12 x 11	12 x 11	12 x 11	12 x 10	12 x 11	8 x 16
螺栓/bolting											
d [mm]	M10			M10			M10	M10	M10		M16
l [mm]	35			35			35	35	35		50
h [mm]	10			10			10	10	10		16
2b [mm]	24	22		20	22		23	23	23		30

»XS«-法兰
70° X型锯齿式 ISO 12667/ISO 8667

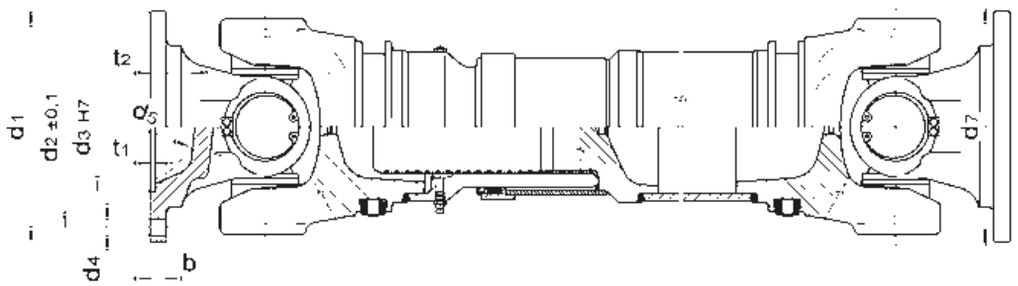
»XS«-flanges
70° X-serrated ISO 12667/ISO 8667



型号/Size	58	68			70	72	73
d_1 [mm]	152	152	152	180	180	180	180
d_2 [mm]	130	130		150	150	150	150
b [mm]	16	16		18	18	18	18
e [mm]	95	75	95	95	87	100	95
ß$_{max}$ [°]	35	20	35	35	25	35	30
z x d_4 [mm]	4 x 13	4 x 13		4 x 15	4 x 15	4 x 15	4 x 15

型号/Size	58	68		70	72	73
螺栓/bolting						
d [mm]	M12	M12	M14	M14	M14	M14
l [mm]	45	45	55	55	55	55
h [mm]	12	12	14	14	14	14
2b [mm]	32	32	36	36	36	36

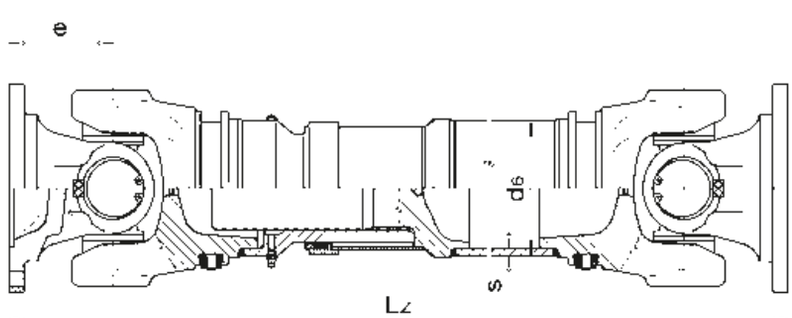
万向传动轴 28 ... 55 kNm　　Cardan shafts 28 ... 55 kNm



型号/Size	77	79[1])	80	83	84
M_{dG} [kNm]	28	34	33	40	55
M_{dW} [kNm]	11	----	13	18	23
d_1 [mm]	180	200	225	250	285
d_2 [mm]	155,5	165,0	196,0	218,0	245,0
d_3 [mm]	110	----	140	140	175
z x d_4 [mm]	10 x 16	4 x 15	8 x 16	8 x 18	8 x 20
d_5 [mm]	95	----	160	120	130
b [mm]	15	20	15	18	20
t_1 [mm]	3	3	5	6	7
t_2 [mm]	30	24	30	45	35
d_7 [mm]	204	204	215	250	265

具有长度补偿功能的万向传动轴　　Cardan shafts with length compensation

标准摆角设计 – 代码 41 和 45
Normal angle design – Code No. 41 and 45



型号/Size	77	79	80	83	84
代码/Code No.	45	45	45	41	41
$ß_{max}$ [°]	25	22	24	20	20
e [mm]	110	113	108	125	135
$L_{Z\,min}$ [mm]	695	785	735	860	900
L_A [mm]	110	110	110	110	110
m_{min} [kg]	68,4	82,0	84,4	121	147
m_R [kg/m]	23,7	23,7	23,7	37,0	37,0
d_6 x s [mm]	144 x 7,0	144 x 7,0	144 x 7,0	162 x 9,85	162 x 9,85

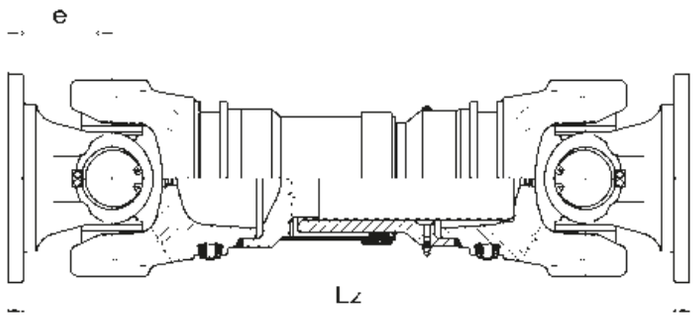
1)仅XS法兰连接
缩写语义:参见第5页

1) Only XS flange connection
Abbreviations: please see p. 5

具有长度补偿功能的短型万向传动轴

Short cardan shafts with length compensation

标准摆角设计 – 代码43
Normal angle design – Code No.43

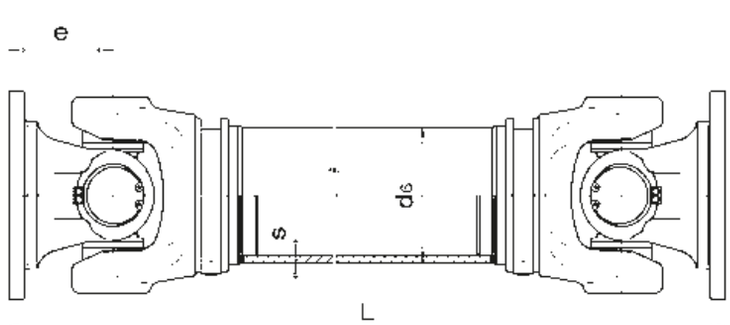


型号/Size	77	79	80	83	84
代码/Code No..	43	43	43	43	43
$ß_{max}$ [°]	25	22	24	20	20
e [mm]	110	113	108	125	135
$L_{Z\,min}$ [mm]	590	650	560	700	735
$L_{A\,min}$ [mm]	60	95	30	60	60
m_{min} [kg]	62,5	75,2	71,2	104,0	131,0
$L_{Z\,max}$ [mm]	690	810	730	855	895
$L_{A\,max}$ [mm]	160	160	110	110	110
m_{max} [kg]	69,8	86,6	82,5	119,0	146,0

无长度补偿功能的万向传动轴

Cardan shafts without length compensation

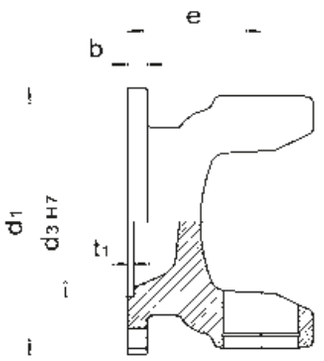
标准摆角设计 – 代码 47
Normal angle design – Code No. 47

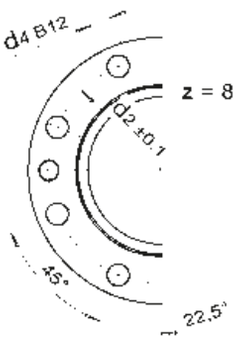


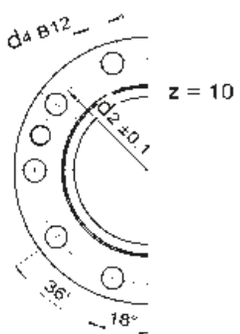
型号/Size	77	79	80	83	84
代码/Code No.	47	47	47	47	47
$ß_{max}$ [°]	25	22	24	20	20
e [mm]	110	113	108	125	135
L_{min} [mm]	495	555	560	610	640
m_{min} [kg]	47,2	62,8	65,1	88,4	115,0
m_R [kg/m]	23,7	23,7	23,7	37,0	37,0
d_6 x s [mm]	144 x 7,0	144 x 7,0	144 x 7,0	162 x 9,85	162 x 9,85

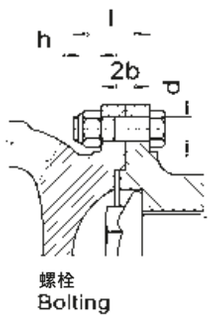
»DIN«-法兰
根据 15451/ ISO 7646

»DIN«-flanges
acc. DIN 15451/ ISO 7646









型号/Size	77				80		
d_1 [mm]	180		225	250	225	250	285
d_2 [mm]	155,5		196	218	196	218	245
d_3 [mm]	110		140	140	140		175
e [mm]	110				108		
$ß_{max}$ [°]	25				24		
z x d_4 [mm]	8 x 16	10 x 16	8 x 16	8 x 18	8 x 16	8 x 18	8 x 20
螺栓/bolting							
d [mm]	M16			M18	M16	M18	M20
l [mm]	50			56	50	56	60
h [mm]	16			18	16	18	20
2b [mm]	30			36	30	36	38
¹) Schr./Bolts	X	—	X	X	X	X	X

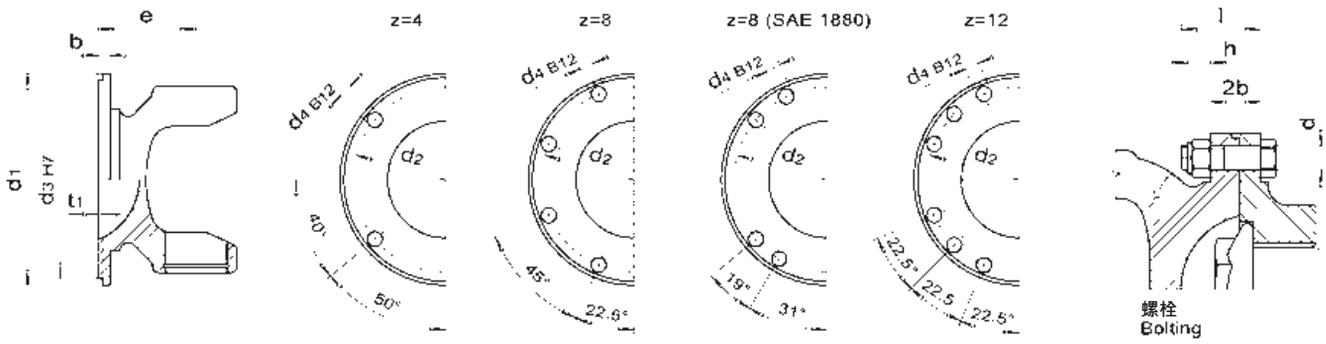
型号/Size	83		84	
d_1 [mm]	250	285	285	315
d_2 [mm]	218	245	245	280
d_3 [mm]	140	175	175	
e [mm]	125		135	
$ß_{max}$ [°]	20		20	
z x d_4 [mm]	8 x 18	8 x 20	8 x 20	8 x 22
螺栓/bolting				
d [mm]	M18	M20	M20	M22
l [mm]	56	65	65	70
h [mm]	18	20	20	22
2b [mm]	36	40	40	44
¹) Schr./Bolts	X	X	X	X

螺栓可以从万向轴侧插入 (—否) (X 是)

¹) Bolts insertable from joint side (— no) (X yes)

»SAE«-法兰
根据 ISO 7647

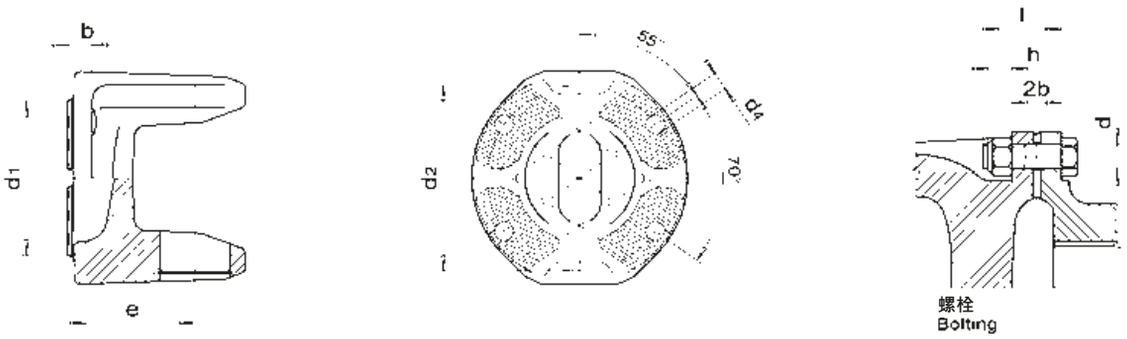
»SAE« flanges
acc. ISO 7647



型号/Size	77	80				83
SAE	1880	1880	1900GS	1900HS	1900	1880
d_1 [mm]	244,5	244,5	250,0	276,0		244,5
d_2 [mm]	209,55	209,55	228,57	247,64	251,70	209,55
d_3 [mm]	177,8	177,8	196,8	222,22		177,8
e [mm]	110	108	100	108		125
ß$_{max}$ [°]	25	24				20
z x d_4 [mm]	8 x 16	8 x 16	12 x 12	8 x 16		8 x 16
螺栓/bolting						
d [mm]	M16	M16	M12	M16		M16
l [mm]	50	55	50	55		55
h [mm]	16	16	12	16		16
2b [mm]	30	36				36

»XS«-法兰
70° X型锯齿式 ISO 12667/ISO 8667

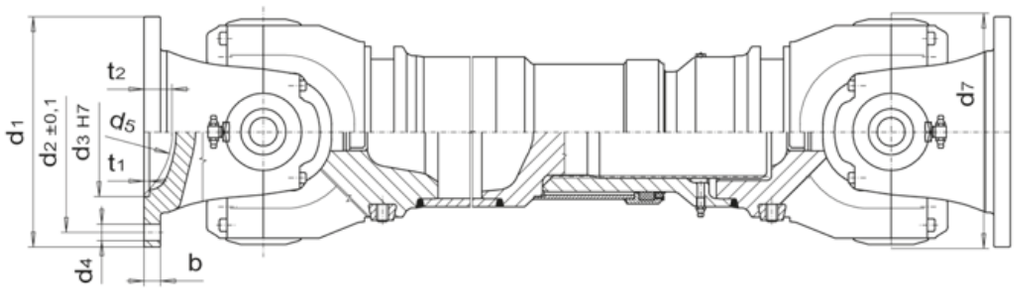
»XS«-flanges
70° X-serrrated ISO 12667/ISO 8667



型号/Size	77	79	80
d_1 [mm]	180	200	200
d_2 [mm]	150	165	165
b [mm]	18	20	20
e [mm]	100	113	108
ß$_{max}$ [°]	22	22	24
z x d_4 [mm]	4 x 15	4 x 15	4 x 15

型号/Size	77	79	80
螺栓/bolting			
d [mm]	M14	M14	M14
l [mm]	55	55	55
h [mm]	14	14	14
2b [mm]	36	40	40

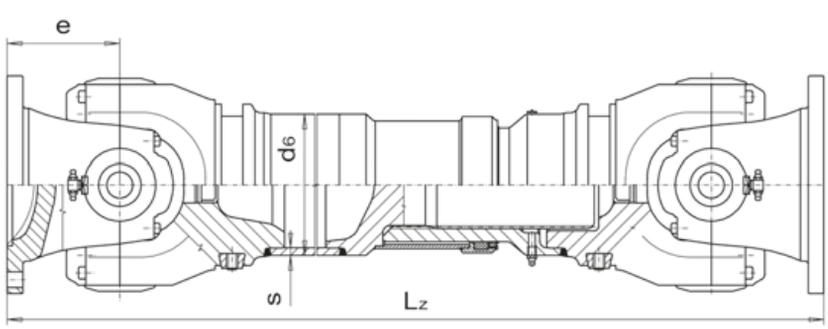
万向传动轴 55 ... 260 kNm　　Cardan shafts 55 ... 260 kNm



型号/ Size	85	86	90	95	97	98	
M_{dG} [kNm]	55	58	120	175	200	200	260
M_{dW} [kNm]	23	24	45	58	70	70	100
d_1 [mm]	250	285	315	350	390	435	
d_2 [mm]	218	245	280	310	345	385	
d_3 [mm]	140	175	175	220	250	280	
z x d_4 [mm]	8 x 18	8 x 20	8 x 22	10 x 22	10 x 24	10 x 27	
d_5 [mm]	170	170	180	210	280	280	
b [mm]	18	20	22	25	28	32	
t_1 [mm]	6	6	6	7	7	9	
t_2 [mm]	34	34	40	44	35	35	
d_7 [mm]	250	250	285	315	350	370	

具有长度补偿功能的万向传动轴　　Cardan shafts with length compensation

标准摆角设计 – 代码 41
Normal angle design – Code No. 41



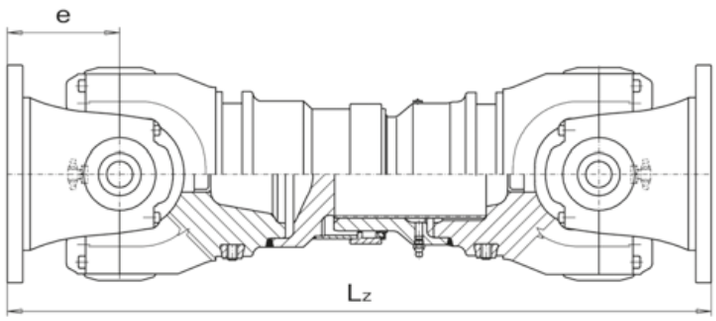
型号/ Size	85	86	90	95	97	98	
代码/ Code No.	41	41	41	41	41	41	
ß$_{max}$ [°]	15	15	15	15	15	15	
e [mm]	130	130	150	170	195	195	
$L_{Z\,min}$ [mm]	905	905	1.005	1.105	1.285	1.285	
L_A [mm]	110	110	135	135	170	170	
m_{min} [kg]	164	168	265	340	518	542	557
m_R [kg/m]	37,0	47,0	53,7	75,5	74,8	74,8	119
d_6 x s [mm]	162 x 9,85	165 x 12,5	218 x 10,5	219 x 15,0	273 x 11,6	273 x 11,6	273 x 19

缩写语义:请参见第5页　　*Abbreviations: please see p. 5*

具有长度补偿功能的短型万向传动轴

Short cardan shafts with length compensation

标准摆角设计 – 代码 43
Normal angle design – Code No. 43



型号/ Size	86	90	95	97	98
代码/ Code No.	43	43	43	43	43
$ß_{max}$ [°]	15	15	15	15	15
e [mm]	130	150	170	195	195
$L_{Z\,min}$ [mm]	585 ¹)	800	900	1.090	1.090
$L_{A\,min}$ [mm]	30	40	40	100	100
m_{min} [kg]	127	238	306	482	514
$L_{Z\,max}$ [mm]	900	1.000	1.100	1.280	1.280
$L_{A\,max}$ [mm]	110	135	135	170	170
m_{max} [kg]	167	268	345	520	553

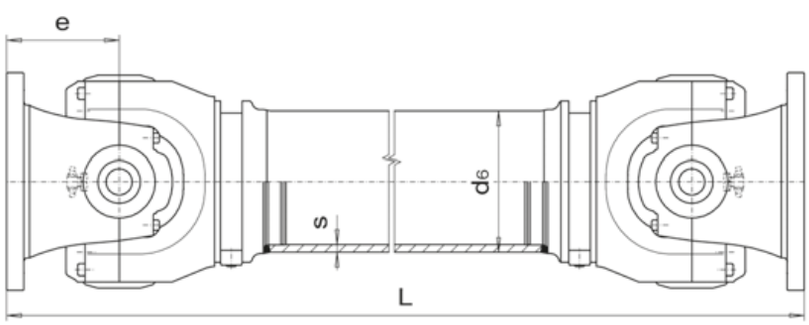
¹) 当LZ 小于700 mm时, ßmax= 5°

¹) When L_z less 700 mm $ß_{max}$ = 5°

无长度补偿功能的万向传动轴

Cardan shafts without length compensation

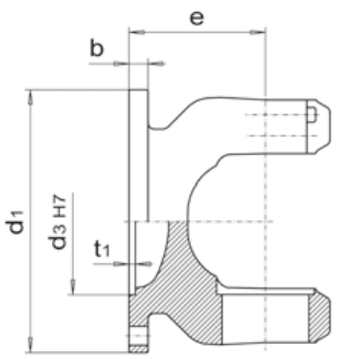
标准摆角设计 – 代码 47
Normal angle design – Code No. 47

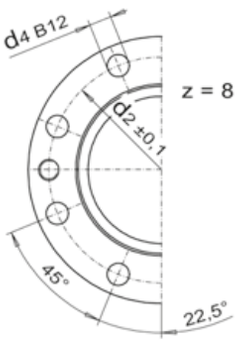


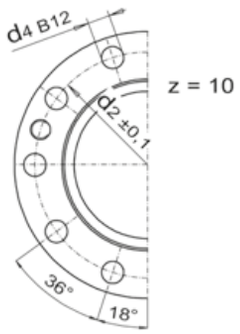
型号/ Size	85	86	90	95	97	98	
代码/ Code No.	47	47	47	47	47	47	
ß max [°]	15	15	15	15	15	15	
e [mm]	130	130	150	170	195	195	
L min [mm]	650	650	720	800	925	925	
m min [kg]	125	130	202	263	408	440	443
mR [kg/m]	37,0	47,0	53,7	75,5	74,8	74,8	119
d6 x s [mm]	162 x 9,85	165 x 12,5	218 x 10,5	219 x 15,0	273 x 11,6	273 x 11,6	273 x 19

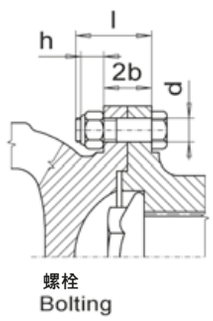
»DIN«-法兰
根据 DIN 15451/ ISO 7646

»DIN«-flanges
acc. DIN 15451/ ISO 7646









型号/ Size	85			86		90		
d_1 [mm]	250	285	315	285	315	285	315	350
d_2 [mm]	218	245	280	245	280	245	280	310
d_3 [mm]	140	175		175		175		220
e [mm]	130	130		130		150		
$ß_{max}$ [°]	15			15		15		
z x d_4 [mm]	8 x 18	8 x 20	8 x 22	8 x 20	8 x 22	8 x 20	8 x 22	10 x 22
螺栓/bolting								
d [mm]	M18	M20	M22	M20	M22	M20	M22	
l [mm]	56	65	70	65	70	65	70	75
h [mm]	18	20	22	20	22	20	22	
2b [mm]	36	40	44	40	44	40	44	50
¹) Schr./Bolts	X	X	X	X	X	—	X	X

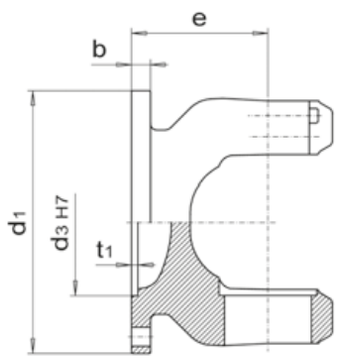
型号/ Size	95			97			98		
d_1 [mm]	315	350	390	350	390	435	350	390	435
d_2 [mm]	280	310	345	310	345	385	310	345	385
d_3 [mm]	175	220	250	220	250	280	220	250	280
e [mm]	170			225	195		225	195	
$ß_{max}$ [°]	15			15			15		
z x d_4 [mm]	8 x 22	10 x 22	10 x 24	10 x 22	10 x 24	10 x 27	10 x 22	10 x 24	10 x 27
螺栓/bolting									
d [mm]	M22		M24	M22	M24	M27	M22	M24	M27
l [mm]	70	75	85	75	85	95	75	85	95
h [mm]	22		24	22	24	27	22	24	27
2b [mm]	44	50	56	50	56	64	50	56	64
¹) Schr./Bolts	—	X	X	—	X	X	—	X	X

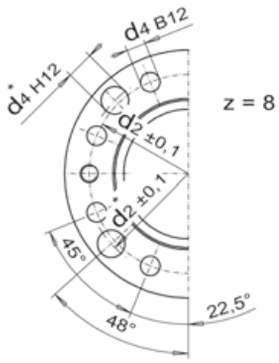
螺栓可以从万向轴侧插入 (—否) (X 是)

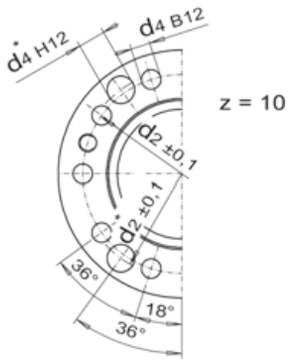
¹) Bolts insertable from joint side (— no) (X yes)

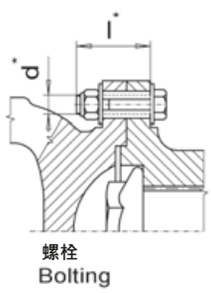
»DIN«标准的定位销法兰连接
根据 DIN 15451/ ISO 7646

»DIN«-Flanges with »Dowel Pin«
acc. DIN 15451/ ISO 7646









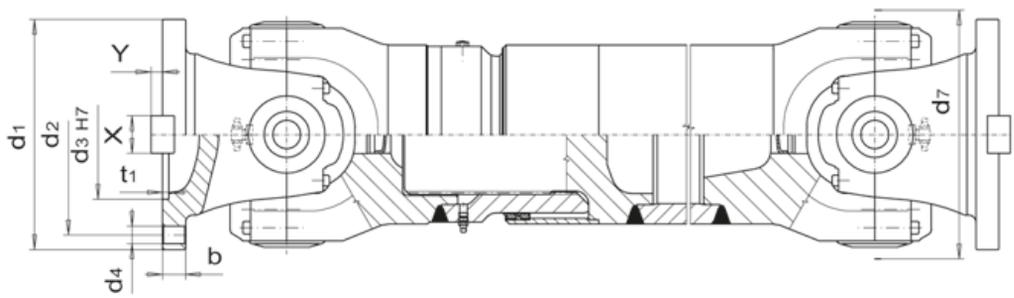
型号/ Size	86	90	95	97	98
d_1 [mm]	285	315	350	390	390
d_2 [mm]	245	280	310	345	345
d_{2*} [mm]	240	270	300	340	340
d_3 [mm]	175	175	220	250	250
e [mm]	130	150	170	195	195
螺栓/**bolting**					
l/l* [mm]	65 / 75	70 / 75	75 / 90	85 / 95	85 / 95
d/d* [mm]	M20 / M16	M22 / M16	M22 / M18	M24 / M18	M24 / M18
z x d_4 [mm]	8 x 20	8 x 22	10 x 22	10 x 24	10 x 24
z x d_{4*} [mm]	4 x 28	4 x 30	4 x 32	4 x 32	4 x 32
¹) Schr./Bolts	X	X	X	X	X

其他法兰连接形式请咨询GEWES
端面键
Hirth端面齿
牙嵌式端面
Klingelnberg齿形

Other flange connections on request
Face key
Hirth-serrated
Claw-serrated
Klingelnberg toothing

万向传动轴 55 ... 600 kNm
>>重载万向传动轴<<<

Cardan shafts 55 ... 600 kNm
>>Heavy duty cardan shafts<<

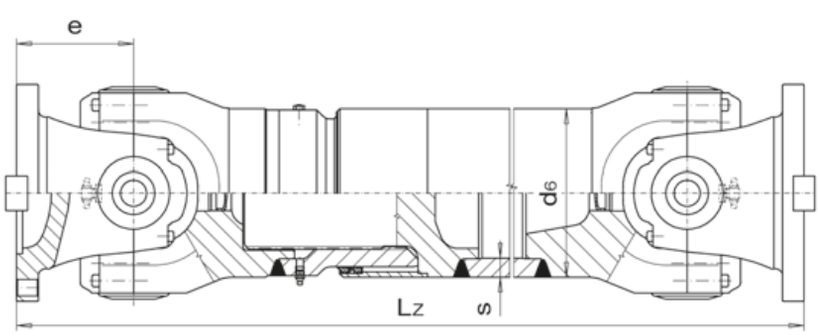


型号/ Size	82	86	90	95	97	98	S1	S2
M_{dG} [kNm]	55	105	150	215	260	260	370	600
M_{dW} [kNm]	23	36	53	75	100	100	140	225
d_1 [mm]	225	250	285	315	350	390	390	435
d_2 [mm]	196	218	245	280	310	345	345	385
d_3 [mm]	105	105	125	130	155	170	170	190
z x d_4 [mm]	8 x 17	8 x 19	8 x 21	10 x 23	10 x 23	10 x 25	10 x 25	16 x 28
d_7 [mm]	225	250	285	315	350	370	390	435
b [mm]	20	25	27	32	35	35	40	42
t_1 [mm]	5	6	6	6	7	8	8	10
X [mm]	32	40	40	40	50	70	70	80
Y [mm]	9,0	12,5	15,0	15,0	16,0	18,0	18,0	20,0

具有长度补偿功能的万向传动轴

Cardan shafts with length compensation

标准摆角设计 – 代码51和 55
Normal angle design – Code No. 51 and 55



型号/ Size	82	86	90	95	97	98	S1	S2
代码/ Code No.	51	51	51	51	51	51	55	55
$ß_{max}$ [°]	20	15	15	15	15	15	10	10
e [mm]	125	165	180	205	225	195	205	235
LZ_{min} [mm]	865	1.015	1.085	1.200	1.345	1.285	1.495	1.680
LA [mm]	110	135	135	170	170	170	170	170
m_{min} [kg]	128	206	304	415	553	556	761	1.130
m_R [kg/m]	37,0	63,8	75,5	74,8	119,0	119,0	210,4	255,7
d_6 x s [mm]	162 x 9,85	178 x 16,0	219 x 15,0	273 x 11,6	273 x 19,0	273 x 19,0	273 x 36,0	323,9 x 36,0

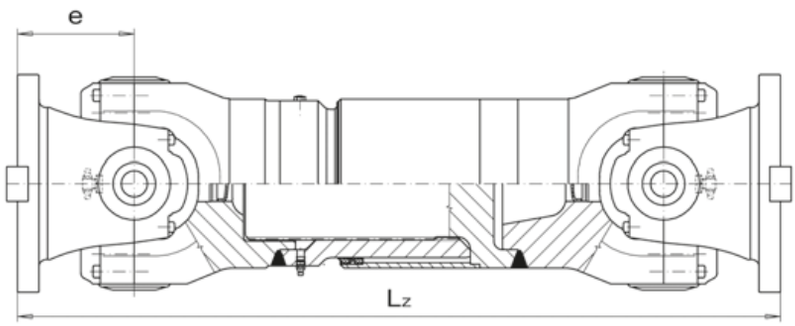
缩写语义:请参见第5页

Abbreviations: please see p. 5

具有长度补偿功能的短型万向传动轴

Short cardan shafts with length compensation

标准摆角设计 – 代码 53
Normal angle design – Code No.53

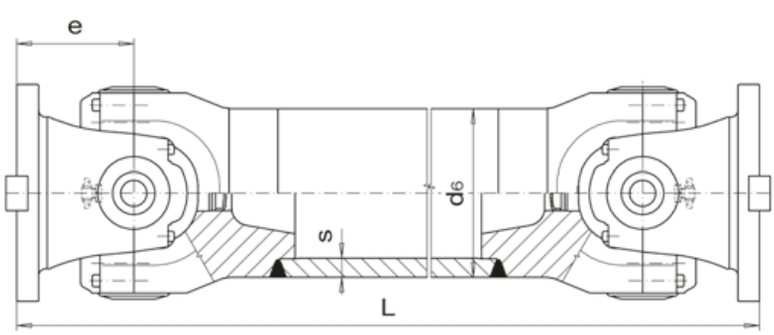


型号/ Size	82	86	90	95	97	98	S1	S2
代码/ Code No.	53	53	53	53	53	53	53	53
$ß_{max}$ [°]	20	15	15	15	15	15	10	10
e [mm]	125	165	180	205	225	195	205	235
$L_{Z\,min}$ [mm]	650	765	965	1.060	1.150	1.090	1.300	1.400
$L_{A\,min}$ [mm]	50	30	105	85	100	100	115	90
m_{min} [kg]	108	169	285	410	505	509	718	1.023
$L_{Z\,max}$ [mm]	860	1.010	1.080	1.190	1.340	1.280	1.490	1.670
$L_{A\,max}$ [mm]	110	135	135	170	170	170	170	170
m_{max} [kg]	130	206	303	420	549	552	740	1.109

无长度补偿功能的万向传动轴

Cardan shafts without length compensation

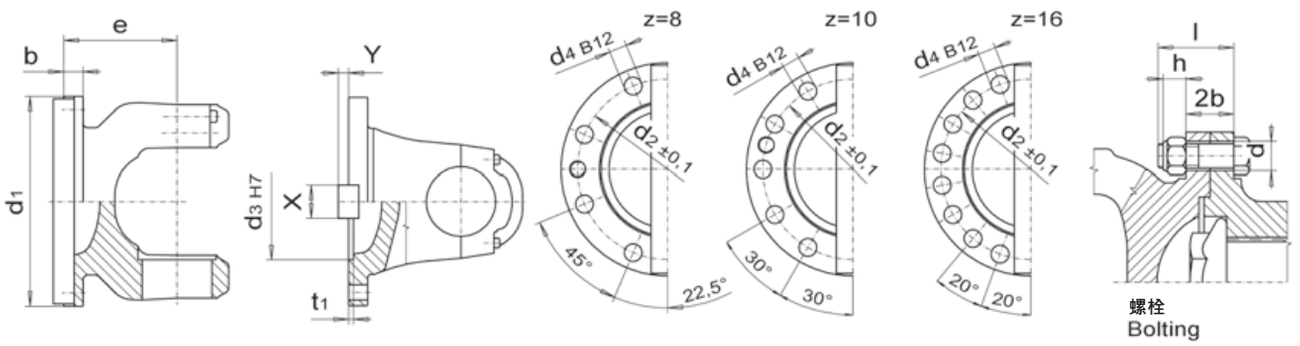
标准摆角设计 – 代码 57
Normal angle design – Code No. 57



型号/ Size	82	86	90	95	97	98	S1	S2
代码/ Code No.	57	57	57	57	57	57	57	57
$ß_{max}$ [°]	20	15	15	15	15	15	10	10
e [mm]	125	165	180	205	225	195	205	235
L_{min} [mm]	610	720	780	860	985	925	1.050	1.210
m_{min} [kg]	97	149	227	315	436	439	590	873
m_R [kg/m]	37,0	63,8	75,5	74,8	119,0	119,0	210,4	255,7
d_6 x s [mm]	162 x 9,85	178 x 16,0	219 x 15,0	273 x 11,6	273 x 19,0	273 x 19,0	273 x 36,0	323,9 x 36,0

DIN标准的端面键法兰连接
根据 DIN 15451/ ISO 7646

»DIN«-Flanges with »Key«
acc. DIN 15451/ ISO 7646



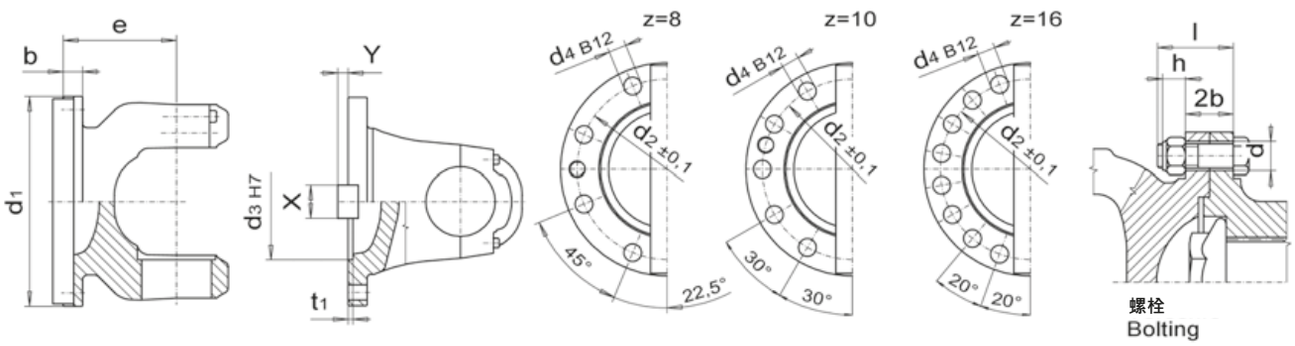
型号/ Size	82		86		90		95	
d_1 [mm]	225	250	250	285	285	315	315	350
d_2 [mm]	196	218	218	245	245	280	280	310
d_3 [mm]	105	105	105	125	125	130	130	155
e [mm]	125	125	165	135	180	150	205	170
b [mm]	20	25	25	27	27	32	32	35
X [mm]	32	40	40		40	50	50	
Y [mm]	9,0	12,5	12,5	15,0	15,0		15,0	16,0
螺栓/**Bolting**								
l [mm]	60	70	70	80	80	90	90	95
d [mm]	M 16	M 18	M 18	M 20	M 20	M 22	M 22	
z x d_4 [mm]	8 x 17	8 x 19	8 x 19	8 x 21	8 x 21	10 x 23	10 x 23	
¹) Schr./Bolts	—	X	—	X	—	X	—	X

¹) 螺栓可以从万向轴侧插入 (—否) (X 是)

¹) Bolts insertable from joint side (— no) (X yes)

DIN标准的端面键法兰连接
根据 DIN 15451/ ISO 7646

»DIN«-Flanges with »Key«
acc. DIN 15451/ ISO 7646

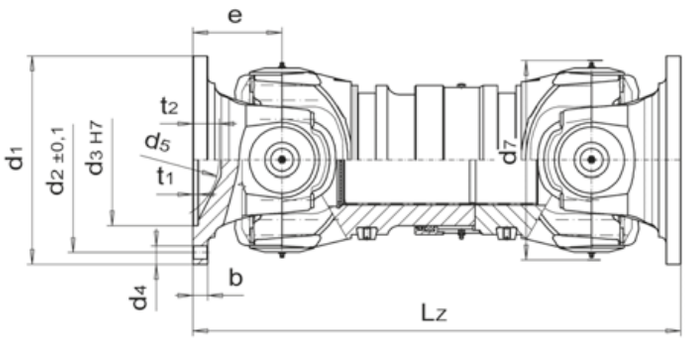


型号/ Size	97/98		S1		S2	
d_1 [mm]	350	390	390	435	435	480
d_2 [mm]	310	345	345	385	385	425
d_3 [mm]	155	170	170	190	190	205
e [mm]	225	195	205	205	235	235
b [mm]	35	35	40	42	42	47
X [mm]	50	70	70	80	80	90
Y [mm]	16,0	18,0	18,0	20,0	20,0	22,5
螺栓/**Bolting**						
l [mm]	95	110	110	120	120	130
d [mm]	M 22	M 24	M 24	M 27	M 27	M 30
z x d_4 [mm]	10 x 23	10 x 25	10 x 25	16 x 28	16 x 28	16 x 31
¹) Schr./Bolts	—	X	—	X	—	X

其他法兰连接形式请咨询GEWES
端面键
Hirth端面齿
牙嵌式端面
Klingelnberg齿形

Other flange connections on request
Face key
Hirth-serrated
Claw-serrated
Klingelnberg toothing

超短型万向传动轴 200 kNm　Super short cardan shafts up to 200 kNm



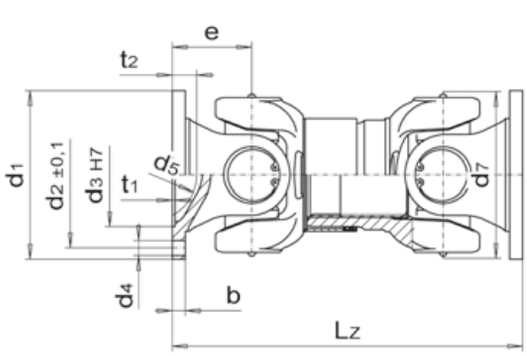
型号/ Size	63	73	73 [1)]	80	86	90	95	97	98
M_{dG} [kNm]	6,2	25	25	33	58	80	175	200	200
M_{dW} [kNm]	1,7	6,5	6,5	13	24	40	58	75	75
d_1 [mm]	150	180	180	225	348	360	350	390	435
d_2 [mm]	130	155,5	150	196	314	328	310	345	385
d_3 [mm]	90	110	--	140	175	175	220	250	280
z x d_4 [mm]	8 x 12	10 x 16	4 x 14	8 x 16	10 x 18	10 x 18	10 x 22	10 x 24	10 x 27
d_5 [mm]	95	95	--	160	--	--	105	280	280
b [mm]	10	14	18	15	18	18	25	28	32
t_1 [mm]	3	3	--	5	7	7	7	7	9
t_2 [mm]	24	26	--	30	--	--	44	35	35
d_7 [mm]	125	178	178	215	285	315	335	350	370

具有长度补偿功能的超短型万向传动轴

Super short cardan shafts with length compensation

小摆角设计– 代码 4496

Reduced deflection angle design – Code No. 4496



型号/ Size	63	73	73	80	86	90	95	97	98
代码/ Code No.					4496				
$ß_{max}$ [°]	20	10	5	5	5	5	5	15	15
e [mm]	62	85	56	108	110	105	150	195	195
$L_{Z\,min}$ [mm]	340	365	290 [1)]	450	545	600	800	1.025	1.025
$L_{A\,min}$ [mm]	30	15	15	15	30	40	40	50	50
m_{min} [kg]	12,8	33,6	30,8	61,1	124	190	298	437	469
$L_{Z\,max}$ [mm]	365	475	420	585	595	700	890	1.085	1.085
$L_{A\,max}$ [mm]	50	70	70	85	80	110	130	100	100
m_{max} [kg]	13,5	41,9	40,3	72,2	129	210	328	451	483

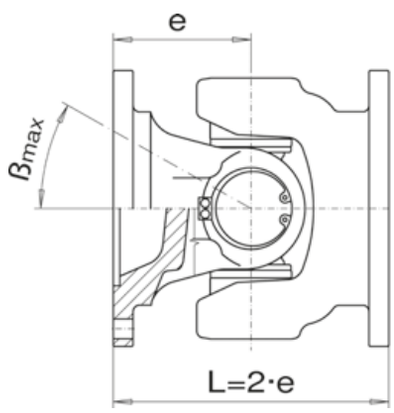
[1)]仅适用于XS法兰连接形式[1]

[1)] Only XS flange connections

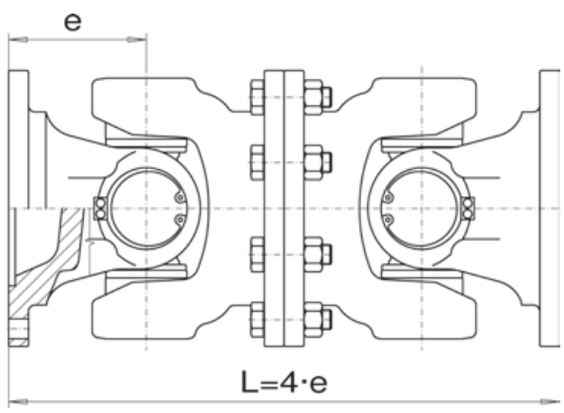
单万向联轴节 / 双万向联轴节 Flange joints / Double joints

型号 15 – 84 Size 15 – 84

代码/ Code No. 31

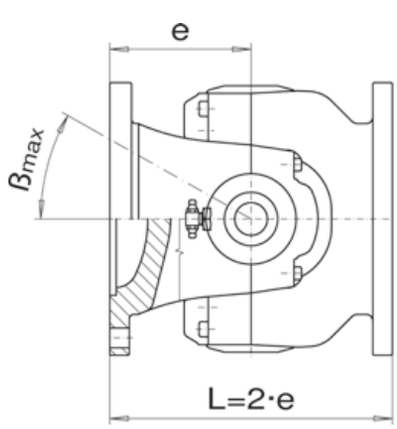


代码/ Code No. 76

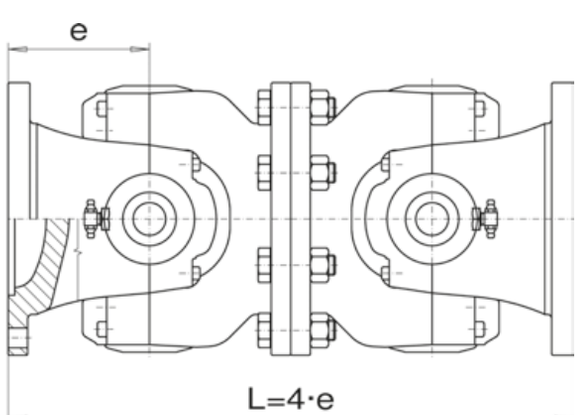


型号 85 – S2 Size 85 – S2

代码/ Code No. 31



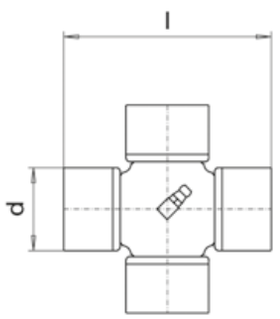
代码/ Code No. 76



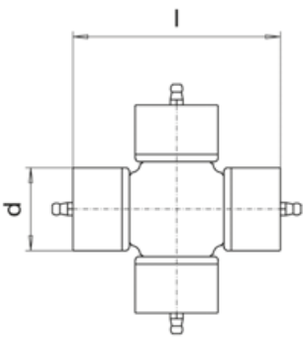
可采用的法兰连接、偏转角和“e尺寸”见万向节尺寸表

Available flange connections, deflection angles and „e-dimensions“ see the tables to the cardan sizes

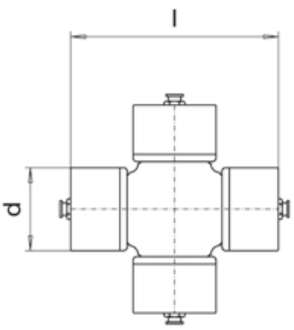
十字包组件 Journal cross assemblies



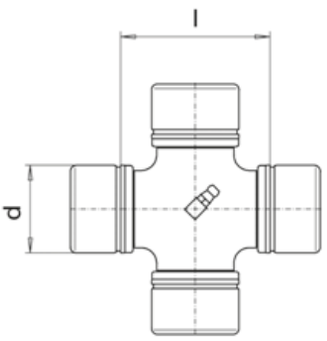
中心润滑
Central lubrication



单轴承润滑
Bush lubrication



单轴承润滑/
平头油嘴
Bush lubrication/
flat grease nipple



²) 有内卡环
²) With inside snap ring

型号/ Size	15	30	43	53	63	58	68	69 ¹)
d [mm]	20	26	30	35	42	48	52	53
l [mm]	44,6	72,10	82,40	96,85	104,5	132,2	133,1	135,05
m [kg]	0,14	0,39	0,64	0,98	1,45	2,38	2,93	3,11

型号/ Size	70	72	73	77	79 ²)	80	82	83	84
d [mm]	52	57	57	65	68	72	74	74	83
l [mm]	147,2	144,0	152,0	172,0	117,0	185,0	195,3	217,0	231,4
m [kg]	3,35	3,94	4,17	6,27	7,75	8,30	9,20	10,30	15,0

选型举例

十字包组件，型号是 63, 长度是 104,5 mm

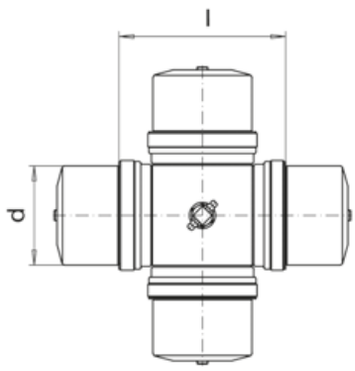
Designation sample

Journal cross assembly, size 63, length 104,5 mm

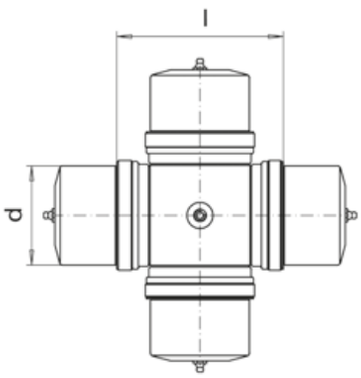
¹) 备用部件
²) 有内卡环

¹) Spare equipment
²) With inside snap ring

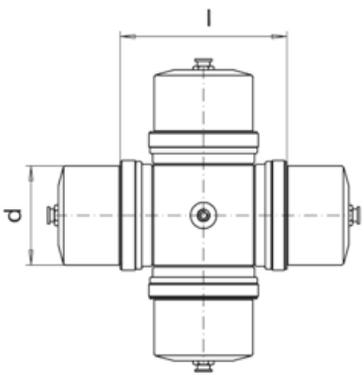
十字包组件 Journal cross assemblies



中心润滑
Central lubrication



单轴承润滑
Bush lubrication



单轴承润滑/平头油嘴
Bush lubrication/flat grease nipple

型号/ Size	85	85 [1]	85 [1]	86	90	90 [1]	90 [3]
d [mm]	83	83	83	83	95	95	95
l [mm]	139	129	175	139	160	139	190
m [kg]	15,0	14,7	19,4	15,0	23,3	22,3	26,8

型号/ Size	95	95 [1]	95 [1]	97	97 [1]	98	S1	S2
d [mm]	110	110	110	120	120	130	130	154
l [mm]	176	160	210	196	176	196	216	250
m [kg]	33,8	32,8	39,1	46,6	43,7	55,3	58	105

订单注意事项:
从型号85开始，长度 l 也必须指定

Note for orders:
From size 85 on, the length l must also be specified

[3] 适用于型号 ***4496***

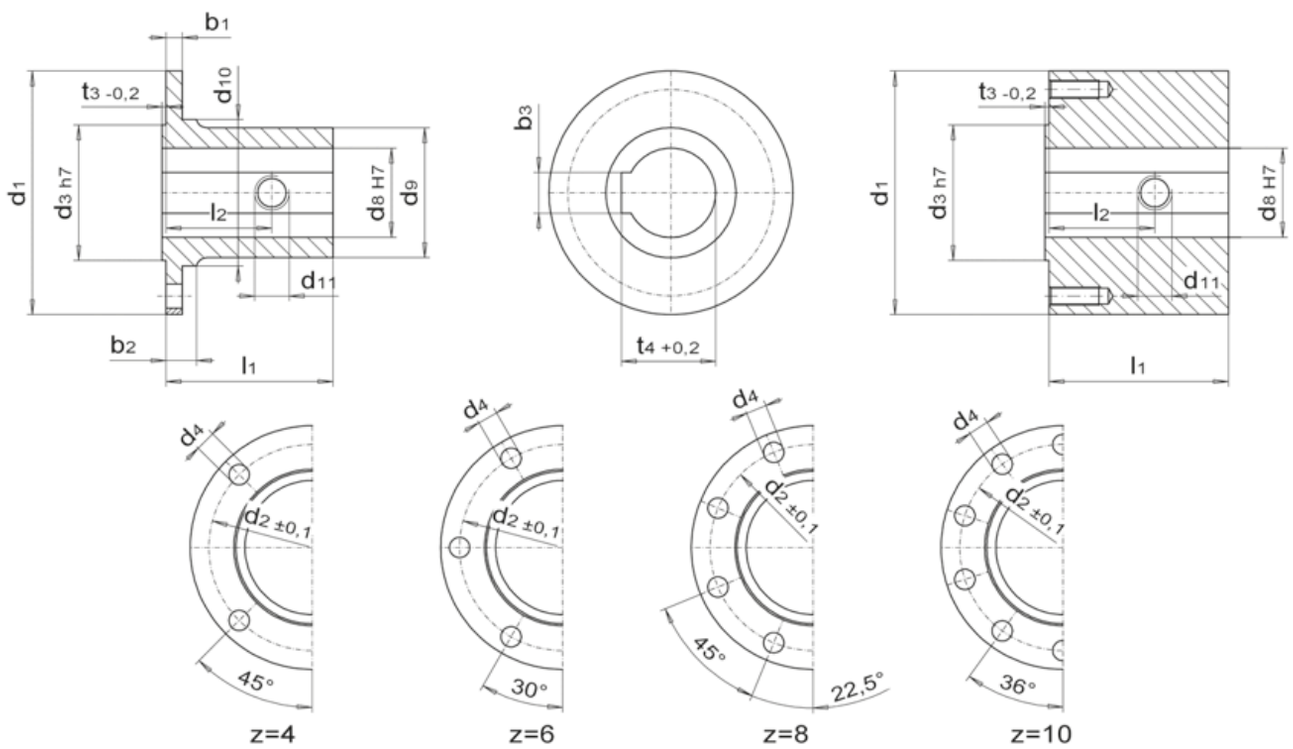
[3] *for Code No. 4496*

根据DIN标准的半法兰

»DIN«-Companion flanges

下表列出了可供选择的基本设计的半法兰，请根据下表所列技术参数向我们咨询所需要的设计型式。

The table on the following page lists basic designs available companion flanges. in your request, please inform us about the required design as shown in the list and the technical data.



根据DIN6885，带圆柱孔和键槽的标准连接法兰可根据要求进行偏离标准的设计。

Standard connection flanges with cylindrical bore and keyway according to DIN 6885 Designs deviating from the standard are possible on request

根据DIN标准的半法兰 »DIN«-Companion flanges

法兰直径/flange diameter													
d1 [mm]	65	90	100	120	150	180	225	250	285	315	350	390	435
d2 [mm]	52,0	74,5	84,0	101,5	130	155,5	196	218	245	280	310	345	385
d3 [mm]	35	47	57	75	90	110	140	140	175	175	220	250	280
d8 [mm]	28	35	38	45	60	75	90	100	110	120	130	150	180
d9 [mm]	41	52	60	80	100	120	155	170	190	210	220	250	300
d10 [mm]	41	57	70	84	111	131	168	190	214	247	277	308	342
d11 [mm]	M6	M6	M6	M8	M12	M16	M18	M18	M20	M20	M22	M24	M24
z x d4 [mm]	4 x 6	4 x 8	6 x 8	8 x 10	8 x 12	8 x 14	8 x 16	8 x 18	8 x 20	8 x 22	10 x 22	10 x 24	10 x 27
b1 [mm]	5	8	8	8	12	12	15	18	20	22	25	28	32
b2 [mm]	--	11	11	11	15	16	20	22	25	28	30	32	38
b3 [mm]	8	10	10	14	18	20	25	28	28	32	32	36	45
t4 [mm]	31,3	38,3	41,3	48,8	64,4	79,9	95,4	106,4	116,4	127,4	137,4	158,4	190,4
t3 [mm]	1,6	2,3	2,3	2,3	2,3	2,3	4,5	5,0	6,0	6,0	7,0	7,0	9,0
l1 [mm]	40	55	62	70	100	120	150	160	180	180	200	220	260
l2 [mm]	20	27	31	35	50	60	75	80	90	90	100	110	130

平键按照 DIN 6885标准

for parallel key according to DIN 6885

其他设计，可根据要求提供

端面键
定位销
SAE 法兰
XS 法兰
牙嵌式端面
Hirth端面齿
Klingelnberg齿形

Other designs, available on request

Face key
Dowel pin
SAE flanges
XS flanges
Claw-serrated
Hirth-serrated
Klingelnberg toothing

万向轴的型号范围 Model range cardan shafts

万向轴

车辆、造纸机、船舶、泵和工业设备应用中基于寿命的万向轴。

Cardan Shafts

Cardan shafts for lifetime- based applications in vehicles, paper machines, ships, pumps and industrial plants.

型号 / Size	极限扭矩/ Limiting torque	交变扭矩/ Alternating torque	回转直径/ Swing diameter	法兰连接DIN Flange connection DIN	法兰连接SAE/ Flange connection SAE	法兰连接XS/ Flange connection XS
代码/ code no. 4XXX -	[kNm]	[kNm]	[mm]	[mm]		[mm]
15	0,35	0,10	60	58/65	-	-
30	1,1	0,32	90	75/90/100	1120/1300	-
43	2,4	1,0	98	90/100/120	1120/1300/1400	100
53	4,2	1,3	115	100/120/150	1400/1500	120
63	6,2	1,7	125	120/150/165/180	1500/1600	120
58	8,8	2,5	155	150/165/180	1600/1700/1800	152
68	11,5	4	160	150/165/180	1600/1700/1800	152/180
70	17	5,1	174	180/225	1800	-
72	21	5,1	170	180/225	1800	180
73	25	7,0	178	180/220/225/250	1800/1880	180
77	28	11	204	180/225/250	1880	180
79	34	-	204	-	-	200
80	33	13	215	225/250/285	1880/1900	-
83	40	18	250	250/285	1880	-
84	55	23	265	285	-	-
85	55	23	250	250/285/315	-	-
86	58	24	250	285/315	-	-
90	120	45	285	285/315/350	-	-
95	175	58	315	315/350/390	-	-
97	200	70	350	350/390/435	-	-
98	200	70	370	350/390/435	-	-

重型万向轴

轧机和工业设备应用中基于扭矩的万向轴。

Heavy Duty Cardan Shafts

Cardan shafts for torque- based applications in rolling mills and industrial plants.

型号 / Size	极限扭矩/ Limiting torque	交变扭矩/ Alternating torque	回转直径/ Swing diameter	法兰连接端面键 Flange connection Face key	法兰连接DIN Flange connection DIN
代码/ code no. 5XXX-	[kNm]	[kNm]	[mm]	[mm]	[mm]
82	55	23	225	225/250	225/250
86	105	36	250	250/285	285/315
90	150	53	285	285/315	315/350
95	215	75	315	315/350	350/390
97	260	100	350	350/390	390/435
98	260	100	370	350/390/435	390/435
S1	370	140	390	390/435	435
S2	600	225	435	435/480	480

技术附件

Technical Appendix

GEWES®

1. 基本信息

万向轴在空间偏移的输入和输出驱动器之间传递扭矩。主要元件是根据基本原理设计的。如果需要，输入和输出驱动器之间的距离和彼此的相对位置都可以在操作过程中改变。这样做时，必须遵守万向轴一般适用的技术规则。我们的万向轴可以完美地适应您的应用程序使用各种各样的选择。

我们特地为您提供咨询，以便您选择理想的万向轴。

1.1 运动学特性

万向节按运动规律工作。因此，必须考虑到旋转运动的不规则形式等特殊性。您可以从我们的技术部门获得更多的信息。

1.2 责任免责声明

如果仅根据目录数据选择万向轴，而不咨询我们的专业人员，则客户需要对自己的选择负责。在这种情况下，GEWES不对因客户的错误选择而造成的损害负责。

由于您作为客户了解我们产品的具体要求，因此您有责任审查我们根据您的规范起草的图纸和文件，以确保它们准确并适合预期用途。我们还参考了具体适用的标准和法规（例如造船;轨道车辆工程机械指南或VDI2230)。并注意您作为项目经理有责任遵守这些指南。

1.3 安全建议

旋转的万向轴可能会造成危险!使用者或操作人员必须遵守法定的安全规定，并采取适当的安全预防措施。如有必要，必须安装合适的安全夹和盖子。

要求遵守机械指南或ATEX要求!

当调试万向轴时，驱动器必须无负载且处于空挡位置。只有经过适当培训的员工才能进行安装、拆卸、维修和保养工作。在安装、拆卸和运输万向轴时，要注意运动部件可能翻倒或滑动分开。有受伤的危险!

万向传动中只能使用经特定用途批准的无故障部件。

请按照我们的安装和维护说明操作。

1. General Information

Cardan shafts transfer torque between spatially offset input and output drives. The main elements are designed according to the cardanic principle. If necessary, both the distance between the input and output drives and the position in relation to each other can be changed during operation. When doing so, the generally applicable rules of technology for cardan shafts must be adhered to. Our cardan shafts can be perfectly adapted to your application using a wide variety of options.

We expressly offer you a consultation so you can choose the ideal cardan shafts.

1.1 Kinematics

The universal joint works according to kinematic laws. Therefore, particularities like the irregular forms of the rotational movement must be taken into account. You can obtain further information from our technical department.

1.2 Liability Disclaimer

If cardan shafts are selected solely based on catalogue data, without consulting our experts, the customer is responsible for choosing the correct design. In this case, Gelenkwellenwerk Stadtilm GmbH is not liable for damage resulting from an incorrect selection.

Since you as the customer possess the knowledge of the specific requirements profiles of our products for your application, you are responsible for reviewing our drawings and documents, which we drafted according to your specifications, to ensure they are accurate and suitable for the intended purpose. We also refer to specifically applicable standards and sets of rules (e.g. shipbuilding; rail vehicle engineering, machine directives or VDI 2230) and note that you, as the project manager, are responsible for complying with them.

1.3 Safety Recommendations

Rotating cardan shafts can pose a risk! The user or operator must comply with statutory safety regulations and implement suitable safety precautions. If necessary, suitable safety clamps and covers must be installed.

Compliance with the machine directive or ATEX is required!

When working on cardan shafts, the drive must be load-free and in the neutral position. Only appropriately trained staff are permitted to perform installation, disassembly, repair and maintenance work. When installing, disassembling and transporting cardan shafts, be aware that the moving parts can tip over or slide apart. There is a risk of injury!

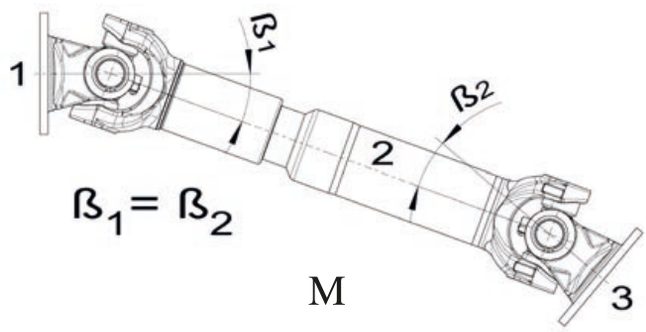
Only fault-free components approved for the specific use may be used in cardan drives.

Please follow our installation and maintenance instructions.

2. 万向轴结构

万向轴必须以这样一种方式配置，即两个万向节达到相同的偏转角度。此外，十字轴线和轴1、2和3的轴线必须在同一平面上。 (见图1)

M型和Z型的运动特性是相同的。



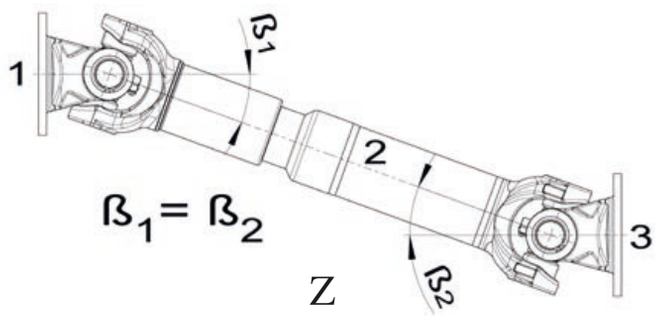


图1:M型 & Z型配置 | Figure 1: M- & Z-configuration

如果万向节在水平面和垂直平面上同时都有角度偏移，则可根据分量$ß_H$和$ß_V$ 计算得到实际偏转角度。

原则上，目标是在万向轴内实现相同的偏转角度。如果不能满足这一要求，则必须进行单独的检查，以确定是否可以接受其余不均匀性。

2. Cardan Shaft Configuration

Cardan shafts must be configured in such a manner that both joints reach the same deflection angle. In addition, both the interior journal axis and shafts 1, 2 and 3 must be on the same plane. (see figure 1)

The M and Z configurations are kinematically equivalent.

If a universal joint is simultaneously deflected on the horizontal plane and the vertical plane, the resulting spatial deflection angle can be calculated based on the components $ß_H$ and $ß_V$.

In principle, the objective is to achieve the same deflection angle within a cardan shaft. If this requirement cannot be met, a separate examination must be performed to determine whether the remaining non-uniformity can be accepted with respect to the application.

3. 选择万向轴

万向轴的使用有各种各样的选择。所以不能根据选型的一般适用规范来对万向轴的尺寸或使用寿命进行完全准确的判断。.

原则上，在选择万向轴尺寸时，应确保操作参数与相应万向轴尺寸的特征值之间有足够的安全余量。在选择时，还必须考虑偏转角、转速、安装位置和运行条件(运行方式、污染影响、温度等)等参数。

因此，请参考我们的技术调查问卷，可以到网址www.gewes.de上下载。

我们的产品专家在分析提供的数据后做出理想的选择。如果需要对耐久性、使用寿命等进行进一步的计算和确定，请联系您在GEWES的专门联系人。

3. Selecting Cardan Shafts

The various options for use of cardan shafts do not allow for generally applicable specifications regarding the selection of the cardan shaft size or a fully accurate specification of the service life.

In principle, when selecting the cardan shaft size, ensure there are adequate safety allowances between the operating parameters and the characteristic values of the corresponding cardan shaft size. Parameters like the deflection angle, speed, installation position and the operating conditions (operating mode, impact of contamination, temperature, etc.) must also be considered when making selections.

Please feel free to use our technical survey for this purpose. It can be downloaded at www.gewes.de .

Our product specialists make the ideal selection after analysing the provided data. If further calculations and determinations regarding durability, service life, etc. are required, please contact your dedicated contact person at GEWES.

3.1 基本用法说明

所有规定的和可计算的技术参数仅适用于万向轴作为一个独立的系统。不考虑整个系统的影响!

如果是应用的特殊情况需要，可以达到表格内给定的偏转角。然而，对于大多数技术应用来说，明显更小的偏转角是有意义的或是需要的。同时，应尽量避免偏转角度小于1°。

该目录还提供了产品标准范围的概述。可与客户协商，调整产品配置(长度补偿、管径、法兰连接、特殊法兰等)。

如果是这样的话，请联系您在GEWES的专门联系人。.

3.1 General Instructions

All specified and calculable technical parameters apply only to the cardan shaft as an independent system. Impacts from the overall system are not considered!

The deflection angles specified on the dimension sheets can be reached if special situations regarding your application require. However, a significantly smaller deflection angle makes sense or is required for most technical applications. However, deflection angles of less than 1° should be avoided.

The catalogue also provides an overview of the standard range of products. In consultation with the customer, the product configuration can be adapted (length compensation, tube diameter, flange connections, special flanges, etc.).

If that is the case, please contact your dedicated contact person at GEWES.

3.2 长度尺寸

万向轴的长度是根据要连接的总成确定的。此外，在操作过程中或出于组装目的，可能必须更改此长度。

要求/标准尺寸如下：

L_B	运行长度-万向轴运行时计划的实际长度
L_{Bmax}	运行时最大长度
L_{Bmin}	运行时最短长度
L_A	运行时最短长度
L_Z	长度补偿是万向轴在运行过程中伸长的距离
L_{Amax}	万向轴压缩长度; 不允许在此状态下工作!
L_{max}	万向轴的最大安装长度 万向轴不能再延长 $L_{max} = L_Z + L_{Amax}$
L_{min}	万向轴的最短安装长度 为最短延伸距离 Lmin = L_Z + 10 mm时的延伸长度

图示见图 2

3.2 Length Dimensions

The length of a cardan shaft is determined based on the assemblies to be connected. In addition, this length may have to be changed during operation or for assembly purposes.

The following dimensions are required/standard:

L_B	Operating length – actual length planned for the operation of the cardan shaft
L_{Bmax}	maximum length during operation
L_{Bmin}	shortest length during operation
L_A	Length compensation is the distance by which the cardan shaft is extended during operation
L_Z	compressed length of the cardan shaft; this cannot be further shortened Operation in this state is not permitted!
L_{Amax}	is the distance by which the cardan shaft is permitted to be extended during operation.
L_{max}	maximum installation length of the cardan shaft the cardan shaft must not be extended any further $L_{max} = L_Z + L_{Amax}$
L_{min}	shortest installation length of the cardan shaft is the extended length when extended by a minimum distance $L_{min} = L_Z$ + 10 mm

For illustration see figure 2

- 运行时万向轴的长度不得超过 L_{max} ; $L_{Bmax} < L_{max.}$
- 每个万向轴必须延长至少10毫米; $L_{Bmin} > L_{min}$
- 关于组装和轮廓配对的最佳可能重叠，Lz可以如下确定：:

型号	15	$L_Z = L_{Bmin}$ - 10 mm
型号	30	$L_Z = L_{Bmin}$ - 20 mm
型号	43 到 70	$L_Z = L_{Bmin}$ - 45 mm
型号	72 到 S2	$L_Z = L_{Bmin}$ - 50 mm

这些规范是参考值，必须对其适用性进行审查。如果您有任何问题，请联系您在GEWES的专门联络人。

- The length of the cardan shaft during operation must not exceed $L_{max;}$ $L_{Bmax} < L_{max}$.
- Each cardan shaft must be extended at least 10 mm; $L_{Bmin} > L_{min}$
- With respect to assembly and the best possible overlap of the profile pairing, L_z can be determined as follows:

Size	15	$L_Z = L_{Bmin}$ - 10 mm
Size	30	$L_Z = L_{Bmin}$ - 20 mm
Size	43 to 70	$L_Z = L_{Bmin}$ - 45 mm
Size	72 to S2	$L_Z = L_{Bmin}$ - 50 mm

These specifications are reference values, and their applicability must be reviewed. If you have any questions, please contact your dedicated point of contact at GEWES.

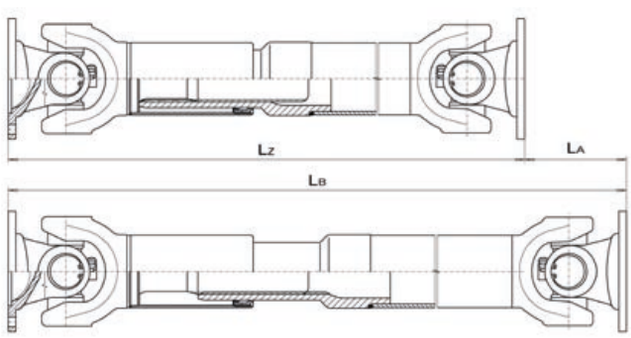


图2 | **Figure 2**

3.3 动平衡

万向轴是动态平衡的。在低速应用程序中，可能没有必要这样做。动态平衡使万向轴平稳运行，并将离心力作用在轴承点上的负载降至最低。

根据DIN ISO 21940 的要求，在各种质量水平下进行平衡过程 。表1提供了一个概述。

3.3 Balancing

Cardan shafts are balanced dynamically. At low speed applications it might not be necessary. The dynamic balancing results in the cardan shaft running smoothly and the load on the bearing points from centrifugal forces being reduced to a minimum.

The balancing process is performed at various quality levels according to DIN ISO 21940, based on the requirements. Table 1 provides an overview.

动平衡等级/ Balancing quality	应用条件	Service conditions
G 16	特殊条件下使用	Cardan shafts with special requirements
G 40	通常条件下使用	Cardan shafts for general use

表1 / Table 1

在特殊情况下，动平衡过程可按G6.3进行。如果您有任何问题 ，请联系您在GEWES的专门联络人。

In special circumstances, the balancing process can be performed for G 6.3. If you have any questions, please contact your dedicated point of contact at GEWES.

3.4 轴承使用寿命

万向轴中滚子轴承的使用寿命遵循滚子轴承理论的规律，并在很大程度上取决于负载和速度。润滑点也需要足够的润滑，这就是为什么必须遵守相应的维护间隔。

原则上，万向节轴承的使用寿命随着偏转角的增加而减少。另一方面，安装偏角最好不小于1°，以确保轴承中的润滑膜是足够的。

3.4 Bearing Service Life

The service life of the roller bearings in a cardan shaft follows the laws of roller bearing theory and is largely dependent upon the load and speed. Adequate lubrication of the bearing points is also required, which is why corresponding maintenance intervals must be adhered to.

In principle, the useful life of the joint bearings decreases as the deflection angle increases. On the other hand, it may not be less than 1° to ensure the lubricant film in the bearings is adequate.

3.5 扭矩 / 强度

目录扭矩

M_{dG}	**极限转矩** 在不损坏万向轴操作功能的情况下，能够在有限的时间内承受的扭矩。
M_{dW}	**疲劳扭矩** 万向轴在正反交变载荷下稳固使用的扭矩。
M_{dSchw}	**脉动疲劳扭矩** 万向轴在单向载荷下稳固使用的扭矩。 $M_{dSchw} = M_{dW} \cdot 1{,}45$

选择万向轴尺寸时，请确保包含足够的安全参数。必须确保任何操作状态都不会导致部件的静态或动态过载。

（对于某个型号）还必须注意的是，并非每个法兰型号的摩擦力都能传递目录内指定的扭矩。
如果存在荷载谱，则设计可以针对结构耐久性。

有关更多信息，请联系GEWES的专门联络人。

3.5 Torque/Strength

Catalogue torques

M_{dG}	**Limiting Torque** Torque that can be withstood, for a limited duration, without damaging the operational functionality of the cardan shaft.
M_{dW}	**Reversing fatigue torque** At this torque, the cardan shaft is fatigue-resistant under alternating loads.
M_{dSchw}	**Pulasting fatigue torque** At this torque, the cardan shaft is fatigue-resistant under pulsating loads. The continuous threshold torque can be calculated based on the continuously oscillating torque. $M_{dSchw} = M_{dW} \cdot 1.45$

When selecting a cardan shaft size, make sure to include adequate safety parameters. It must be ensured that no operating state results in a static or dynamic overload of the components.

It must also be noted that not every flange dimension can transfer the specified catalogue torque per frictional locking. If there is a load spectrum, the design can be geared toward structural durability.

Please contact your dedicated point of contact at GEWES for more information.

3.6 临界速度、平稳运行和振动

临界弯曲速度

每个万向轴都有一个临界弯曲速度，在操作过程中不得达到该速度。在该临界弯曲速度范围内的操作会导致振动，进而导致万向轴和连接组件的过早故障。它主要取决于两个接头之间的距离和管道的弯曲刚度。实际上，它还受到万向轴磨损状态的影响，特别是长度补偿的花键截面。

对于万向轴，假设连接部件具有足够的抗弯刚度，则临界弯曲速度可由下式计算:

$$n_k = 0{,}9 \cdot 10^8 \cdot \frac{\sqrt{D^2 + d^2}}{l^2}$$

D = 轴管外径[mm]
d = 内径 [mm]
l = 两个万向节的间距，或者万向节与中间支撑座直接的距离 [mm]

$$n_{max} = 0{,}8 \cdot n_k$$

万向轴的运行速度不应超过计算的临界弯曲速度的80%。在一定范围内，使用外径较大的管材可以提高万向轴的临界弯曲速度。在这些情况下，请务必咨询您在GEWES的专门联络人。

平稳运行

为了使万向轴平稳运行，必须使乘积nxβ保持在经验证明的阈值以下。在相应的高速度下，以尽可能小的偏转角获得有利的值。这样可以防止驱动系统中潜在的振动。

$$n \cdot \beta \leq \frac{36000}{\sqrt[6]{m}} \qquad oder\ /\ or \qquad n \cdot \beta \cdot \sqrt[6]{m} \leq 36000$$

振 动

由于万向节运动的特殊性，在操作万向轴时，预计会有一阶和二阶振动刺激。在设计整个系统或机器时，必须审查和考虑它们的影响。

3.6 Critical Speed, Smooth Operation and Vibrations

Critical Bending Speed

Each cardan shaft has a critical bending speed that must not be reached during operation. Operation in the range of this critical bending speed results in vibrations which, in turn, result in the premature failure of the cardan shaft and the connected assemblies. It is primarily dependent on the distance between the two joints and the flexural rigidity of the tube. Practically, it is also impacted by the wear state of the cardan shaft, in particular, the spline section of the length compensation.

For cardan shafts, assuming the connection components have adequate flexural rigidity, the critical bending speed can be calculated using the following formula:

D = outer diameter of tube [mm]
d = inner diameter of tube [mm]
l = distance between joint centers or from joint to support bearing [mm]

The operating speed of the cardan shafts should not exceed 80% of the calculated critical bending speed. The critical bending speed of the cardan shafts can be increased, within certain limits, by using tubes with larger outer diameters. In these cases, make sure to consult with your dedicated point of contact at GEWES.

Smooth Operation

For the smooth running of a cardan shaft, it is necessary that the product n x β remains below empirically proven thresholds. At correspondingly high speeds, favourable values are achieved with the smallest possible deflection angles. This prevents potential vibrations in the drive system.

Vibrations

Due to the kinematic particularities of the universal joint, vibration stimulations of the 1st and 2nd order are expected when operating cardan shafts. Their impact must be reviewed and considered when designing the overall system or machine.

3.7 连接承载力

由于万向轴的设计和运动特性，在运行过程中，力可能会影响连接的组件。这些力取决于几何形状、偏转角度和载荷。它们每次旋转发生两次，并且可以在一定程度上最小化。在设计驱动器时必须考虑这些力。

如果您有任何问题，请联系您在GEWES的专门联络人。

3.7 Connection Bearing Forces

Due to the design-related and kinematic particularities of a cardan shaft, forces can impact the connected assemblies during operation. These forces depend on the geometry, deflection angle and load. They occur twice per rotation and can be minimised to a certain extent. These forces must be considered when designing the drive.

If you have any questions, please contact your dedicated point of contact at GEWES.

3.8 万向轴选型举例

客户要求:

型号63; 具有长度补偿功能的万向轴;
大摆角设计 > **代码 46- 型号 63**
> L_Z=565mm L_A=110mm
DIN150 8 x Ø12mm 两侧法兰;
最大运行速度 n=1500 rpm

图号:

46XX-63-XX/XX x 0565-1,5 DIN150 8 x Ø12

3.8 Sample selection of a cardan shaft

Customer request:

Size 63; cardan shaft with length compensation;
wide-angle design > KZ 46- BR 63
> L_Z=565 mm L_A=110 mm
DIN150 8 x Ø12 mm flange on both sides;
max. operating speed n=1500 rpm

Drawing number:

46XX-63-XX/XX x 0565-1,5 DIN150 8 x Ø12

4. 万向轴的操作

4.1 动平衡

必要时，万向轴（动态）平衡，具有足够的精度，适合您的应用。

4.2 安装与装配

安装前存储

万向轴必须存放在干燥、封闭的房间中，放置在合适的框架内，彼此相邻(不要堆叠)，无论是横着放还是竖着放。它们必须得到充分的保护，防止倾倒或滚落。

跳动配套法兰

万向轴的连接法兰必须设计成无啮合。建议使用表中规定的定心公差以及同心度和轴向跳动偏差的允许值(见图3)。这能确保对万向轴的平稳运行和精确平衡的影响最小。

4 Operation of Cardan Shafts

4.1 Balancing

Cardan shafts, when necessary, are (dynamically) balanced with adequate accuracy for your application.

4.2 Installation and Assembly

Storage Prior to Installation

Cardan shafts must be stored in dry, closed rooms in suitable frames, next to each other (not stacked), either lying down or standing up. They must be adequately secured against falling over or rolling away.

Runout companion flanges

Connection flanges for cardan shafts must be designed to have no play. The tolerances for centring and the permissible values for the concentricity and axial runout deviation specified in the table are recommended (see figure 3). This ensures the impact on the smooth operation and precise balancing of the cardan shaft is minimal.

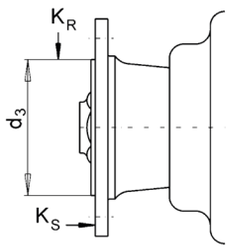


图 3 | Figure 3

万向轴速度 [转/分]	公差等级 d_3	径向偏移量	轴向偏移量
		Radial runout	Axial runout
Cardan shaft speed [rpm]	Fit for d_3	K_R [mm]	K_S [mm]
≤ 500	h8	0,15	0,18
500 ≤ 3000	h7	0,08	0,10
> 3000	h6	0,05	0,07

表 2 | Table 2

准备

在安装之前，万向轴法兰必须清洗，去除结块的防腐蚀剂、油或润滑脂，这样扭矩传递所需的粘接摩擦系数才不会降低。

出于运动学原因，请确保钢印在花键副两端的箭头标记彼此精确对齐。如果它们不在同一平面上，则内部叉头将不在同一平面上，这可能导致扭转振动和驱动元件过早失效。

相互连接的组件应对齐，以确保每个接头具有平滑操作所需的相同偏转角；参见2.万向轴结构

法兰螺栓连接

法兰螺栓连接推荐使用以下连接元件:

- 六角螺栓 ISO 4014-10.9（如果可能，使用半螺纹螺栓）
- 六角螺母ISO 7042-V-10（自锁）

为确保操作安全，法兰螺栓连接必须正确、仔细地拧紧。必须使用合适和足够精确的工具。

并非所有配置都可以在接头侧拧紧或插入螺栓。
表3中规定的拧紧扭矩仅供参考。它们适用于标准公制螺纹，并以螺栓屈服强度的90%利用率为基础，质量等级为10.9，适用于螺栓连接的轻度润滑状态。拧紧扭矩是根据VDI2230的一般适用规则确定的。这些值是参考值，必须由用户就其适用性进行审查。

紧固螺栓连接时，不得在螺栓和螺母上使用MoS2添加剂。

确保万向轴中心正确安装，并且法兰表面清洁！

按螺纹尺寸列出的拧紧力矩概述:

Preparation

Before installation, the cardan shaft flanges must be cleaned to remove caked-on corrosion protection agents, oils or greases so the adhesive friction coefficient required for the torque transfer is not reduced.

For kinematic reasons, ensure that the marking arrows embossed on the length equaliser are precisely aligned with each other. If they are not, the interior tappets will not be on the same plane which may result in torsional vibrations and premature failure of drive elements.

The assemblies to be connected with each other should be aligned to ensure each joint has the same deflection angle which is required for smooth operation; see 2. Cardan Shaft Configuration

Flange Bolt Connections

The following connection elements are recommended for the flange bolt connections:

- Hexagon bolt ISO 4014-10.9 (if possible, shortened thread length)
- Hexagon nut ISO 7042-V-10 (self-locking)

To ensure safe operation, the flange bolt connections must be properly and carefully tightened. Suitable and adequately precise tools must be used.

Tightening or a bolt insertion on the joint side is not possible for every configuration.
The tightening torques specified in table 3 are intended as a reference. They apply to standard metric threads and are based on a 90% utilisation of the yield strength of the bolts, with a quality level of 10.9, and apply to the slightly greased state of the bolt connection. The tightening torques were determined based on the generally applicable rules, according to VDI 2230. The values are reference values and must be reviewed by the user with respect to their applicability.

When tightening the bolt connection, no MoS2 additives may be used on the bolts and nuts.

Make sure the cardan shaft centrings fits properly and that the flange surface contact is clean!

Overview of tightening torques by thread size:

GW/Thread	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
M_A [Nm]	9	14	35	70	120	195	300	410	590	800	1000	1500	2000

表 3 | Table 3

4.3 维护

基本信息

万向轴的运动部件必须定期进行润滑，以清除旧的润滑剂和可能渗入接头的颗粒，并补充润滑剂储备。

在使用高压设备或蒸汽喷射清洁器进行潜在清洁后（遵循4.4中的附加说明），需要重新润滑。

请遵循我们的安装和维护说明。

执行维护

接头和长度补偿通过符合DIN71412的锥形润滑油嘴或符合DIN3404的法兰润滑油嘴进行润滑。如果接头上有两个相邻的润滑点，则只要通过一个润滑油嘴对其进行润滑即可。润滑前，必须清洁润滑油嘴。

润滑脂通过十字轴中的管路润滑到四个轴承。如果润滑做得到位，润滑油会从密封件中渗透出来。在润滑万向轴时，应避免压力撞击，以免损坏密封件。

在对采用花键连接的长度补偿型万向轴加润滑脂时，必须使用规定量的润滑剂进行润滑，以避免过大的液压力影响轴向运动。带Rilsan涂层和无润滑点的花键连接在整个使用寿命内都是免润滑的。

保养周期

万向轴的保养周期主要取决于使用条件。高于平均负载和速度或环境温度会导致润滑剂消耗更快。.

更严重的外部条件，如严重污染或水的影响，也需要更短的维护间隔。为了确保尽可能延长使用寿命，万向轴必须在固定的时间内重新润滑。

表4显示了这方面的一般指导值。

4.3 Maintenance

General Information

The moving parts of the cardan shafts must be regularly lubricated to remove used lubricant and particles that may have penetrated the joint and to supplement the lubricant reserve.

After a potential cleaning with high-pressure equipment or steam-jet cleaners (follow additional instructions under 4.4), relubrication is required.

Please also follow our installation and maintenance instructions.

Performing Maintenance

The joints and length compensation are lubricated via conical grease nipples in accordance with DIN 71412 or flange grease nipples in accordance with DIN 3404. If there are two adjacent lubrication points on a joint, lubricating it via one lubrication nipple is adequate. Before lubricating, the lubrication nipples must be cleaned.

The grease enters the four joint bearings via the ducts in the journal cross. If the relubrication is done properly, the lubricant will leak out through the seals. When lubricating the cardan shafts, avoid pressure shocks so the seals aren't damaged.

The splined shaft connection on the length compensation on cardan shafts must be lubricated with a defined quantity of lubricant so excess hydraulic forces do not impair the axial mobility. Splined shaft connections with Rilsan coating and without lubrication points are lubricated for the entire service life.

Maintenance Cycle

The maintenance intervals for the cardan shafts primarily depend on the usage conditions. Above-average loads and speeds or ambient temperatures result in the faster consumption of the lubricant.

More severe external conditions like severe contamination or impacts of water also require shorter maintenance intervals. To ensure the longest possible usage life, cardan shafts must be relubricated within fixed periods.

Table 4 shows general guideline values for this.

万向轴:	保养周期
机车领域 • 道路车辆 • 道路车辆和越野车 • 现场施工车辆和越野车	 50000 公里或 1 年 30000 公里或 1 年 10000 公里或 每累计行驶 250 小时
轨道交通	每累计行驶 3000小时或 6 个月
固定设备	每累计运行500 小时
移动式起重机	每累计运行500 小时
船舶推进驱动器	每累计行驶 1500小时或 6 个月

表 4

这些值可能因特殊使用条件而有所不同。

如果您有任何问题，请联系您在GEWES的专门联络人。

润滑剂
我们建议使用符合DIN 51502标准的KP 1-2 N-30 或 KP 2 N-20的带有EP添加剂的锂基润滑油，这适用于欧洲的气候条件。也可以采用符合KP 2 N-40或KP 3N-40规格的耐寒润滑油，在温度低于-40°C时仍可以正常使用。

原则上必须避免使用不同基质的润滑脂重新润滑，因为不能保证润滑脂是相容的。含有MoS2或其他固体润滑添加剂的润滑脂不能用于万向轴的轴承，因为它们会对轴承的功能产生负面影响。

4.4 服务

只能由有资质的专业人员对万向轴进行维修工作。

为防止损坏万向节轴承和密封件，不得在附近使用蒸汽喷射清洁器或高压清洁器进行清洁！确保保持足够的距离，以避免损坏这些万向轴部件。

Cardan shafts in:	Maintenance Cycle
Motor vehicles • on-road use • on-road and off-road use • construction site and off-road use	 50000 km or 1 year 30000 km or 1 year 10000 km or 250 operating hours
Rail vehicles	3000 operating hours or 6 months
Stationary systems	500 operating hours
Mobile cranes	500 operating hours
Ship propulsion drives	1500 operating hours or 6 months

Table 4

These values may vary for special usage conditions.

If you have any questions, please contact your dedicated point of contact at GEWES.

Lubricant
We recommend using lithium complex greases with the specification KP 1-2 N-30 or KP 2 N- 20 DIN 51502 with EP additives for the European climate or cold-resistant grease on the same basis with the specification KP 2 N- 40 or KP 3 N-40 for operating temperatures down to -40°C as the lubricant.

After relubricating with greases based on a different saponification, it must be avoided, in principle, because it cannot be guaranteed that the greases are compatible. Greases with MoS2 or other solid lubricant additives may not be used for the joint bearings because they have a negative impact on the functionality of the bearings.

4.4 Servicing

Servicing work may only be performed on cardan shafts by qualified specialists.

To prevent damage to the joint bearings and seals, no steam-jet cleaners or high-pressure cleaners may be used for cleaning in the immediate vicinity! Make sure to maintain adequate distance to rule out damage to these cardan shaft components.

備注

Notes

认证
Certifications

GEWES拥有德国质量管理体系认证机构DQS授予的以下认证证书：

GEWES holds certificates of DQS 'Deutsche Gesellschaft zur Zertifizierung von Qualitäts-managementsystemen mbH' according to:

ISO 9001 : 2015

IATF 16949 : 2016

ISO 14001 : 2015

ISO 50001 : 2018

CE
Ex II 2 G/D

符合标准声明

我们的产品符合以下规范:

欧盟认证：符合规章
2014/34/EU II 2G/2D (防爆)

Declaration of Conformity

Our products correspond to following guidelines:

EU Conformity according to directive
2014/34/EU II 2G/2D (ATEX)

特殊的验收测试

根据客户的要求，我们可以向有关船级社申请对相关项目的万向轴产品进行认证。

Special acceptance tests

On customer request, we will arrange acceptance of project-related cardan shaft products by a classification society.

DNV · KR KOREAN REGISTER · BUREAU VERITAS · ABS · DB · RINA · Lloyd's Register · ClassNK

GEWES®

OUR DRIVE IS YOUR DRIVELINE

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